
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

PRE-EFFECTIVE AMENDMENT NO. 1

to
FORM S-4

REGISTRATION STATEMENT

UNDER
THE SECURITIES ACT OF 1933

CIENA Corporation

(Exact name of registrant as specified in its charter)

Delaware
*(State or other jurisdiction of
incorporation or organization)*

3661
*(Primary Standard Industrial
Classification Code Number)*

23-2725311
*(I.R.S. Employer
Identification Number)*

1201 Winterson Road
Linthicum, MD 21090
(410) 865-8500
*(Address, including zip code, and telephone number,
including area code, of registrant's principal executive offices)*

Russell B. Stevenson, Jr.
Senior Vice President, General Counsel and Secretary
CIENA Corporation
1201 Winterson Road
Linthicum, MD 21090
(410) 865-8500
*(Name, address, including zip code, and telephone number,
including area code, of agent for service)*

Copies to:

Michael J. Silver
Amy Bowerman Freed
Thene M. Martin
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111 South Calvert Street
Baltimore, MD 21202
(410) 659-2700

Jodie M. Bourdet
Peter H. Werner
Cooley Godward LLP
One Maritime Plaza, 20th Floor
San Francisco, CA 94111
(415) 693-2000

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective and all other conditions to the merger contemplated by the Agreement and Plan of Merger dated as of February 18, 2004, as such agreement may be amended, described in the enclosed Prospectus have been satisfied or waived.

If the securities being registered on this Form are being offered in connection with the formation of a holding company and there is compliance with General Instruction G, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act of 1933 registration statement number of the earlier effective registration statement for the same offering. _____

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act of 1933, check the following box and list the Securities Act of 1933 registration statement number of the earlier effective registration statement for the same offering. _____

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this proxy statement/ prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This proxy statement/prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated March 25, 2004.



Dear Stockholders:

After careful consideration, the boards of directors of Catena Networks, Inc. and CIENA Corporation have approved the merger of Catena with CIENA. I am pleased to provide to you the enclosed proxy statement/ prospectus relating to a special meeting of the stockholders of Catena to be held on Thursday, April 29, 2004, at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada. At the special meeting, you will be asked to vote, in person or by proxy, on the proposed merger of Catena with CIENA and other related matters described below. All of these matters are described in more detail in the notice of special meeting immediately following this letter and the enclosed proxy statement/ prospectus.

The first item we are asking you to approve is the merger agreement itself. If the merger is consummated, each outstanding share of capital stock of Catena would be converted into the right to receive shares of CIENA common stock and each outstanding warrant and option to acquire Catena capital stock would become exercisable for shares of CIENA common stock. In the merger, CIENA would issue up to a total of approximately 75.9 million shares of CIENA common stock. These shares would be allocated between Catena's outstanding shares of capital stock and outstanding warrants and options to purchase Catena capital stock as described in the enclosed proxy statement/ prospectus. CIENA common stock is traded on the Nasdaq National Market under the symbol "CIEN." The closing price for CIENA common stock reported on the Nasdaq National Market on March 24, 2004 was \$4.75 per share. Following the merger, based on 476,807,751 outstanding shares of CIENA common stock as of March 24, 2004, and assuming all of the Catena stock options and warrants have been exercised, Catena stockholders would own approximately 13.2% of the combined company and CIENA stockholders would own approximately 86.8% of the combined company (including shares that may be issued to former stockholders of Internet Photonics, Inc., which CIENA is proposing to acquire in a separate merger agreement announced by CIENA on February 19, 2004).

We are also asking you to approve a proposed amendment and restatement of our certificate of incorporation. As described in the enclosed proxy statement/ prospectus, the distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger proceeds were allocated in accordance with the liquidation provisions of our certificate of incorporation. In order to effect the distribution of merger proceeds as described in our merger agreement with CIENA and to complete the merger, our certificate of incorporation must be amended to provide that the merger with CIENA is not an "Acquisition" or "Asset Transfer" that would trigger the application of these liquidation provisions. The amended and restated certificate of incorporation would be filed and become effective immediately prior to the merger.

In addition, we are asking you to approve certain benefits provided to one of our U.S. executive officers. In connection with the merger, CIENA and Catena agreed to cause all Catena options held by each of our officers to vest (i.e., become exercisable) in full if his or her employment is terminated by CIENA or Catena without cause, or if the officer terminates his or her employment for good reason, at any time. In the event of such termination, an officer also would receive a severance payment equal to six months of his or her base salary and continuation or subsidization of his or her medical benefits for the six months following termination of employment. If granted to officers that are U.S. taxpayers, such acceleration of vesting and severance benefits may result in the imposition of an excise tax on such officers and a denial of a U.S. federal income tax deduction for Catena or CIENA, as Catena's successor, with respect to such payments unless such payments are approved by the Catena stockholders. We are seeking your approval for such acceleration of vesting and severance benefits so that one of our U.S. executive officers potentially subject to such excise tax may receive the same severance payments as our other executive officers.

Further, we are asking that you specifically grant our board of directors the discretionary authority to postpone or adjourn the special meeting of stockholders if needed to obtain the necessary votes to approve the matters described above.

Our board of directors has carefully reviewed and considered the terms of the merger and the merger agreement, including the distribution of proceeds and officer benefits provisions described above, and has concluded that the terms are fair to, and in the best interests of, Catena and its stockholders. Catena's board of directors recommends that you vote "FOR" approval and adoption of the merger agreement, "FOR" approval and adoption of the amendment and restatement of Catena's certificate of incorporation, "FOR" approval of the executive officer benefits and "FOR" the grant of discretionary authority to postpone or adjourn the meeting.

Your vote is very important. Whether or not you plan to attend the special meeting, please take the time to vote by promptly completing and mailing the enclosed proxy card in the postage-paid envelope provided. **Before you vote, please review the enclosed proxy statement/ prospectus and in particular review the matters referred to under "Risk Factors" starting on page 10.**

Finally, this letter, together with the enclosed proxy statement/prospectus, constitutes the notice of actions taken by our stockholders that we are required to provide under Section 228(e) of the Delaware General Corporation Law to stockholders that did not consent to such actions. First, we recently amended our certificate of incorporation (i) to prohibit holders of our preferred stock from voluntarily converting their shares into shares of our voting common stock prior to July 31, 2004 and (ii) to prohibit the automatic conversion of various series of our preferred stock into voting common stock prior to July 31, 2004, based on group elections by the holders of the various series of preferred stock. The amendment was approved by our board of directors on February 17, 2004, and by our stockholders by written consent effective February 17, 2004. Second, by written consent effective March 4, 2004, our stockholders granted our board of directors discretionary authority to declare, in total, a cash dividend to holders of our preferred stock of up to \$10 million.

On Behalf of the Board of Directors of Catena,

A handwritten signature in black ink, appearing to read 'G.A. Henderson'.

Gudmundur ("Jim") Hjartarson
President and Chief Executive Officer

Prospectus dated March 25, 2004

First mailed to stockholders on or about March 29, 2004

Neither the Securities and Exchange Commission nor any state securities regulator has approved or disapproved of these securities or passed upon the adequacy or accuracy of this proxy statement/ prospectus. Any representation to the contrary is a criminal offense.

CATENA NETWORKS, INC.

307 Legget Drive
Kanata, Ontario K2K 3C8

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS

TO BE HELD ON APRIL 29, 2004

To the stockholders of Catena:

A special meeting of the stockholders of Catena Networks, Inc., a Delaware corporation, will be held at the offices of Catena Networks, Inc., 307 Legget Drive, Kanata, Ontario, Canada on Thursday, April 29, 2004 at 8:00 a.m., local time, for the following purposes:

1. To approve and adopt the Agreement and Plan of Merger, dated as of February 18, 2004, as amended, by and among CIENA Corporation, Catena Networks, Inc. and certain officers of Catena pursuant to which Catena will be merged with and into CIENA, with CIENA being the surviving corporation. A copy of the Agreement and Plan of Merger, as amended (the "merger agreement"), is attached as Annex A to the proxy statement/ prospectus accompanying this notice;

2. To approve and adopt the amendment and restatement of Catena's certificate of incorporation to provide that the merger of Catena into CIENA is not an "Acquisition" or "Asset Transfer" of Catena that would be treated as a "liquidation" of Catena as defined therein;

3. To approve the payments to Gary Bolton (the "disqualified individual") of amounts that would otherwise result in "parachute payments" under Section 280G of the Internal Revenue Code of 1986 (the "Tax Code");

4. To grant discretionary authority to the Catena board of directors to adjourn or postpone the Catena special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary; and

5. To consider and act upon any other matter that may properly come before the special meeting.

This proxy statement/ prospectus and the accompanying proxy card are being furnished to the stockholders of Catena in connection with the solicitation of proxies by Catena's board of directors for use at the special meeting of stockholders.

Catena's board of directors has approved the merger agreement and the amendment and restatement of Catena's certificate of incorporation and unanimously recommends that you vote **"FOR"** approval and adoption of the merger agreement, **"FOR"** the amendment and restatement of Catena's certificate of incorporation, **"FOR"** the payments that would otherwise result in "parachute payments" to the "disqualified individual" and **"FOR"** the grant of discretionary authority to adjourn the special meeting. The proposals are described in more detail in the accompanying proxy statement/ prospectus, which you should read in its entirety before voting.

The board of directors has fixed the close of business on March 25, 2004 as the record date for determining the stockholders entitled to receive this notice, and to vote their shares at the special meeting or any adjournment or postponement of the special meeting. Only holders of record of voting common stock and series A, series A-1, series AA, series AA-1, series B, series BB, series C, series CC, series D and series DD preferred stock (the "voting preferred stock") will be entitled to vote at the special meeting and any adjournment or postponement of the special meeting. Holders of non-voting common stock and series B-1, series BB-1, series C-1, series CC-1, series D-1 and series DD-1 preferred stock will not be entitled to vote at the special meeting. Holders of all classes and series of Catena's common stock and preferred stock are entitled to notice of the matters proposed to be voted on at the special meeting. As of the record date, there were (i) 9,371,695 shares of voting common stock outstanding, (ii) 10,100,000 shares of series A preferred stock outstanding, (iii) 440,000 shares of series A-1 preferred stock outstanding, (iv) 7,677,856 shares of series B preferred stock outstanding, (v) 7,514,978 shares of series C preferred stock outstanding, and (vi) 61,982,888 shares of series D preferred stock outstanding. As of the record date, no shares of series AA, series AA-1, series BB, series BB-1, series CC, series CC-1, series D-1, series DD or series DD-1 were issued and outstanding. A complete list of stockholders entitled to vote at the special meeting will be available for examination by Catena stockholders at the company's

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principal executive office for purposes pertaining to the special meeting, during normal business hours for a period of 10 days prior to the special meeting, and at the time and place of the special meeting.

The board of directors has designated the two persons named on the enclosed proxy card, Gudmundur Hjartarson and Kevin Forbes, to serve as proxies in connection with the special meeting. All properly executed proxy cards will be voted (except to the extent that authority to vote has been withheld), and where a choice has been specified by the stockholder as provided in the proxy card, it will be voted in accordance with the specifications on the proxy card. If you sign and send in your proxy card and do not indicate how you want to vote, it will be voted in favor of the approval and adoption of the merger agreement, the approval and adoption of the amendment and restatement of Catena's certificate of incorporation, the approval of the payments that would otherwise result in "parachute payments" and the other proposals. You may revoke a proxy prior to its execution by giving written notice to Kevin Forbes, the Secretary of Catena, by submission of another proxy bearing a later date, or by voting in person at the special meeting. Such notice or later dated proxy will not affect a vote on any matter taken prior to the receipt of the proxy revocation by Catena. Abstentions from voting identified as such on the proxy card are treated as present or represented for purposes of determining the presence or absence of a quorum at the special meeting. However, abstentions as to a proposal will have the same effect as votes against that proposal.

The proxy statement/ prospectus materials are being mailed on or about March 29, 2004 to holders of record of Catena's capital stock as of March 25, 2004. The principal executive office and mailing address of Catena is at 307 Legget Drive, Kanata, Ontario K2K 3C8.

WHETHER OR NOT YOU PLAN TO ATTEND THE SPECIAL MEETING, PLEASE SIGN, DATE AND PROMPTLY RETURN THE ENCLOSED PROXY CARD, WHICH YOU MAY REVOKE AT ANY TIME PRIOR TO ITS USE. **PROMPTLY SIGNING AND RETURNING YOUR PROXY CARD WILL HELP ENSURE THE PRESENCE OF A QUORUM FOR THE SPECIAL MEETING.** A postage-paid, self-addressed envelope is enclosed for your convenience. Your shares will be voted at the special meeting in accordance with your proxy.

By Order of the Board of Directors of Catena,



Gudmundur ("Jim") Hjartarson
President and Chief Executive Officer

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This proxy statement/ prospectus incorporates important business and financial information about CIENA from documents that it has filed with the Securities and Exchange Commission but that have not been included in or delivered with this proxy statement/ prospectus. For a listing of documents incorporated by reference into this proxy statement/ prospectus, please see the section entitled “Where You Can Find More Information” beginning on page 77 of this proxy statement/ prospectus.

CIENA will provide you with copies of this information, without charge, upon written or oral request to:

CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090
Attention: Investor Relations
Telephone Number: (410) 865-8500

In addition, you may obtain copies of this information by sending an e-mail to ir@ciena.com.

In order for you to receive timely delivery of the documents in advance of the special meeting, CIENA should receive your request no later than April 22, 2004.

QUESTIONS AND ANSWERS ABOUT THE MERGER

Q: When and where will the special meeting take place?

A: The special meeting will be held on Thursday, April 29, 2004 at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada.

Q: What do I need to do now?

A: You should carefully read and consider the information contained in this proxy statement/ prospectus. You should then complete and sign your proxy card and return it in the enclosed return envelope as soon as possible so that your shares will be represented at Catena's special meeting. If you sign, date and mail your proxy card without identifying how you want to vote, your proxy will be voted **"FOR"** the merger, **"FOR"** the amendment and restatement of Catena's certificate of incorporation, **"FOR"** the approval of the payments that would otherwise result in "parachute payments" and **"FOR"** the grant of discretionary authority to adjourn the special meeting. If you do not vote, it will have the same effect as a vote **"AGAINST"** the proposals. You may also vote by appearing at the special meeting and voting in person.

Q: Who must approve the merger?

A: In addition to the approvals of the boards of directors of CIENA and Catena, which have already been obtained, the following approvals of the stockholders of Catena must be obtained:

- holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;
- holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and
- holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three stockholders each beneficially owning at least 400,000 shares of Catena's capital stock (on an as-converted into common stock basis), each of whom must not be an "affiliate" of Catena as such term is defined under the federal securities laws (those stockholders are referred to as "unaffiliated investors" throughout this proxy statement/ prospectus).

Q: Who must approve the amendment and restatement of Catena's certificate of incorporation?

A: In addition to the approval of the board of directors of Catena, which has already been obtained, the following approvals of the stockholders of Catena must be obtained:

- holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;
- holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis;
- holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors; and
- holders of at least 70% of Catena's series C preferred stock.

Q: Does the merger depend upon approval of the amendment and restatement of Catena's certificate of incorporation?

A: Yes. Because the distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger proceeds were allocated in accordance with the liquidation provisions of Catena's existing certificate of incorporation, Catena's stockholders must approve the amendment and restatement of Catena's certificate of incorporation to provide that the merger will not trigger the application of these provisions.

Q: Who must approve the benefits to the disqualified individual?

A: Holders of more than 75% of Catena's outstanding stock, considered on an as-converted into common stock basis, excluding

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shares held by the disqualified individual, must approve the payment of amounts that would otherwise result in an excise tax being imposed on the disqualified individual. However, approval of the benefits to the disqualified individual is not a condition to the consummation of the merger.

Q: Can I change my vote after I mail my signed proxy?

A: Yes. You can change your vote at any time before your proxy is voted at the special meeting of Catena's stockholders. You can do this in one of three ways. First, you can send a written notice stating that you would like to revoke your proxy. Second, you can complete and submit a new proxy. If you choose either of these two methods, you must submit your notice of revocation or your new proxy at the address on page 16. Third, you can attend the special meeting of stockholders and vote in person. Your attendance alone will not revoke your proxy.

Q: Should I send in my certificates now?

A: **No, you should not send in your stock certificates with your proxy.** You will receive instructions for exchanging your stock certificates if the merger is consummated.

Q: Who can help answer my questions?

A: If you have any questions about the merger, how to vote or revoke your proxy, or if you need additional copies of this proxy statement/ prospectus or the enclosed proxy, you should contact Kevin Forbes, Catena's Secretary, at (613) 591-7838.

SUMMARY

This summary highlights selected information from this proxy statement/ prospectus. It does not contain all of the information that is important to you. You should carefully read this proxy statement/ prospectus and the other documents incorporated by reference into this proxy statement/ prospectus. See “Where You Can Find More Information” on page 78. In this proxy statement/ prospectus, “we,” “us” and “our” may refer to either CIENA or Catena, depending on the context in which they are used, and “you” and “your” refer to stockholders of Catena.

The Companies (page 60)

CIENA Corporation

1201 Winterson Road
Linthicum, Maryland 21090
(410) 865-8500

CIENA is a leader in innovative networking solutions to service providers and enterprises worldwide. CIENA’s customers include long-distance carriers, local exchange carriers, Internet service providers, wireless and wholesale carriers, systems integrators, large businesses and governmental and non-profit institutions. CIENA offers network solutions that enable service providers to provision, manage and deliver economic, high-bandwidth services to their customers. On February 19, 2004, CIENA announced an agreement to acquire Internet Photonics, Inc., a private provider of carrier grade optical Ethernet transport and switching solutions. CIENA expects to issue approximately 24.1 million shares of common stock in that acquisition.

Catena Networks, Inc.

307 Legget Drive
Kanata, Ontario K2K 3C8, Canada
(613) 599-6430

Catena’s integrated broadband access solutions enable service providers to profitably deliver voice, data and video services and smoothly migrate to packet-based networks. These solutions include the Catena CNX-5 Broadband DSL System, the Catena CN1000 Broadband Loop Carrier, and the Catena CN1000FX Fiber-to-the-X solution suite.

Vote Required for the Merger and Other Proposals (page 13)

Under Delaware law and Catena’s certificate of incorporation, the following stockholder approvals are required to approve the merger:

- holders of a majority of Catena’s common stock entitled to vote at any annual or special meeting of Catena stockholders;
- holders of a majority of Catena’s common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and
- holders of a majority of Catena’s voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors.

Under Delaware law and Catena’s certificate of incorporation, the following stockholder approvals are required to approve the amendment and restatement of Catena’s certificate of incorporation:

- holders of a majority of Catena’s common stock entitled to vote at any annual or special meeting of Catena stockholders;
- holders of a majority of Catena’s common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis;
- holders of a majority of Catena’s voting preferred stock, voting together as a single class on an as-converted into common stock basis, including at least three unaffiliated investors; and
- holders of at least 70% of Catena’s series C preferred stock.

Holders of more than 75% of Catena’s outstanding stock, considered on an as-converted into common stock basis, excluding shares held by the disqualified individual, must approve the payment of amounts that would otherwise result in an excise tax being imposed on the disqualified individual, and the approval of the holders of a majority of Catena’s outstanding stock, considered on an as-converted into common stock basis, is required to grant the discretionary authority to Catena’s board of directors to adjourn or postpone the special

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meeting to solicit additional votes to approve the matters considered at the special meeting.

There were 9,371,695 shares of Catena voting common stock and 87,715,722 shares of Catena voting preferred stock, comprised of 10,100,000 shares of Catena series A preferred stock, 440,000 shares of Catena series A-1 preferred stock, 7,677,856 shares of Catena series B preferred stock, 7,514,978 shares of Catena series C preferred stock, and 61,982,888 shares of Catena series D preferred stock, outstanding as of the record date. Each holder of Catena common stock is entitled to one vote per share and each holder of Catena preferred stock is entitled to one vote for each full share of common stock into which its shares of preferred stock would be convertible (assuming such shares are then convertible into common stock).

CIENA and the directors and officers of Catena, including stockholders affiliated with the directors and officers, entered into agreements under which such stockholders agreed to vote their shares in favor of the merger and approval of the merger agreement and in favor of the amendment and restatement of Catena's certificate of incorporation. As of the record date, these directors, officers and other stockholders held the following numbers of Catena shares:

- 6,155,675 shares of voting common stock, representing approximately 66% of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;
- 63,112,858 shares of voting common stock and voting preferred stock considered on an as-converted into common stock basis, representing approximately 57% of Catena's common stock and preferred stock entitled to vote at any annual or special meeting of Catena stockholders, on an as-converted into common stock basis;
- 56,957,183 shares of voting preferred stock considered on an as-converted into common stock basis, representing approximately 56% of Catena's voting preferred stock, on an as-converted basis, and 54% of the series C preferred stock.

Grant of Options to CIENA (page 51)

Catena officers, directors and affiliates of such directors and officers, owning in the aggregate 6,155,675 shares of Catena voting common stock, representing approximately 66% of the outstanding Catena voting common stock as of the record date, and 56,957,183 shares of Catena voting preferred stock, representing approximately 56% of the outstanding voting preferred stock as of the record date, have granted to CIENA options to purchase their Catena shares, subject to the limitation that CIENA cannot purchase more than 45% in the aggregate of Catena's outstanding capital stock pursuant to the exercise of such options. The options are exercisable under several circumstances, including those when Catena is required to pay CIENA the \$14.5 million termination fee provided for under the merger agreement. CIENA required these stockholders to deliver the options as a condition to CIENA's willingness to enter into the merger agreement. Although the number of shares of Catena capital stock subject to the options is not sufficient to ensure the approval of the merger with CIENA, if the options are exercised following receipt of a competing offer to purchase the capital stock of Catena, CIENA's consent may be necessary to complete the closing of that alternative transaction.

The Merger (page 18)

The merger agreement provides that Catena will merge with and into CIENA and CIENA will be the surviving company.

The merger agreement, as amended, is included as Annex A to this proxy statement/prospectus. It is the legal document that governs the merger.

Recommendation of Catena's Board of Directors and Reasons for the Merger (page 24)

The Catena board of directors has determined that the merger is advisable and in the best interests of Catena and its stockholders, as well as the proposed amendment and restatement of Catena's certificate of incorporation and the proposed approval of "parachute payments" to the disqualified individuals. The Catena board of directors recommends that Catena stockholders vote "**FOR**" the proposal to approve and adopt the merger agreement and each of the other proposals.

See "The Merger — Recommendation of Catena's Board of Directors and Reasons for the Merger" for the reasons supporting the Catena board of directors' recommendations.

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What you will receive in the Merger (page 37)

In the merger, you will receive CIENA common stock for each share of Catena common stock or preferred stock that you own. In the case of Catena common stock, each share is exchangeable for 0.493 shares of CIENA common stock. In the case of Catena preferred stock, the number of shares of CIENA common stock exchangeable for each share of Catena preferred stock is determined by application of the formulas set forth under “Terms of the Merger Agreement and Related Transactions — Treatment of Stock, Options and Warrants.” These formulas generally provide that holders of Catena preferred stock are entitled to the number of shares of CIENA common stock that such holder would receive if the merger were an “Acquisition” or “Asset Transfer” under Catena’s current certificate of incorporation (including by conversion of preferred stock into common stock to the extent the holder would receive more shares by doing so, disregarding for this purpose the fact that the stock is not currently convertible and the fixed exchange ratio for the Catena common stock), with this number of shares adjusted upward or downward ratably among holders of Catena preferred stock, depending on the extent to which holders of Catena common stock receive more or less consideration in the merger than they would have received were the merger to be treated as an “Acquisition” or “Asset Transfer” of Catena under Catena’s current certificate of incorporation. Accordingly, the number of shares each holder of Catena preferred stock will receive in the merger will depend on the value of CIENA’s common stock at the closing of the merger. The number of shares of CIENA common stock to be received for each share of Catena preferred stock also is subject to adjustment in the event that Catena’s fully-diluted outstanding capital stock changes due to option issuances, stock repurchases and similar events. In addition, the number of shares to be received by each Catena stockholder is subject to adjustment for stock splits, combinations and the like that may occur before the closing of the merger.

The following table illustrates the number of shares of CIENA common stock a holder of Catena preferred stock would be entitled to receive per share under the merger agreement at various hypothetical average closing prices of CIENA’s common stock calculated in accordance with Catena’s existing certificate of incorporation (“illustrative average closing prices”) assuming the total number of shares of Catena capital stock outstanding on a fully-diluted basis on the day the merger is completed is 130,308,407, which was the number of shares of capital stock outstanding on a fully-diluted basis on the record date. “Fully-diluted basis” means that all outstanding options and warrants are exercised and that all outstanding preferred stock is converted into common stock based on the then-effective conversion rates of the preferred stock. Under Catena’s existing certificate of incorporation the value of each share of CIENA common stock issuable to Catena stockholders in the merger equals the average closing price of one share of CIENA’s common stock over the 30 days ending three days prior to the closing of the merger.

	Illustrative Average Closing Price(1)			
	\$ 4.19	\$ 5.63	\$ 6.28	\$ 8.14
Exchange Ratio of CIENA Common Stock for Catena Series A and AA Preferred Stock	0.325	0.450	0.465	0.501
Exchange Ratio of CIENA Common Stock for Catena Series A-1 and AA-1 Preferred Stock	0.575	0.771	0.710	0.567
Exchange Ratio of CIENA Common Stock for Catena Series B, BB, B-1 and BB-1 Preferred Stock	1.130	1.357	1.322	1.258
Exchange Ratio of CIENA Common Stock for Catena Series C, CC, C-1 and CC-1 Preferred Stock	2.092	2.232	2.131	1.882
Exchange Ratio of CIENA Common Stock for Catena Series D, DD, D-1 and DD-1 Preferred Stock	0.521	0.450	0.465	0.501

- (1) The hypothetical values chosen in the foregoing table as illustrative average closing prices reflect the high and low sales prices of CIENA’s common stock on the Nasdaq National Market for the 52 weeks and three months ended February 18, 2004, and the closing price of CIENA’s common stock on the Nasdaq National Market on February 18, 2004.

You will receive cash for any fractional share of CIENA common stock that you would otherwise receive in the merger.

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Following the merger, based on 475,254,814 outstanding shares of CIENA common stock as of March 17, 2004, and assuming all of Catena's stock options and warrants have been exercised, Catena stockholders would own approximately 13.2% of the combined company and CIENA stockholders would own approximately 86.8% of the combined company (including shares that may be issued to former stockholders of Internet Photonics, Inc., which CIENA is proposing to acquire in a separate merger agreement announced by CIENA on February 19, 2004).

Please do not send your stock certificates at this time.

Treatment of Options and Warrants (page 37)

CIENA will assume each option or warrant to acquire Catena common stock and preferred stock granted under Catena's stock plans or otherwise issued by Catena and that is outstanding and unexercised immediately prior to the effective time of the merger. At the effective time of the merger, CIENA will replace Catena's options and warrants with options or warrants, respectively, to purchase CIENA common stock, in each case, adjusting the number of shares issuable upon exercise and the exercise price of such option or warrant to reflect the exchange ratio in the merger applicable to the Catena common or preferred stock underlying such Catena option or warrant. The duration and other terms of each such CIENA option or warrant, including the vesting schedule, will be the same as the prior Catena stock option or warrant.

Total Consideration CIENA Will Pay (page 37)

In the merger, CIENA would issue a total of up to approximately 75.9 million shares of CIENA common stock to be allocated between Catena's outstanding shares of capital stock and outstanding warrants and options to purchase Catena capital stock. Based on the closing price of CIENA's common stock on March 24, 2004, these shares would have an aggregate market value of approximately \$360.5 million.

Appraisal Rights of Dissenting Stockholders (page 35)

If you object to the merger, Delaware law permits you to seek relief as a dissenting stockholder and have the "fair value" of your shares of Catena common stock and Catena preferred stock determined by a court and paid to you in cash.

If you are a Catena stockholder and wish to dissent, you must deliver to Catena, prior to the vote on the merger at the special meeting, a written demand for appraisal of your shares. You also must not vote in favor of the merger agreement. To not vote in favor of the merger agreement, you can either:

- vote "no" in person at the special meeting or by proxy;
- abstain from voting;
- fail to vote; or
- if you returned a duly executed proxy, revoke your proxy prior to the special meeting.

Beneficial owners of Catena common stock or Catena preferred stock whose shares are held of record by another person, such as a bank, broker or nominee, and who wish to seek appraisal, should instruct the record holder to follow the appraisal procedures of Delaware law. The relevant provisions of Delaware law are technical in nature and complex. If you wish to exercise appraisal rights and obtain appraisal of the fair value of your shares, you may wish to consult with legal counsel, because the failure to comply strictly with these provisions may result in waiver or forfeiture of your appraisal rights.

A copy of the relevant section of Delaware law governing this process is attached as Annex B to this proxy statement/prospectus.

Indemnification and Escrow Arrangement (page 45)

If the merger occurs, all holders of Catena capital stock who have not elected the appraisal rights described above will be obligated to indemnify CIENA and its affiliates against losses due to, among other things, the breach or inaccuracy of any of Catena's representations and warranties made in the merger agreement. This obligation is limited to 10% of the total number of shares of CIENA common stock issued in the merger to holders of outstanding Catena capital stock. An escrow arrangement will be established at closing to hold these shares. Gary Morgenthaler, who is affiliated with Morgenthaler Ventures, Catena's largest stockholder, will serve as stockholders' representative on behalf of all former Catena

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stockholders. In general, the escrow and indemnification obligations will end one year after closing. At that time, the escrowed shares will be released to the former Catena stockholders, reduced by any amounts paid or reserved for claims made by CIENA. Catena stockholders will also contribute a total of 40,128 shares of CIENA common stock to the escrow fund to pay the expenses of the stockholders' representative if Catena's other transaction expenses, together with the expenses of the stockholders' representative, exceed \$7 million. These shares had a market value of approximately \$191,000 based on the closing price of CIENA's common stock on March 24, 2004. See "Terms of the Merger Agreement and Related Transactions — Indemnification and Escrow Arrangement."

Consequently, in some circumstances you could be required to forfeit to CIENA some of the CIENA common stock you would otherwise receive in the merger.

CIENA has also agreed to indemnify the former Catena stockholders against losses due to, among other things, the breach or inaccuracy of CIENA's representations and warranties contained in the merger agreement. CIENA's obligation is limited to the value of the total number of shares CIENA is issuing in the merger as of the closing.

What is Needed to Complete the Merger (page 47)

Several conditions must be satisfied before the merger will be completed. These include:

- adoption of the merger agreement by the Catena stockholders as described above;
- approval of the amendment and restatement of Catena's certificate of incorporation; and
- other customary contractual conditions set forth in the merger agreement, including a condition that CIENA's stock price will be at a certain minimum level at the time the Catena stockholder vote is obtained.

If the law permits, CIENA or Catena may each waive conditions for the their benefit and their stockholders' benefit and complete the merger even though one or more of these conditions has not been met. Catena's stockholder approval cannot be waived. We cannot assure you that the conditions will be satisfied or waived or that the merger will occur.

Termination of the Merger Agreement (page 48)

CIENA and Catena may mutually agree at any time to terminate the merger agreement without completing the merger, even if the Catena stockholders have approved it. Either party (so long as it has not materially breached the merger agreement in a manner that caused the merger not to be consummated or caused the failure to obtain stockholder approval) may terminate the merger if:

- the merger has not been consummated by July 31, 2004; or
- Catena stockholders do not approve the merger.

In addition, either CIENA or Catena may terminate the merger agreement if:

- a court or other governmental authority of competent jurisdiction permanently enjoins the merger from occurring; or
- the terminating party is not in material breach of its obligations, and the other party has breached its obligations, or the representations and warranties of the other party are inaccurate, in either case such that the terminating party's conditions to closing will not be fulfilled, if such breach or inaccuracy is not cured within ten days after notice.

Catena may terminate the merger agreement prior to obtaining stockholder approval, so long as it has not materially breached the merger agreement, if:

- the Catena board of directors determines to enter into an alternative transaction that it views as superior to the merger;
- CIENA does not match the offer made in the other transaction; and
- Catena pays to CIENA the \$14.5 million termination fee described below.

CIENA may also terminate the merger agreement if Catena's board of directors withdraws, modifies or amends, in any respect adverse to CIENA, its recommendation in favor of the merger and the adoption of the amendment and restatement of Catena's certificate of incorporation or determines to pursue another transaction it considers superior. Catena has agreed to pay CIENA a termination fee of approximately \$14.5 million if the merger

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agreement is terminated under either of these circumstances and specified other circumstances if a third party has made an offer to acquire Catena.

Amendment and Restatement of Catena's Certificate of Incorporation (page 52)

Catena's board of directors has determined that the CIENA stock to be issued as consideration in connection with the merger should be distributed in a manner that differs from the results that would be obtained under the existing certificate of incorporation of Catena if the merger were treated as an "Acquisition" or "Asset Transfer" resulting in the "liquidation" of Catena. Accordingly, Catena's board of directors has approved, subject to stockholder approval, the amendment and restatement of Catena's certificate of incorporation to exclude the merger from the application of certain provisions in Catena's certificate of incorporation that would treat the merger as an "Acquisition" or "Asset Transfer" so that the merger consideration will be allocated as provided in the merger agreement. See "Approval of Amendment and Restatement of Catena's Certificate of Incorporation" for a description of the effect of this amendment.

U.S. Federal Income Tax Consequences (page 30)

In the opinion of Hogan & Hartson L.L.P., counsel to CIENA, and Cooley Godward LLP, counsel to Catena, the merger will qualify as a tax-free reorganization for U.S. federal income tax purposes. As a general matter, therefore, no gain or loss will be recognized under U.S. federal income tax laws by Catena stockholders on the exchange of their Catena capital stock for CIENA common stock pursuant to the reorganization, except with respect to cash received in lieu of fractional shares and cash received for Catena shares by Catena stockholders who dissent to the merger and exercise their appraisal rights under Delaware law.

Canadian Federal Income Tax Consequences (page 33)

A Catena stockholder who is resident in Canada or is deemed to be resident in Canada (other than a holder who dissents from the merger) who receives CIENA common stock in exchange for such holder's shares of Catena capital stock should not realize either a capital gain or a capital loss as a result of the merger.

You should consult your tax advisor for a full explanation of the tax consequences of the merger to you.

Accounting Treatment (page 30)

The merger is expected to be accounted for using the purchase method of accounting. CIENA will be deemed the acquiror for financial reporting purposes. Under the purchase method of accounting, the purchase price in the merger is allocated among the Catena assets acquired and the Catena liabilities assumed to the extent of their fair market value, with any excess purchase price being allocated to goodwill.

Governmental and Regulatory Approvals (page 30)

The Hart-Scott-Rodino Antitrust Improvements Act of 1976 as amended (the "HSR Act") and its related rules and regulations prohibit Catena and CIENA from completing the merger until CIENA and Catena each file notifications with the Antitrust Division of the Department of Justice and the Federal Trade Commission, and the Hart-Scott-Rodino waiting period requirements have been satisfied. Even after the Hart-Scott-Rodino waiting period expires or is terminated, and even after the merger is completed, the Antitrust Division or the Federal Trade Commission could challenge the merger on antitrust grounds. In addition, before or after the merger is completed, states and private litigants could also challenge the merger on antitrust grounds. CIENA and Catena each filed Hart-Scott-Rodino notifications with the Federal Trade Commission and the Antitrust Division on February 25, 2004, and the waiting period was terminated on March 8, 2004.

Approval of Parachute Payments in Connection With the Merger (page 56)

In connection with the change in control that results from the merger of Catena into CIENA, one of Catena's U.S. executive officers could receive payments that could constitute so-called "parachute payments" under the Tax Code. For this individual, these payments may arise as a result of the following:

- the value of acceleration of vesting in options to acquire Catena common stock; and
- the value of severance payments and subsidization of medical benefits to be received

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pursuant to the terms of severance agreements.

Under Section 280G of the Tax Code, an amount paid to certain individuals that is contingent on a change in ownership or a change in control of a corporation is a “parachute payment” if the aggregate present value of all payments made to an individual in connection with such transaction exceeds three times the disqualified individual’s “base amount.” An amount is an “excess parachute payment” to the extent the amount exceeds one times the disqualified individual’s base amount. To the extent payments are excess parachute payments, they are not deductible by the corporation and an excise tax (in addition to regular income and employment taxes) is imposed on the recipient if the recipient is a U.S. taxpayer. However, payments will not be treated as parachute payments if holders of more than 75% of the voting power of all outstanding capital stock of Catena, other than stock held by the disqualified individual and certain related persons, approve these payments. If the payments are not approved, the disqualified individual has agreed to forego the portion of the payments that would be taxable as an excess parachute payment. You are being asked to vote to approve these payments by a separate vote from your vote on the merger. For a further discussion of the treatment of these payments and stockholder approval of these payments, see “Approval of Payments In Connection With the Merger.”

SUMMARY SELECTED CONSOLIDATED HISTORICAL**FINANCIAL DATA OF CIENA**

The information in the following summary selected consolidated financial data as of October 31, 1999, 2000, 2001, 2002 and 2003 and for the years ended October 31, 1999, 2000, 2001, 2002 and 2003 is derived from CIENA's audited consolidated financial statements. You should read this information in conjunction with the financial statements and notes to the consolidated financial statements that are incorporated by reference into this proxy statement/prospectus. Selected financial information as of January 31, 2004 and for the three months ended January 31, 2004 and January 31, 2003 is derived from CIENA's unaudited consolidated financial statements, which are incorporated by reference into this proxy statement/prospectus. See "Where You Can Find More Information" which begins on page 78. CIENA has a 52 or 53 week fiscal year, which ends on the Saturday nearest to the last day of October in each year. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31. Fiscal 1999, 2000, 2002 and 2003 comprised 52 weeks and fiscal 2001 comprised 53 weeks. Historical events are not necessarily indicative of results to be expected in the future and results of interim periods are not necessarily indicative of the results of the entire year.

	As of October 31,					As of January 31,
	1999	2000	2001	2002	2003	2004
(in thousands)						
Balance Sheet Data:						
Cash, cash equivalents, short term and long-term investments	\$262,396	\$ 238,318	\$1,795,141	\$2,078,464	\$1,626,218	\$1,519,271
Total assets	677,835	1,027,201	3,317,301	2,751,022	2,378,165	2,264,323
Long-term obligations, excluding current portion	4,881	4,882	869,865	999,935	861,149	818,056
Stockholders' equity	\$530,473	\$ 809,835	\$2,128,982	\$1,527,269	\$1,330,817	\$1,263,611

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	Year Ended October 31,					Three Months Ended January 31,	
	1999	2000	2001	2002	2003	2003	2004
	(in thousands, except per share data)						
Statement of Operations Data:							
Revenue	\$482,085	\$858,750	\$ 1,603,229	\$ 361,155	\$ 283,136	\$ 70,474	\$ 66,414
Excess and obsolete inventory costs (benefit)	6,534	15,022	68,411	286,475	(5,296)	(2,657)	1,043
Cost of goods sold	293,235	462,371	836,138	309,559	215,387	56,866	44,818
Gross profit (loss)	182,316	381,357	698,680	(234,879)	73,045	16,265	20,553
Operating expenses:							
Research and development	101,006	125,434	235,831	239,619	199,699	53,734	47,177
Selling and marketing	61,603	90,922	146,949	130,276	103,193	26,605	25,468
General and administrative	22,696	33,960	57,865	52,612	38,478	14,706	7,091
Settlement of accrued contract obligation	—	(8,538)	—	—	—	—	—
Deferred stock compensation costs:							
Research and development	—	—	17,783	15,672	12,824	3,798	2,205
Selling and marketing	—	—	8,378	3,560	2,728	759	518
General and administrative	40	40	15,206	1,092	1,225	374	121
Amortization of goodwill	3,197	3,197	177,786	—	—	—	—
Amortization of intangible assets	438	438	4,413	8,972	17,870	3,554	3,396
In-process research and development	—	—	45,900	—	2,800	—	—
Restructuring costs	—	—	15,439	225,429	31,155	—	3,393
Goodwill and intangible impairment	—	—	1,719,426	557,286	29,596	—	—
Merger related costs	13,021	—	—	—	—	—	—
Provision (benefit) for doubtful accounts	250	28,010	(6,579)	14,813	—	—	—
Total operating expenses	202,251	273,463	2,438,397	1,249,331	439,568	103,530	89,369
Income (loss) from operations	(19,935)	107,894	(1,739,717)	(1,484,210)	(366,523)	(87,265)	(68,816)
Interest and other income, net	14,448	13,020	63,579	61,145	42,959	13,301	7,678
Interest expense	(504)	(340)	(30,591)	(45,339)	(36,331)	(12,203)	(7,384)
Gain (loss) on equity investments, net	—	—	—	(15,677)	(4,760)	(10)	454
Loss on extinguishment of debt	—	—	—	(2,683)	(20,606)	(20,606)	(8,216)
Income (loss) before income taxes	(5,991)	120,574	(1,706,729)	(1,486,764)	(385,261)	(106,783)	(76,284)
Provision (benefit) for income taxes	(2,067)	39,187	87,333	110,735	1,256	359	424
Net income (loss)	\$ (3,924)	\$ 81,387	\$ (1,794,062)	\$ (1,597,499)	\$ (386,517)	\$ (107,142)	\$ (76,708)
Basic net income (loss) per common share	\$ (0.01)	\$ 0.29	\$ (5.75)	\$ (4.37)	\$ (0.87)	\$ (0.25)	\$ (0.16)
Diluted net income (loss) per common and dilutive potential common share	\$ (0.01)	\$ 0.27	\$ (5.75)	\$ (4.37)	\$ (0.87)	\$ (0.25)	\$ (0.16)
Weighted average basic common shares outstanding	267,042	281,621	311,815	365,202	446,696	432,572	472,935
Weighted average basic common and dilutive potential common shares outstanding	267,042	299,662	311,815	365,202	446,696	432,572	472,935

RISK FACTORS

In addition to the risks described in CIENA's most recently filed Form 10-Q under Item 2, you should carefully consider the following risk factors relating to the merger before deciding how to vote your shares. You should also consider the other information contained in or incorporated by reference into, this proxy statement/prospectus. See "Where You Can Find More Information" on page 77.

The value and number of shares of the CIENA common stock that Catena stockholders receive in the merger will depend on its market price at the time of the merger.

The value of CIENA common stock that Catena stockholders will receive in the merger depends on the market price of CIENA common stock at the time of the merger. In addition, for the holders of Catena's preferred stock, the number of shares allocated to each class also depends upon the average closing price of CIENA's common stock over the 30-day period ending three days prior to closing. The market price of CIENA common stock may decline, causing the value of the consideration received by Catena stockholders in the merger, and the number of shares to be issued to holders of Catena's preferred stock, to decline. The market price of CIENA common stock is extremely volatile and has fluctuated over a wide range. From March 24, 2003 to March 24, 2004, CIENA common stock traded as high as \$8.14 per share and as low as \$4.19 per share. From February 18, 2004, the last trading day prior to the date on which the merger was announced, through March 24, 2004, the price of CIENA common stock has decreased from \$6.28 per share to \$4.75 per share, a decline of approximately 24%. The market price of CIENA common stock may continue to fluctuate significantly in response to various factors, including:

- quarterly variations in operating results principally due to customer purchasing decisions;
- changes in estimates by securities analysts;
- continued low levels in capital spending by customers; and
- general economic conditions.

Directors and officers of Catena may have conflicts of interest that influenced their decisions to approve the merger.

You should be aware of potential conflicts of interest of, and the benefits available to, directors and executive officers of Catena when considering the Catena board of directors' recommendation of the merger agreement and the other proposals. Some directors and executive officers of Catena have interests in the merger and the other proposals that are in addition to, or different from, their interests as Catena stockholders. These interests are described under "The Merger — Interests of Executive Officers and Directors in the Merger" on page 27.

These interests include:

- *Executive Officer Benefits.* Each of Catena's executive officers may benefit from acceleration of vesting and severance benefits implemented in connection with the merger. Catena's executive officers entered into severance benefits agreements with Catena, which agreements would be obligations assumed by CIENA in the merger. Each such agreement provides that if the officer is terminated without cause or terminates his or her employment for good reason, (a) all vesting restrictions with respect to his or her options and stock would lapse, (b) he or she would receive a severance payment equal to six months of salary and (c) he or she would receive continuation or subsidization of certain medical benefits for up to six months following termination.
- *Distribution of Proceeds in Merger.* As a result of the amendment and restatement of Catena's certificate of incorporation and the terms of the merger agreement, holders of Catena common stock may receive more consideration in the merger than they would if it were treated as an "Acquisition" or "Asset Transfer" of Catena constituting a "liquidation" under Catena's existing certificate of incorporation if the average closing price of CIENA's common stock over the 30-day period ending three days prior to the merger is less than \$7.82. The majority of Catena's outstanding common stock is held by executive officers of Catena. Conversely, if the average closing price of CIENA's common stock over the 30-day period ending three days prior to the merger is

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greater than \$7.82, the holders of Catena's preferred stock would receive more shares of CIENA common stock than they would if the merger were treated as an "Acquisition" or "Asset Transfer" of Catena constituting a "liquidation" under Catena's existing certificate of incorporation. The majority of Catena's outstanding preferred stock is held by affiliates of directors of Catena.

- *Indemnification.* Under the merger agreement, CIENA has agreed to provide continued indemnification for present and former directors and officers of Catena with respect to matters existing prior to the closing of the merger, for six years following the closing, including matters relating to the merger.
- *Stockholder Agreements.* All Catena directors and officers (and their respective affiliates) have entered into stockholder agreements pursuant to which they have agreed to vote shares of Catena common and preferred stock over which they exercise voting control in favor of the adoption of the merger agreement and the merger and in favor of approval of the amendment and restatement of Catena's certificate of incorporation. The stockholder agreements also grant to CIENA an irrevocable option to purchase a portion of the shares of Catena stock that are owned beneficially or of record by the stockholders who entered into the stockholder agreements.

The structure and implementation of the merger involve a number of risks including risks of integration and unknown liabilities.

The merger involves the combination of CIENA with a private company with limited operating history and is a complex transaction. Among the risks the merger involves are risks of successful integration, potential liabilities that may be incurred as a result of the merger, tax consequences and accounting treatment.

Successful integration involves numerous risks, including:

- assimilating Catena's technology and product offerings, which may be more difficult than anticipated because the technology is complex;
- coordinating research and development efforts, which may involve unexpected problems;
- diversion of management attention from business matters to integration issues;
- identifying and retaining key personnel, which may be difficult in the combined company;
- integrating accounting, engineering, information technology and administrative systems, which may be unexpectedly difficult or costly;
- making significant cash expenditures that may be required to retain personnel, eliminate unnecessary resources and integrate the business;
- maintaining uniform standards, controls, procedures and policies, which may be harder than CIENA and Catena anticipate and interfere with efficient administration of the combined company; and
- changes in the businesses as a result of the merger that impair relationships with employees, customers or vendors.

In addition, as a result of the merger, CIENA will succeed to any liabilities of Catena now existing or arising out of Catena's businesses prior to closing, including unknown liabilities. These liabilities may include liabilities to customers, suppliers or employees, as well as potential liabilities that can arise from intellectual property disputes.

Further, CIENA is proposing to issue up to 24.1 million shares of common stock to acquire another private company, Internet Photonics, Inc., at approximately the same time as the acquisition of Catena and all of the risks described above exist with respect to that acquisition as well.

Failure to overcome these risks or any other problems encountered in connection with the merger could have a material adverse effect on CIENA's business, results of operations and financial condition.

Only in limited circumstances can Catena terminate the merger due to a decrease in CIENA's stock price.

Catena can terminate the merger agreement if the average closing price of CIENA's common stock listed on the Nasdaq National Market for the 10 trading days immediately preceding the date stockholder approval is obtained is less than \$3.12. Otherwise, neither party has the right to terminate the merger solely due to increases or decreases in CIENA's stock price, even if those fluctuations would materially affect the value of the consideration Catena stockholders will receive in the merger.

FORWARD-LOOKING STATEMENTS

Some of the statements contained, or incorporated by reference, in this proxy statement/ prospectus discuss future expectations, contain projections of results of operations or financial condition or state other "forward-looking" information. Those statements are subject to known and unknown risks, uncertainties and other factors that could cause the actual results to differ materially from those contemplated by the statements. The "forward-looking" information is based on various factors and was derived using numerous assumptions. In some cases, you can identify these so-called "forward-looking statements" by words like "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "potential," or "continue" or the negative of those words and other comparable words. You should be aware that those statements only reflect our predictions. Actual events or results may differ substantially. Important factors that could cause our actual results to be materially different from the forward-looking statements are disclosed under the heading "Risk Factors" beginning on page 10 and throughout this proxy statement/ prospectus.

THE SPECIAL MEETING OF CATENA NETWORKS, INC. STOCKHOLDERS

General

Catena is furnishing this proxy statement/ prospectus to its stockholders in connection with the solicitation of proxies by the Catena board of directors for use at the special meeting of stockholders of Catena to be held on Thursday, April 29, 2004, and at any adjournment or postponement thereof. This document is also being furnished to Catena stockholders by CIENA as a prospectus of CIENA in connection with the issuance by CIENA of shares of CIENA common stock as contemplated by the merger agreement.

This document was first mailed to stockholders of Catena on or about March 29, 2004.

Date, Time and Place

The special meeting will be held on Thursday, April 29, 2004 at 8:00 a.m., local time, at the offices of Catena at 307 Legget Drive, Kanata, Ontario, Canada. Catena's telephone number is (613) 599-6430.

Purpose of the Special Meeting

The purpose of the Catena special meeting is to consider and vote upon proposals to:

1. Approve and adopt the merger agreement;
2. Approve and adopt the amendment and restatement of Catena's certificate of incorporation to provide that the merger of Catena into CIENA is not an "Acquisition" or "Asset Transfer" of Catena that would be treated as a "liquidation" of Catena as defined therein;
3. Approve the payments to Gary Bolton of amounts that would otherwise result in "parachute payments" under Section 280G of the Tax Code;
4. Grant discretionary authority to the Catena board of directors to adjourn or postpone the Catena special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary; and
5. Consider and act upon any other matter that may properly come before the special meeting.

A copy of the merger agreement is included in this proxy statement/ prospectus in Annex A. Catena stockholders are encouraged to read the merger agreement in its entirety.

Record Date and Voting

Holders of record of common stock and preferred stock of Catena at the close of business on March 29, 2004 (referred to in this proxy statement/ prospectus as the record date) that are entitled to vote at any annual or special meeting of Catena stockholders, are entitled to vote at the special meeting and any adjournment or postponement of the special meeting. Holders of non-voting common stock and series B-1, series BB-1, series C-1, series CC-1, series D-1 and series DD-1 preferred stock are not entitled to vote at the special meeting. Holders of all classes and series of Catena's common stock and preferred stock are entitled to notice of the matters proposed to be voted on at the special meeting.

On the record date, the following voting securities were outstanding:

- 9,371,695 shares of voting common stock;
- 10,100,000 shares of series A preferred stock;
- 440,000 shares of series A-1 preferred stock;
- 7,677,856 shares of series B preferred stock;

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- 7,514,978 shares of series C preferred stock; and
- 61,982,888 shares of series D preferred stock.

Each share of common stock entitled to vote at the special meeting is entitled to one vote on each matter brought properly before the special meeting. Each share of preferred stock entitled to vote at the special meeting is entitled to a number of votes equal to the number of shares of common stock into which such share of preferred stock would be convertible pursuant to Catena's certificate of incorporation (assuming such shares were currently convertible). Each share of series A preferred stock is entitled to one vote for each matter brought properly before the special meeting. Each share of series A-1 preferred stock is entitled to approximately 1.13 votes for each matter brought properly before the special meeting. Each share of series B preferred stock is entitled to approximately 1.64 votes for each matter brought properly before the special meeting. Each share of series C preferred stock is entitled to approximately 1.99 votes for each matter brought properly before the special meeting. Each share of series D preferred stock is entitled to one vote for each matter brought properly before the special meeting. However, as described below, approval of the merger agreement and the amendment and restatement of Catena's certificate of incorporation requires special votes of preferred stockholders, including certain "unaffiliated investors."

Generally, the representation, in person or by properly executed proxy, of the holders of a majority of all the shares of capital stock issued and outstanding and entitled to vote at the Catena special meeting is necessary to constitute a quorum for the transaction of business at the Catena special meeting. In connection with the separate vote by the voting preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the series C preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the holders of common stock, a majority of the total outstanding shares of common stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. If you sign and send in your proxy card and do not indicate how you want to vote, it will be voted in favor of the merger agreement and in favor of the other proposals.

Under Delaware law and the certificate of incorporation of Catena, approval of the merger agreement and of the amendment and restatement of Catena's certificate of incorporation requires the affirmative vote of:

- holders of a majority of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;
- holders of a majority of Catena's common stock and preferred stock that are entitled to vote at any annual or special meeting of Catena stockholders, voting together as a single class on an as-converted into common stock basis; and
- holders of a majority of Catena's voting preferred stock, voting together as a single class on an as-converted basis into common stock, including at least three unaffiliated investors.

In addition, under Catena's certificate of incorporation, adoption of the amendment and restatement of Catena's certificate of incorporation requires the affirmative votes of the holders of at least 70% of the outstanding shares of series C preferred stock.

In order to ensure that certain payments made to one of Catena's U.S. executive officers are not treated as "parachute payments," the affirmative vote of more than 75% of the voting power of all outstanding capital stock of Catena (other than stock held by the disqualified individual) is required to approve these payments. Under the applicable Treasury Regulations, approval by a stockholder that is not an individual (i.e., an entity) of a payment generally must be made by the person authorized by the entity stockholder to approve the payment (assuming such authorized person is not a "disqualified individual").

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However, if a “substantial portion” of the assets of an entity stockholder consists (directly or indirectly) of stock in the corporation undergoing the “change in ownership or control,” approval of such payment by that entity must be made by a separate vote of the persons who hold, immediately before the “change in ownership or control” more than 75% of the voting power of the entity stockholder entitled to vote. For this purpose, stock represents a “substantial portion” if the fair market value of the stock held by the entity stockholder in the corporation undergoing the “change in ownership or control” is equal to or greater than one-third of the total gross fair market value of the assets of the entity, determined without regard to any liabilities associated with such assets.

Abstentions from voting identified as such on the proxy card are treated as present or represented for purposes of determining the presence or absence of a quorum at the special meeting. However, abstentions as to a proposal will have the same effect as votes against such proposal.

As of the close of business on the record date for the special meeting, Catena’s directors and executive officers (and their respective affiliates) held approximately 6,155,675 shares of Catena voting common stock and 56,957,183 shares of Catena voting preferred stock on an as-converted into common stock basis, or approximately 66% and 56% of the shares of Catena’s common stock and preferred stock entitled to vote at the special meeting. In addition, directors, executive officers and stockholders of Catena beneficially owning as of the record date:

- 6,155,675 shares of voting common stock, representing approximately 66% of Catena’s common stock entitled to vote at any annual or special meeting of Catena stockholders;
- 63,036,614 shares of voting common stock and voting preferred stock considered on an as-converted into common stock basis, representing approximately 57% of Catena’s common stock and preferred stock entitled to vote at any annual or special meeting of Catena stockholders, on an as-converted into common stock basis; and
- 56,957,183 shares of voting preferred stock considered on an as-converted into common stock basis, representing approximately 56% of Catena’s voting preferred stock, on an as-converted into common stock basis, and 54% of the series C preferred stock,

have entered into agreements, pursuant to which they have agreed to vote their Catena shares in favor of adoption and approval of the merger agreement and approval of the amendment and restatement of Catena’s certificate of incorporation, against any proposal made in opposition to, or in competition with, the merger, and against any proposal intended to impede, frustrate, prevent or nullify the merger, or that could reasonably be expected to change the voting rights of the capital stock. As of the close of business on the record date, neither CIENA nor any officer or director of CIENA owned shares of Catena common or preferred stock.

Voting of Proxies at the Special Meeting and Revocation of Proxies

All shares of Catena capital stock that are entitled to vote and are represented at the Catena special meeting by properly executed proxies received prior to or at such meeting, and not revoked, will be voted at such meeting in accordance with the instructions indicated on such proxies. If no instruction is indicated, such proxies will be voted **“FOR”** approval and adoption of the merger agreement, **“FOR”** the amendment and restatement of Catena’s certificate of incorporation, **“FOR”** approval of the payments that would otherwise result in “parachute payments,” and **“FOR”** the grant of discretionary authority to adjourn or postpone the special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary.

The Catena board of directors does not know of any matters other than those described in the notice of the Catena special meeting that are to come before such meeting. If any other matters are properly presented at the Catena special meeting for consideration, the persons named in the enclosed proxy card and acting thereunder generally will have discretion to vote on such matters in accordance with their best judgment.

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Any proxy given pursuant to the solicitation may be revoked by the person giving it at any time before it is voted. Proxies may be revoked by:

- filing with Kevin Forbes, the Secretary of Catena, at or before the taking of a vote at the Catena special meeting, a written notice of revocation bearing a later date than the proxy,
- duly executing a later dated proxy relating to the same shares and delivering it to Kevin Forbes before the taking of the vote at the Catena special meeting, or
- attending the Catena special meeting and voting in person (although attendance at the Catena special meeting will not in and of itself constitute a revocation of a proxy).

Any written notice of revocation or subsequent proxy should be sent to Catena Networks, Inc., 307 Legget Drive, Kanata, Ontario K2K 3C8, Canada, Attn: Kevin Forbes, Secretary, or hand-delivered to Kevin Forbes at or before the taking of the vote at the Catena special meeting.

Catena will be soliciting proxies on its own behalf. Catena intends to solicit proxies through this proxy statement/ prospectus and directly through its directors, officers and regular employees. Solicitation of some stockholders may be made in person or by mail, telephone, facsimile transmission or other means of electronic transmission.

Catena will bear its own expenses in connection with the solicitation of proxies for its special meeting of stockholders, except that CIENA will bear all printing and filing costs and expenses, other than attorneys' and accountants' fees and expenses of Catena. CIENA will bear all other expenses incurred in connection with the preparation of this document and the preparation and filing of the registration statement of which this document forms a part.

Quorum and Abstentions

The representation in person, or by properly executed proxy, of the holders of a majority of all shares of capital stock entitled to vote at the special meeting is necessary to constitute a quorum for the transaction of business at the special meeting of Catena. In connection with the separate vote by the voting preferred stock, a majority of the total outstanding shares of the voting preferred stock (considered on an as-converted into common stock basis) present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the series C preferred stock, a majority of the total outstanding shares of such series of capital stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting. In connection with the separate vote by the holders of Catena's voting common stock, a majority of the total outstanding shares of Catena's voting common stock present in person or represented by proxy shall constitute a quorum entitled to take action at the Catena special meeting.

Shares held by persons abstaining will be counted in determining whether a quorum is present at the Catena special meeting. Catena has appointed Kevin Forbes, its Secretary, to function as the inspector of elections of the special meeting. The inspector of elections will ascertain whether a quorum is present, tabulate votes and determine the voting results on all matters presented to Catena stockholders at the special meeting. If a quorum is not present, or fewer shares of Catena common and preferred stock are voted for the approval of the proposals being considered at the special meeting, and if stockholders approve the grant of discretionary authority to the Catena board of directors to adjourn the special meeting, the special meeting may be postponed or adjourned for the purpose of allowing additional time for obtaining additional proxies or votes, and, at any subsequent reconvening of the special meeting, all proxies will be voted in the same manner as the proxies would have been voted at the original convening of the special meeting, except for any proxies that have been effectively revoked or withdrawn prior to the subsequent reconvening of the special meeting.

If you submit a proxy that indicates an abstention from voting in all matters, your shares will be counted as present for the purpose of determining the existence of a quorum at the special meeting, but they will not be voted on any matter at the applicable special meeting. Consequently, your abstention will

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have the same effect as a vote against the proposal to approve and adopt the merger agreement and the other proposals. If your proxy indicates an abstention only as to a particular proposal, that abstention will have the same effect as a vote against that particular proposal.

Board of Directors Recommendation

The Catena board of directors has unanimously determined that the merger agreement, the amendment and restatement of Catena's certificate of incorporation and the payment of "parachute payments" to one of its U.S. executive officers are advisable, fair to and in the best interests of Catena and its stockholders. Accordingly, the Catena board of directors has unanimously approved the merger agreement, the amendment and restatement of Catena's certificate of incorporation and the payment of "parachute payments" to one of its U.S. executive officers and unanimously recommends that stockholders vote **"FOR"** adoption and approval of the merger agreement, **"FOR"** adoption and approval of the amendment and restatement of Catena's certificate of incorporation, **"FOR"** approval of the payments that would otherwise result in "parachute payments," and **"FOR"** approval of the grant of discretionary authority to adjourn the special meeting to solicit additional votes if necessary. In considering such recommendations, Catena stockholders should be aware that some Catena directors and officers have interests in the merger that are different from, or in addition to, those of Catena stockholders, and that Catena and CIENA have provided indemnification arrangements to directors and officers of Catena. See "The Merger — Interests of Executive Officers and Directors in the Merger."

The matters to be considered at the special meeting are of great importance to the stockholders of Catena. Accordingly, Catena stockholders are urged to read and carefully consider the information presented in this document and to complete, date, sign and promptly return the enclosed proxy in the enclosed, postage-paid envelope.

Catena's stockholders should not send any stock certificates with their proxy cards. A transmittal form with instructions for the surrender of Catena common stock certificates will be mailed to Catena stockholders promptly following completion of the merger. For more information regarding the procedures for exchanging Catena stock certificates for CIENA stock certificates, see "Terms of the Merger Agreement and Related Transactions — Exchange of Certificates; Fractional Shares."

THE MERGER

General

The boards of directors of CIENA and Catena have each approved the merger agreement, which provides for the merger of Catena with and into CIENA, with CIENA being the surviving corporation of the merger. Each share of Catena common stock and Catena preferred stock outstanding immediately prior to the merger will be converted into the right to receive shares of CIENA common stock. The shares of Catena common stock and Catena preferred stock will be converted into a number of shares of CIENA common stock in accordance with the formulas specified in the merger agreement, as described under “Terms of the Merger Agreement and Related Transactions — Treatment of Stock, Options and Warrants.” Fractional shares of CIENA common stock will not be issued in connection with the merger, and Catena stockholders otherwise entitled to a fractional share will be paid in cash for the fractional share, in the manner described under “Terms of the Merger Agreement and Related Transactions — Exchange of Certificates; Fractional Shares.”

Background of the Merger

As a regular part of their business, CIENA and Catena from time to time have each independently considered opportunities to expand and strengthen their own technology, products, research and development capabilities and distribution channels, including distribution agreements, acquisitions, investments, licenses, development agreements and joint ventures. In particular, CIENA’s senior management has been interested in pursuing broadband services as a potential addressable market segment, and from time to time CIENA has had contact with various parties to explore on a preliminary basis strategic alternatives in connection with the same.

On June 4, 2003, at the Supercomm 2003 trade show in Atlanta, Georgia, Beth Perry, then CIENA’s Senior Vice President Business Development, and Byron BeMiller, CIENA’s Senior Director, Business Development, met with Gudmundur Hjartarson, President and Chief Executive Officer of Catena, and Gary Bolton, Vice President of Marketing for Catena, both of whom provided a brief overview of Catena’s business and financial outlook.

The next day, on June 5, 2003, Mr. BeMiller and Steve Chaddick, CIENA’s Senior Vice President and Chief Strategy Officer, Steve Alexander, CIENA’s Senior Vice President and Chief Technology Officer, and Tom Mock, CIENA’s Senior Vice President of Strategic Planning, visited Catena’s booth at Supercomm and met with Messrs. Hjartarson and Bolton. Topics of discussion included Catena’s products, technology and market.

Subsequently, CIENA and Catena entered into a general nondisclosure agreement.

In the summer of 2003, Catena received preliminary inquiries from several telecommunications equipment providers other than CIENA regarding potential strategic partnerships or acquisitions. At that time, Catena was also beginning to evaluate the prospect of effecting an initial public offering of its common stock in 2004.

In July 2003, Jim Collier, CIENA’s Senior Vice President, Corporate Development, spoke with Mr. Bolton about the potential for some form of business arrangement between the two companies. Mr. Bolton indicated that Mr. Hjartarson wished to speak directly with Gary B. Smith, CIENA’s President and Chief Executive Officer, to gauge the level of CIENA’s interest in a potential business arrangement with Catena.

On July 22, 2003, Mr. Smith spoke with Mr. Hjartarson and indicated that CIENA was interested in pursuing discussions with Catena and, to that end, arranged for a meeting between the principals of both parties.

On August 1, 2003, Messrs. Smith, Alexander and Collier, and Joseph Chinnici, CIENA’s Senior Vice President, Finance and Chief Financial Officer, met with Messrs. Hjartarson and Bolton and Kevin

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Forbes, Catena's Vice President of Finance, near Washington, D.C. The parties discussed Catena's business and market opportunities, and explored possible synergies between the two companies in connection with a business combination.

On September 10, 2003, Messrs. BeMiller and Mock, Arpit Joshipura, CIENA's Vice President of Portfolio Solutions Marketing, and Dan Spears, CIENA's Director, Strategic Planning, visited Catena's offices in Kanata, Ontario, Canada to gather more detailed information on Catena and its products and technology. Catena was represented by Messrs. Hjartarson, Bolton and Forbes, as well as Mark Feeley, Vice President, System Development, Jonathan Boocock, Vice President, Line Circuit Development, and Andy Weirich, Vice President, System Architecture. During the meeting, Catena gave a presentation on its products and technology, financial information, and current and future market opportunities. The parties also had a preliminary discussion about the potential for an acquisition of Catena by CIENA. Over the next several weeks, the parties continued to provide each other with additional business and financial information.

On September 16, 2003, Catena retained the services of Goldman, Sachs & Co. as financial advisor to Catena in connection with a potential acquisition of Catena. Entities affiliated with Goldman Sachs hold shares of Catena stock.

On October 8, 2003, the parties entered into a new nondisclosure agreement, incorporating a provision prohibiting the solicitation of each other's employees.

On October 15, 2003, at a regularly scheduled meeting of Catena's board of directors, Catena management reported to the board of directors regarding their meetings with several investment banks relating to a potential initial public offering of Catena's common stock. The board was advised of the criteria these banks indicated were necessary for Catena to effect a successful initial public offering in 2004.

In October and November 2003, Catena's financial advisor contacted six telecommunications equipment providers in addition to CIENA that were identified by Catena and its financial advisor as being most likely to be interested in acquiring Catena. Of those six companies, four requested and were sent additional information regarding Catena. However, only CIENA indicated a continued interest in further discussions regarding an acquisition of Catena. In this regard, on October 30, 2003, Messrs. Collier and Hjartarson met at Catena's offices in Canada to discuss a potential business combination between the parties. Mr. Collier informed Mr. Hjartarson that CIENA would be interested in a possible business combination, provided that the parties could agree on mutually acceptable business terms, and Mr. Hjartarson indicated Catena was prepared to entertain negotiations with CIENA, although it continued to explore the alternative of an initial public offering. Messrs. Collier and Hjartarson also discussed the possible valuation of Catena in connection with a transaction, as well as potential synergies between the two companies.

In November 2003, CIENA engaged Morgan Stanley to act as its financial advisor in connection with a proposed transaction with Catena.

On November 21, 2003, CIENA sent Catena a draft of a non-binding letter of intent with respect to a proposed transaction.

On December 3, 2003, Messrs. Smith and Collier met with Mr. Hjartarson at CIENA's offices in Linthicum, Maryland, to discuss specifics regarding the proposed transaction, including a possible purchase price. Also present at this meeting for CIENA were Emil Savov, Vice President, Corporate Development, and CIENA's financial advisors from Morgan Stanley, and for Catena, Mr. Forbes and Catena's financial advisors from Goldman Sachs.

On December 4, 2003, at a regularly-scheduled meeting of Catena's board of directors, the board of directors discussed the terms of CIENA's letter of intent. After considering all appropriate factors and circumstances, the board of directors determined that the proposed purchase price put forth by CIENA was insufficient. After such discussion, the board of directors authorized Goldman Sachs to deliver a

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counterproposal to CIENA with a higher proposed purchase price and other revisions to the letter of intent discussed at the meeting.

Subsequently, CIENA proposed a revised purchase price and other terms to Catena.

In December 2003, Goldman Sachs continued its discussions with many of the companies (other than CIENA) that had originally been contacted regarding Catena. In the course of these discussions, none of the companies contacted indicated an interest in pursuing an acquisition of Catena.

On December 15, 2003, at a special meeting of Catena's board of directors, Mr. Hjartarson and Goldman Sachs updated the board of directors regarding the revised terms proposed by CIENA. At this meeting, the board of directors reviewed and considered the revised terms proposed by CIENA and discussed with Goldman Sachs the possible range of reasonable IPO valuations of Catena and the likely timeframe for effecting an initial public offering. After such discussion, the board of directors authorized Goldman Sachs to deliver a counterproposal to CIENA bearing certain revisions to the letter of intent discussed at the meeting.

Subsequently, CIENA proposed a revised purchase price and other terms to Catena.

On December 18, 2003, at a special meeting of Catena's board of directors, Mr. Hjartarson and Goldman Sachs updated the board of directors regarding the newly revised terms proposed by CIENA. After such discussion, the Board authorized Goldman Sachs to deliver another counterproposal to CIENA bearing further revisions to the letter of intent discussed at the meeting. The board of directors also authorized Mr. Hjartarson, with the assistance of Goldman Sachs and legal counsel, to further negotiate and enter into a non-binding letter of intent comporting with the terms discussed by the board of directors.

On December 24, 2003, Mr. Smith spoke with Mr. Hjartarson regarding the terms of the letter of intent being discussed.

On December 31, 2003, CIENA and Catena entered into a non-binding letter of intent, which provided, among other things, for a proposed purchase price of 75,000,000 shares of CIENA common stock for all of the equity of Catena on a fully-diluted basis.

On January 6, 2004, at a special meeting of the CIENA board of directors, CIENA's senior management and representatives of Morgan Stanley discussed with the board the status of conversations with Catena regarding a possible business combination, including the strategic and financial reasons for such a combination and the key terms from the letter of intent. After discussion, the CIENA board of directors expressed general support for the strategic value of an acquisition of Catena, and authorized management to continue discussions with a view toward reaching a definitive agreement on acceptable terms.

On January 8, 2004, CIENA's legal advisors from Hogan & Hartson commenced a legal due diligence review of Catena, which continued through January 14, 2004.

On January 12, 13 and 14, 2004, a CIENA due diligence team conducted a series of meetings with Catena representatives in Ottawa, Ontario. CIENA representatives at one or more of those meetings included Messrs. Chinnici, BeMiller, Savov and Joshipura; Jésus Léon, Senior Vice President and Chief Development Officer; Arthur Smith, Senior Vice President Global Operations; Lynn Moore, Vice President Human Resources; Phil Moser, Vice President Sales Operations; Chad Whalen, Vice President Sales; Francois Locoh-Donou, Vice President Marketing; Suzanne DuLong, Vice President Investor Relations; Andrew Petrik, Vice President Finance; Greg Sikon, Vice President Tax; David Rothenstein, Assistant General Counsel; Vijay Sharma, Director Sales; Ralph Masso, Lead Accountant; Nancy Macartney, Senior Operations Director; Rick Conklin, Principal Engineer P&T; Venkata Rangavajhala, Management P&T; and Rebecca Seidman, Human Resources Consultant. CIENA's financial advisors from Morgan Stanley, CIENA's legal advisors from Hogan & Hartson, and representatives from PricewaterhouseCoopers, CIENA's independent accountants, were also present at one or more of those meetings. Catena representatives at one or more of those meetings included Messrs. Hjartarson, Bolton, Boocock, Feeley, and Forbes, Richard DeGabrielle, Vice President Sales and Business Development, Jeffrey Reece, Vice President Operations, Jennifer Kaufield, Assistant Vice President Finance, and Franca

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Marinelli, Vice President Human Resources. Catena's financial advisors from Goldman Sachs and Catena's legal advisors from Cooley Godward were also present at one or more of those meetings.

On January 14, 2004, Mr. Smith contacted Mr. Hjartarson to advise him that CIENA had entered into a non-binding letter of intent with Internet Photonics, Inc. and was in the process of negotiating a possible acquisition of that company.

On January 15, 2004, at a special meeting of Catena's board of directors, Mr. Hjartarson briefed the Catena board of directors on the Ottawa due diligence meetings with CIENA. Catena's financial advisor and legal counsel briefed the board of directors on the expected timing and process for negotiating definitive acquisition agreements. The board of directors also discussed the level of due diligence review that should be performed with respect to CIENA. It was then agreed that a business due diligence session should be scheduled to take place in Linthicum, Maryland prior to the execution of the definitive merger agreement.

On January 16, 2004, CIENA directed Hogan & Hartson to send to Catena and Cooley Godward a first draft of a definitive merger agreement, stockholder voting agreements and related agreements.

On January 20, 2004, Cooley Godward sent to CIENA comments on the draft of the merger agreement and related agreements on behalf of Catena.

During late January and early February 2004, representatives of CIENA and Catena and their respective legal advisors continued to negotiate the merger agreement and related agreements.

On February 3, 2004, CIENA announced its preliminary results for the first fiscal quarter ended January 31, 2004, and reported revenue that was below CIENA's previously announced guidance range. On the same day, Mr. Smith spoke with Mr. Hjartarson to advise him of the announcement and the reasons for it.

On February 9, 2004, a Catena due diligence team conducted meetings with CIENA representatives at CIENA's offices in Linthicum, Maryland. Catena was represented by Messrs. Hjartarson and Feeley, as well as three members of the Catena board of directors, Gary Morgenthaler, Joseph Costello and John Jarve. CIENA representatives included Messrs. Smith, Chinnici, Collier and Moser. Financial advisors for Catena and CIENA were also present at those meetings.

On February 10, 2004, at a special meeting of Catena's board of directors, the Catena board discussed the outcome of the February 9th due diligence session, including their impressions of the business prospects of CIENA in the near term and the relative value to the combined company that would be offered by Catena. The board of directors concluded that while it continued to believe a transaction with CIENA was advisable to Catena and its stockholders, the relative value to the combined company provided by Catena would be greater than originally anticipated and thus the proposed purchase price should be increased to reflect the increase in relative value. After such discussion, the board of directors authorized Goldman Sachs to inform CIENA's financial advisor that the number of shares issuable in the merger would need to be increased in order to enter into a definitive merger agreement with Catena. This information was communicated by Goldman Sachs to Morgan Stanley on February 11, 2004.

Between February 11 and February 12, 2004, the parties held numerous telephone discussions, including those between Messrs. Smith and Hjartarson and between the parties' respective financial advisors, regarding the number of shares CIENA would be willing to issue for all of the equity of Catena on a fully-diluted basis. On February 11, 2004, members of Catena's board of directors discussed the status of negotiations with CIENA over the number of shares offered by CIENA. After such discussion, Mr. Hjartarson contacted Mr. Smith to negotiate the final number of shares issuable in the merger and all remaining business issues with respect to the merger agreement. On February 12, 2004, Messrs. Hjartarson and Smith discussed an increase in the proposed purchase price and agreed on a purchase price of 77,500,000 shares of CIENA common stock.

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On February 16, 2004, Mr. Smith met with Messrs. Hjartarson, Boocock, Feeley and Weirich and Andrew Deczky, Catena's Chief Scientist, at CIENA's offices in Linthicum, Maryland, to discuss their respective roles in the combined company following the close of the merger and other merger specific matters.

On February 16, 17 and 18, 2004, representatives of CIENA and Catena completed negotiations on the merger agreement and related agreements and discussed the proposed charter amendments and other actions being taken to carry out the terms of the merger.

On February 17, 2004, at a special meeting of Catena's board of directors, the Catena board considered the merger agreement and related agreements. After discussions with Goldman Sachs and Catena's legal advisors, the Catena board of directors, among other things, unanimously determined that the merger is fair to, and in the best interest of, Catena and its stockholders, and unanimously approved the merger, the merger agreement and the transactions contemplated thereby, the amendment and restatement of Catena's certificate of incorporation and certain executive officer benefits described elsewhere in this proxy statement/prospectus.

On February 18, 2004, the CIENA board of directors held its regular scheduled quarterly meeting, at which CIENA's senior management team presented the proposed terms of the merger. The board also received financial advice from Morgan Stanley on the financial terms of the proposed merger. At the conclusion of the meeting, the CIENA board approved the terms of the merger and authorized management to complete and execute the merger agreement and related agreements.

The merger agreement and related documents, including stockholder voting agreements, were executed the evening of February 18, 2004.

On February 19, 2004, CIENA and Catena issued a joint press release announcing the signing of the merger agreement.

On February 27, 2004, Messrs. Chinnici, Petrik and Rothenstein, Russell B. Stevenson, Jr., CIENA's Senior Vice President and General Counsel, and CIENA's legal advisors spoke with Mr. Hjartarson and Catena's legal advisors about the possibility of amending the merger agreement. The proposed amendment would permit Catena to declare and pay a cash dividend to its preferred stockholders in the amount of up to \$10,000,000, and would reduce the number of shares to be issued by CIENA in exchange for all of the equity of Catena by approximately 1,600,000 shares.

On March 3, 2004, CIENA directed Hogan & Hartson to send to Catena and Cooley Godward a draft of an amendment to the merger agreement reflecting these terms.

On March 4, 2004, the parties executed the amendment to the merger agreement and the stockholders subject to voting and option agreements reaffirmed their agreements.

CIENA's Reasons for the Merger

Strategic Fit

Over the past few years, the retrenchment of the telecommunications industry has resulted in dramatically reduced demand for optical networking products that operate in the "core" portion of a network, including products that account for a significant portion of CIENA's revenues. In response, CIENA has pursued a corporate strategy designed to expand its addressable market and, thus, its opportunities to derive revenue. This strategy incorporates multiple elements, including (i) moving "up" the Open System Interconnection (OSI) Reference Model, the set of standards that allow for networking communications, from Layer 1, the "Physical Layer," into higher layers, (ii) moving "out" from the core further to the "edge" of a network, including the "access" portions of networks where the majority of carrier spending is expected to occur in the near future, and (iii) increasing sales to the most financially stable service providers — the regional Bell operating companies (RBOCs) in the United States and the PTTs and other incumbent operators in Europe and Asia, and multiple-system operators, or cable companies.

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In connection with this strategy, CIENA has identified equipment used to provide broadband services as an attractive element of this expanded addressable market. CIENA believes that the anticipated growth in demand for broadband voice, video and data services, including high-speed Internet access, video on demand and on-line gaming, is reshaping the telecommunications industry and driving the adoption of a new set of enabling technologies. This growth in demand has led and will lead to new revenue opportunities for service providers and, in turn, an increased demand for products that will allow the service providers to capitalize on those opportunities.

CIENA believes that the proposed acquisition of Catena fits with CIENA's strategy of expansion of its addressable market. Catena's suite of broadband access products will enable CIENA to broaden its product portfolio and significantly expand its addressable market by providing immediate penetration "up" into Layer 2 of the OSI Model, the "Data Link Layer," and "out" into the access portion of networks, i.e., the "last mile" that actually delivers services to end users. Catena's products enable carriers to deliver broadband services to their subscribers cost-effectively. The CNX-5 Broadband DSL System, a card-for-card upgrade solution for the Lucent SLC® Series 5 Digital Loop Carrier, gives carriers a simple, cost-efficient way to broadband-enable their installed base without reducing the number of available telephone lines. The CN1000 Broadband Loop Carrier is a high-density system engineered to deliver the "triple play" of integrated voice, data and video services over both copper and fiber infrastructures, at a fraction of the cost of competing systems. The CN1000FX "Fiber-to-the-X" solutions, consisting of optical line terminations (for Fiber-to-the-Premises) and optical line cards and optical network units (for Fiber-to-the-Neighborhood) for the CN1000 BLC, allow carriers to address multiple applications with the same flexible access system, enabling the delivery of high-speed and high-bandwidth services deep in their networks, including greenfield neighborhoods, broadband overbuild applications and remote, low-density rural locations, and are fully engineered to support Very High Data Rate DSL (VDSL).

Together, CIENA and Catena expect to provide customers with a comprehensive, integrated set of solutions to deliver efficiently the high-growth broadband services that are key to industry recovery. The combined company, with the Catena products and CIENA's complementary products, including the DN7 family of multi-service data networking products and the CoreDirector intelligent optical switch, will allow carriers to achieve multi-service convergence in various portions of the network, facilitating efficient migration to emerging, next-generation services such as VOIP (Voice Over IP), Fiber-to-the-X, XDSL and PON (Passive Optical Networking).

Moreover, Catena's customer base is complementary to that of CIENA, which will allow CIENA to continue targeting the key incumbent service providers, by solidifying and growing CIENA's existing relationships with the RBOCs and adding new incumbent customers, including major Independent Operating Companies (IOCs) and Competitive Local Exchange Carriers (CLECs).

In particular, CIENA believes that the following strategic benefits will result from the merger:

- **Positive Contribution to Operating Income.** CIENA believes that Catena will make a positive contribution in dollar terms to CIENA's operating income, accelerating CIENA's path to profitability.
- **Customer Relationships.** CIENA believes that Catena has developed valuable relationships with the RBOCs and several IOCs. The three largest RBOCs are all existing customers of Catena. CIENA believes that these relationships will enhance CIENA's ability to compete for future business from RBOCs and complement CIENA's existing sales and distribution channels. CIENA believes it will be able to leverage its existing sales channels and customer relationships to offer the Catena products to a wider range of customers than Catena currently reaches.
- **Expand Addressable Market.** CIENA believes that the proposed merger will expand its addressable market. CIENA currently has no product offering in the broadband access space. Catena's product suite will give CIENA immediate entry into this fast-growing market.
- **Broader Scope.** CIENA believes that the current telecommunications environment makes vendors with a broad product portfolio more attractive to large incumbent carriers than companies with

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narrow or single point solutions. In an effort to simplify their networks and reduce operating expenses, large operators are reducing the number of equipment vendors, forming strong relationships with a few large, strategic vendors. CIENA believes that the acquisition of Catena will strengthen its position with major operators by allowing it to offer a more complete, complementary portfolio of products covering a larger portion of network operators' equipment needs.

- **Strong Engineering Teams.** CIENA believes that Catena has a strong engineering team that will add significantly to CIENA's engineering resources and enhance its ability to continue to innovate and rapidly bring new products to market.

In addition, the CIENA board of directors received advice from Morgan Stanley, its financial advisor, in connection with the financial terms of the proposed merger.

In view of the variety of factors considered in connection with its evaluation of the merger, the CIENA board of directors did not quantify or otherwise assign relative weights to the factors considered in reaching its conclusions. In addition, individual members of the CIENA board of directors may have given different weights to different factors.

For the strategic reasons set forth above, after consultation with CIENA's senior management and its advisors and consideration of the terms and conditions of the merger agreement and the transactions contemplated by the merger agreement, the CIENA board of directors determined that the merger agreement and the merger are in the best interests of CIENA and its stockholders.

Recommendation of Catena's Board of Directors and Reasons for the Merger

At a special meeting held on February 17, 2004, the Catena board of directors unanimously approved the terms and conditions of the merger agreement and the transactions contemplated thereby, including the merger, the proposed amendment and restatement of Catena's certificate of incorporation and the proposed approval of payments that would otherwise constitute "parachute payments" under the Tax Code. At a special meeting held on March 4, 2004, the Catena board of directors also approved an amendment to the merger agreement permitting Catena to pay a cash dividend to its preferred stockholders in the amount of up to \$10 million and reducing the number of shares to be issued by CIENA in exchange for all of the equity of Catena by approximately 1,600,000 shares. In evaluating these matters, and deciding to approve them, the Catena board of directors considered a number of factors, including the following:

- the consideration being offered by CIENA for shares of Catena's capital stock;
- Catena's prospects if it were to remain independent, including:
 - * the resources necessary to insure Catena's future growth;
 - * Catena's ability to effect a successful initial public offering of its common stock;
 - * Catena's ability to continue to attract and support the RBOCs and other large telecommunications service provider customers, particularly with respect to Catena's CN1000 product line;

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- * Catena's ability to expand internationally;
 - * the challenge faced by Catena of dedicating significant resources to growth while at the same time focusing on achieving profitability; and
 - * Catena's ability to effectively compete with large telecommunications equipment companies operating in its market;
 - the potential benefits and adverse effects, timing and likelihood of possible alternatives to the CIENA transaction, including:
 - * continuing to operate Catena as an independent entity, either as a private company or as a public company; and
 - * being acquired or forming a strategic partnership with another company;
 - the potential benefits and adverse effects, timing and likelihood of effecting an initial public offering of Catena's common stock;
 - the contacts that had been made with potential acquirers and the fact that, although companies with a potential interest in acquiring Catena had been contacted, only discussions with CIENA had advanced beyond preliminary stages;
 - the strategic value of Catena in the hands of a company with significantly greater financial resources, such as CIENA, which by virtue of its existing customer relationships is well positioned to more optimally exploit Catena's products and technology in the telecommunications carrier marketplace;
 - the ability of the two companies to combine their technological resources to develop new products with increased functionality and bring them to market faster;
 - the availability to the combined company of greater resources for product marketing and distribution;
 - the likelihood that the merger would be completed, in light of the experience, reputation and financial capabilities of CIENA and the terms of the merger agreement;
 - the Catena board of directors' belief, based on its assessment of the negotiations, that a more favorable purchase price could not be achieved through continued negotiations with CIENA or through negotiations with any third party that could be interested in acquiring Catena;
 - the fact that certain significant stockholders of Catena were willing to support the transaction, thereby increasing the likelihood that the conditions to closing in the merger agreement would be satisfied;
 - the fact that the other conditions to CIENA's obligations to consummate the merger were customary and, in the assessment of the Catena board of directors, not unduly onerous;
 - the terms of the merger agreement, including the limited conditions to the parties' respective obligations under the merger agreement;
 - the opportunity created by the merger for Catena stockholders to share in the combined company's long term growth;
 - information concerning Catena's and CIENA's respective businesses, historical financial performance and condition, operations, technology, products, customers, competitive positions, prospects and management; and
 - due diligence discussions with CIENA by the Catena board of directors and reports from Catena management as to the results of its due diligence investigation of CIENA.
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The Catena board of directors also identified and considered a variety of potentially negative factors in its deliberations concerning the merger, including, but not limited to:

- the risk that the potential benefits sought in the merger might not be fully realized;
- the possibility that the merger might not be completed and the effect such a result would have on Catena's operations;
- that the exchange ratios in the merger agreement provided only limited protection against the depreciation of the value of CIENA's common stock;
- the challenges relating to the integration of the two companies;
- the possibility of management and employee disruption associated with the proposed merger and integrating the operations of the companies; and
- the risks relating to CIENA's business and how they would affect the operations of the combined company.

In considering the fixed exchange ratio in respect of the Catena common stock under the merger agreement, and the associated amendment and restatement of Catena's certificate of incorporation necessary to effect such fixed exchange ratio, the Catena board of directors determined that:

- it was unlikely that Catena management, who hold the majority of Catena's common stock would approve the merger agreement without such a fixed exchange ratio, which provides significant protection to the holders of Catena's common stock in the event the price of CIENA's common stock declines prior to closing; and
- it was likely that the holders of Catena's preferred stock would support the fixed exchange ratio in respect of Catena's common stock and the associated amendment and restatement of Catena's certificate of incorporation.

In considering the approval of the "parachute payments," the Catena board of directors determined that they were a necessary incentive to retain a key executive through the closing of the merger or, if the merger does not close, after the termination of the merger agreement. The Catena board of directors determined to recommend the approval of "parachute payments" to the stockholders in order to properly compensate this executive who is a U.S. taxpayer.

In addition, Catena's board of directors considered the interests that its officers and directors may have with respect to the merger in addition to their interests as Catena stockholders. See "— Interests of Executive Officers and Directors in the Merger" for a more complete discussion of these interests.

The Catena board of directors believed that the risks of the merger were outweighed by the potential benefits of the merger. In view of the wide variety of factors, both positive and negative, considered by the Catena board of directors, the Catena board of directors did not find it practical to, and did not, quantify or otherwise assign relative weights to the specific factors considered and did not find that any factor was of special importance. Rather, the Catena board of directors viewed its position and recommendations as being based on the totality of the information presented to and considered by it. In addition, different members of the Catena board of directors may have assigned different weights to the various factors described above.

After full consideration of the factors described above, Catena's board of directors unanimously approved the merger agreement, the proposed amendment and restatement of Catena's certificate of incorporation and the payment of "parachute payments" described above. The Catena board also unanimously determined that the merger is fair to, and in the best interests of, Catena and its stockholders, and unanimously recommends that Catena stockholders vote **"FOR"** approval and adoption of the merger agreement, **"FOR"** approval and adoption of the amendment and restatement of Catena's certificate of incorporation, **"FOR"** approval of the payments to the U.S. executive officer that would

otherwise constitute “parachute payments” and “**FOR**” the grant of discretionary authority to postpone or adjourn the special meeting.

Interests of Executive Officers and Directors in the Merger

In considering the recommendation of the Catena board of directors regarding the matters proposed for approval at the special meeting, Catena stockholders should be aware that some Catena directors and executive officers have interests in these matters that are different from, or in addition to, their interests as Catena stockholders. These interests may create potential conflicts of interest for these directors and officers because they may be more likely to approve these matters than Catena stockholders generally. The Catena board of directors was aware of these interests and took these interests into account in its deliberations and approval of such matters.

Stock Ownership

The officers and directors of Catena, and the stockholders of Catena affiliated with them, would own the majority of the shares to be issued by CIENA in the merger. As of the date of the merger agreement, the directors and executive officers (and their affiliates) of Catena beneficially owned:

- 6,155,675 shares, or 66%, of Catena’s outstanding common stock;
- 9,990,000 shares, or 99%, of Catena’s outstanding series A preferred stock;
- 5,528,916 shares, or 72%, of Catena’s outstanding series B preferred stock;
- 4,025,750 shares, or 54%, of Catena’s outstanding series C preferred stock; and
- 29,887,675 shares, or 48%, of Catena’s outstanding series D preferred stock.

As of the execution of the merger agreement, the shares described above represented approximately 58% of Catena’s capital stock on an as-converted into common stock basis.

Executive Officer Benefits

Each of Catena’s executive officers may benefit from acceleration of vesting and severance benefits implemented in connection with the merger, which benefits you are being asked to approve as they pertain to one of Catena’s executive officers that is a U.S. taxpayer. In connection with the merger, the executive officers entered into severance benefits agreements with Catena, which agreements would be obligations assumed by CIENA in the merger. Each such agreement provides that if the officer is terminated without cause or terminates his or her employment for good reason, (a) all vesting restrictions with respect to his or her options and stock would lapse, (b) he or she would receive a severance payment equal to six months of salary and (c) he or she would receive subsidization of major medical benefits for up to six months following termination. The following table sets forth, for each executive officer of Catena, the number of vested and unvested shares of Catena common stock held, directly or indirectly, by the executive officer and the number of shares purchasable by the executive officer under vested and unvested options to purchase Catena common stock, as of the date of the merger agreement, assuming vesting

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through April 29, 2004. None of Catena's executive officers owns any Catena preferred stock or any outstanding option or warrant to purchase Catena preferred stock.

Executive Officer	Outstanding Shares of Common Stock		Outstanding Options to Purchase Common Stock	
	Vested	Unvested	Vested	Unvested
Gudmundur (Jim) Hjartarson	1,160,000	0	1,332,860	1,472,989
Mark Feeley	960,000	0	274,322	588,598
Jonathan Boocock	960,000	0	225,062	375,138
Andreas Weirich	960,000	0	225,062	375,138
Andrew Deczky	960,000	0	198,812	261,388
Richard DeGabrielle	865,675	250,000	37,512	197,013
Gary Bolton	40,000	0	501,937	618,263
Steven Bauer	0	0	200,583	124,617
Jeffrey Reece	0	0	157,354	192,846
Franca Marinelli	0	0	115,687	134,513
Kevin Forbes	0	0	12,000	300,000
Jennifer Kaufield	0	0	154,542	130,658
Yit Lee	0	0	59,437	190,763

Distribution of Proceeds in Merger

If the CIENA stock price declines between the date of the merger agreement and closing, the allocation of merger proceeds provided in the merger agreement may disproportionately benefit the executive officers of Catena, all of whom own or have the right to acquire share of Catena common stock. If the CIENA stock price appreciates between the date of the merger agreement and closing, the allocation of merger proceeds provided in the merger agreement may disproportionately benefit the directors of Catena who are affiliated with holders of Catena's preferred stock.

The distribution of merger proceeds under the merger agreement is different from the distribution that would be obtained if the merger were treated as an "Acquisition" or "Asset Transfer" constituting a "liquidation" under Catena's existing certificate of incorporation. In the merger, each holder of Catena common stock will receive 0.493 of a share of CIENA common stock for each share of Catena common stock held by such holder, subject to stock splits, combinations and the like between now and the closing of the merger. In the merger, holders of Catena preferred stock will receive the maximum amount they would if the merger were treated as an Acquisition or Asset Transfer (assuming conversion of the preferred stock to the extent such conversion would result in greater proceeds per share, disregarding for this purpose the fixed exchange ratio for the Catena common stock), except that:

- If the merger were treated as an Acquisition or Asset Transfer and the holders of common stock would receive fewer than 0.493 shares of CIENA common stock per Catena common share, then the difference will be deducted from the proceeds to the holders of preferred stock in proportion to the number of shares they otherwise would have received in such Acquisition or Asset Transfer; and
- If the merger were treated as an Acquisition or Asset Transfer and the holders of common stock would receive more than 0.493 shares of CIENA common stock per Catena common share, then the difference will be added to the proceeds to the holders of preferred stock in proportion to the number of shares they otherwise would have received in such Acquisition or Asset Transfer.

In the event that the average closing price of CIENA common stock over the 30-day period ending three days prior to the closing of the merger is less than or equal to approximately \$7.82, based on the capitalization of Catena on the date the merger agreement was executed, the holders of Catena's common stock would receive more shares of CIENA common stock than they would have received in the merger

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had it been treated as an Acquisition or Asset Transfer treated as a liquidation under Catena's certificate of incorporation. In such event, the holders of Catena's preferred stock would receive fewer shares of CIENA common stock than they would have received in the merger had it been treated as an Acquisition or Asset Transfer constituting a liquidation under Catena's certificate of incorporation. Conversely, if the average closing price of CIENA common stock over such period is more than approximately \$7.82 per share, based on the capitalization of Catena on the date the merger agreement was executed, the holders of Catena's common stock would receive fewer shares of CIENA common stock, and the holders of Catena's preferred stock would receive more shares of CIENA common stock, than if the merger were treated as a liquidation under Catena's certificate of incorporation. Please see "Security Ownership of Directors, Executive Officers and More Than Five Percent Stockholders of Catena" for a summary of the common stock and preferred stock owned by each officer and director of Catena.

Indemnification

The merger agreement provides that, upon the completion of the merger, for a period of six years CIENA will fulfill the obligations of Catena to indemnify and hold harmless each person who is or was a director or officer of Catena against any losses incurred based upon matters existing or occurring prior to the completion of the merger to the same extent that these persons were indemnified pursuant to Catena's certificate of incorporation and bylaws, the articles of incorporation of Catena's subsidiary, or any indemnification agreement in effect prior to the merger.

Stockholder Agreements

All Catena directors and officers (and their respective affiliates) have entered into stockholder agreements pursuant to which they have agreed to vote shares of Catena common and preferred stock over which they exercise voting control in favor of the adoption of the merger agreement and the merger and in favor of approval of the amendment and restatement of Catena's certificate of incorporation. The obligation to vote in favor of the adoption of the merger agreement and the merger and in favor of the amendment and restatement of Catena's certificate of incorporation terminates if the merger agreement is terminated, including a termination by Catena's board of directors to pursue a superior offer.

The stockholder agreements also grant to CIENA an irrevocable option to purchase a portion of the shares of Catena stock that are owned beneficially or of record by the stockholders who entered into the stockholder agreements. Such options are limited in that they may be exercised for no more than 45% of Catena's outstanding capital stock on the date of exercise. CIENA may exercise the options if the Catena board withdraws its recommendation of the merger, Catena breaches the terms of the merger agreement or terminates the merger agreement under certain circumstances, or the stockholder fails to comply with the voting provisions of the stockholder agreement. The option price is payable in cash or stock at an exercise price based on the exchange formula set forth in the merger agreement, as if the merger became effective on February 18, 2004. For a more detailed description of the terms of the stockholder agreements, see "Terms of the Merger Agreement and Related Transactions — Stockholder Agreements."

As of the record date, the total number of outstanding shares of Catena capital stock (on an as-converted into common stock basis) covered by these agreements is 63,112,858, which represents approximately 57% of Catena's outstanding common stock and preferred stock (on an as-converted into common stock basis) as of that date.

In addition, each director and executive officer of Catena has executed a "lock-up" agreement with CIENA providing that for a period of two years following the merger such individual will not sell, transfer or otherwise dispose of any CIENA common stock issuable to such individual upon exercise of Catena options vested as of the date of the merger, provided that such individual may sell, transfer or otherwise dispose of up to 50% of such shares after the first anniversary of the merger and the remaining 50% at any time after the second anniversary of the merger. Additionally, such individual may transfer all or a portion

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of such individual's shares at any time to certain related parties or as a bona fide gift in which the transferee agrees to be subject to the same restrictions on transfer as set forth in the lock-up agreement.

Accounting Treatment

The merger is expected to be accounted for using the purchase method of accounting. CIENA will be deemed the acquiror for financial reporting purposes. Under the purchase method of accounting, the purchase price in the merger is allocated among the Catena assets acquired and the Catena liabilities assumed to the extent of their fair market value, with any excess purchase price being allocated to goodwill.

Listing on The Nasdaq Stock Market

CIENA has agreed to cause the shares of CIENA common stock issued in the merger, if required, to be approved for listing on the Nasdaq Stock Market.

Governmental and Regulatory Approvals

The Hart-Scott-Rodino Antitrust Improvements Act of 1976 as amended (the "HSR Act") and its related rules and regulations prohibit Catena and CIENA from completing the merger until CIENA and Catena each file notifications with the Antitrust Division of the Department of Justice and the Federal Trade Commission, and the Hart-Scott-Rodino waiting period requirements have been satisfied. Even after the Hart-Scott-Rodino waiting period expires or is terminated, and even after the merger is completed, the Antitrust Division or the Federal Trade Commission could challenge the merger on antitrust grounds. In addition, before or after the merger is completed, states and private litigants could also challenge the merger on antitrust grounds. CIENA and Catena each filed Hart-Scott-Rodino notifications with the Federal Trade Commission and the Antitrust Division on February 25, 2004, and the waiting period was terminated on March 8, 2004.

U.S. Federal Income Tax Consequences

Generally

The following discussion describes the material U.S. federal income tax consequences of the exchange of shares of Catena's capital stock for CIENA common stock pursuant to the merger that are generally applicable to holders of Catena capital stock. This discussion is based on currently existing provisions of the Internal Revenue Code of 1986, as amended (the "Tax Code"), existing and proposed Treasury regulations thereunder and current administrative rulings and court decisions, all of which are subject to change. Any such change, which may or may not be retroactive, could alter the tax consequences to Catena stockholders as described herein. Neither Catena nor CIENA has requested nor will request a ruling from the Internal Revenue Service with regard to any of the tax consequences of the merger. For a discussion of the tax consequences to Catena stockholders resident in Canada or deemed to be resident in Canada, see "— Canadian Federal Income Tax Consequences."

Catena stockholders should be aware that this discussion does not deal with all U.S. federal income tax considerations that may be relevant to particular Catena stockholders in light of their particular circumstances, such as stockholders who are dealers in securities, who are subject to the alternative minimum tax provisions of the Tax Code, who are foreign persons, insurance companies, tax-exempt organizations, financial institutions, or broker-dealers, who hold their shares as part of a hedge, straddle, conversion or other risk-reduction transaction, who do not hold their Catena stock as capital assets, who hold their Catena stock through a partnership or other pass-through entity or who acquired their shares in connection with stock option or stock purchase plans or in other compensatory transactions. In particular, this discussion does not discuss the tax consequences of payments that may be subject to the "golden parachute" provisions of the Tax Code, see "Approval of Parachute Payments in Connection with the Merger." In addition, unless specifically addressed below, the following discussion does not address the tax consequences of the merger under foreign, state or local tax laws, the tax consequences of transactions

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effectuated prior or subsequent to, or concurrently with, the merger (whether or not any such transactions are undertaken in connection with the merger), including without limitation any transaction in which shares of Catena capital stock are acquired or shares of CIENA common stock are disposed of, the declaration or payment of any dividend to Catena's stockholders, the tax consequences of the assumption by CIENA of the Catena employee options or the tax consequences of any receipt of rights to acquire CIENA common stock.

Accordingly, Catena stockholders are urged to consult their own tax advisors as to the specific tax consequences to them of the merger, including the applicable federal, state, local and foreign tax consequences.

In the opinion of Hogan & Hartson L.L.P., counsel to CIENA, and Cooley Godward LLP, counsel to Catena, the merger will be treated for U.S. federal income tax purposes as a reorganization within the meaning of Section 368(a) of the Tax Code. The opinions:

- will not be binding on the IRS or the courts nor preclude the IRS from adopting a contrary position;
- will be based on the assumption that the merger will be consummated in accordance with the terms of the merger agreement; and
- will be subject to the limitations discussed below.

Additionally, the opinions will be based on certain assumptions and limitations, as well as factual representations made by, among others, CIENA and Catena. Such representations, if incorrect, could jeopardize the conclusions reached in the opinions. Neither CIENA nor Catena is currently aware of any facts or circumstances that would cause any such representations made to counsel to be untrue or incorrect in any material respect.

Discussion of U.S. Federal Income Tax Consequences

Assuming the merger qualifies as a reorganization within the meaning of Section 368(a) of the Tax Code and the merger is completed under the current terms of the merger agreement, subject to the discussion below under the heading "Taxation of Escrowed Shares," the following U.S. federal income tax consequences generally will result:

- No gain or loss will be recognized by holders of Catena capital stock solely upon their receipt of CIENA common stock, including CIENA common stock subject to the escrow, in exchange for such Catena capital stock in the merger (except with respect to cash received in lieu of fractional shares as discussed below).
- The aggregate tax basis of the CIENA common stock received by each Catena stockholder in the merger (including any fractional share interest in CIENA common stock and CIENA common stock subject to the escrow) will be the same as the aggregate tax basis of the Catena capital stock surrendered by such Catena stockholder in exchange therefor.
- The holding period of the CIENA common stock received by each Catena stockholder in the merger (including the CIENA common stock subject to the escrow) will include the period for which the Catena capital stock surrendered in exchange therefor was considered to be held, provided that the Catena capital stock so surrendered is held as a capital asset at the time of the merger.
- Any cash payment received by a holder of Catena capital stock in lieu of a fractional share of CIENA common stock will be treated as if such fractional share had been issued in the merger and then redeemed by CIENA. A Catena stockholder receiving such cash will recognize gain or loss upon such payment, measured by the difference, if any, between the amount of cash received and the basis in such fractional share. The gain or loss will be capital gain or loss provided that the shares of Catena capital stock were held as capital assets and will be long-term capital gain or loss

if the Catena capital stock exchanged for that fractional share of CIENA common stock had been held for more than one year at the time of the merger. However, if the receipt of cash instead of fractional shares is essentially equivalent to a dividend (determined by application of Section 302 of the Tax Code on a stockholder by stockholder basis), some or all of this gain may be treated as a dividend and taxed as dividend income not reduced by the stockholder's basis in the fractional share. Under existing Treasury regulations, such tax basis would be allocated to the stockholder's aggregate tax basis in CIENA common stock retained, but if proposed Treasury regulations are finalized in their current form prior to the merger, the loss with respect to such tax basis would be allowed upon a certain reduction of the stockholder's direct or indirect interest in CIENA common stock, or upon certain other events, all determined in accordance with Section 302 of the Tax Code and the Treasury regulations thereunder.

- If a Catena stockholder dissents to the merger and receives solely cash in exchange for such stockholder's Catena capital stock, such cash generally will be treated as a distribution in redemption of such stockholder's Catena capital stock. Where such stockholder owns no CIENA common stock either directly or by reason of certain attribution rules set forth in the Tax Code, the stockholder should recognize gain or loss measured by the difference between the amount of cash received and the adjusted tax basis of the Catena capital stock surrendered. However, in certain situations when the stockholder owns CIENA common stock directly or indirectly by reason of certain attribution rules set forth in the Tax Code, the cash received could be treated as dividend income to the stockholder not reduced by the stockholder's tax basis in the stockholder's Catena capital stock. Under existing Treasury regulations, such tax basis would be allocated to the stockholder whose stock was attributed to the dissenting stockholder, but if proposed Treasury regulations are finalized in their current form prior to the merger, the loss with respect to such tax basis would be allowed upon a certain reduction of the stockholder's indirect interest in CIENA common stock, or upon certain other events, all determined in accordance with Section 302 of the Tax Code and the Treasury regulations thereunder. Different tax consequences will apply to any interest awarded by a court to a dissenting Catena stockholder.

Taxation of Escrowed Shares

Catena stockholders will be treated as owning an allocable portion of the CIENA common stock issued in the merger and deposited in escrow. An allocable portion of any dividends received on escrowed stock will be taxed to each former Catena stockholder as ordinary income when such amounts are received by the escrow agent. CIENA does not anticipate declaring dividends. The escrow agreement provides that a portion of the shares of CIENA common stock placed in escrow may be sold to reimburse the expenses of the stockholders' representative. In addition, the escrow agreement provides CIENA the option to elect to be indemnified from the escrow fund by either return of escrowed shares of CIENA common stock (valued at \$6.23 per share) or by payment of cash from the sale of escrowed shares of CIENA common stock. In the case of reimbursement of expenses or indemnification in cash through the sale of escrowed shares, the sale of such shares of CIENA common stock will be treated as a taxable sale to the Catena stockholders. Each Catena stockholder will recognize capital gain or loss as a result of such sale, measured as the difference between such Catena stockholder's basis in such sold shares of CIENA common stock and the sales price of such shares of CIENA common stock. Likewise, Catena stockholders will be allocated their portion of any interest or other income earned from the investment of the proceeds of such sale. No gain or loss will be recognized by a Catena stockholder upon the distribution of escrowed stock to the stockholder upon termination of the escrow arrangement or upon the release of escrowed stock to CIENA pursuant to the terms of the escrow agreement. The tax basis of CIENA common stock released to CIENA would be spread among the Catena stockholder's tax basis in remaining CIENA common stock (including remaining CIENA common stock held in escrow).

Tax Reporting

Each of CIENA and Catena has agreed to report the merger as a reorganization within the meaning of Section 368(a) of the Tax Code in all applicable tax returns filed by each party. Each Catena stockholder will be required to file with such stockholder's U.S. federal income tax return a statement setting forth certain facts relating to the merger.

U.S. Federal Backup Withholding

A holder of Catena capital stock may be subject, under some circumstances, to backup withholding at a rate of 28% with respect to certain payments made in the merger unless the holder provides proof of an applicable exemption or a correct taxpayer identification number, and otherwise complies with applicable requirements of the backup withholding rules. Any amounts withheld under the backup withholding rules are not an additional tax and may be refunded or credited against the holder's U.S. federal income tax liability, provided the required information is furnished to the Internal Revenue Service.

Canadian Federal Income Tax Consequences

Generally

The following summary describes, as of the date hereof, the material Canadian federal income tax considerations under the *Income Tax Act* (Canada) (the "Tax Act") of the merger generally applicable to Catena stockholders who, for purposes of the Tax Act, and at all relevant times hold their shares of Catena capital stock as capital property, and deal at arm's length with, and are not affiliated with, Catena and CIENA.

Shares of Catena capital stock will generally be considered to be capital property to a Catena stockholder, unless the holder holds such shares of capital stock in the course of carrying on a business or has acquired such shares of capital stock in a transaction (or transactions) considered to be an adventure in the nature of trade. This summary does not take into account the "mark-to-market rules" in the Tax Act that apply to "financial institutions" and, for purposes of such rules, holders that are "financial institutions" within the meaning of subsection 142.2(1) of the Tax Act should consult their own tax advisors.

This summary is based on the current provisions of the Tax Act, the current regulations thereunder and the current published administrative and assessing practices of the Canada Customs and Revenue Agency (the "CCRA") as at the date hereof. This summary also takes into account all specific proposals to amend the Tax Act, which have been publicly announced by, or on behalf of, the Minister of Finance (Canada) prior to the date hereof. No assurance can be given that such proposed amendments will be enacted as tabled or announced. However, the Canadian federal income tax considerations applicable to Catena stockholders will not be different in a material adverse way if the proposed amendments are not enacted. Except for any proposed amendments, this summary does not otherwise take into account or anticipate any changes to the law, whether by judicial, governmental or legislative decision or action, or changes in the administrative practices of the CCRA. This summary also does not take into account provincial, territorial or foreign income tax legislation or considerations, which may differ from the Canadian federal income tax considerations summarized herein.

This summary is of a general nature only and is not exhaustive of all possible Canadian federal income tax considerations and is not intended to be, nor should it be construed to be, legal, business or tax advice or representations to any particular Catena stockholder. Accordingly, Catena stockholders should consult their own tax advisors for advice regarding the income tax consequences of the merger having regard to their particular circumstances.

This summary is not applicable to a Catena stockholder who acquired shares of Catena capital stock because of his or her employment with Catena or employment with a corporation with which Catena does not deal at arm's length. Such holders should consult their tax advisors with respect to the tax consequences of the merger.

Catena Stockholders Resident in Canada

The following portion of this summary is applicable to a Catena stockholder who, for the purposes of the Tax Act (and any applicable income tax convention) and at all relevant times, is resident in Canada or is deemed to be resident in Canada.

A Catena stockholder (other than a holder who dissents from the merger) who receives CIENA common stock in exchange for such holder's shares of Catena capital stock will realize neither a capital gain nor a capital loss as a result of the merger. A Catena stockholder will be considered to have disposed of such holder's shares of Catena capital stock for proceeds of disposition equal to the adjusted cost base of such holder's shares of Catena capital stock immediately before the merger and to have acquired CIENA common stock at an aggregate cost equal to such proceeds of disposition. The aggregate cost of the CIENA common stock received by a Catena stockholder on the merger will be equal to the aggregate adjusted cost base to the Catena stockholder of the shares of Catena capital stock disposed of in exchange for such CIENA common stock by virtue of the merger. The holder's cost of such CIENA common stock must be averaged with the adjusted cost base of all other CIENA common stock held by the holder as capital property to determine the holder's adjusted cost base of such CIENA common stock.

Under the current administrative and assessing practice of the CCRA, a holder of shares of Catena capital stock who on the merger, in lieu of a fraction of a share of CIENA common stock, receives cash in an amount under Cdn.\$200 may ignore the computation of any gain or loss on the partial disposition and reduce the adjusted cost base of the shares of CIENA common stock received on the merger by the amount of such cash. Alternatively, the holder of shares of Catena capital stock may include the capital gain or loss arising on the disposition of the fractional share in the computation of that holder's income.

Dissenting Stockholders of Catena

A Catena stockholder who dissents to the merger and who disposes of such holder's shares of Catena capital stock will be considered to have disposed of such shares of Catena capital stock for proceeds of disposition equal to the cash payment received by the holder (less the amount of any interest awarded by a court in respect of such payment) as a result of dissenting. Such a disposition of shares of Catena capital stock by a dissenting stockholder will generally result in a capital gain (or capital loss) to the extent that the proceeds of disposition, net of any reasonable costs of disposition, exceed (or are less than) the adjusted cost base to such dissenting stockholder of those shares of Catena capital stock immediately before the disposition.

One-half of any capital gain (a "taxable capital gain") realized by a dissenting stockholder will be included in computing the income of the dissenting stockholder for the year of disposition. One-half of any capital loss (an "allowable capital loss") so realized is required to be deducted by the dissenting stockholder against taxable capital gains realized in the year of disposition. Any excess of allowable capital losses over taxable capital gains of the dissenting stockholder for the year of disposition may be carried back up to three taxation years or forward indefinitely and deducted against net taxable capital gains in those other years to the extent and in the circumstances prescribed in the Tax Act. Capital gains realized by an individual or trust, other than certain specified trusts, may give rise to alternative minimum tax under the Tax Act. A dissenting stockholder that is a Canadian controlled private corporation (as defined in the Tax Act) may be liable to pay an additional refundable tax of 6 2/3% on taxable capital gains. If the dissenting stockholder is a corporation, the amount of any capital loss arising on a disposition or deemed disposition of any share may be reduced by the amount of dividends received or deemed to have been received by it on such share to the extent and under the circumstances prescribed in the Tax Act. Similar rules may apply where the corporation is a member of a partnership or a beneficiary of a trust that owns shares of Catena capital stock, or where a trust or partnership of which a corporation is a beneficiary or a member, respectively, is a member of a partnership or a beneficiary of a trust that owns any such shares.

Any interest awarded by a court to a dissenting stockholder will be included in computing such holder's income for purposes of the Tax Act.

Any Catena stockholder who is considering dissenting to the merger should consult with such holder's tax advisor with respect to the income tax consequences of such action.

Appraisal Rights of Dissenting Stockholders of Catena

If the merger is consummated, a holder of record of Catena stock on the date of making a demand for appraisal, as described below, will be entitled to have those shares appraised by the Delaware Court of Chancery under Section 262 of the Delaware General Corporation Law, or DGCL, and to receive payment for the "fair value" of those shares instead of the consideration provided for in the merger agreement. In order to be eligible to receive this payment, however, a Catena stockholder must (1) continue to hold his or her shares through the time of the merger; (2) strictly comply with the procedures discussed under Section 262; and (3) not vote in favor of the merger. This proxy statement/ prospectus is being sent to all holders of record of Catena stock on the record date for the Catena special meeting and constitutes notice of the appraisal rights available to those holders under Section 262.

The statutory right of appraisal granted by Section 262 requires strict compliance with the procedures in Section 262. Failure to follow any of these procedures may result in a termination or waiver of dissenters' rights under Section 262. The following is a summary of the principal provisions of Section 262.

The following summary is not a complete statement of Section 262 of the DGCL, and is qualified in its entirety by reference to Section 262, which is incorporated herein by reference, together with any amendments to the laws that may be adopted after the date of this proxy statement/ prospectus. A copy of Section 262 is attached as Annex B to this proxy statement/ prospectus.

A holder of Catena stock who elects to exercise appraisal rights under Section 262 must deliver a written demand for appraisal of its shares of Catena prior to the vote on the merger. The written demand must identify the stockholder of record and state the stockholder's intention to demand appraisal of his or her shares. All demands should be delivered to Catena, 307 Legget Drive, Kanata, Ontario K2K 3C8, Canada, Attention: Kevin Forbes.

Only a holder of shares of Catena stock on the date of making a written demand for appraisal who continuously holds those shares through the time of the merger is entitled to seek appraisal. Demand for appraisal must be executed by or for the holder of record, fully and correctly, as that holder's name appears on the holder's stock certificates representing shares of Catena stock. If Catena stock is owned of record in a fiduciary capacity by a trustee, guardian or custodian, the demand should be made in that capacity. If Catena stock is owned of record by more than one person, as in a joint tenancy or tenancy in common, the demand should be made by or for all owners of record. An authorized agent, including one or more joint owners, may execute the demand for appraisal for a holder of record; that agent, however, must identify the record owner or owners and expressly disclose in the demand that the agent is acting as agent for the record owner or owners of the shares.

A record holder such as a broker who holds shares of Catena stock as a nominee for beneficial owners, some of whom desire to demand appraisal, must exercise appraisal rights on behalf of those beneficial owners with respect to the shares of Catena stock held for those beneficial owners. In that case, the written demand for appraisal should state the number of shares of Catena stock covered by it. Unless a demand for appraisal specifies a number of shares, the demand will be presumed to cover all shares of Catena stock held in the name of the record owner.

Beneficial owners who are not record owners and who intend to exercise appraisal rights should instruct the record owner to comply with the statutory requirements with respect to the exercise of appraisal rights before the date of the Catena special meeting.

Within 10 days after the merger, the surviving or resulting corporation is required to send notice of the effectiveness of the merger to each stockholder who prior to the time of the merger complies with the requirements of Section 262 and has delivered notice of intent to demand appraisal.

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Within 120 days after the merger, the surviving corporation or any stockholder who has complied with the requirement of Section 262 may file a petition in the Delaware Court of Chancery demanding a determination of the fair value of the shares of Catena stock held by all stockholders seeking appraisal. A dissenting stockholder must serve a copy of the petition on the surviving corporation. If no petition is filed by either the surviving corporation or any dissenting stockholder within the 120-day period, the rights of all dissenting stockholders to appraisal will cease. Stockholders seeking to exercise appraisal rights should not assume that the surviving corporation will file a petition with respect to the appraisal of the fair value of their shares or that the surviving corporation will initiate any negotiations with respect to the fair value of those shares. The surviving corporation is under no obligation to and has no present intention to take any action in this regard. Accordingly, stockholders who wish to seek appraisal of their shares should initiate all necessary action with respect to the perfection of their appraisal rights within the time periods and in the manner prescribed in Section 262. **Failure to file the petition on a timely basis will cause the stockholder's right to an appraisal to cease.**

Within 120 days after the time of the merger, any stockholder who has complied with subsections (a) and (d) of Section 262 is entitled, upon written request, to receive from the surviving corporation a statement setting forth the total number of shares of Catena stock not voted in favor of the merger with respect to which demands for appraisal have been received by Catena and the number of holders of those shares. The statement must be mailed within 10 days after Catena has received the written request or within 10 days after the time for delivery of demands for appraisal under subsection (d) of Section 262 has expired, whichever is later.

If a petition for an appraisal is filed in a timely manner, at the hearing on the petition, the Delaware Court of Chancery will determine which stockholders are entitled to appraisal rights and will appraise the shares of Catena stock owned by those stockholders. The court will determine the fair value of those shares, exclusive of any element of value arising from the accomplishment or expectation of the merger, together with a fair rate of interest, to be paid, if any, upon the fair value.

Stockholders who consider seeking appraisal should consider that the fair value of their shares under Section 262 could be more than, the same as, or less than, the value of the consideration provided for in the merger agreement without the exercise of appraisal rights. The Court of Chancery may determine the cost of the appraisal proceeding and assess it against the parties as the Court deems equitable. Upon application of a dissenting stockholder, the Court may order that all or a portion of the expenses incurred by any dissenting stockholder in connection with the appraisal proceeding (including, without limitation, reasonable attorney's fees and the fees and expenses of experts) be charged pro rata against the value of all shares of Catena stock entitled to appraisal. In the absence of a court determination or assessment, each party bears its own expenses.

Any stockholder who has demanded appraisal in compliance with Section 262 will not, after the merger, be entitled to vote such stock for any purpose or receive payment of dividends or other distributions, if any, on the Catena stock, except for dividends or distributions, if any, payable to stockholders of record at a date prior to the merger.

A stockholder may withdraw a demand for appraisal and accept the CIENA common stock at any time within 60 days after the merger. If an appraisal proceeding is properly instituted, it may not be dismissed as to any stockholder without the approval of the Delaware Court of Chancery, and any such approval may be conditioned on the Court of Chancery's deeming the terms to be just. If, after the merger, a holder of Catena stock who had demanded appraisal for his shares fails to perfect or loses his right to appraisal, those shares will be treated under the merger agreement as if they were converted into CIENA common stock at the time of the merger.

In view of the complexity of these provisions of the Delaware corporate law, any Catena stockholder who is considering exercising appraisal rights should consult a legal advisor.

TERMS OF THE MERGER AGREEMENT AND RELATED TRANSACTIONS

The following summary of the material terms and provisions of the merger agreement is qualified in its entirety by reference to the merger agreement. The merger agreement, as amended, is attached as Annex A to this proxy statement/ prospectus and is incorporated herein by reference. All stockholders are urged to read the merger agreement carefully.

General

The merger agreement provides that Catena will be merged with and into CIENA, at the effective time of the merger. Pursuant to the merger agreement, Catena will cease to exist and CIENA will be the surviving corporation. At the effective time of the merger, each outstanding share of Catena capital stock (other than treasury shares and shares held by dissenting stockholders) will be converted into CIENA common stock, all as more fully described below. The certificate of incorporation of CIENA will be the certificate of incorporation of the surviving corporation. The bylaws of CIENA will be the bylaws of the surviving corporation and the board of directors and the officers of CIENA will remain the board of directors and officers of the surviving corporation.

This section of the proxy statement/ prospectus describes aspects of the merger, including the material provisions of the merger agreement.

Management and Operations After the Merger

Following the merger, CIENA will integrate all of Catena's operations into its own. All of the officers and directors of CIENA before the merger will remain officers and directors of CIENA after the merger. It is expected that Catena's President and Chief Executive Officer, Gudmundur (Jim) Hjartarson, will become an officer of CIENA.

Treatment of Stock, Options and Warrants

At the effective time of the merger, each issued and outstanding share of Catena capital stock, other than shares held in the treasury of Catena, will be converted into shares of CIENA common stock in accordance with the formulas described below. Catena stockholders will also receive cash, without interest, for any fractional shares of CIENA common stock they would otherwise receive in the merger. Each share of CIENA common stock issued in the merger will include the corresponding fraction of a right to purchase shares of junior preferred stock, par value \$0.01 per share, pursuant to the Rights Agreement dated as of December 29, 1997 between CIENA and Equiserve Trust Co., N.A. (formerly BankBoston, N.A.) as Rights Agent, as amended.

At the effective time of the merger, the Catena stockholders will be entitled to receive:

- in the case of each share of common stock, 0.493 of a share of CIENA common stock;
- in the case of each share of preferred stock, a number of shares of CIENA common stock calculated according to the following formula:

$$\frac{\text{Series Liquidation Amount} * (1 + (\text{Common Adjustment} / \text{Total Preferred Liquidation Amount}))}{\text{Series Shares Outstanding}}$$

Series Shares Outstanding

Where:

“Aggregate Share Consideration” = 75,894,864 shares of CIENA common stock.

“Common Adjustment” = the positive or negative result, if any, obtained by subtracting (a) the product of 0.493 and Company Outstanding Common Stock from (b) the number of shares of CIENA common stock issuable in a Liquidation in respect of Company Outstanding Common Stock (assuming exercise in full for cash, immediately)

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prior to the merger, of all Catena options and warrants included in Company Outstanding Common Stock).

“Company Outstanding Common Stock” = the total number of shares of Catena common stock outstanding upon consummation of the merger, plus the number of shares of Catena common stock issuable upon exercise of all options outstanding at the time of consummation of the merger (except for (a) unvested options held by Catena employees identified by CIENA as expected to be terminated as of the closing of the merger or who are in fact terminated by CIENA immediately after the merger, (b) unvested options held by employees identified by CIENA as not expected to be employed by CIENA more than six months after the merger projected to be unvested as of the applicable transitional period, and (c) those which expire on or prior to the effective time or by their terms will expire following the effective time without becoming exercisable due to vesting provisions) plus the number that would be issuable upon exercise of warrants exercisable for Catena common stock.

“Liquidation” = the allocation of the Aggregate Share Consideration to the holders of outstanding Catena common stock and preferred stock (other than any allocation of Aggregate Share Consideration in respect of any declared and unpaid dividends) that would result from the merger if: (a) the merger were a “liquidation” for purposes of Catena’s certificate of incorporation; (b) all Options included in Company Outstanding Common Stock and all warrants outstanding immediately prior to the merger were exercised in full for cash immediately prior to the merger; and (c) the holders of preferred stock (including holders that would acquire shares of preferred stock upon exercise of warrants) converted shares of preferred stock into common stock to the extent that such conversion would result in a greater number of shares of CIENA common stock being issuable therefor in the merger (disregarding for this purpose any provisions in Catena’s certificate of incorporation prohibiting such conversion).

“Series Liquidation Amount” = the number of shares of CIENA common stock issuable in a Liquidation in respect of a given Series Shares Outstanding (assuming exercise in full for cash, immediately prior to the merger, of all warrants included in such Series Shares Outstanding).

“Series Shares Outstanding” = in the case of series A and series AA preferred stock, the total number of shares of series A and series AA preferred stock outstanding at the closing of the merger; in the case of series A-1 and series AA-1 preferred stock, the total number of shares of series A-1 and series AA-1 preferred stock outstanding at the closing of the merger; in the case of series B, series BB, series B-1 and series BB-1 preferred stock, the total number of series B, series BB, series B-1 and series BB-1 preferred stock outstanding at the closing of the merger; in the case of series C, series CC, series C-1 and series CC-1 preferred stock, the total number of shares of series C, series CC, series C-1 and series

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CC-1 preferred stock outstanding at the closing of the merger; and in the case of series D, series DD, series D-1 and series DD-1 preferred stock, the total number of shares of series D, series DD, series D-1 and series DD-1 preferred stock outstanding at the closing of the merger, in each case including the number of shares of the given series of preferred stock issuable upon exercise of warrants exercisable for preferred stock.

“Total Preferred Liquidation Amount” = the sum of all Series Liquidation Amounts.

Notwithstanding the foregoing, the maximum number of shares that will be issued by CIENA in the merger, under assumed options (except for unvested options held by terminated employees, and unvested options held by transitional employees projected to be unvested as of the end of the applicable transitional period) and under any assumed warrants will not exceed the Aggregate Share Consideration. In addition, 10% of the CIENA shares otherwise distributable in respect of Catena capital stock that is outstanding at closing will not be delivered to the Catena stockholders but will instead be deposited into an escrow fund to secure certain indemnity claims CIENA may make for up to one year. An additional 40,128 shares of CIENA common stock will be withheld from such shares and will be deposited into the escrow fund to reimburse the stockholders’ representative for expenses that he may incur as such, if any, for up to one year. See “— Indemnification and Escrow Arrangement.”

If, prior to the effective time of the merger, the outstanding shares of CIENA common stock are changed into or exchanged for a different number of shares or a different class as a result of any stock split, combination, reclassification or dividend, the nature of the consideration to be received by the holders of Catena capital stock and the exchange ratios will be appropriately and proportionately adjusted.

Each share of Catena capital stock held in the treasury of Catena, or by any direct or indirect wholly owned subsidiary of Catena will be canceled and extinguished at the effective time of the merger without the payment of any consideration.

Shares of Catena common stock or preferred stock held by stockholders who have not voted in favor of the merger and who have demanded in writing appraisal of their shares under Section 262 of the DGCL will not be converted into or represent the right to receive shares of CIENA common stock, and instead, such stockholders will be entitled to receive such consideration as determined to be due with respect to such shares in accordance with the provisions of Section 262 of the DGCL.

CIENA will assume each option or warrant to acquire Catena common stock and preferred stock granted under Catena’s stock plan or otherwise issued by Catena and that is outstanding and unexercised immediately prior to the effective time of the merger, and at the effective time of the merger, CIENA will replace them with an option or warrant, respectively, to purchase CIENA common stock. In each case, the number of shares of CIENA common stock subject to the new CIENA option or warrant will be equal to the number of shares of Catena common stock or preferred stock subject to the Catena stock option or warrant, assuming full vesting, multiplied by the appropriate exchange ratio (and rounding any fractional share down to the nearest whole share) and the exercise price per share of CIENA common stock will be equal to the aggregate exercise price per share of Catena common stock subject to the Catena stock option or warrant divided by the appropriate exchange ratio. The duration and other terms of each such CIENA option or warrant, including the vesting schedule, will be the same as the prior Catena stock option or warrant. See “The Merger — Interests of Executive Officers and Directors in the Merger — Executive Officer Benefits” for a discussion of the treatment of the acceleration of vesting schedules of executive officers pursuant to the merger.

Exchange of Certificates; Fractional Shares

CIENA has agreed to deposit with a bank or trust company designated as exchange agent by CIENA for the benefit of the holders of issued and outstanding shares of Catena common stock, certificates representing the shares of CIENA common stock to be issued pursuant to the merger agreement.

At the earliest practicable date after the effective time of the merger, the exchange agent will mail a letter of transmittal to each holder of record of Catena common stock. CIENA has agreed to use commercially reasonable efforts to cause the exchange agent to mail the letter of transmittal not later than 10 business days after the date of the merger. The letter of transmittal will contain instructions with respect to the surrender of stock certificates to the exchange agent.

You should not return your stock certificates with the enclosed proxy nor should you forward them to the exchange agent unless and until you receive the letter of transmittal, at which time you should forward them only in accordance with the instructions specified in the letter of transmittal.

Until the holders of certificates representing Catena capital stock to be converted into CIENA common stock in the merger surrender them for exchange at or after the effective time of the merger, they will accrue but will not receive dividends or other distributions declared after the effective time of the merger with respect to CIENA common stock into which their Catena stock has been converted. When they surrender such certificates, any unpaid dividends or other distributions will be paid, without interest. All stock certificates presented after the effective time of the merger will be canceled and exchanged for a certificate representing the applicable number of shares of CIENA common stock.

CIENA will not issue any fractional shares. Instead, each Catena stockholder who would otherwise have been entitled to receive a fractional share of CIENA common stock will receive cash, without interest, in an amount rounded to the nearest whole cent, determined by multiplying (1) the per share closing price of CIENA's common stock on the Nasdaq National Market on the date of the merger by (2) the fraction of a share of CIENA common stock to which the holder would otherwise be entitled.

Any shares of CIENA common stock and cash that the exchange agent has not distributed six months after the effective time of the merger will be delivered to CIENA upon demand. Certificates representing Catena capital stock must thereafter be surrendered for exchange to CIENA. Neither CIENA, Catena, nor the exchange agent will be liable for any shares of CIENA common stock, dividends or distributions with respect thereto, or cash delivered to a public official pursuant to any abandoned property, escheat or similar laws.

If a certificate representing Catena capital stock is lost, stolen or destroyed, the exchange agent will issue the CIENA common stock in exchange for the certificate only upon the making of an affidavit of such loss, theft or destruction by the claimant, and, if required by CIENA, the posting of a bond as indemnity against any claim that may be made against CIENA or the exchange agent with respect to such certificate.

For a description of the differences between the rights of the holders of CIENA common stock and holders of Catena capital stock, see "Comparison of Stockholder Rights."

Effective Time

The merger will occur after specified conditions set forth in Article V of the merger agreement have been satisfied or waived. No later than the second business day after the satisfaction or waiver of these conditions, the parties will hold a scheduled closing. On the day the merger occurs, CIENA will file a certificate of merger with the Secretary of State of the State of Delaware. The effective time of the merger will be the date and time of such filing. CIENA and Catena each anticipate that, if the merger is approved at the special meeting, it will be consummated by the end of CIENA's third fiscal quarter of 2004. However, a delay in obtaining governmental consents required prior to consummation of the transactions contemplated in the merger agreement could delay the merger. There can be no assurances as to if or when such governmental consents will be obtained or that the merger will be consummated.

Representations and Warranties

The merger agreement contains various representations of CIENA and Catena. Catena has made customary representations and warranties relating to, among other things:

- the corporate organization and existence of Catena, including that it is duly organized, validly existing and in good standing with the corporate power and authority to own, operate and lease its properties and to carry on its business as currently conducted;
- the certificate of incorporation and bylaws or other organizational documents of Catena;
- the capitalization of Catena, including the number of shares of capital stock authorized, the number of shares and rights to acquire shares outstanding and the number of shares reserved for issuance;
- the corporate power and authority of Catena to execute and deliver the merger agreement and related documents and to consummate the transactions contemplated by these documents;
- the compliance of the merger agreement and related documents with (1) Catena's certificate of incorporation and bylaws, (2) applicable laws, and (3) material agreements of Catena, including the absence of events of default thereunder;
- the required governmental and third-party consents;
- Catena's financial statements through December 31, 2003, including that the information in the financial statements is a fair presentation of the financial condition and results of operations of Catena and is in compliance with GAAP, except for year-end adjustments or reclassifications;
- the absence of certain changes in Catena's business since December 31, 2003;
- the ownership and condition of the assets owned by Catena;
- material contracts and agreements;
- interests in real property;
- compliance with environmental laws and the absence of environmental liabilities;
- the absence of material legal proceedings, injunctions and disputes;
- compliance with applicable laws, including relating to employees or the workplace;
- the absence of intellectual property infringement or contests;
- the filing and accuracy of Catena's tax returns;
- employee benefit plans and related matters, including that the plans have been operated and administered in accordance with applicable laws;
- related party transactions;
- insurance;
- the absence of undisclosed fees being paid to brokers or finders;
- complete and correct books and records;
- the absence of certain business practices of Catena;
- knowledge regarding customer and supplier relationships; and
- the applicability of certain thresholds under the Competition Act (Canada) and the Investment Canada Act.

Messrs. Hjartarson, Forbes, DeGabrielle and Reece have also made the representations made by Catena, but are making these representations on the basis only of their actual knowledge as to the matters stated therein.

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Catena's representations and warranties generally survive until the end of the first year after the effective time of the merger. After the effective time of the merger, the maximum liability of Catena's stockholders for any breach of the representations, covenants or agreements generally will be limited to 10% of the shares issued in the merger transaction (except liability for fraud). CIENA and certain other indemnified persons may make a claim for indemnification for any breach of any of the foregoing representations and warranties until the end of the first year after the effective time of the merger. See "— Indemnification and Escrow Arrangement."

The merger agreement also contains customary representations and warranties of CIENA as to, among other things:

- the corporate organization and existence of CIENA;
- the certificate of incorporation and bylaws or other organizational documents of CIENA;
- the corporate power and authority of CIENA;
- the compliance of the merger agreement and related documents with CIENA's certificate of incorporation and bylaws, applicable laws, and certain material agreements of CIENA;
- the required governmental and third-party consents;
- absence of undisclosed fees being paid to brokers;
- the valid issuance of the shares of CIENA common stock to be issued in the merger;
- CIENA's filings with the SEC;
- the absence of material legal proceedings, injunctions and disputes;
- the capitalization of CIENA; and
- the absence of undisclosed material adverse and other specified changes in CIENA's business since October 31, 2003.

CIENA's representations and warranties will survive until the end of the first year after the effective date of the merger. CIENA has agreed to indemnify the former Catena stockholders against losses due to the breach or inaccuracy of CIENA's representations and warranties contained in the merger agreement. CIENA's obligation is limited to the product of the total number of shares CIENA is issuing in the merger as of the closing and the average closing price of CIENA's common stock on the Nasdaq National Market over the ten trading days ending on the trading day immediately prior to the closing of the merger.

Business of Catena Pending the Merger; Other Agreements

Pursuant to the merger agreement, Catena has agreed to:

- maintain its existence in good standing;
- conduct its business in the ordinary course consistent with past practices;
- maintain business and accounting records consistent with past practices; and
- use commercially reasonable efforts (1) to preserve its business intact, (2) to keep available to it the services of its present officers and employees, and (3) to preserve for it the goodwill of its suppliers, customers and others having business relations with it.

Interim Operations of Catena

Unless CIENA otherwise approves (unless such approval would violate legal requirements) or if necessary in order to comply with law, Catena and its subsidiary may not:

- amend or otherwise change their respective certificates or articles of incorporation, other than in connection with the merger, or their respective bylaws;

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- issue any stock or grant any options with certain exceptions in the ordinary course, including under its existing equity compensation program;
- declare, set aside, make or pay any dividend or other distribution, payable in cash, stock, property or otherwise with respect to any of its capital stock, except that at any time prior to the closing, Catena may take such action as may be required to declare, set aside and pay cash dividends to the holders of Catena's preferred stock in an aggregate amount equal to \$10 million, including but not limited to the solicitation of consents from those Catena stockholders whose approval may be required for the declaration and payment of such dividends;
- reclassify, combine, split, subdivide or redeem, purchase or otherwise acquire, directly or indirectly, any of its capital stock, except for those changes in the new Catena certificate of incorporation and repurchases of shares in connection with the termination of any employee or consultant pursuant to stock option, restricted stock purchase agreements or stock award agreements;
- incur any indebtedness for borrowed money or issue any debt securities or assume, guarantee or endorse, or otherwise become responsible for, the obligations of any person, or make any loans or advances, with certain exceptions;
- acquire, including, without limitation, by merger, consolidation, or acquisition of stock or assets, any corporation, partnership, other business organization or any division thereof or any material amount of assets other than in the ordinary course of business, consistent with past practices;
- enter into any contract or agreement other than in the ordinary course of business, consistent with past practice;
- authorize any capital commitment or capital lease that is in excess of \$100,000 or capital expenditures that are, in the aggregate, in excess of \$500,000;
- mortgage, pledge or subject to encumbrance any of its material assets or properties, or agree to do so, other than in the ordinary course of business;
- assume, guarantee or otherwise become responsible for the obligations of any other person or agree to so do;
- enter into or agree to enter into any employment agreement, other than offer letters for non-executive new hires entered into in the ordinary course of business;
- increase the rate of compensation of its officers or employees, or grant any severance or termination pay to, or enter into any severance agreement with any director, officer or other employee of Catena, or establish, adopt, enter into or amend any collective bargaining, bonus, profit sharing, thrift, compensation, stock option, restricted stock, pension, retirement, deferred compensation, employment, termination, severance or other plan, agreement, trust, fund, policy or arrangement for the benefit of any such director, officer or employee except for amendments to existing employee benefit plans as necessary to maintain compliance with applicable laws;
- take any action to change in any respect its accounting policies or procedures, including, without limitation, procedures with respect to the payment of accounts payable and collection of accounts receivables, except as required by concurrent changes in GAAP and the application or SEC rules and regulations and related interpretations;
- make any tax election or settle or compromise any federal, state, local or foreign material income tax liability in excess of \$50,000;
- settle or compromise any pending or threatened suit, action or claim or initiate any litigation against a third party;
- pay, discharge or satisfy any claim, liability or obligation, other than the payment, discharge or satisfaction, in the ordinary course of business and consistent with past practice, of liabilities reflected or reserved against in the latest balance sheet included in the last audited financial

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statement provided to CIENA or subsequently incurred in the ordinary course of business and consistent with past practice in amounts not in excess of \$100,000;

- sell, assign, transfer, license or sublicense, pledge or otherwise encumber any of the intellectual property rights, other than in the ordinary course of business and consistent with past practice; or
- announce an intention, commit or agree to do any of the foregoing.

Interim Operations of CIENA

Unless Catena otherwise approves (unless such approval would violate legal requirements) or if necessary in order to comply with law, CIENA may not declare, set aside, make or pay any dividend or other distribution, payable in cash, stock, property or otherwise with respect to any of its capital stock, or announce an intention, commit or agree to do so, except where (1) an adjustment is made to the exchange ratios for Catena capital stock or (2) the holders of Catena capital stock will otherwise receive an equivalent, proportional dividend or distribution in connection with the merger as if they had been holders of CIENA common stock on the record date for such dividend or distribution.

No Solicitation by Catena

Pursuant to the merger agreement, Catena may not, nor may it authorize or permit any of its affiliates or any officer, director, employee, investment banker, attorney or other adviser or representative of Catena or any of its affiliates to:

- solicit, initiate, or encourage any acquisition proposal (as defined to mean any proposal for a merger or other business combination involving Catena or any proposal or offer to acquire in any manner, directly or indirectly, 20% or more of the equity securities, voting securities, or assets of Catena);
- enter into any agreement with respect to any acquisition proposal; or
- participate in any discussions or negotiations regarding, or furnish to any person any information for the purpose of facilitating the making of, or take any other action to facilitate any inquiries or the making of any proposal that constitutes, or may reasonably be expected to lead to, any acquisition proposal.

The merger agreement does not preclude Catena from, prior to receipt of the requisite stockholder approval, providing information to (subject to appropriate confidentiality protections), or entering into negotiations with, a person who has delivered an unsolicited written bona fide acquisition proposal, so long as in each case:

- the board of directors of Catena determines in good faith, after consultation with its financial advisor and outside legal counsel, that the acquisition proposal, if accepted, is reasonably likely to be consummated;
- the board of directors of Catena determines in good faith, after consultation with its financial advisor, that the acquisition proposal would, if consummated, result in a transaction that is more favorable to Catena's stockholders; and
- the board of directors of Catena determines in good faith, after consultation with its outside legal counsel, that the failure to take such action would be inconsistent with its fiduciary duties to Catena's stockholders under applicable law.

Catena must promptly advise CIENA of any acquisition proposal and inquiries with respect to any acquisition proposal.

The merger agreement provides that the Catena board of directors may not withdraw, amend, modify or materially qualify in a manner adverse to CIENA its recommendation of the merger to its stockholders unless it provides CIENA with three business days' prior notice, it has otherwise complied in all respects with its obligations under the merger agreement, and after consulting with its outside legal counsel, the

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Catena board of directors determines in good faith that to not withdraw, amend or modify its recommendation would be inconsistent with its fiduciary duties to Catena's stockholders under applicable law.

Additional Agreements of CIENA and Catena

Pursuant to the merger agreement, CIENA and Catena have also agreed to use their reasonable best efforts to take all necessary, proper or appropriate actions to consummate the transactions contemplated by the merger agreement. In accordance with its certificate of incorporation and bylaws, Catena will take all action necessary to convene a meeting or meetings of the holders of Catena stock, to be held as promptly as practicable after the S-4 registration statement is declared effective.

Subject to the fiduciary duty exceptions described above, the Catena board of directors:

- will recommend approval of the merger and amendment and restatement of Catena's certificate of incorporation by its stockholders;
- will not withdraw or modify its recommendation; and
- will take all lawful action to solicit stockholder approval as promptly as possible.

Unless the merger agreement is terminated, the Catena board of directors is obligated to convene the stockholder meeting whether or not it continues to recommend the merger.

Indemnification and Escrow Arrangement

Under the merger agreement, following the merger, CIENA and its officers, directors and affiliates will be indemnified by the Catena stockholders, other than those dissenting stockholders exercising rights of appraisal under Section 262 of the DGCL who do not receive CIENA common stock in the merger, against all claims, losses and liabilities incurred as a result of:

- any inaccuracy or breach of a representation or warranty of Catena contained in the merger agreement or a certificate of any officer of Catena delivered pursuant to the merger agreement (with the exception of any inaccuracy or breach arising as a result of the declaration, setting aside or payment of a cash dividend to Catena preferred stockholders as permitted by the merger agreement);
- any failure by Catena to perform or comply with any covenant contained in the merger agreement (with the exception of any failure to perform or comply with any covenant arising as a result of the declaration, setting aside, or payment of a cash dividend to Catena preferred stockholders as permitted by the merger agreement);
- certain incremental costs incurred in responding to any exercise of dissenters' rights by any holder of Catena's capital stock; and
- fees and expenses incurred by or on behalf of Catena in connection with the merger in excess of \$7 million.

With the exception of claims, losses and liabilities incurred by CIENA as a result of fraud, or inaccuracies or breaches of Catena's representation and warranty regarding its record holders of capital stock, or Catena's representations and warranties regarding certain tax matters, CIENA is only entitled to indemnification for claims made within the one year period following the closing of the merger. In the case of indemnification claims made after the one-year period relating to the limited representations and warranties described in this paragraph, each stockholder's liability (including through claims against the escrow fund) is limited to the product of the number of shares such stockholder was entitled to receive in the merger and the average closing price of CIENA's common stock on the Nasdaq National Market over the ten trading days ending on the trading day immediately prior to the closing of the merger.

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Except as described in the previous paragraph, the aggregate amount available to indemnify the indemnified parties may not exceed the amount deposited in the escrow fund, referred to below, and no stockholder is required to indemnify the indemnified parties for an amount that would exceed such stockholder's pro rata share of the CIENA stock deposited in the escrow fund. In addition, there will be no indemnification liability, except for the indemnification of fees and expenses that exceed \$7 million, unless the aggregate amount of losses incurred exceeds \$750,000, in which event the entire amount of losses will be indemnifiable. The stockholders will have no right of contribution from Catena with respect to any loss claimed by CIENA after the closing date. Nothing in the merger agreement limits the liability of Catena for any breach of any covenant or agreement if the merger is not consummated.

Escrow Fund. The merger agreement provides that 10% of the shares of CIENA common stock to be issued to the Catena stockholders in the merger will be placed in escrow with an escrow agent as soon as practicable after the merger is completed. Additionally, as described below, 40,128 shares of CIENA common stock that are allocable to Catena stockholders in the merger will be deposited with the escrow agent to pay any expenses of the stockholders' representative in the event that Catena's fees and expenses associated with the transaction, together with the expenses of the stockholders' representative, exceed \$7 million. The escrow fund will be the sole and exclusive source available to compensate CIENA for the indemnification obligations of each Catena stockholder under the merger agreement except as described above. The deposit with the escrow agent constitutes an escrow fund to be governed by the terms set forth in the escrow agreement. The portion of the escrow amount contributed on behalf of each stockholder must be proportional to the aggregate CIENA common stock to which such holder would otherwise be entitled. The form of escrow agreement is attached to this proxy statement/ prospectus as Annex C.

Stockholders' Representative

Under the terms of the merger agreement, in the event Catena's stockholders approve the merger, Gary Morgenthaler will be appointed as agent and attorney-in-fact to act on behalf of Catena's stockholders and to take all such actions as may be necessary or appropriate to carry out the merger agreement and the escrow agreement. Gary Morgenthaler is an affiliate of Morgenthaler Ventures, the largest stockholder of Catena. Any actions taken by the stockholders' representative shall be binding upon all stockholders, except in cases of willful misconduct, and no stockholder shall have the right to object, dissent, protest or otherwise contest such determinations or actions. The stockholders' representative shall have no liability to any stockholder or any other person, for any actions taken, decisions made or instructions given in the performance of its duties, except in the case of his own willful misconduct.

Catena's stockholders will, on a pro rata basis, contribute 40,128 shares of CIENA common stock to the escrow fund for purposes of reimbursing the out-of-pocket fees and expenses incurred by the stockholders' representative in the performance of its duties. To the extent such costs exceed the reimbursement fund, and any amounts remaining in the escrow fund, Catena's stockholders shall pay their respective pro rata share of such amounts incurred by the stockholders' representative in the performance of its duties.

Catena stockholders who in the aggregate hold a majority in interest in the escrow fund will have the right at any time during the term of the escrow agreement to remove the then-acting stockholders' representative and appoint a successor.

The vote being taken at the upcoming special meeting to approve and adopt the merger agreement includes approval of the provision of the merger agreement establishing Gary Morgenthaler as stockholders' representative under the merger agreement and the escrow agreement.

Directors' and Officers' Indemnification

CIENA has agreed to fulfill and honor in all respects the indemnification agreements Catena has previously entered into with its officers and directors and to fulfill and honor any indemnification provisions of Catena's and its subsidiary's charter documents. The merger agreement provides that all rights to indemnification for present and former officers and directors of Catena will survive the merger and

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continue in full force and effect for a period of not less than six years from the date of the completion of the merger in the case of certain omissions.

Conditions Precedent to Each Party's Obligation to Effect the Merger

The following conditions must be satisfied before the merger can become effective:

- all applicable waiting periods under the Hart-Scott-Rodino Act have expired or been terminated;
- CIENA and Catena have obtained all authorizations, consents, orders, declarations or approvals of, or filings with, any governmental authority required in connection with the merger, which the failure to obtain, make or occur would have the effect of making the merger or any of the transactions contemplated by it illegal or would have a material adverse effect on CIENA or a material adverse effect on Catena;
- no court or governmental entity enacts, issues, promulgates, enforces or enters, or institutes a proceeding to do so, any law, statute, ordinance, rule, regulation, judgment, decree, injunction or other order that is in effect and that restrains, enjoins or otherwise prohibits consummation of the merger;
- the S-4 registration statement must have become effective under the Securities Act, and there must be no stop order or threat of proceedings by the SEC to suspend the effectiveness of the S-4;
- holders of Catena capital stock must have approved the merger and the amended and restated Catena certificate of incorporation; and
- the amended and restated Catena certificate of incorporation must have been filed with the Secretary of State of the State of Delaware.

Conditions Precedent to CIENA's Obligations

CIENA's obligations to effect the merger are subject to the fulfillment or satisfaction, prior to or on the closing date, of each of the following conditions:

- Catena must have performed and complied in all material respects with all agreements to be performed prior to or on the closing date;
- each of Catena's representations and warranties contained in the merger agreement must be true and correct in all material respects as of the closing, other than for (i) inaccuracies that could not reasonably be expected to have a material adverse effect on Catena, (ii) representations and warranties that expressly relate to an earlier date (in which case such representations and warranties must be true as of such earlier date), and (iii) inaccuracies arising solely as a result of the declaration, setting aside, or payment of cash dividends to holders of Catena's preferred stock as permitted by the merger agreement;
- Catena must have received certain specified consents or waivers, in form and substance satisfactory to CIENA, from the other parties to certain contracts, leases or agreements to which Catena is a party;
- the escrow agreement must have been executed and delivered by the stockholders' representative;
- CIENA must have received favorable written legal opinions dated as of the closing date from its counsel as to federal income tax matters and from Catena's counsel as to certain customary matters;
- Catena's Amended and Restated Investor Rights Agreement, dated January 22, 2002, must have been terminated; and
- all security interests in any of Catena's assets held by certain parties must have been released and the indebtedness related thereto must have been repaid.

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CIENA may elect, in its sole discretion, to waive any of its conditions to closing that have not been fulfilled.

Conditions Precedent to Catena's Obligations

Catena's obligations to effect the merger are subject to the satisfaction of the following conditions prior to the closing date:

- CIENA must have performed and complied in all material respects with all agreements and conditions to be performed prior to or on the closing date;
- each of CIENA's representations and warranties contained in the merger agreement must be true and correct in all material respects as of the closing, other than for (i) inaccuracies that could not reasonably be expected to have a material adverse effect on CIENA and (ii) representations and warranties that expressly relate to an earlier date (in which case such representations and warranties must be true as of such earlier date);
- Catena must have received favorable written legal opinions dated as of the closing date from its counsel as to federal income tax matters and from CIENA's counsel as to certain customary matters;
- if required, CIENA shall have filed a timely notification of listing of additional shares with the Nasdaq National Market;
- the escrow agreement must have been executed and delivered by CIENA and the escrow agent; and
- the average closing price of a share of CIENA common stock as reported on Nasdaq National Market for the ten most recent days that CIENA common stock has traded ending on the last trading day prior to the date stockholder approval is obtained, or the date that the HSR Act waiting period has expired, whichever is later, must be at least \$3.12.

Catena may elect, in its sole discretion, to waive any of its conditions to closing that have not been fulfilled.

Termination of the Merger Agreement

The merger agreement may be terminated, and the merger may be abandoned at any time prior to the closing date:

- by the mutual written agreement of CIENA and Catena;
- by CIENA or Catena if:
 - * the closing date has not occurred by July 31, 2004 (the "termination date") or the approval of Catena's stockholders as required by the merger agreement has not been obtained either within 20 business days following commencement of a solicitation of written consents or closing of voting at a meeting convened for that purpose, except that the right to terminate the merger agreement is not available to any party who has caused the delay in the closing date by failing to fulfill its obligations under the merger agreement; or
 - * any court or other governmental authority of competent jurisdiction issues an order or takes any other final and non-appealable action restraining, enjoining or otherwise prohibiting the merger.
- by Catena if:
 - * prior to approval of the merger by Catena's stockholders, Catena's board of directors authorizes Catena, subject to complying with the merger agreement, to enter into a binding written agreement concerning a superior proposal and CIENA does not make, within two business

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days of receipt of notification of Catena's intent, an offer that the Catena board of directors determines in good faith, after consultation with its outside legal counsel and its financial advisors, is at least as favorable as the otherwise superior proposal; or

- * CIENA breaches any representation, warranty, covenant or agreement in the merger agreement such that Catena's condition to closing pertaining to accuracy of CIENA's representations and warranties and CIENA's compliance with covenants would not be satisfied, and CIENA fails to cure the breach ten days after receiving written notice of it.

• by CIENA if:

- * Catena's board of directors has withdrawn, modified or amended in any respect adverse to CIENA its recommendation in favor of the merger or failed to reconfirm its recommendation within three business days of a written request of CIENA to do so;
- * Catena has recommended or entered into an agreement with respect to, or consummated, any acquisition proposal from a person other than CIENA or any of its affiliates; or
- * Catena breaches any representation, warranty, covenant or agreement in the merger agreement such that CIENA's condition to closing pertaining to accuracy of Catena's representations and warranties and Catena's compliance with covenants would not be satisfied, and Catena fails to cure the breach ten days after receiving notice of it.

If the merger agreement is terminated by Catena in order to enter into an agreement for a superior proposal, or by CIENA because Catena's board of directors withdraws, amends or modifies its recommendation in favor of the merger or because Catena's board of directors recommends to its stockholders or enters into an agreement with respect to, or consummates, any acquisition proposal from a person other than CIENA or its affiliates, then Catena must pay CIENA a termination fee of \$14.5 million. In addition, if the merger agreement is terminated by either Catena or CIENA because the approval of Catena's stockholders as required by the merger agreement is not obtained and if at or prior to the special meeting any person shall have made an acquisition proposal to Catena or its stockholders or shall have publicly announced an intention to do so, then, if within 12 months of the termination of the merger agreement Catena enters into an agreement concerning an acquisition proposal with such person, Catena must pay the foregoing termination fee to CIENA.

Further, if the merger agreement is terminated by Catena to enable it to enter into a superior transaction, CIENA may exercise its options under the stockholder agreements to acquire a portion of the shares of the stockholders who are parties to the stockholder agreements, for cash or CIENA common stock. See "— Stockholder Agreements" below. However, if following the termination of the merger agreement CIENA exercises one or more of its options to acquire Catena capital stock under the stockholder agreements and CIENA votes the shares it acquires in favor of a third-party acquisition proposal consummated within 12 months of the termination of the merger agreement or tenders such shares in response thereto, to the extent such an acquisition proposal provides net proceeds to CIENA with respect to such shares equal to or in excess of the termination fee, CIENA is required to remit to Catena the amount of the termination fee previously paid to CIENA by Catena.

Waiver and Amendment of the Merger Agreement

At any time prior to the effective time of the merger, CIENA and Catena may agree in writing to:

- extend the time for the performance of any obligation or other act required to be performed under the merger agreement;
- waive any inaccuracies in the representations and warranties contained in the merger agreement or in any document delivered pursuant to the merger agreement;
- waive compliance with any of the agreements or conditions contained in the merger agreement; or
- amend the merger agreement.

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After the closing, the merger agreement may be amended or modified by CIENA and the stockholders' representative.

Expenses

CIENA and Catena will pay their own expenses incidental to the preparation of the merger agreement, the carrying out of the provisions of the merger agreement and the consummation of the transactions contemplated by the merger agreement.

Following the merger, CIENA will not be liable for Catena's out-of-pocket expenses paid or payable in connection with the merger (including fees and costs payable to bankers, accountants and lawyers, as well as payments required in connection with obtaining consents, and the cost of employee entitlements as a result of a change in control or non-standard severance provisions (with certain exclusions), tax gross-ups or otherwise) in excess of \$7 million, and any expenses in excess thereof are recoverable by CIENA from the escrow fund without reference to the minimum aggregate amount of losses (including excess Catena expenses) CIENA must first incur prior to recovery.

Stockholder Agreements

Voting

Certain directors, officers and affiliates of Catena, owning common and preferred stock of Catena have signed stockholder agreements with CIENA. In the aggregate, as of the record date, these individuals own

- 6,155,675 shares of voting common stock, representing approximately 66% of Catena's common stock entitled to vote at any annual or special meeting of Catena stockholders;
- 63,112,858 shares of voting common stock and voting preferred stock considered together on an as-converted into common stock basis, representing approximately 57% of Catena's common stock and preferred stock entitled to vote at any annual or special meeting of Catena stockholders, on an as-converted into common stock basis; and
- 56,957,183 shares of voting preferred stock considered on an as-converted basis, representing approximately 56% of Catena's voting preferred stock, on an as-converted into common stock basis, and 54% of Catena's series C preferred stock.

The form of these stockholder agreements is attached as Annex D to this proxy statement/ prospectus.

Pursuant to these stockholder agreements, these directors, officers and affiliates of Catena have agreed to do the following:

- vote in favor of adopting and approving the terms of the merger agreement and the amendment and restatement of the Catena certificate of incorporation;
- vote against any alternative acquisition proposal; and
- vote against any proposal that would in any manner impede, frustrate, prevent or nullify the merger or the merger agreement or change in any manner the voting rights of any class of capital stock of Catena.

The voting provisions of the stockholder agreements terminate upon the termination of the merger agreement.

These stockholders have also agreed not to:

- sell, transfer, pledge, assign or otherwise dispose of, or enter into any contract, option or other arrangement (including any profit-sharing arrangement) with respect to the transfer of their Catena shares to any person, subject to limited exceptions;
- enter into any voting arrangement, whether by proxy, voting agreement or otherwise, in relation to their Catena shares; or

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- during the term of the merger agreement, (i) directly or indirectly solicit, initiate or knowingly encourage the submission of, any alternative acquisition proposal or (ii) directly or indirectly participate in any discussions or negotiations regarding, or furnish to any person any information with respect to, or facilitate any inquiries or the making of any proposal that constitutes or may lead to, any alternative acquisition proposal or permit any affiliate, director, officer, employee, investment banker, attorney or other advisor or representative of the stockholder to do so.

Grant of Options to CIENA

The stockholder agreements also grant to CIENA an irrevocable option to purchase the shares of Catena stock that are owned beneficially or of record by the stockholders who entered into the stockholder agreements, subject to the limits described below. CIENA may exercise the options if:

- Catena terminates the merger agreement (other than because (i) the merger has not been consummated prior to July 31, 2004 through no fault of Catena, (ii) the merger has been permanently restrained, enjoined or prohibited by a court or governmental authority of competent jurisdiction or (iii) CIENA is in material breach of the merger agreement and Catena is not in material breach of the terms of the merger agreement);
- CIENA terminates the merger agreement because the Catena board of directors withdraws, or modifies in a manner adverse to CIENA its recommendation of the merger agreement and the merger or recommends or enters into an acquisition proposal with someone other than CIENA;
- CIENA terminates the merger agreement because Catena is in material breach of the terms of the merger agreement and CIENA is not in material breach of the terms of the merger agreement; or
- the stockholder breaches its obligations to vote in favor of the merger and otherwise as described in this section.

The option price is payable in cash, CIENA common stock or a combination of both (determined in CIENA's discretion). If paid in cash, the per share exercise price of the option equals the product of (i) the exchange ratio set forth in the merger agreement applicable to the class or series of Catena capital stock being acquired (determined as if the merger's closing date were the date of execution of the merger agreement) and (ii) \$6.23. If paid in CIENA common stock, the per share exercise price of the option equals the exchange ratio set forth in the merger agreement applicable to the class or series of Catena capital stock being acquired (again, determined as if the merger's closing date were the date of execution of the merger agreement).

If CIENA decides to exercise the options it must purchase the total number of shares subject to the options received from all of the Catena stockholders who have granted these options to CIENA. However, the maximum number of shares of Catena's capital stock (including vested options, convertible securities and warrants) that CIENA may acquire pursuant to such stockholder agreements is limited to 45% of Catena's issued and outstanding voting securities (including vested options) immediately prior to exercise of its option.

The options will terminate upon the earlier of (i) the consummation of the merger and (ii) twelve months after termination of the merger agreement.

CIENA required that the stockholders deliver these agreements as a condition to CIENA's willingness to enter into the merger agreement.

If the options granted under the stockholder agreements are exercised under the circumstances described above, CIENA could profit from an alternative proposal that is completed at a price higher than the option price. However, if following the termination of the merger agreement CIENA exercises one or more of its options to acquire Catena capital stock under the stockholder agreements and CIENA votes the shares it acquires in favor of a third-party acquisition proposal consummated within 12 months of the termination of the merger agreement or tenders such shares in response thereto, to the extent such an acquisition proposal provides net proceeds to CIENA with respect to such shares equal to or in excess of

the termination fee, CIENA is required to remit to Catena the amount of the termination fee previously paid to CIENA by Catena.

These options are not intended to and do not prevent the Catena directors from pursuing a superior proposal.

Restrictions on Resales by Affiliates

The shares of CIENA stock to be issued to Catena stockholders in the merger have been registered under the Securities Act. These shares may be traded freely and without restriction by those stockholders not deemed to be “affiliates” of Catena as that term is defined under the Securities Act. An affiliate of a corporation, as defined by the rules promulgated under the Securities Act, is a person who directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, that corporation. Any transfer by an affiliate of Catena must be one permitted by the resale provisions of Rule 145 promulgated under the Securities Act. If a Catena affiliate becomes an affiliate of CIENA, any transfer must be permitted by the resale provisions of Rule 144 promulgated under the Securities Act or otherwise permitted under the Securities Act. Affiliates of Catena will execute affiliate letters acknowledging these restrictions. In addition, each director and executive officer of Catena has executed a “lock-up” agreement with CIENA providing that for a period of two years following the merger such individual will not sell, transfer or otherwise dispose of any CIENA common stock issuable to such individual upon exercise of Catena options vested as of the date of the merger, provided that such individual may sell, transfer or otherwise dispose of up to 50% of such shares after the first anniversary of the merger and the remaining 50% at any time after the second anniversary of the merger. Additionally, such individual may transfer all or a portion of such individual’s shares at any time to certain related parties or as a bona fide gift in which the transferee agrees to be subject to the same restrictions on transfer as set forth in the lock-up agreement.

APPROVAL OF AMENDMENT AND RESTATEMENT OF CATENA’S

CERTIFICATE OF INCORPORATION

The Catena board of directors has approved and declared advisable, and recommends that the stockholders approve, the amendment and restatement of Catena’s certificate of incorporation to provide that the merger of Catena into CIENA is not an “Acquisition” or “Asset Transfer” of Catena that would be treated as a “liquidation” of Catena as defined therein (hereafter, referred to as the “Restated Charter”). See “The Merger — Recommendation of the Catena Board of Directors and Reasons for the Merger” for the reasons supporting the Catena board of directors’ recommendation.

On February 17, 2004, Catena’s board of directors unanimously adopted the Restated Charter, subject to stockholder approval. If approved, Section C(3)(d) of Article IV of Catena’s certificate of incorporation would be amended and restated in its entirety to read as follows (new text is underlined):

“(d) The following events will be considered a liquidation:

(1) any consolidation or merger of the Company with or into any other corporation or other entity or person, or any other corporate reorganization, in either case in which the stockholders of the Company immediately prior to such consolidation, merger or reorganization own less than 50% of the Company’s voting power immediately after such consolidation, merger or reorganization, or any transaction or series of related transactions to which the Company is a party in which in excess of 50% of the Company’s voting power is transferred (an “Acquisition”);

(2) a sale, lease or other disposition of all or substantially all of the assets of the Company (an “Asset Transfer”); or

(3) the grant of an exclusive license of all or substantially all of the Company’s intellectual property assets; provided, however, that notwithstanding the foregoing, the merger contemplated by the Agreement and Plan of Merger, dated as of February 18, 2004, by and among the

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Company, CIENA Corporation and certain officers of the Company, shall not be an “Acquisition” or “Asset Transfer” for purposes of this certificate of incorporation.”

The effect of the amendment set forth in the Restated Charter allows Catena to alter the consideration holders of its common stock and preferred stock would otherwise be entitled to receive in Catena’s merger with CIENA were it to be treated as a “liquidation” of Catena under Catena’s existing certificate of incorporation. As part of the negotiations of the terms of the merger of Catena into CIENA, Catena and CIENA agreed that the CIENA stock to be issued as consideration in connection with the merger should be distributed in a manner that differed from the results obtained under the existing certificate of incorporation of Catena. Under Catena’s existing certificate of incorporation, upon a “liquidation” (which under Catena’s existing certificate of incorporation would include the merger) holders of Catena’s preferred stock are entitled to certain preferential payments prior to the receipt of any merger proceeds by holders of Catena’s common stock. Under the existing certificate of incorporation, holders of Catena’s common stock are entitled to participate ratably with holders of Catena’s preferred stock in any proceeds remaining after the payment of these preferential amounts until such time as certain cap amounts are received by the holders of Catena’s preferred stock, at which point holders of Catena’s common stock are entitled to receive any remaining proceeds. Consequently, the number of shares of CIENA common stock that holders of Catena preferred stock and common stock would be entitled to receive in a liquidation under Catena’s existing certificate of incorporation would depend on the total value of the merger consideration offered to be paid by CIENA to all of Catena’s stockholders, with such value based on the average closing price of CIENA’s common stock on the Nasdaq National Market over the 30-day period ending three days prior to closing of the merger.

Pursuant to the terms of the merger agreement, holders of Catena common stock are entitled to a fixed consideration of 0.493 shares of CIENA common stock for each share of Catena common stock. Holders of Catena preferred stock are entitled to the amount they would have received under Catena’s existing certificate of incorporation were the merger to be treated as a “liquidation,” including through conversion of preferred stock (assuming for this purpose the Catena preferred stock could be converted into Catena common stock and disregarding the fixed consideration for common stock prescribed by the merger agreement) if such holders would receive more consideration as a result of such conversion, with such amount adjusted upward or downward ratably among holders of Catena preferred stock, depending on the extent to which holders of Catena common stock receive more or less consideration in the merger than they would have received were the merger to be treated as a “liquidation” of Catena under Catena’s current certificate of incorporation.

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The following table illustrates the number of shares of CIENA common stock a holder of Catena common stock or preferred stock would be entitled to receive per share if the merger were treated as a liquidation under Catena's existing certificate of incorporation using a hypothetical range of average closing prices determined in accordance with Catena's existing certificate of incorporation ("illustrative average closing prices") versus the number of shares of CIENA common stock such holders would be entitled to receive under the merger agreement at such illustrative average closing prices assuming the total number of shares of Catena capital stock outstanding on a fully-diluted basis on the day the merger is completed is 130,308,407, which was the number of shares of capital stock outstanding on a fully-diluted basis on the record date. "Fully-diluted basis" means that all outstanding options and warrants are exercised and that all outstanding preferred stock is converted into common stock based on the then-effective conversion rates of the preferred stock. Under Catena's existing certificate of incorporation, the value of each share of CIENA common stock issuable to Catena stockholders in the merger equals the average closing price of one share of CIENA's common stock over the 30 days ending three days prior to the closing of the merger.

Illustrative Average Closing Price of CIENA Common Stock(1)	\$4.19	\$5.63	\$6.28	\$8.14
Exchange Ratio of CIENA Common Stock for Catena Common Stock under a "Liquidation"	0.245	0.457	0.470	0.499
Exchange Ratio of CIENA Common Stock for Catena Common Stock under the Merger Agreement	0.493	0.493	0.493	0.493
Exchange Ratio of CIENA Common Stock for Catena Series A and AA Preferred Stock under a "Liquidation"	0.358	0.457	0.470	0.499
Exchange Ratio of CIENA Common Stock for Catena Series A and AA Preferred Stock under the Merger Agreement	0.324	0.450	0.465	0.501
Exchange Ratio of CIENA Common Stock for Catena Series A-1 and AA-1 Preferred Stock under a "Liquidation"	0.635	0.783	0.717	0.565
Exchange Ratio of CIENA Common Stock for Catena Series A-1 and AA-1 Preferred Stock under the Merger Agreement	0.575	0.771	0.710	0.567
Exchange Ratio of CIENA Common Stock for Catena Series B, BB, B-1 and BB-1 Preferred Stock under a "Liquidation"	1.248	1.378	1.335	1.254
Exchange Ratio of CIENA Common Stock for Catena Series B, BB, B-1 and BB-1 Preferred Stock under the Merger Agreement	1.130	1.357	1.322	1.258
Exchange Ratio of CIENA Common Stock for Catena Series C, CC, C-1 and CC-1 Preferred Stock under a "Liquidation"	2.311	2.266	2.152	1.877
Exchange Ratio of CIENA Common Stock for Catena Series C, CC, C-1 and CC-1 Preferred Stock under the Merger Agreement	2.092	2.232	2.131	1.882
Exchange Ratio of CIENA Common Stock for Catena Series D, DD, D-1 and DD-1 Preferred Stock under a "Liquidation"	0.575	0.457	0.470	0.499
Exchange Ratio of CIENA Common Stock for Catena Series D, DD, D-1 and DD-1 Preferred Stock under the Merger Agreement	0.521	0.450	0.465	0.501

- (1) The hypothetical values chosen in the foregoing table as illustrative average closing prices reflect the high and low sales prices of CIENA's common stock on the Nasdaq National Market for the 52 weeks and three months ended February 18, 2004, and the closing price of CIENA's common stock on the Nasdaq National Market on February 18, 2004.

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The Restated Charter also would exempt the merger from the requirement that holders of the series C and series CC preferred stock, voting together as a single class on an as-converted into common stock basis, approve the merger if the aggregate consideration distributable to holders of Catena's capital stock in the merger is less than \$350 million.

The Restated Charter would be filed and become effective immediately prior to the closing of the merger.

The Board of Directors unanimously recommends that you vote **"FOR"** the proposal to amend and restate Catena's Amended and Restated Certificate of Incorporation, as amended, to provide that the merger of Catena into CIENA would not be an "Acquisition" or "Asset Transfer" constituting a "liquidation" of Catena thereunder.

APPROVAL OF PARACHUTE PAYMENTS IN CONNECTION WITH THE MERGER

Overview

The stockholders of Catena are being asked to approve the portion of the following payments that alone or together would cause the following U.S. executive of Catena to receive payments that would be considered “parachute payments” under Section 280G of the Tax Code (as discussed in more detail below). Such portion of the following payments is referred to herein as the “Payments:”

- certain severance payments under a severance benefits agreement (the “Severance Benefits Agreement”) between Catena and Gary Bolton (the “Executive”); and
- accelerated vesting of stock options granted to the Executive to which the Executive may become entitled in connection with the merger (the “Accelerated Vesting”).

Under Section 280G of the Tax Code, payments made to “disqualified individuals” that are contingent on a change in the ownership or control of a corporation, such as the merger, may be characterized as “parachute payments.” However, Section 280G of the Tax Code explicitly exempts from this characterization payments that would otherwise constitute “parachute payments” in certain circumstances, including, among others, where the payments are associated with a “change in ownership or control” of a corporation whose stock is not readily tradable (as further described below) and the payments are approved by more than 75% of the voting power of all outstanding stock of the corporation (excluding shares owned by the persons receiving such payments and certain related persons), as further described below.

“Parachute Payments” Under Section 280G of the Tax Code

General. In general, under Section 280G of the Tax Code and the applicable Treasury Regulations, if a “disqualified individual”

- receives payments or certain other benefits in the nature of compensation that are contingent on a “change in ownership or control” and
- the aggregate present value of such payments and/or benefits equals or exceeds three times the individual’s “base amount,”

such payments and/or benefits will constitute “parachute payments.” An amount is an “excess parachute payment” to the extent the amount exceeds one times the disqualified individual’s base amount. A “disqualified individual” includes any person who is both an employee of the corporation and either a “stockholder,” “officer” or “highly compensated individual” during the 12-month period ending on the date of the “change in ownership or control.” A “change in ownership or control” includes a change in the ownership or effective control of a corporation or the ownership of a substantial portion of the assets of a corporation. For purposes of Section 280G, the merger will constitute a “change in ownership or control” and the Executive will or may be considered a “disqualified individual.”

The “Base Amount.” The “base amount” is generally an individual’s average annual compensation from the corporation during the five years prior to the “change in ownership or control” (or lesser period where applicable). The Executive’s “base amount,” for the purpose of determining whether any payments to such individuals would be considered “parachute payments,” and the extent of “excess parachute payments” is approximately \$152,091.

Potential Adverse Consequences. In certain circumstances, the payment of “parachute payments” could result in significant tax consequences under Sections 280G and 4999 of the Tax Code. If a “disqualified individual” receives “parachute payments,” then, unless certain exceptions apply (one of which is the stockholder approval exception described below), the amount by which the aggregate of all

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“parachute payments” to such individual exceeds his or her “base amount,” will be subject to the following tax consequences:

- such excess payments will not be deductible by the corporation; and
- the recipient will be subject to a 20% non-deductible excise tax on the amount of such excess payments.

As noted above, some types of payments are exempt from the definition of the term “parachute payment.” Amounts that are reasonable compensation for personal services to be rendered on or after the date of the “change in ownership or control,” such as services pursuant to a covenant not to compete or a consulting agreement, are excluded from the definition of “parachute payment.” In addition, stockholder approval of the payments in certain circumstances, as described below, can result in the payments being excluded from the definition of “parachute payment” for purposes of Section 280G of the Tax Code.

Stockholder Approval Exception. A payment to a “disqualified individual” is exempt from the definition of “parachute payment” under Section 280G of the Tax Code if:

- immediately before the “change in ownership or control,” no stock in the corporation is readily tradable on an established securities market or otherwise,
- the payment is approved by more than 75% of the voting power of all outstanding stock of the corporation undergoing the “change in ownership or control” entitled to vote immediately before the “change in ownership or control,” and
- before the vote, there was adequate disclosure to all persons entitled to vote of all material facts concerning all material payments that would otherwise constitute “parachute payments” with respect to the “disqualified individual.”

Stockholder approval may be obtained in a single vote on all payments to any one “disqualified individual” or on all payments to more than one “disqualified individual.” In addition, the stockholder vote can be on less than the full amount of the payment(s) to be made. The determination of the stockholders entitled to vote on the payment(s) may be based on the stockholders of record as of any date within six months of the date of the “change in ownership or control,” provided the disclosure requirements referred to above are met.

Certain outstanding shares may not be counted as “outstanding” for purposes of this vote. If, but for the stockholder approval exception, a “disqualified individual” would otherwise receive “parachute payments” (e.g., because his or her aggregate payments exceeds three times the “base amount”), then any shares of stock actually owned or constructively owned by or for such “disqualified individual” are not counted as outstanding shares for purposes of determining whether the requisite stockholder vote has been obtained. Shares owned by certain other related individuals or entities also may be excluded from the number of outstanding shares for purposes of the above-described stockholder vote.

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According to Treasury Regulations under Section 280G of the Tax Code, the stockholder approval must be a separate vote that determines the individuals' right to receive or retain the payment or benefit. Accordingly, the Executive has executed a waiver agreement that provides that the Executive will not be entitled to the Payments to the extent the Payments would constitute "parachute payments" and would be taxable as "excess parachute payments."

Possible Change in Control Payments

Payments under the Severance Benefits Agreement. The Executive currently has a Severance Benefits Agreement with Catena that provides that in the event the Executive's employment is terminated involuntarily by Catena without "cause" or such individual voluntarily terminates his employment with "good reason," he will receive a lump sum payment equal to six months salary and subsidization of major medical benefits for six months (or until he finds employment elsewhere). The estimated aggregate value of the Executive's potential severance benefits under the Executive's Severance Benefits Agreement is \$80,936.

Stock Options. In addition to the Severance Benefits Agreement Payments, the vesting of stock options in connection with a "change in ownership or control" may be considered "payments in the nature of compensation" that must be taken into account in determining whether a "disqualified individual" would otherwise receive "parachute payments" in connection with such "change in ownership or control." According to the Treasury Regulations under Section 280G of the Tax Code, the vesting of unvested stock options owned by the Executive would be treated as payments "in the nature of compensation" for purposes of Section 280G of the Tax Code. Under the terms of the Severance Benefits Agreements, the Executive's unvested options will become vested if the Executive's employment is terminated either without "cause" or voluntarily by such Executive for "good reason."

The Treasury Regulations generally provide that only a portion of a payment that becomes vested as a result of a "change in ownership or control" is treated as contingent on the change if, without regard to the "change in ownership or control," the payment was contingent only on the continued performance of services for a stated period and the payment is in part attributable to services before the payment becomes vested. Since the unvested stock options held by the Executive were not granted in contemplation of a "change in ownership or control" of Catena and would have become vested after continued service, only a portion of the unvested stock and stock option acceleration value would be treated as contingent on a "change in ownership or control." Accordingly, under the Treasury Regulations, the portion of each unvested stock option that is treated as contingent on a "change in ownership or control" is equal to the sum of: (i) the amount of such payment less the present value of such payment discounted from the date such options otherwise would vest (based on 120% of the Applicable Federal Rate under Section 1274(d) of the Tax Code, compounded semi-annually) and (ii) an amount equal to one percent of the payment for each full calendar month for which the individual no longer has to perform services for the options to vest.

The table below provides information for the Executive based on information available on or as of February 29, 2004:

Number of Shares of Common Stock Subject to the Option	Date Option Granted	Exercise Price per Share	Number of Shares Unvested as of February 29, 2004	Original Vesting Schedule
230,000	May 6, 1999	\$0.05	—	1/4 on 1st anniversary of hiring date; monthly over remaining 36 months
50,000	June 14, 2001	\$1.50	17,709	monthly over 48 months
300,000	January 29, 2002	\$0.15	143,750	monthly over 48 months
200	January 29, 2003	\$0.15	146	monthly over 48 months
580,000	July 23, 2003	\$0.15	495,417	monthly over 48 months (early exercise permitted)

In the case of these option grants, the amount that is treated as contingent on a change in control of Catena as a result of the acceleration of vesting is \$390,985. The calculation of the foregoing amount (the

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“Equity Compensation Contingent Amount”) includes a determination of the present value of the payment to be received for unvested stock options calculated using the Applicable Federal Rate as determined by the IRS for the month in which the “change in ownership or control” occurs. Since the “Equity Compensation Contingent Amount” was calculated using the Applicable Federal Rate in effect for February 2004, the “Equity Compensation Contingent Amount” will change if the Applicable Federal Rate on the closing date of the merger is different from the rate in effect for February 2004.

“Parachute Payments” Calculations

If the requisite stockholder approval of the Payments is not obtained and assuming: (i) no other exemption under Section 280G or the applicable Treasury Regulations from the definition of “parachute payment” is available (e.g., amounts that are reasonable compensation for personal services rendered on or after the closing of the merger) and (ii) with respect to the Executive, the sum of the payments under the Severance Benefits Agreement plus the Equity Compensation Contingent Amount equals or exceeds three times the Executive’s “base amount” then the estimated amount that could possibly constitute “parachute payments” for purposes of Section 280G of the Tax Code is \$471,912.

Stockholder Approval of the Payments

Under the Treasury Regulations promulgated under Section 280G of the Tax Code, the Payments would be exempt from the definition of “parachute payment” if they are approved by more than 75% of the voting power of all outstanding Catena Common Stock entitled to vote on the applicable record date.

Under the applicable Treasury Regulations, approval by a stockholder that is not an individual (i.e., an entity) of a payment generally must be made by the person authorized by the entity stockholder to approve the payment (assuming such authorized person is not a “disqualified individual”). However, if a “substantial portion” of the assets of an entity stockholder consists (directly or indirectly) of stock in the corporation undergoing the “change in ownership or control,” approval of such payment by that entity must be made by a separate vote of the persons who hold, immediately before the “change in ownership or control” more than 75% of the voting power of the entity stockholder entitled to vote. For this purpose, stock represents a “substantial portion” if the fair market value of the stock held by the entity stockholder in the corporation undergoing the “change in ownership or control” is equal to or greater than one-third of the total gross fair market value of the assets of the entity, determined without regard to any liabilities associated with such assets.

The approval of the Catena stockholders sought under this proposal relates solely to the Payments described in this proxy statement/ prospectus, and is not applicable to payments under any other agreements or to any other Catena executives or employees who may receive similar benefits in the event the merger is consummated. In connection with the merger, the Catena board of directors has recommended that you approve the Payments.

Under the terms of a waiver agreement executed by the Executive, the Executive will not be entitled to the Payments to the extent the Payments would constitute “parachute payments” and would be taxable as “excess parachute payments.”

You are being asked to vote on the question of approving these Payments for the Executive. This vote is separate from your vote on whether or not to approve the proposed merger of Catena into CIENA.

The stockholders of Catena will not receive a direct economic benefit in the event the stockholder approval described in this disclosure statement is not received. If the Payments are approved, the Payments will be made in accordance with the pre-existing contractual commitments Catena has with the Executive. If the Payments are not approved, the Executive will forgo a portion of the Payments, to the extent necessary, in order to not exceed the limitation described above. Cash benefits will be eliminated first, and then accelerated vesting of options and restricted stock. The vote is a single vote to approve Payments for all disqualified individuals.

INFORMATION ABOUT CIENA

General

CIENA is a leader in innovative networking solutions to service providers and enterprises worldwide. CIENA's customers include long-distance carriers, local exchange carriers, Internet service providers, wireless and wholesale carriers, systems integrators, large businesses and governmental and non-profit institutions. CIENA offers network solutions that enable service providers to provision, manage and deliver economic, high-bandwidth services to their customers.

Proposed Acquisition of Internet Photonics, Inc.

On February 19, 2004, CIENA announced the execution of a definitive agreement to acquire Internet Photonics, Inc, a leading supplier of carrier-grade optical Ethernet transport and switching solutions. Under the terms of the acquisition agreement, Internet Photonics will merge into CIENA, and all the outstanding shares of Internet Photonics common and preferred stock, and employee stock options will be exchanged for shares of CIENA common stock. The total number of shares issuable in respect of Internet Photonics outstanding stock, options and warrants is approximately 24.1 million shares of CIENA common stock, which based on the closing price of CIENA's common stock on March 24, 2004, had an aggregate value of approximately \$114.4 million. CIENA expects the transaction to qualify as a tax-free reorganization. This transaction is subject to various conditions and approval by appropriate government agencies. The boards of directors of both CIENA and Internet Photonics, and a majority of Internet Photonics' stockholders, have approved the transaction. It is expected that this transaction will close by the end of CIENA's third fiscal quarter 2004.

Additional Information

A detailed description of CIENA's business and various benefit plans, including stock option plans, financial statements and other matters related to CIENA is incorporated by reference in this proxy statement/ prospectus or set forth in CIENA's Annual Report on Form 10-K for the year ended October 31, 2003 and Quarterly Report on Form 10-Q for the quarter ended January 31, 2004. Stockholders desiring copies of such documents may contact CIENA at its address or telephone number indicated under the caption "Where You Can Find More Information."

INFORMATION ABOUT CATENA

Business of Catena

Catena builds innovative broadband access solutions that are designed to enable incumbent telecommunications carriers to achieve mass-market deployment of plain old telephone service, or POTS, and high-speed digital subscriber line data service, or DSL, on a single access line and to facilitate access network convergence. Catena's solutions include the CNX-5 Broadband DSL System, the CN1000 Broadband Loop Carrier System, and the CatenaView Element Management System.

The CNX-5 Broadband DSL System is a card-for-card upgrade solution for Lucent SLC® Series 5 (SLC-5) Digital Loop Carriers. It provides two lines of integrated POTS and DSL service and replaces cards that provide two lines of POTS only. The CNX-5 gives carriers a simple, cost-effective and scalable way to broadband-enable their installed base of SLC-5s, without reducing the number of available POTS lines.

The CN1000 Broadband Loop Carrier System is a high-density broadband access system that delivers integrated voice, data and video services. The CN1000 provides POTS, DSL and Packet Voice capability on every line, enabling carriers to provide these services to any subscriber through software remotely, without manual intervention.

CatenaView is Catena's carrier-class Element Management System for its broadband access products. Telecommunications carriers can deploy CatenaView as a stand-alone product or integrate it with their network management system and operational support system.

Catena's customers include incumbent telephone and independent telecommunications providers. To date almost all of Catena's revenues have been attributable to sales of its CNX-5 Broadband DSL System and associated CatenaView Element Management Systems. Catena utilizes a third party manufacturer to manufacture and ship its products. Catena is a Delaware corporation incorporated in 1998 with its principal operations located in Ottawa, Canada. As of February 18, 2004, Catena employed 261 persons, of whom 180 were engaged in research and development.

Catena's Chief Executive Officer

Mr. Gudmundur A. (Jim) Hjartarson, age 47, is a co-founder of Catena and has held a variety of executive officer positions at Catena since Catena's founding in December 1998 until the present. From December 1998 through January 2002, Mr. Hjartarson served as Catena's Chairman of the Board. From December 1998 until September 1999, Mr. Hjartarson served as Catena's Chief Executive Officer. From December 1998 until October 2001, he also served as Catena's Chief Technical Officer and Senior Vice President of Engineering. From October 2001 until June 2002, Mr. Hjartarson served as Catena's Chief Technical Officer and Executive Vice President of Engineering. From June 2002 until the present, Mr. Hjartarson has served as Catena's Chief Executive Officer. From May 1997 to November 1998, Mr. Hjartarson served as Vice President and General Manager of the Telecom Design Services Group at Cadence Design Systems, a provider of electronic design automation (EDA) products and services, where he co-founded the Design Center in Ottawa, Canada. From August 1996 to May 1997, he served as Cadence's Group Director, Telecom Design Services. From 1980 to 1996, Mr. Hjartarson served in various positions at Bell Northern Research, the then research-and-development arm of Nortel Networks, a provider of networking and communications solutions and infrastructure for service providers and corporations. While there, from 1984 to 1996, he served in various management positions, most recently as Director of Global Loop and Access Technology from 1994 to 1996. Mr. Hjartarson holds a B.Sc. and an M.Sc. in electrical engineering from the University of Manitoba.

Certain Transactions

In December 1998, Mr. Hjartarson, pursuant to a founder stock purchase agreement, purchased 1,160,000 shares of Catena's common stock for an aggregate purchase price of \$58,000. Catena loaned

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Mr. Hjartarson a portion of the purchase price of the shares. As of December 31, 2003, \$50,765 in principal and accrued interest was outstanding under the promissory issued by Mr. Hjartarson. The promissory note was repaid in full by Mr. Hjartarson in 2004. In addition, Mr. Hjartarson recently entered into a severance benefits agreement with Catena, along with Catena's other executive officers, providing for certain severance benefits in the event he is terminated without cause or terminates his employment with Catena for good reason. See "The Merger — Interests of Executive Officers and Directors in the Merger."

SECURITY OWNERSHIP OF DIRECTORS, EXECUTIVE OFFICERS AND MORE THAN

FIVE PERCENT STOCKHOLDERS OF CATENA

The following table sets forth certain information regarding the beneficial ownership of Catena's capital stock as of February 29, 2004: (i) by each person who is known by Catena to own beneficially more than 5% of each of the classes of Catena capital stock, on an as-converted into common stock basis; (ii) by each director of Catena; (iii) by the chief executive officer and the four most highly compensated executive officers, other than the chief executive officer, of Catena; and (iv) by all of the directors and all of the executive officers of Catena as a group. Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and includes voting and investment power with respect to the shares of capital stock. Except as noted below, the address of each person listed on the table is c/ o Catena Networks, Inc., 307 Legget Drive, Kanata, Ontario K2K 3C8.

As of February 29, 2004, there were outstanding (i) 9,371,695 shares of voting common stock outstanding and (ii) 102,191,283 shares of preferred stock on an as-converted into common stock basis, comprised of (a) 10,100,000 shares of series A preferred stock, which represented 10,100,000 shares of common stock on an as-converted into common stock basis, (b) 440,000 shares of series A-1 preferred stock, which represented 497,958 shares of common stock on an as-converted into common stock basis, (c) 7,677,856 shares of series B preferred stock, which represented 12,588,410 shares of common stock on an as-converted into common stock basis, (d) 846,262 shares of series B-1 preferred stock, which represented 1,387,509 shares of common stock on an as-converted into common stock basis, (e) 7,514,978 shares of series C preferred stock outstanding, which represented 14,960,782 shares of common stock on an as-converted into common stock basis, (f) 338,426 shares of series C-1 preferred stock outstanding, which represented 673,737 shares of common stock on an as-converted into common stock basis, and (g) 61,982,888 shares of series D preferred stock, which represented 61,982,888 shares of common stock on an as-converted into common stock basis.

Name of Beneficial Owner(1)	Common Stock Outstanding		Preferred Stock Outstanding on an As-Converted Basis(2)		Total Common Stock and Preferred Stock Outstanding on an As-Converted Basis	
	Number of Shares	Percent	Number of Shares	Percent	Number of Shares	Percent
Gary Morgenthaler(3) c/ o Morgenthaler Ventures 2710 Sand Hill Road, Suite 2710 Menlo Park, CA 94025	—	—	35,260,025	34.5%	35,260,025	31.6%
Entities affiliated with Morgenthaler Ventures(4) 2710 Sand Hill Road, Suite 100 Menlo Park, CA 94025	—	—	35,260,025	34.5%	35,260,025	31.6%
John Jarve(5) c/ o Menlo Ventures 3000 Sand Hill Road Building 4, Suite 100 Menlo Park, CA 94025	—	—	18,636,940	18.2%	18,636,940	16.7%
Entities affiliated with Menlo Ventures(6) 3000 Sand Hill Road Building 4, Suite 100 Menlo Park, CA 94025	—	—	18,636,940	18.2%	18,636,940	16.7%
London Pacific Life & Annuity Company 3101 Poplarwood Ct., Suite 300 Raleigh, NC 27604	—	—	14,228,739	13.9%	14,228,739	12.8%
Entities affiliated with Worldview Technology Partners(7) 435 Tasso Street, Suite 120 Palo Alto, CA 94301	—	—	9,118,058	8.9%	9,118,058	8.2%
Entities affiliated with Goldman, Sachs & Co.(8) 555 California Street, 45 th Floor San Francisco, CA 94014	—	—	6,341,713	6.2%	6,341,713	5.7%
Joseph Costello(9)	105,000	1.1%	3,060,218	3.0%	3,267,589	2.8%
Gudmundur (Jim) Hjartarson(10)	3,768,836	31.5%	0	—	3,768,836	3.3%

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Name of Beneficial Owner(1)	Common Stock Outstanding		Preferred Stock Outstanding on an As-Converted Basis(2)		Total Common Stock and Preferred Stock Outstanding on an As-Converted Basis	
	Number of Shares	Percent	Number of Shares	Percent	Number of Shares	Percent
Richard DeGabielle(11)	1,153,187	12.3%	0	—	1,153,187	1.0%
Mark Feeley(12)	1,691,532	16.7%	0	—	1,691,532	1.5%
Jonathan Boocock(13)	1,428,812	14.5%	0	—	1,428,812	1.3%
Andreas Weirich(14)	1,428,812	14.5%	0	—	1,428,812	1.3%
All executive officers and directors as a group (15 persons)(15)	13,149,800	80.3%	56,957,183	55.7%	70,106,983	59.1%

- (1) The persons identified in the table above possess sole voting and investment power with respect to all shares shown beneficially owned by them, except as noted in the footnotes below and subject to applicable community property and similar laws. The inclusion of any shares of Catena capital stock deemed beneficially owned does not constitute an admission of beneficial ownership of such shares.
- (2) The number of shares of Catena common stock issuable upon conversion of a share of each series of voting preferred stock is as follows: (i) each share of series A preferred stock is convertible into one share of common stock and each share of series A-1 preferred stock is convertible into 1.1317227 shares of common stock; (ii) each share of series B preferred stock and series B-1 preferred stock is convertible into 1.6395736 shares of common stock; (iii) each share of series C preferred stock and series C-1 preferred stock is convertible into 1.9907952 shares of common stock and (iv) each share of series D preferred stock and series D-1 preferred stock is convertible into one share of common stock.
- (3) All of such shares are held by the entities listed in note (4) below. Mr. Morgenthaler is a member of the sole general partner of each of the entities listed in note (4) below and thus may be deemed to share voting and investment power with respect to all shares held by such entities. Mr. Morgenthaler disclaims beneficial ownership of the shares held by the entities listed in note (4) below except to the extent of his direct pecuniary interest, if any, in such shares.
- (4) The holdings of the entities affiliated with Morgenthaler Ventures are as follows: (i) Morgenthaler Partners VI, L.P. holds 17,664,704 shares of preferred stock on an as-converted into common stock basis; (ii) Morgenthaler Partners VII, L.P. holds 4,151,066 shares of preferred stock on an as-converted into common stock basis; and (iii) Morgenthaler Venture Partners V, L.P. holds 13,444,255 shares on an as-converted into common stock basis.
- (5) All of such shares are held by the entities listed in note (6) below. Mr. Jarve is a member of the sole general partner of each of the entities listed in note (6) below and thus may be deemed to share voting and investment power with respect to all shares held by such entities. Mr. Jarve disclaims beneficial ownership of the shares held by the entities listed in note (6) below except to the extent of his direct pecuniary interest, if any, in such shares.
- (6) The holdings of the entities affiliated with Menlo Ventures are as follows: (i) Menlo Entrepreneurs Fund VIII, L.P. holds 409,444 shares of preferred stock on an as-converted into common stock basis; (ii) Menlo Entrepreneurs Fund IX(A), L.P. holds 31,477 shares of preferred stock on an as-converted into common stock basis; (iii) Menlo Entrepreneurs Fund IX, L.P. holds 259,688 shares on an as-converted into common stock basis; (iv) Menlo Ventures IX, L.P. holds 7,869,319 shares of preferred stock on an as-converted into common stock basis; (v) Menlo Ventures VIII, L.P. holds 9,805,375 shares of preferred stock on an as-converted into common stock basis; (vi) MMEF IX, L.P. holds 141,648 shares of preferred stock on an as-converted into common stock basis; and (vii) MMEF VIII, L.P. holds 119,989 shares of preferred stock on an as-converted into common stock basis.
- (7) The holdings of the entities affiliated with Worldview Venture Partners are as follows: (i) Worldview Strategic Partners II, L.P. holds 43,675 shares of preferred stock on an as-converted into common stock basis; (ii) Worldview Strategic Partners IV, L.P. holds 48,763 shares of preferred stock on an

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as-converted into common stock basis; (iii) Worldview Technology International II, L.P. holds 314,962 shares of preferred stock on an as-converted into common stock basis; (iv) Worldview Technology International IV, L.P. holds 1,073,578 shares of preferred stock on an as-converted into common stock basis; (v) Worldview Technology Partners II, L.P. holds 1,028,872 shares of preferred stock on an as-converted into common stock basis; and (vi) Worldview Technology Partners IV, L.P. holds 6,608,207 shares of preferred stock on an as-converted into common stock basis.

- (8) The holdings of the entities affiliated with Goldman, Sachs & Co. are as follows: (i) GS Capital Partners 2000 Employee Fund, L.P. holds 1,052,565 shares of preferred stock on an as-converted into common stock basis; (ii) GS Capital Partners 2000 GmbH & Co. holds 138,467 shares of preferred stock on an as-converted into common stock basis; (iii) GS Capital Partners 2000 Offshore, L.P. holds 1,203,734 shares of preferred stock on an as-converted into common stock basis; (iv) GS Capital Partners 2000, L.P. holds 3,312,775 shares of preferred stock on an as-converted into common stock basis; and (v) Stone Street Fund 2000, L.P. holds 634,171 shares of preferred stock on an as-converted into common stock basis.
- (9) Consists of 3,057,589 shares of preferred stock on an as-converted into common stock basis, plus 105,000 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (10) Consists of 1,160,000 shares of common stock, plus 2,608,836 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (11) Consists of 1,115,675 shares of common stock, plus 37,512 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (12) Consists of 960,000 shares of common stock held by a holding company controlled by Mr. Feeley, plus 731,532 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (13) Consists of 960,000 shares of common stock held by a holding company controlled by Mr. Boocock, plus 468,812 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (14) Consists of 960,000 shares of common stock held by a holding company controlled by Mr. Weirich, plus 468,812 shares of common stock issuable upon exercise of outstanding options within 60 days after the date of this table.
- (15) Consists of 56,957,183 shares of preferred stock on an as-converted into common stock basis held by the persons and entities as described in the footnotes above, 5,155,675 shares of common stock held by the persons and entities as described in the footnotes above, 1,000,000 shares of common stock held by the other executive officers of Catena and 6,994,125 shares of common stock issuable to the directors and executive officers of Catena upon exercise of outstanding options within 60 days after the date of this table.

COMPARISON OF STOCKHOLDER RIGHTS

General

Both Catena and CIENA are corporations organized under the laws of the State of Delaware and are therefore subject to the Delaware general corporation law. However, there are some differences in the certificates of incorporation and bylaws of Catena and CIENA that affect the rights of their respective stockholders.

Capitalization

CIENA. CIENA is authorized to issue 980,000,000 shares of common stock and 20,000,000 shares of preferred stock. On March 24, 2004, 476,807,751 shares of CIENA common stock were outstanding and no shares of CIENA preferred stock were outstanding. CIENA's board has the authority, without stockholder approval, to issue shares of preferred stock from time to time in one or more series and to fix the rights and preferences, including voting rights, of each such series of preferred stock, which rights and preferences may be superior to that of CIENA's common stock.

Catena. Catena is authorized to issue 140,083,025 shares of common stock, of which 3,675,328 shares have been designated non-voting common stock. In addition, Catena is authorized to issue 194,679,450 shares of preferred stock, of which 10,300,000 shares have been designated series A preferred, 10,300,000 shares have been designated series AA preferred, 440,000 shares have been designated series A-1 preferred, 440,000 shares have been designated series AA-1 preferred, 7,761,776 shares have been designated series B preferred, 7,761,776 shares have been designated series BB preferred, 846,262 shares have been designated series B-1 preferred, 846,262 shares have been designated series BB-1 preferred, 7,662,621 shares have been designated series C preferred, 7,662,621 shares have been designated series CC preferred, 338,426 shares have been designated series C-1 preferred, 338,426 shares have been designated series CC-1 preferred, 67,500,000 shares have been designated series D preferred, 67,500,000 shares have been designated series DD preferred, 2,490,640 shares have been designated series D-1 preferred and 2,490,640 shares have been designated series DD-1 preferred.

As of February 29, 2004 there were (i) 9,371,695 shares of voting common stock outstanding, (ii) 10,100,000 shares of series A preferred stock outstanding, (iii) 440,000 shares of series A-1 preferred stock outstanding, (iv) 7,677,856 shares of series B preferred stock outstanding, (v) 846,262 shares of series B-1 preferred stock outstanding, (vi) 7,514,978 shares of series C preferred stock outstanding, (vii) 338,426 shares of series C-1 preferred stock outstanding, and (viii) 61,982,888 shares of series D preferred stock outstanding. No shares of non-voting common stock, series AA, series AA-1, series BB, series BB-1, series CC, series CC-1, series DD, series D-1 or series DD-1 preferred stock were outstanding as of February 29, 2004. As of February 29, 2004 date there were 18,725,323 shares of Catena's common stock reserved for issuance pursuant to options outstanding under Catena's equity compensation plan and pursuant to outstanding warrants.

Voting Rights

CIENA. Each holder of CIENA common stock is entitled to one vote for each share and may not cumulate votes for the election of directors.

Catena. Subject to the voting rights of the holders of the preferred stock, the holders of voting common stock are entitled to one vote for each share held of record upon such matters and in such manner as may be provided by law. Holders of non-voting common stock are not entitled to vote on matters presented to the company's stockholders except to the extent required by law.

Each share of series A, series AA, series A-1, series AA-1, series B, series BB, series C, series CC, series D and series DD preferred stock ("voting preferred stock") votes together with the common stock and not as a separate class, except as specifically required by law or by the certificate of incorporation, with those exceptions set forth below. Each such share of preferred stock has the number of votes equal to

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the number of shares of common stock then issuable upon conversion of such share of preferred stock (assuming such share is then convertible into Catena common stock). All other series of Catena's preferred stock are non-voting except to the extent required by law. Like CIENA's stockholders, Catena's stockholders are not entitled to cumulative voting.

Board of Directors. Pursuant to Catena's certificate of incorporation, for so long as at least 4,000,000 shares of voting preferred remain outstanding (on an as-converted into common stock basis):

- the holders of series A and series AA preferred, voting together as a single class on an as-converted into common stock basis, are entitled to elect one member to Catena's board of directors;
- the holders of series B and series BB preferred, voting together as a single class on an as-converted into common stock basis, are entitled to elect one member to Catena's board of directors;
- the holders of common stock (other than non-voting common stock) are entitled to elect two members to Catena's board of directors (or one member if Catena's authorized number of directors is three); and
- the holders of common stock (other than non-voting common stock) and voting preferred, voting together as a single class on an as-converted into common stock basis, are entitled to elect any remaining members to Catena's board of directors.

Protective Provisions. The consent of the holders of a majority of the voting preferred, voting together as a single class on an as-converted into common stock basis (including at least three stockholders each beneficially owning at least 400,000 shares of Catena's capital stock (on an as-converted into common stock basis), and each of whom must not be an "affiliate" of Catena), is necessary to take any of the following actions:

- any amendment, alteration or repeal of any provision of Catena's certificate of incorporation (including the filing of a certificate of designation) or bylaws;
- any authorization or designation, whether by reclassification or otherwise, of any new class or series of stock or any other securities convertible into equity securities of Catena ranking on a parity with or senior to any series of preferred stock in right of redemption, liquidation, preference, anti-dilution protection, voting or dividends, or any increase in the authorized or designated number of any such new class or series;
- any increase or decrease in the authorized number of shares of preferred stock;
- any redemption, repurchase, payment of dividends or other distributions with respect to any capital stock other than the currently designated series of preferred stock (except for acquisitions of common stock by Catena pursuant to agreements that permit the company to repurchase such shares upon termination of services to the company or in exercise of Catena's right of first refusal upon a proposed transfer); provided that such arrangements are approved by Catena's board of directors;
- any agreement by Catena or its stockholders regarding any sale, lease or other disposition of all or substantially all of the assets of Catena, or any consolidation or merger of Catena with or into any other corporation or other entity, or any other corporate reorganization, in which the stockholders of Catena immediately prior to such transaction own less than 50% of Catena's voting power immediately after such transaction, or any transaction or series of transactions in which in excess of 50% of Catena's voting power is transferred;
- any action that results in the payment or declaration of a dividend on any shares of common stock or preferred stock;
- any voluntary dissolution or liquidation of the company; or
- any increase in the authorized number of directors on the board of directors (other than an increase to a number equal to or less than seven).

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For so long as at least 1,000,000 shares of series C and series CC preferred stock in the aggregate remain outstanding, the vote or written consent of the holders of at least 70% of the outstanding shares of series C and series CC preferred stock, voting together as a single class on an as-converted basis, is necessary to take any of the following actions:

- amend Catena’s certificate of incorporation if such amendment would:
 - * increase or decrease the aggregate number of authorized shares of the series C or series CC preferred;
 - * increase or decrease the par value of the shares of series C or series CC preferred; or
 - * alter or change the powers, preferences or special rights of the shares of series C or series CC preferred so as to affect them adversely; or
- effect any sale, lease or other disposition of all or substantially all of the assets of Catena, or any consolidation or merger of Catena with or into any other corporation or other entity, or any other corporate reorganization, in which the stockholders of Catena immediately prior to such transaction own less than 50% of Catena’s voting power immediately after such transaction, or any transaction or series of transactions in which in excess of 50% of Catena’s voting power is transferred (any of the foregoing an “Acquisition”) in which the aggregate consideration distributable to the holders of the Catena’s capital stock is less than \$350 million.

Number and Classification of Directors

CIENA. CIENA’s certificate of incorporation provides that its board of directors will be comprised of three classes of two or more directors each, with each class elected for a term of three years, so that a different class of directors stands for election each year. CIENA currently has nine directors and the board of directors may increase or decrease the size of the board of directors by resolution.

Catena. Subject to the protective provisions in Catena’s certificate of incorporation described above limiting increases in the size of the board of directors to no more than seven members, Catena’s certificate of incorporation and bylaws provide that the number of members of the board of directors will be fixed by the board of directors from time to time. Subject to the rights of the holders of certain series of preferred stock to elect additional directors under specified circumstances as described above, Catena’s bylaws provide for a single class of directors who are elected at the annual meeting of stockholders for a term of one year to hold office until their successors are elected and qualified.

Removal of Directors

CIENA. CIENA’s certificate of incorporation provides that, subject to the rights of the then outstanding series of preferred stock, any director or the entire board of directors may be removed from office at any time, with or without cause, by the affirmative vote of a majority of the shares of capital stock of CIENA outstanding and entitled to vote on the election of directors, voting together as a separate class. CIENA’s bylaws provide that a director may only be removed from office by the stockholders at a special meeting called for that purpose.

Catena. Catena’s certificate of incorporation provides that a director designated by a class or series or classes or series of stockholders may be removed in the same manner as elected by such class or series or classes or series of stockholders. In addition, Catena’s bylaws provide that a director may be removed from office, with or without cause, by the affirmative vote of at least 66 2/3% of the shares of capital stock of Catena outstanding and entitled to vote at an election of directors.

Filling Vacancies on the Board of Directors

CIENA. CIENA’s certificate of incorporation provides that, subject to the rights of any then-existing series of preferred stock, if a vacancy occurs on the CIENA board of directors, (other than a vacancy resulting from the removal of a director by the stockholders but including a vacancy resulting from an

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increase in the size of the board of directors), the vacancy may be filled only by a majority vote of the directors then in office, even if they constitute less than a quorum. However, if a vacancy results from the removal of a director by the stockholders at a meeting called for that purpose, then the stockholders may fill the vacancy at that meeting.

Catena. Catena's certificate of incorporation provides that any vacancy resulting from the resignation, death or removal of a director designated by a class or series or classes or series of stockholders may be filled in the same manner as such director was elected by such class or series or classes or series of stockholders. Catena's bylaws provide that unless provided for in Catena's certificate of incorporation, vacancies may be filled by a majority of the directors then in office, though less than a quorum, or by Catena's stockholder, if the board of directors so elects.

Charter Amendments

CIENA. CIENA's certificate of incorporation provides that the affirmative vote of the holders of at least 66 2/3% of the voting power of all then outstanding shares of the capital stock of CIENA entitled to vote on the election of directors, voting together as a separate class, is required to amend certain provisions of CIENA's certificate of incorporation relating to the board of directors, stockholder action, amendment of the certificate of incorporation and indemnification of officers and directors of CIENA. Otherwise, the certificate of incorporation may be amended by the holders of a majority of the voting power of all outstanding shares of CIENA stock.

Catena. Catena's certificate of incorporation may be amended, with the following exceptions, in accordance with Delaware law, which provides that the certificate of incorporation may be amended with the affirmative vote of a majority of the voting power of all outstanding shares of the capital stock of Catena (assuming conversion of all outstanding preferred stock) entitled to vote on the election of directors:

- no provision affecting each series of preferred stock may be amended, modified or waived in any manner that affects similarly the holders of each series of preferred stock without the vote of a majority of the then outstanding shares of preferred stock voting together as a single class;
- no amendment, alteration or repeal of any provision of Catena's certificate of incorporation may be effected without the vote of a majority of the series A, series AA, series A-1, series AA-1, series B, series BB, series C, series CC, series D and series DD preferred stock, voting together as a single class on an as-converted into common stock basis;
- no amendment to Catena's certificate of incorporation may be effected without the affirmative vote or consent of at least 70% of the outstanding series C and series CC preferred, voting together as a single class on an as-converted into common stock basis, if such amendment would:
 - * increase or decrease the aggregate number of authorized shares of the series C or series CC preferred;
 - * increase or decrease the par value of the shares of series C or series CC preferred; or
 - * alter or change the powers, preferences or special rights of the shares of the series C or series CC preferred so as to affect them adversely.

Amendments to Bylaws

CIENA. CIENA's certificate of incorporation provides that the bylaws may be amended by a majority vote of the total number of authorized directors (whether or not there exist any vacancies in the previously authorized directorships at the time any resolution providing for amendment is presented to the board of directors) or in addition to any vote of any holders of any class or series of CIENA stock required by law or by CIENA's certificate of incorporation by an affirmative vote of the holders of at least 66 2/3% of the voting power of all then outstanding shares of the capital stock of CIENA entitled to vote on the election of directors voting together as a single class.

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Catena. Catena's bylaws provide that they may be amended by the stockholders or by the board of directors, when such power is conferred upon the board of directors by the certificate of incorporation. With respect to amendment by the stockholders, Delaware law provides that a majority vote of the holders of the outstanding voting shares at any regular meeting of the stockholders is required to amend the bylaws. Catena's certificate of incorporation provides that the board of directors may from time to time make, amend, supplement or repeal the bylaws provided that the stockholders may change or repeal any bylaw adopted by the board of directors and that no amendment or supplement to the bylaws adopted by the board of directors will vary or conflict with any amendment or supplement adopted by Catena's stockholders.

Action by Written Consent

CIENA. CIENA's certificate of incorporation provides that any action by the stockholders may only be taken at an annual or special meeting and may not be taken by written consent.

Catena. Catena's bylaws provide that any action that must or may be required to be taken by stockholders may be taken by written consent.

Notice of Stockholder Actions

CIENA. Neither CIENA's certificate of incorporation nor its bylaws require advance notice of stockholder nominations of directors or any other business to be brought by stockholders before any meeting of stockholders, except in the case of a special meeting of the stockholders, which requires notice of the purposes for which a meeting is called.

Catena. Catena's bylaws require advance notice of any business to be brought by stockholders before any annual meeting of stockholders. To be timely, a stockholder's notice must be delivered to or mailed and received at the principal executive offices of the company no later than the close of business on the 60th day nor earlier than the close of business on the 90th day prior to the first anniversary of the preceding year's annual meeting, provided that if no annual meeting was held in the previous year or the date of the annual meeting has been changed by more than 30 days from the date contemplated at the time of the previous year's notice of annual meeting, notice by the stockholder to be timely must be received not earlier than the close of business on the 90th day prior to such annual meeting and not later than the close of business on the later of the 60th day prior to such annual meeting or, in the event public announcement of the date of such annual meeting is first made by the corporation fewer than 70 days prior to the date of such annual meeting, the close of business on the 10th day following the day on which public announcement of the date of such meeting is first made by the company.

Right to Call Special Meeting of Stockholders

CIENA. CIENA's bylaws provide that a special meeting of stockholders may only be called by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in the previously authorized directorships at the time any such resolution is presented to the board of directors for adoption) or by the holders of not less than ten percent (10%) of all of the shares entitled to cast votes at the meeting.

Catena. Catena's bylaws provide that a special meeting of stockholders may be called at any time by the chairman of the board of directors, by the chief executive officer or by a majority of the board of directors, and if called by any person or person other than the board of directors, must be in writing, specifying the general nature of business proposed to be transacted. Business transacted at any special meeting must be limited to matters related to the purpose or purposes stated in the notice of meeting.

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Dividends

CIENA. CIENA's bylaws provide that, from time to time, CIENA's board may declare and pay dividends upon shares of CIENA stock, but only out of funds available for the payment of dividends as provided by law.

Catena. Catena's certificate of incorporation provides that holders of preferred stock are entitled to receive non-cumulative dividends at the rate of 6% per annum on the "original issue price" of such series of preferred stock, with the amounts to be adjusted upon a stock split, reverse split or similar event, when and if declared by the board of directors out of funds legally available therefor. The original issue price of the series A and series AA preferred stock is \$0.50. The original issue price of the series A-1 and series AA-1 preferred stock is \$1.50. The original issue price of the series B, series BB, series B-1 and series BB-1 preferred stock is \$3.545. The original issue price of the series C, series CC, series C-1 and series CC-1 is \$7.64. The original issue price of the series D, series DD, series D-1 and series DD-1 preferred is \$1.20450987. Preferred stockholders are also entitled to share in any dividends declared and paid on common stock.

Liquidation Rights

CIENA. CIENA's certificate of incorporation provides that, in the event of a liquidation of CIENA, the holders of CIENA common stock shall receive all remaining assets of CIENA ratably in proportion to the number of shares of common stock held by them.

Catena. Catena's certificate of incorporation provides that in the event Catena liquidates, dissolves or winds up, before any distribution or payment is made to the holders of any other series of preferred stock or common stock, the holders of series D preferred, series DD preferred, series D-1 preferred and series DD-1 preferred are entitled to be paid out of the assets of the company an amount per share equal to \$1.20450987 plus all declared and unpaid dividends on the series D, series DD, series D-1 and series DD-1 preferred (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares).

After the payment of the full liquidation preference on the series D, series DD, series D-1 and series DD-1 preferred stock, before any distribution to holders of any common stock, the holders of each of the following series of preferred stock are entitled to the following amounts per share (hereinafter referred to as such series' "original issue price") plus all declared and unpaid dividends on such series of preferred stock (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares):

- \$0.50 in respect of each share of series A and series AA preferred stock;
- \$1.50 in respect of each share of series A-1 and series AA-1 preferred stock;
- \$3.545 in respect of each share of series B, series BB, series B-1 and series BB-1 preferred stock; and
- \$7.64 in respect of each share of series C, series CC, series C-1 and series CC-1 preferred stock.

After payment of the full liquidation preference of each series of preferred stock, Catena's remaining assets legally available for distribution, if any, are to be distributed ratably to the holders of Catena's common stock and each series of preferred stock (excluding the series D, series DD, series D-1 and series DD-1 preferred stock) on an as-converted into common stock basis until such time as (i) the holders of series A, series AA, series A-1, series AA-1, series B, series BB, series B-1 and series BB-1 preferred have received in total three times the series' respective original issue price (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares) and (ii) holders of series C, series CC, series C-1 and series CC-1 preferred stock have received in total two times the series' respective original issue price (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares). Catena's remaining assets legally available for distribution, if any, are to be distributed ratably to holder of Catena's common stock.

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Each of the following events will be deemed a liquidation:

- any consolidation or merger of Catena with or into any other corporation or other entity, or any other corporate reorganization, in which the stockholders of Catena immediately prior to such transaction own less than 50% of Catena's voting power immediately after such transaction, or any transaction or series of transactions in which in excess of 50% of Catena's voting power is transferred (except for the merger of Catena into CIENA pursuant to the merger agreement, if the amendment and restatement of Catena's certificate of incorporation is approved);
- a sale, lease or other disposition of all or substantially all of the assets of Catena; or
- the grant of an exclusive license for all or substantially all of Catena's intellectual property assets.

Conversion and Redemption

CIENA. Holders of CIENA common stock have no right to convert their shares into any other shares of the capital stock of CIENA or any other securities or to cause CIENA to redeem their shares.

Catena.

Conversion Rights. Holders of preferred stock have the right at any time beginning on July 31, 2004, to convert their shares of preferred stock into shares of common stock based on the conversion rate applicable to such series of preferred stock. The following table sets forth the number of shares of common stock issuable upon conversion of one share of the applicable series of preferred stock as of the record date:

Series of Preferred Stock	Conversion Rate
Series A Preferred	1.0
Series AA Preferred	1.0
Series A-1 Preferred	1.1317227
Series AA-1 Preferred	1.1317227
Series B Preferred	1.6395736
Series BB Preferred	1.6395736
Series B-1 Preferred	1.6395736
Series BB-1 Preferred	1.6395736
Series C Preferred	1.9907952
Series CC Preferred	1.9907952
Series C-1 Preferred	1.9907952
Series CC-1 Preferred	1.9907952
Series D Preferred	1.0
Series DD Preferred	1.0
Series D-1 Preferred	1.0
Series DD-1 Preferred	1.0

The Catena preferred stock will automatically convert into common stock, at the then effective applicable conversion ratio, upon the closing of a firm commitment underwritten public offering of Catena common stock in which the "market valuation" of the company (calculated as the number of shares of common stock deemed outstanding immediately prior to the offering multiplied by the per share offering price to the public) is at least \$350 million, and the gross cash proceeds to Catena are not less than \$25 million. Certain series of the preferred stock also are subject to automatic conversion into common stock, at the then effective applicable conversion ratio as follows:

- in the case of the series A, series AA, series A-1, series AA-1, series B, series BB, series B-1 and series BB-1 preferred stock, at any time beginning on July 31, 2004, upon the affirmative election of the holders of at least 75% of the outstanding shares of series A, series AA, series A-1, series AA-1, series B and series BB preferred stock (voting together on an as-converted into common stock basis);

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- in the case of the series C, series CC, series C-1 and series CC-1 preferred stock, at any time beginning on July 31, 2004, upon the affirmative election of the holders of at least 70% of the outstanding shares of series C and series CC preferred stock (voting together on an as-converted into common stock basis); and
- in the case of the series D, series DD, series D-1 and series DD-1 preferred stock, at any time beginning on July 31, 2004, upon the affirmative election of the holders of a majority of the outstanding shares of series D and series DD preferred stock (voting together on an as-converted into common stock basis).

In addition to the foregoing conversion rights, each share of series A, series A-1, series B, series B-1, series C, series C-1, series D and series D-1 preferred stock will be automatically converted into an equivalent number of shares of series AA, series AA-1, series BB, series BB-1, series CC, series CC-1, series DD and series DD-1 preferred stock, respectively, in the event that Catena's board of directors and the holders of 75% of Catena's voting preferred stock approve the issuance of new securities and a then current holder of series A, series A-1, series B, series B-1, series C, series C-1, series D, or series D-1 preferred stock determines not to purchase its pro rata portion of such issuance of new securities. Moreover, holders of Catena's non-voting common stock and non-voting preferred stock may convert their shares into an equivalent number of voting shares of the same class of series of capital stock provided such holder, if subject to Regulation Y promulgated under the Bank Holding Company Act of 1956 (a "regulated holder"), would not be in violation of any law, regulation, rule or other requirement of any governmental authority applicable to such regulated holder or its affiliates in so doing (for example, a regulated holder of series B-1 preferred stock may convert such shares into an equivalent number of shares of series B preferred stock if such conversion would not violate Regulation Y or any other applicable law, regulation, rule or other requirement of any governmental authority having jurisdiction over such regulated holder).

The number of shares of common stock into which preferred stock is convertible is subject to adjustment in the following circumstances, subject to certain exceptions:

- if Catena issues or sells shares of its capital stock, or warrants, options or purchase rights without consideration or at a price less than the "original issue price" of a series of preferred stock (shares of series AA, series AA-1, series BB, series BB-1, series CC, series CC-1, series DD and series DD-1 preferred stock would not be entitled to adjustment of their respective conversion ratios in this circumstance);
- any issuance of common stock as a dividend or other distribution;
- any subdivision or combination of outstanding shares of common stock;
- any adjustment of the common stock issuable upon the conversion of the preferred stock, whether by capital reorganization, reclassification or otherwise; or
- any merger or consolidation with or into another corporation or the sale of all or substantially all of Catena's assets.

Redemption Rights. Catena is obligated to redeem the preferred stock as follows:

- If the holders of at least 75% of the preferred stock (other than the series D, series D-1, series DD and series DD-1 preferred stock), voting together on an as-converted basis, elect to redeem the preferred stock (other than the series D, series D-1, series DD and series DD-1 preferred stock), then Catena is required to redeem all of the outstanding shares of preferred stock (other than the series D, series D-1, series DD and series DD-1 preferred stock), to the extent legally permissible, on December 18, 2004, by paying in exchange for such shares of preferred stock an amount in cash equal to the applicable original issue price for such shares of preferred stock plus any declared but unpaid dividends on such shares.

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- If the holders of a majority of the then outstanding series D and series DD preferred stock, voting together on an as-converted basis, elect to redeem the series D, series D-1, series DD and series DD-1 preferred stock, then Catena is required to redeem all of the outstanding shares of series D, series D-1, series DD and series DD-1 preferred stock, to the extent legally permissible, on any date after December 31, 2006, by paying in exchange for such shares of preferred stock an amount in cash equal to the applicable original issue price for such shares of preferred stock plus any declared but unpaid dividends on such shares.

Registration Rights

CIENA. CIENA shares to be issued in the merger will be registered under the Securities Act of 1933.

Catena. Set forth below is a summary of the registration rights of certain holders of common stock and the holders of preferred stock pursuant to Catena's Amended and Restated Investor Rights Agreement entered into among Catena and many of its stockholders, including all holders of preferred stock. The term "registrable securities," as used below, means Catena common stock issued or issuable upon conversion of the preferred stock and any common stock held by certain of Catena's stockholders (whether currently outstanding or issuable upon conversion, exercise or exchange of convertible, exercisable or exchangeable securities). Registrable securities does not include any securities sold by a person in a transaction in which the registration rights are not assigned, sold to the public or sold pursuant to Rule 144 under the Securities Act.

Demand Registration Rights. If holders of at least 30% of the registrable securities then outstanding and entitled to registration request in writing that Catena file a registration statement under the Securities Act covering the registration of at least 30% of the registrable securities then outstanding (or a lesser percentage if the anticipated aggregate offering price, net of underwriting discounts and commissions, would equal or exceed \$7,500,000), then Catena is obligated to use its best efforts to cause the requested shares to be registered. However, Catena is not obligated to effect any registration:

- prior to the earlier of six months after the effective date of its initial public offering and December 15, 2004;
- from the time of filing of any other registration statement pertaining to an underwritten public offering of Catena's securities (including registration statements related to secondary offerings of securities but excluding registration statements relating to employee benefit plans or with respect to corporate reorganizations or other transactions under Rule 145 of the Securities Act) through 180 days following the effective date of such registration statement;
- if within 30 days of receipt of a written request for registration, Catena gives notice to the requesting holders of its intention to make a public offering of securities (including secondary offerings of securities but excluding registrations of securities relating to employee benefit plans or with respect to corporate reorganizations or other transactions under Rule 145 of the Securities Act), provided Catena files a registration statement relating to such offering with the Securities and Exchange Commission within 90 days of receipt of such written request and makes reasonable good faith efforts to cause such registration statement to become effective;
- if within 30 days of receipt of a written request for registration, Catena furnishes the requesting holders with a certificate signed by the chairman of the board of directors stating that in the good faith judgment of the board of directors, it would be seriously detrimental to the company and its stockholders for such registration statement to be effected at such time, in which event Catena has the right to defer such filing for a period of not more than 90 days after receipt of the request provided such right to delay a request may not be exercised more than once in any 12-month period;
- if Catena's common stock is not listed on a national securities exchange or the Nasdaq National Market and the requesting holders do not request that such offering be firmly underwritten; or

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- if the requesting holders propose to dispose of shares of registrable securities on Form S-3 as described below.

Piggyback Registration Rights. The holders of registrable securities are also entitled to “piggyback” registration rights on all Catena registrations, excluding registrations relating to any employee benefit plan or corporate reorganization or other transactions under Rule 145 of the Securities Act. If the registration is an underwritten offering, then the holder’s participation shall be conditioned upon the party agreeing to participate in the underwriting by executing the underwriting agreement. If the underwriter of the registration determines that marketing factors require a limitation on the aggregate amount of securities sold on the market, Catena is required to include in the offering only the number of securities that the managing underwriter believes marketing factors allow. No cut-back can reduce the amount of securities of the selling holders included in the registration to below 30% of the total amount of securities included in the registration, unless the registration is with respect to Catena’s initial public offering from which all registrable securities may be excluded.

Form S-3 Registration Rights. Any holder of registrable securities may also demand registrations on Form S-3 provided Form S-3 is available for such offering and the aggregate proceeds are not less than \$1,000,000. Catena may delay such registration for a period not in excess of 90 days once in any 12-month period if it furnishes a certificate signed by its chairman of the board of directors stating that, in the good faith judgment of the board of directors, it would be seriously detrimental to Catena and its stockholders for such registration to be filed. Catena may refuse to effect a “Form S-3” registration if it has already effected two such registrations in the preceding 12 months.

Indemnification. To the extent permitted by law, Catena will indemnify the other parties to the agreement and certain related parties against any losses, claims, damages or liabilities, joint or several, to which they may become subject based on any untrue statement or alleged untrue statement of material fact contained in, or material fact omitted from, a registration statement covering registrable securities, or any other violation or alleged violation of any state or federal securities laws by Catena.

To the extent permitted by law, each investor holding registrable securities included in a registration that Catena effected must indemnify Catena, its officers, directors, employees, agents, control persons and underwriters and any other parties and certain related parties selling securities in such registration against any losses, claims, damages or liabilities, joint or several, to which they may become subject based on any of the violations enumerated above to the extent such violation occurs in reliance upon written information supplied by such investor for use in such registration.

Transferability. The aforementioned registration rights may be transferred by a holder of registrable securities to a transferee or assignee of such holder’s registrable securities that is:

- a subsidiary, parent, general partner, limited partner, retired partner, member or retired member or affiliate of such holder;
- a family member of such holder;
- a trust for the benefit of an individual holder; or

that acquires at least 400,000 shares of registrable securities.

Expenses. Catena is obligated to bear registration expenses, exclusive of underwriting discounts and commissions, for the first two above-described demand registrations and for each of the above-described piggy-back and S-3 registrations. Registration expenses not covered by Catena are to be borne pro rata by the holders of the securities so registered, based on the number of shares so registered.

Market Standoff. Each holder of registrable securities has agreed that it will not, upon the request of Catena or its underwriter, sell, transfer or otherwise dispose of any common stock or other securities of Catena, held by the holder, other than those included in the registration, for up to 180 days following the effective date of a registration statement filed under the Securities Act relating to Catena’s initial public offering and for up to 90 days following the effective date of the second registration statement of Catena

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covering new issuances of Catena common stock (in both cases other than registration statements on Form S-8 or relating to Rule 145 transactions), provided each of Catena's officers and directors and each holder of at least 1% of Catena's voting securities is similarly bound and that all the proceeds of such second issuance of Catena common stock is solely for the account of the company.

Termination. The above registration rights terminate upon the earlier of (i) three years after the closing date of Catena's initial public offering or (ii) with respect to any holder, the time that such holder is able to sell all of its shares pursuant to Rule 144(k) of the Securities Act following an initial public offering.

Amendment. Registration rights may be amended or waived upon Catena's consent and the consent of holders holding at least 75% of the registrable securities then outstanding.

Stockholder Proposals

CIENA. All stockholder proposals intended to be presented at CIENA's 2005 Annual Meeting must be received by CIENA not later than September 29, 2004 and must otherwise comply with the rules of the SEC for inclusion in CIENA's proxy statement and form of proxy relating to that meeting. Proposals should be delivered to CIENA Corporation, 1201 Winterson Road, Linthicum, Maryland 21090, Attention: Corporate Secretary.

Except in the case of proposals made in accordance with Rule 14a-8, stockholders intending to bring any business before an annual meeting of stockholders must deliver written notice thereof to CIENA's Secretary not less than 45 days prior to the anniversary of the date on which CIENA first mailed its proxy materials for its immediately preceding annual meeting of stockholders. The deadline for matters sought to be presented at the 2005 Annual Meeting is December 13, 2004. If a stockholder gives notice of such a proposal after the December 13, 2004 deadline, CIENA's proxy holders will be allowed to use their discretionary voting authority to vote against the stockholder proposal when and if the proposal is raised at the Corporation's 2005 Annual Meeting.

Catena. Pursuant to Catena's bylaws, only the chairman of the board of directors, the chief executive officer and a majority of the board of directors may call a special meeting, and business transacted at the special meeting shall be limited to the purpose or purposes stated in the relevant notice of the meeting.

OTHER MATTERS

Notice of Action by Written Consent of Catena's Stockholders

In contemplation of the proposed merger of Catena into CIENA, Catena recently amended its certificate of incorporation to prohibit holders of its preferred stock from voluntarily converting their shares into shares of Catena's voting common stock prior to July 31, 2004. In addition, the amendment prohibits the automatic conversion of various series of Catena's preferred stock into voting common stock prior to July 31, 2004, based on group elections by the holders of the various series of preferred stock. The amendment is intended to prevent Catena's preferred stockholders from converting their preferred stock into common stock following execution of the merger agreement in order to take advantage of changes in the market price of CIENA's common stock pre-closing that potentially could be favorable to holders of Catena's common stock. The amendment was approved by Catena's board of directors on February 17, 2004, and by Catena's stockholders by written consent action effective February 17, 2004.

By written consent effective March 4, 2004, Catena's stockholders granted Catena's board of directors discretionary authority to declare, in total, a cash dividend to holders of Catena's preferred stock of up to \$10 million.

This proxy statement/prospectus constitutes notice of the actions taken under Section 228(e) of the Delaware General Corporation Law.

Legal Matters

The legal validity of the CIENA common stock offered hereby will be passed upon by Hogan & Hartson L.L.P., counsel to CIENA.

The United States federal income tax consequences described in this proxy statement/prospectus are the subject of opinions issued by Hogan & Hartson L.L.P., counsel to CIENA, and Cooley Godward LLP, counsel to Catena.

Experts

The consolidated financial statements of CIENA Corporation as of October 31, 2003 and 2002 and for each of the three years in the period ended October 31, 2003 incorporated into this proxy statement/prospectus by reference to CIENA's Annual Report on Form 10-K for the year ended October 31, 2003 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

Other Proposals

As of the date of this proxy statement/prospectus, the Catena board of directors knows of no matter that will be presented for consideration at the special meeting other than as described in this proxy statement/prospectus. If any other matters come before the special meeting or any adjournments or postponements thereof and are voted upon, the enclosed proxies will confer discretionary authority on the individuals named as proxies therein to vote the shares represented by such proxies as to any such matters. The individuals named as proxies intend to vote or not to vote in accordance with the recommendation of the management of Catena.

WHERE YOU CAN FIND MORE INFORMATION

CIENA has filed the registration statement of which this proxy statement/prospectus is a part. The registration statement registers the distribution to Catena stockholders of the shares of CIENA common stock to be issued in connection with the merger.

CIENA files annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any of this information at the SEC's public reference room at 450 Fifth

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Street N.W., Room 1024, Washington, D.C. 20549. You may obtain information on the operation of the SEC's Public Reference Room by calling the SEC at 1-800-SEC-0330.

The SEC also maintains an Internet web site that contains reports, proxy statements and other information regarding issuers, like CIENA, that file electronically with the SEC. The address of that site is <http://www.sec.gov>. The SEC file number for CIENA documents filed under the Exchange Act is 0-21969.

The SEC allows CIENA to "incorporate by reference" information into this proxy statement/ prospectus. This means that CIENA can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this proxy statement/ prospectus, except for any information that is superseded by information that is included directly in this document.

This proxy statement/ prospectus incorporates by reference the documents listed below that CIENA has previously filed or will file with the SEC. They contain important information about CIENA and its financial condition.

- CIENA's annual report on Form 10-K for its fiscal year ended October 31, 2003, filed on December 12, 2003;
- CIENA's quarterly report on Form 10-Q for the fiscal quarter ended January 31, 2004, filed on February 19, 2004;
- CIENA's definitive proxy statement filed on January 28, 2004;
- CIENA's current report on Form 8-K (Item 5 and Item 7 reported) filed on November 18, 2003;
- CIENA's current report on Form 8-K (Item 5 and Item 7 reported) filed on December 22, 2003;
- CIENA's current report on Form 8-K (Item 5 and Item 7 reported) filed on February 19, 2004;
- CIENA's current report on Form 8-K (Item 5 and Item 7 reported) filed on February 19, 2004;
- All documents filed with the SEC by CIENA pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act after the date of this proxy statement/ prospectus and prior to the date of the special meeting are incorporated by reference into this proxy statement/ prospectus, effective the date such documents are filed; and
- The description of CIENA common stock set forth in the CIENA registration statement filed under Section 12 of the Exchange Act on Form 8-A on January 13, 1997, including any amendment or report filed with the SEC for the purpose of updating such description.

In the event of conflicting information in these documents, the information in the latest filed document should be considered correct.

You can obtain any of the documents incorporated by reference in this document through CIENA or from the SEC through the SEC's web site at the address described above. Documents incorporated by reference are available from CIENA without charge, excluding any exhibits to those documents unless the exhibit is specifically incorporated by reference as an exhibit in this proxy statement/ prospectus. You can obtain documents incorporated by reference in this proxy statement/ prospectus by requesting them in writing or by telephone from CIENA at the following address:

CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090
Attn: General Counsel
Telephone (410) 865-8500

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You can also contact CIENA at its website, www.ciena.com. If you would like to request documents, please do so by April 22, 2004 to receive them before the special meeting. If you request any incorporated document from CIENA, it will mail them to you by first class mail, or another equally prompt means, within two business days after it receives your request.

This document constitutes the prospectus of CIENA and the proxy statement of Catena. CIENA has supplied all information contained or incorporated by reference in this proxy statement/ prospectus relating to CIENA and Catena has supplied all such information relating to Catena.

Neither CIENA nor Catena has authorized anyone to give any information or make any representation about the merger, CIENA or Catena that is different from, or in addition to, that contained in this proxy statement/ prospectus or in any of the materials that CIENA or Catena has incorporated into this document. Therefore, if anyone does give you information of this sort, you should not rely on it. The information contained in this document speaks only as of the date of this document, unless the information specifically indicates that another date applies.

AGREEMENT AND PLAN OF MERGER

AMONG

CIENA CORPORATION

GUDMUNDUR HJARTARSON

KEVIN FORBES

RICHARD DEGABRIELLE

JEFFREY REECE

AND

CATENA NETWORKS, INC.

Dated as of February 18, 2004

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Exhibit A	Form of Stockholder Agreement
Exhibit B-1	Form of Affiliate Letter (without transfer restrictions)
Exhibit B-2	Form of Affiliate Letter (with transfer restrictions)
Exhibit C	Form of CEO/ CFO Certification
Exhibit D	Form of Escrow Agreement
Exhibit E	Opinion of U.S. Counsel to the Company
Exhibit F	Opinion of Counsel to CIENA

AGREEMENT AND PLAN OF MERGER

AGREEMENT AND PLAN OF MERGER (this “Agreement”) dated as of February 18, 2004 by and among **CIENA CORPORATION**, a Delaware corporation (“CIENA”), Gudmundur Hjartarson, Kevin Forbes, Richard DeGabrielle and Jeffrey Reece (collectively, the “Principal Officers”) and **CATENA NETWORKS, INC.**, a Delaware corporation (the “Company”).

RECITALS

WHEREAS, the Boards of Directors of each of CIENA and the Company have determined that the merger of the Company with and into CIENA (the “Merger”) in accordance with the provisions of the Delaware General Corporation Law, as amended (the “DGCL”), and subject to the terms and conditions of this Agreement, is advisable and in the best interests of CIENA and the Company and their respective stockholders;

WHEREAS, the Company is a Delaware corporation and has authorized 140,083,025 shares of common stock, par value \$0.001 per share (“Company Common Stock”), 3,675,328 of which are designated as non-voting common stock (“Non-Voting Common Stock”), and 194,679,450 shares of preferred stock, \$0.001 par value per share, of which 10,300,000 have been designated Series A Preferred Stock (the “Series A Preferred Stock”), 10,300,000 have been designated Series AA Preferred Stock (the “Series AA Preferred Stock”), 440,000 have been designated Series A-1 Preferred Stock (the “Series A-1 Preferred Stock”), 440,000 have been designated Series AA-1 Preferred Stock (the “Series AA-1 Preferred Stock”), 7,761,776 have been designated Series B Preferred Stock (the “Series B Preferred Stock”), 7,761,776 have been designated Series BB Preferred Stock (the “Series BB Preferred Stock”), 846,262 have been designated Series B-1 Preferred Stock (the “Series B-1 Preferred Stock”), 846,262 have been designated Series BB-1 Preferred Stock (the “Series BB-1 Preferred Stock”), 7,662,621 have been designated Series C Preferred Stock (the “Series C Preferred Stock”), 7,662,621 have been designated Series CC Preferred Stock (the “Series CC Preferred Stock”), 338,426 have been designated Series C-1 Preferred Stock (the “Series C-1 Preferred Stock”), 338,426 have been designated the Series CC-1 Preferred Stock (the “Series CC-1 Preferred Stock”), 67,500,000 have been designated Series D Preferred Stock (the “Series D Preferred Stock”), 67,500,000 have been designated Series DD Preferred Stock (the “Series DD Preferred Stock”), 2,490,640 have been designated Series D-1 Preferred Stock (the “Series D-1 Preferred Stock”), and 2,490,640 have been designated Series DD-1 Preferred Stock (the “Series DD-1 Preferred Stock”) (the Series A, the Series AA, the Series A-1, the Series AA-1, the Series B, the Series BB, the Series B-1, the Series BB-1, the Series C, the Series CC, the Series C-1, the Series CC-1, the Series D, the Series DD, the Series D-1 and the Series DD-1 Preferred Stock are referred to as the “Company Preferred Stock,” and the Company Preferred Stock and the Company Common Stock are referred to as the “Company Capital Stock”);

WHEREAS, in order to induce CIENA to enter into this Agreement, concurrently herewith each stockholder of the Company who is also a director or officer of the Company, and certain persons affiliated with such persons, are entering into stockholder agreements with CIENA in the form attached hereto as **Exhibit A**, pursuant to which, among other things, each such stockholder agrees to vote in favor of adoption of this Agreement and the Merger, and grants an option to CIENA to purchase a portion of such stockholder’s Company Capital Stock upon the occurrence of certain events, and each director and executive officer of the Company are entering into letter agreements with CIENA in the form of **Exhibit B-1** or **B-2**, as applicable (the “Affiliate Letters”);

WHEREAS, in order to induce CIENA to enter into this Agreement, the Company’s Chief Executive Officer and Vice President of Finance have provided certifications of certain Company matters in the form attached hereto as **Exhibit C**;

WHEREAS, on or prior to the date hereof, the Company has, by legally valid and sufficient action of its Board of Directors and stockholders, effected an amendment to its certificate of incorporation to

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prevent the conversion of certain Company Preferred Stock into Company Common Stock prior to July 31, 2004; and

WHEREAS, the parties intend that, for federal income tax purposes, the Merger shall qualify as a reorganization within the meaning of Section 368(a) of the Code.

NOW, THEREFORE, in consideration of the foregoing and the mutual representations, warranties, covenants and agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto intending to be legally bound do hereby agree as follows:

ARTICLE I

THE MERGER

SECTION 1.1. General.

(a) Subject to the terms and conditions of this Agreement and in accordance with the DGCL, at the Effective Time (as defined below) (i) the Company shall be merged with and into CIENA, (ii) the separate corporate existence of the Company shall cease and (iii) CIENA shall be the surviving company (the “Surviving Company”) and shall continue its legal existence under the laws of the State of Delaware.

(b) The Merger shall become effective at the time of filing of a Certificate of Merger (the “Certificate of Merger”) with the Secretary of State of the State of Delaware in accordance with the provisions of Section 251 of the DGCL, or at such later time as may be stated in the Certificate of Merger (the “Effective Time”). The closing of the Merger (the “Closing”) shall take place at the offices of Hogan & Hartson L.L.P., 111 South Calvert Street, Baltimore, Maryland 21202 at 10:00 A.M., as soon as possible, but in any event not later than two Business Days, after the date on which the last of the conditions set forth in **Article V** shall have been satisfied or waived, or on such other date, time and place as the Company and CIENA may mutually agree (the “Closing Date”).

(c) At the Effective Time, the effect of the Merger shall be as provided in this Agreement, the Certificate of Merger and the applicable provisions of the DGCL. Without limiting the generality of the foregoing, and subject thereto, at the Effective Time, all the property, rights, privileges, powers and franchises of the Company shall vest in the Surviving Company, and all debts, liabilities, obligations, restrictions, disabilities and duties of the Company shall become the debts, liabilities, obligations, restrictions, disabilities and duties of the Surviving Company.

SECTION 1.2. Certificate of Incorporation.

The Certificate of Incorporation of CIENA, as in effect immediately prior to the Effective Time shall be the Certificate of Incorporation of the Surviving Company, until thereafter amended as provided therein and by law.

SECTION 1.3. The Bylaws.

The bylaws of CIENA, as in effect immediately prior to the Effective Time, shall be adopted as the bylaws of the Surviving Company, until thereafter amended as provided therein and by law.

SECTION 1.4. Board of Directors and Officers.

From and after the Effective Time, the Board of Directors and Officers of CIENA at the Effective Time shall be the Board of Directors and Officers of the Surviving Company, each to hold office until his or her respective successors are duly elected or appointed and qualified.

SECTION 1.5. Conversion of Securities.

At the Effective Time, by virtue of the Merger and without any action on the part of the Company or the holders of the Company’s Capital Stock (the “Stockholders”):

(a) Each share of CIENA capital stock issued and outstanding immediately prior to the Effective Time shall remain outstanding and unaffected as issued and outstanding shares of the Surviving Company;

(b) Each share of Company Capital Stock held in the treasury of the Company shall be canceled without any conversion thereof and no payment or distribution shall be made with respect thereto; and

(c) The then issued and outstanding shares of Company Capital Stock shall be converted into shares of CIENA common stock, par value \$0.01 per share (“CIENA Common Stock”) in accordance with this **Section 1.5(c)**. Subject to the provisions of **Sections 1.6** and **1.9**, each share of Company Capital Stock issued and outstanding immediately prior to the Effective Time (other than (i) shares canceled in

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accordance with **Section 1.5(b)** and (ii) Dissenting Shares (as defined below)) shall be converted into a fraction of a share of CIENA Common Stock, including the corresponding fraction of a right (“Right”) to purchase shares of series A junior participating preferred stock, par value \$0.01 per share, pursuant to the Rights Agreement dated as of December 29, 1997 between CIENA and Equiserve Trust Company, N.A. (formerly BankBoston, N.A.) as Rights Agent, as amended on September 13, 1998 and October 19, 1998, determined as follows:

(i) a holder of a share of Company Common Stock outstanding at the Effective Time shall receive in exchange therefor 0.493 (the “Common Stock Exchange Ratio”) of a share of CIENA Common Stock; and

(ii) a holder of a share of Company Preferred Stock outstanding at the Effective Time shall receive in exchange therefor that number of shares of CIENA Common Stock calculated according to the following formula:

$$\frac{\text{Series Liquidation Amount} * (1 + (\text{Common Adjustment} / \text{Total Preferred Liquidation Amount}))}{\text{Series Shares Outstanding}}$$

Series Shares Outstanding

Where:

“Aggregate Share Consideration” = 77,500,000 shares of CIENA Common Stock

“Common Adjustment” = the positive or negative result, if any, obtained by subtracting (a) the product of the Common Stock Exchange Ratio and Company Outstanding Common Stock from (b) the number of shares of CIENA Common Stock issuable in a Liquidation in respect of Company Outstanding Common Stock (assuming exercise in full for cash, immediately prior to the Effective Time, of all Company Options and Company Warrants included in Company Outstanding Common Stock).

“Company Outstanding Common Stock” = the total number of shares of Company Common Stock outstanding at the Effective Time, plus the number of shares of Company Common Stock issuable upon exercise of all Company Options outstanding at the Effective Time (except for (a) unvested Company Options held by Terminated Employees, (b) unvested Company Options held by Transitional Employees projected to be unvested as of the applicable transitional period, and (c) those which expire on or prior to the Effective Time or by their terms will expire following the Effective Time without becoming exercisable due to vesting provisions) plus the number that would be issuable upon exercise of Company Warrants exercisable for Company Common Stock.

“Liquidation” = the allocation of the Aggregate Share Consideration to the holders of outstanding Company Common Stock and Company Preferred Stock that would result from the Merger if: (a) the Merger were a “liquidation” for purposes of the Company’s certificate of incorporation; (b) all Company Options included in Company Common Stock Outstanding and all Company Warrants outstanding immediately prior to the Effective Time were exercised in full for cash immediately prior to the Effective Time; and (c) the holders of Company Preferred Stock (including holders that would acquire shares of Company Preferred Stock upon exercise of Company Warrants) converted shares of Company Preferred Stock into Company Common

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Stock to the extent that such conversion would result in a greater number of shares of CIENA Common Stock being issuable therefor in the Merger (disregarding for this purpose any provisions in the Company's certificate of incorporation prohibiting such conversion).

"Series Liquidation Amount" = the number of shares of CIENA Common Stock issuable in a Liquidation in respect of a given Series Shares Outstanding (assuming exercise in full for cash, immediately prior to the Effective Time, of all Company Warrants included in such Series Shares Outstanding).

"Series Shares Outstanding" = in the case of Series A and Series AA Preferred Stock, the total number of shares of Series A and Series AA Preferred Stock outstanding at the Effective Time; in the case of Series A-1 and Series AA-1 Preferred Stock, the total number of shares of Series A-1 and Series AA-1 Preferred Stock outstanding at the Effective Time; in the case of Series B, Series BB, Series B-1 and Series BB-1 Preferred Stock, the total number of Series B, Series BB, Series B-1 and Series BB-1 Preferred Stock outstanding at the Effective Time; in the case of Series C, Series CC, Series C-1 and Series CC-1 Preferred Stock, the total number of shares of Series C, Series CC, Series C-1 and Series CC-1 Preferred Stock outstanding at the Effective Time; and in the case of Series D, Series DD, Series D-1 and Series DD-1 Preferred Stock, the total number of shares of Series D, Series DD, Series D-1 and Series DD-1 Preferred Stock outstanding at the Effective Time, in each case including the number of shares of the given series of Company Preferred Stock issuable upon exercise of Company Warrants exercisable for Company Preferred Stock.

"Total Preferred Liquidation Amount" = the sum of all Series Liquidation Amounts.

For the purposes of this Agreement, the "Preferred Stock Exchange Ratio" for a given series of Company Preferred Stock shall be the ratio obtained pursuant to the foregoing formula for a share of such series of Preferred Stock.

Notwithstanding the foregoing, the maximum number of shares that shall be issued by CIENA (i) in the Merger, (ii) under Assumed Options (except for unvested Company Options held by Terminated Employees, and unvested Company Options held by Transitional Employees projected to unvested as of the end of the applicable transitional period) and (iii) under any assumed Company Warrants, will not exceed the Aggregate Share Consideration.

All references in this Agreement to CIENA Common Stock to be received in accordance with the Merger shall be deemed to include the Rights. After the Effective Time, all shares of Company Capital Stock shall no longer be outstanding and shall automatically be canceled and retired, and each holder of a certificate representing any such shares shall cease to have any rights with respect thereto other than (i) the right to receive shares of CIENA Common Stock to be issued in consideration therefor upon the surrender of such certificate, (ii) any dividends and other distributions in accordance with **Section 1.8(c)** and (iii) any cash, without interest, to be paid in lieu of any fractional share of CIENA Common Stock in accordance with **Section 1.9**.

SECTION 1.6. Adjustment of the Exchange Ratios.

In the event that, prior to the Effective Time, any stock split, combination, reclassification or stock dividend with respect to the CIENA Common Stock or Company Common Stock, any change or conversion of CIENA Common Stock or Company Common Stock into other securities or any other dividend or distribution with respect to the CIENA Common Stock or Company Common Stock should occur or, if a record date with respect to any of the foregoing should occur, appropriate and proportionate adjustments shall be made to the Exchange Ratios, and thereafter all references to the Exchange Ratios shall be deemed to be to such Exchange Ratios as so adjusted.

SECTION 1.7. Dissenting Shares.

(a) Notwithstanding any provision of this Agreement to the contrary, shares of Company Capital Stock that are outstanding immediately prior to the Effective Time and which are held by Stockholders who shall not have voted in favor of the Merger or consented thereto in writing and who shall have demanded properly in writing appraisal for such shares in accordance with Section 262 of the DGCL (collectively, the “Dissenting Shares”) shall not be converted into or represent the right to receive the consideration set forth in **Section 1.5**. Such Stockholders shall be entitled to receive such consideration as is determined to be due with respect to such Dissenting Shares in accordance with the provisions of Section 262, except that all Dissenting Shares held by Stockholders who shall have failed to perfect or who effectively shall have withdrawn or lost their rights to appraisal of such shares under Section 262 shall thereupon be deemed to have been converted into and to have become exchangeable for, as of the Effective Time, the right to receive the shares of CIENA Common Stock specified in **Section 1.5**, without any interest thereon, upon surrender, in the manner provided in **Section 1.8**, of the certificate or certificates that formerly evidenced by such Dissenting Shares less the number of shares of CIENA Common Stock allocable to such Stockholder that have been deposited in the Escrow Fund and the Reimbursement Fund in respect of Company Capital Stock pursuant to **Sections 1.8(b)** and **6.2**.

(b) The Company shall give CIENA (i) prompt notice of any demands for appraisal received by the Company, withdrawals of such demands, and any other instruments served pursuant to the DGCL and received by the Company and (ii) the opportunity to direct all negotiations and proceedings with respect to demands for appraisal under the DGCL. The Company shall not, except with the prior written consent of CIENA, make any payment or incur any expenses with respect to any demands for appraisal or offer to settle or settle any such demands.

SECTION 1.8. Exchange Procedures; Distributions with Respect to Unexchanged Shares; Stock Transfer Books.

(a) At the Effective Time, CIENA shall deposit with the Exchange Agent for the benefit of the holders of shares of Company Capital Stock certificates representing shares of the CIENA Common Stock to be issued pursuant to **Section 1.5(c)** in exchange for the shares of Company Capital Stock less the Escrow Amount and the Reimbursement Amount (each as defined in **Section 1.8(b)**), together with cash in an amount sufficient to permit the payment of cash in lieu of fractional shares pursuant to **Section 1.9**. (Such shares of CIENA Common Stock, together with any dividends or distributions with respect thereto pursuant to **Sections 1.8(c)** and **1.9**, are referred to herein as the “Exchange Fund”).

(b) As soon as practicable after the Effective Time, CIENA shall cause the Exchange Agent to send to each Person who was, at the Effective Time, a holder of record of certificates which represented outstanding Company Capital Stock (the “Certificates”) which shares were converted into the right to receive CIENA Common Stock pursuant to **Section 1.5**, a letter of transmittal which (i) shall specify that delivery shall be effected and risk of loss and title to such Certificates shall pass, only upon actual delivery thereof to the Exchange Agent and (ii) shall contain instructions for use in effecting the surrender of the Certificates. Upon surrender to the Exchange Agent of Certificates for cancellation, together with such letter of transmittal duly executed, such holder shall be entitled to receive in exchange therefor (A) a certificate representing the number of whole shares of CIENA Common Stock into which the Company

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Capital Stock represented by the surrendered Certificate shall have been converted at the Effective Time (less such holder's pro rata portion of the number of shares of CIENA Common Stock to be deposited in the Escrow Fund and the Reimbursement Fund on such holder's behalf pursuant to **Section 6.2**), (B) cash in lieu of any fractional share of CIENA Common Stock in accordance with **Section 1.9** and (C) certain dividends and distributions in accordance with **Section 1.8(c)**, and the Certificates so surrendered shall then be canceled. Subject to **Section 1.8(c)** and **Section 1.9**, until surrendered as contemplated by this **Section 1.8(b)**, each Certificate, from and after the Effective Time, shall be deemed to represent only the right to receive, upon such surrender, the number of shares of CIENA Common Stock into which such Company Capital Stock shall have been converted. As soon as practicable after the Effective Time, and subject to and in accordance with the provisions of **Section 6.2**, CIENA, on behalf of the Stockholders, shall cause to be delivered to the Escrow Agent (as defined in **Section 6.2**) (x) certificates representing 10% of the shares of CIENA Common Stock that are allocable to Stockholders under **Section 1.5(c)** hereof in the Merger (the "Escrow Amount") and (y) 40,128 shares of CIENA Common Stock that are allocable to Stockholders under **Section 1.5(c)** hereof in the Merger (the "Reimbursement Amount") which shall, in each case, be registered in the name of the Escrow Agent as nominee for the holders of Certificates canceled pursuant to this **Section 1.8**. Such shares shall be beneficially owned by such holders, shall be held in escrow and shall be available to settle certain contingencies as provided in the Escrow Agreement. To the extent not used for such purpose, such shares shall be released, as provided in the Escrow Agreement. CIENA will use commercially reasonable efforts to cause the Exchange Agent to send the abovementioned letter of transmittal no later than 10 Business Days after the Closing. CIENA will use commercially reasonable efforts to cause the Exchange Agent to send the certificates and cash described in clauses (A)-(C) above to each holder of Company Capital Stock not later than 10 Business Days after such holder delivers the materials required by the transmittal letter to the Exchange Agent, and in any event such certificates and cash shall be delivered to such holder as soon as practicable.

(c) No dividends or other distribution declared or made after the Effective Time with respect to the CIENA Common Stock with a record date after the Effective Time shall be paid to any holder entitled by reason of the Merger to receive certificates representing CIENA Common Stock and no cash payment in lieu of a fractional share of CIENA Common Stock shall be paid to any such holder pursuant to **Section 1.9** until such holder shall have surrendered its Certificates pursuant to this **Section 1.8**. Subject to applicable law, following surrender of any such Certificate, such holder shall be paid, in each case, without interest, (i) the amount of any dividends or other distributions theretofore paid with respect to the shares of CIENA Common Stock represented by the certificate received by such holder and having a record date on or after the Effective Time and a payment date prior to such surrender and (ii) at the appropriate payment date or as promptly as practicable thereafter, the amount of any dividends or other distributions payable with respect to such shares of CIENA Common Stock and having a record date on or after the Effective Time but prior to such surrender and a payment date on or after such surrender.

(d) If any certificate representing shares of CIENA Common Stock or any cash is to be issued or paid to any Person other than the registered holder of the Certificate surrendered in exchange therefor, it shall be a condition to such exchange that such surrendered Certificate shall be properly endorsed and otherwise in proper form for transfer and such Person either (i) shall pay to the Exchange Agent any transfer or other taxes required as a result of the issuance of such certificates of CIENA Common Stock and the distribution of such cash payment to such Person or (ii) shall establish to the reasonable satisfaction of the Exchange Agent that such tax has been paid or is not applicable. CIENA or the Exchange Agent shall be entitled to deduct and withhold from the consideration otherwise payable pursuant to this Agreement to any holder of shares of Company Capital Stock such amounts as CIENA or the Exchange Agent is required to deduct and withhold with respect to the making of such payment under the Code, or any provision of state, local or foreign tax law. CIENA or the Exchange Agent shall remit to the proper taxing authority an aggregate amount on behalf of each Stockholder equal to the fair market value of the shares of CIENA Common Stock withheld or deducted pursuant to the previous sentence. To the extent that amounts are so withheld by CIENA or the Exchange Agent, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the holder of the shares

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of Company Capital Stock in respect of which such deduction and withholding was made by CIENA or the Exchange Agent. All amounts in respect of taxes received or withheld by CIENA shall be disposed of by CIENA in accordance with the Code or such state, local or foreign tax law, as applicable.

(e) If any Certificate shall have been lost, stolen or destroyed, upon the making of an affidavit of that fact in form and substance customary for that of a privately-held corporation by the Person claiming such Certificate to be lost, stolen or destroyed and payment of any surety premium fee as may be required by the Exchange Agent, the Surviving Company shall issue in exchange for such lost, stolen or destroyed Certificate the shares of CIENA Common Stock as determined under **Section 1.5(c)** and pay any cash, dividends and distributions as determined in accordance with **Section 1.8(c)** and **Section 1.9** in respect of such Certificate.

(f) At the close of business on the day on which the Effective Time occurs, the stock transfer books of the Company shall be closed and thereafter there shall be no further registration of transfers of shares of Company Capital Stock on the records of the Company. From and after the Effective Time, the holders of shares of Company Capital Stock outstanding immediately prior to the Effective Time shall cease to have any rights with respect to such shares except as otherwise provided herein or by applicable law.

SECTION 1.9. No Fractional Shares.

No certificates or scrip representing fractional shares of CIENA Common Stock shall be issued upon the surrender for exchange of Certificates and such a fractional share shall not entitle the record or beneficial owner thereof to vote or to any other rights as a stockholder of CIENA. In lieu of receiving any such fractional share, each holder of Company Capital Stock who would otherwise have been entitled thereto upon the surrender of Certificates for exchange will receive cash (without interest) in an amount rounded to the nearest whole cent, determined by multiplying (i) the per share closing price on the Nasdaq National Market ("NASDAQ") of CIENA Common Stock on the date on which the Effective Time shall occur (or, if the CIENA Common Stock shall not trade on NASDAQ on such date, the first day of trading in CIENA Common Stock on NASDAQ thereafter), by (ii) the fractional share to which such holder would otherwise be entitled. CIENA shall make available to the Exchange Agent the cash necessary for this purpose.

SECTION 1.10. Return of Exchange Fund.

Any portion of the Exchange Fund which remains undistributed to the former holders of Company Capital Stock for six months after the Closing Date shall be delivered to CIENA, upon its request, and any such former holders who have not theretofore surrendered to the Exchange Agent their Certificates in compliance herewith shall thereafter look only to CIENA for payment of their claim for shares of CIENA Common Stock, any cash in lieu of fractional shares of CIENA Common Stock and any dividends or distributions with respect to such shares of CIENA Common Stock. Neither CIENA nor the Company shall be liable to any former holder of Company Capital Stock for any cash or shares of CIENA Common Stock held in the Exchange Fund (and any cash, dividends and distributions payable in respect thereof) which is delivered to a public official pursuant to an official request under any applicable abandoned property, escheat or similar law.

SECTION 1.11. No Further Ownership Rights in Company Capital Stock.

All shares of CIENA Common Stock delivered upon the surrender for exchange of any Certificate in accordance with the terms hereof (including any cash paid pursuant to **Section 1.9**) shall be deemed to have been delivered (and paid) in full satisfaction of all rights pertaining to the Company Capital Stock previously represented by such Certificate.

SECTION 1.12. Further Assurances.

If at any time after the Effective Time the Surviving Company shall consider or be advised that any deeds, bills of sale, assignments or assurances or any other acts or things are necessary, desirable or proper

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(a) to vest, perfect or confirm, of record or otherwise, in the Surviving Company, its right, title or interest in, to or under any of the rights, privileges, powers, franchises, properties or Assets of the Company or (b) otherwise to carry out the purposes of this Agreement, the Surviving Company and its proper officers and directors or their designees shall be authorized to execute and deliver, in the name and on behalf of the Company all such deeds, bills of sale, assignments and assurances and do, in the name and on behalf of the Company, all such other acts and things necessary, desirable or proper to vest, perfect or confirm its right, title or interest in, to or under any of the rights, privileges, powers, franchises, properties or Assets of the Company, and otherwise to carry out the purposes of this Agreement.

ARTICLE II

REPRESENTATIONS AND WARRANTIES OF THE COMPANY AND THE PRINCIPAL OFFICERS

The Company and each Principal Officer hereby represent and warrant to CIENA as follows (provided that the Principal Officers represent as to the matters set forth herein to the extent of their Knowledge only):

SECTION 2.1. Organization and Qualification.

The Company is a corporation duly organized, validly existing and in good standing under the laws of Delaware. The Company has the requisite power and authority to carry on its business as now being conducted and to perform the terms of this Agreement and the transactions contemplated hereby. The Company is duly qualified to conduct its business, and is in good standing, in each jurisdiction in which the ownership or leasing of its Assets or the nature of its activities in connection with the conduct of its business makes such qualification necessary except for those jurisdictions where the failure to be so qualified and in good standing would not have a Company Material Adverse Effect. Other than Catena Networks Canada Inc., a corporation incorporated under the laws of Canada ("CNC Sub"), which is wholly owned by the Company, the Company has no subsidiaries or any equity interest in any Person.

SECTION 2.2. Certificate of Incorporation and Bylaws.

The Company has heretofore delivered to CIENA a complete and correct copy of its Certificate of Incorporation (the "Company Certificate") and the bylaws of the Company, each as amended to date, and a copy of the Second Amended and Restated Certificate of Incorporation of the Company to be filed prior to the Effective Time (the "New Company Certificate"). As of the date of this Agreement, the Company Certificate and bylaws are in full force and effect. As of the Closing, the New Company Certificate and bylaws will be in full force and effect. The Company is not in violation of any of the provisions of the Company Certificate or its bylaws. The Company has heretofore delivered or made available to CIENA a complete and correct copy of its Subsidiary's articles of incorporation and bylaws, each as amended to and as in effect as of the date hereof.

SECTION 2.3. Capitalization.

The authorized capital stock of the Company on the date hereof consists of 140,083,025 shares of common stock, \$0.001 par value per share, 9,371,695 shares are issued and outstanding 3,675,328 of which are designated as Non-Voting Common Stock, none of which are issued and outstanding, and 194,679,450 shares of preferred stock, par value \$0.001 per share, of which 10,300,000 shares are designated Series A Preferred Stock, 10,100,000 of which are issued and outstanding, 10,300,000 are designated Series AA Preferred Stock, none of which are issued and outstanding, 440,000 are designated Series A-1 Preferred Stock, all of which are issued and outstanding, 440,000 are designated Series AA-1 Preferred Stock, none of which are issued and outstanding, 7,761,776 are designated Series B Preferred Stock, 7,677,856 of which are issued and outstanding, 7,761,776 are designated Series BB Preferred Stock, none of which are issued and outstanding, 846,262 are designated Series B-1 Preferred Stock, all of which are issued and outstanding, 846,262 are designated Series BB-1 Preferred Stock, none of which are issued

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and outstanding, 7,662,621 are designated Series C Preferred Stock, 7,514,978 of which are issued and outstanding, 7,662,621 are designated Series CC Preferred Stock, none of which are issued and outstanding, 338,426 are designated Series C-1 Preferred Stock, all of which are issued and outstanding, 338,426 are designated the Series CC-1 Preferred Stock, none of which are issued and outstanding, 67,500,000 are designated Series D Preferred Stock, 61,982,888 of which are issued and outstanding, 67,500,000 are designated Series DD Preferred Stock, none of which are issued and outstanding, 2,490,640 are designated Series D-1 Preferred Stock, none of which are issued and outstanding, and 2,490,640 are designated Series DD-1 Preferred Stock, none of which are issued and outstanding. All of the issued and outstanding shares of Company Preferred Stock and Company Common Stock are owned of record by the Stockholders of the Company shown on **Schedule 2.3** hereto. The Company has not granted any options, warrants or other rights that are currently outstanding, or entered into any agreements, arrangements or commitments of any character relating to the issued or unissued capital stock of the Company that are currently in effect, or obligating the Company to issue or sell any shares of capital stock of, or other equity interests in the Company, including any securities directly or indirectly convertible into or exercisable or exchangeable for any capital stock or other equity securities of the Company, except that as of the date of this Agreement, there were (i) 16,548,026 shares of Company Common Stock reserved for issuance pursuant to options outstanding under the Company's 1998 Equity Incentive Plan (the "Company Stock Plan") and (ii) shares of Company Capital Stock reserved for issuance pursuant to outstanding warrants shown on **Schedule 2.3(a)** hereto (the "Company Warrants"). The Company does not have outstanding any bonds, debentures, notes or other obligations the holders of which have the right to vote (or convertible into or exercisable for securities having the right to vote) with the Stockholders of the Company on any matter. There are no outstanding obligations or rights of the Company to repurchase, redeem or otherwise acquire any shares of its capital stock or make any investment (in the form of a loan, capital contribution or otherwise) in any other Person except in accordance with the Company Certificate and the New Company Certificate and except for outstanding rights of the Company to repurchase shares of Company Common Stock, at the original purchase price paid per share, upon the holder's termination of service or employment with the Company and certain other circumstances in the amounts and under the terms (including the original purchase price and vesting and acceleration provisions) and from the persons set forth on **Schedule 2.3(a)** (the "Company Restricted Stock"). Each holder of Company Restricted Stock that is a United States taxpayer has filed on a timely basis an election under Section 83(b) of the Code with respect to such Company Restricted Stock. All of the issued and outstanding shares of the Company Capital Stock have been duly authorized and validly issued in accordance with applicable Laws, including applicable securities laws, and are fully paid and non-assessable and were not issued in violation of any preemptive rights. Except as set forth on **Schedule 2.3(b)**, all of the outstanding shares of capital stock of the Company's Subsidiary are duly authorized, validly issued, fully paid and non-assessable and are owned by the Company free and clear of any Encumbrance other than Permitted Encumbrances. Except as set forth above or on **Schedule 2.3(c)**, no shares of capital stock of the Company are reserved for any purpose. **Schedule 2.3(d)** contains a list which is complete and accurate in all respects as of the date hereof, of each outstanding option, warrant or other stock based award to purchase or acquire shares under the Company Stock Plan (the "Company Options") or otherwise, including whether or not the grant was made under the Company Stock Plan, the holder, date of grant, exercise price, whether the option contains an associated stock appreciation right, vesting and acceleration provisions and numbers of shares subject thereto.

SECTION 2.4. Authority.

(a) The execution and delivery of this Agreement by the Company and the consummation by the Company of the transactions contemplated hereby, including, without limitation, the filing of the New Company Certificate, have been duly and validly authorized by all necessary corporate action and no other corporate proceedings on the part of the Company are necessary to authorize this Agreement or to consummate the transactions contemplated hereby, except that approval of the New Company Certificate and the Merger requires (i) approval by holders of a majority of the shares of the Company Common Stock (excluding the Non-Voting Common Stock), (ii) approval by holders of a majority of the shares of

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the Series A Preferred Stock, the Series AA Preferred Stock, the Series A-1 Preferred Stock, the Series AA-1 Preferred Stock, the Series B Preferred Stock, Series BB Preferred Stock, Series C Preferred Stock, Series CC Preferred Stock, Series D Preferred Stock and Series DD Preferred Stock (collectively, the “Voting Preferred Stock”), and the Company Common Stock (excluding the Non-Voting Common Stock), all voting together as a single class on an as converted to Company Common Stock basis, and (iii) approval by the holders of not less than a majority of the then outstanding Voting Preferred Stock, voting as a separate class on an as converted to Company Common Stock basis, including three unaffiliated Major Investors (as defined in the Amended and Restated Investor Rights Agreement dated January 22, 2002 by and among the Company and the other parties thereto (the “Investor Rights Agreement”) (the “Company Requisite Vote”). The term “unaffiliated Major Investors” means Major Investors as defined in the Investor Rights Agreement that are not officers, directors or affiliates (within the meaning of the federal securities laws) of the Company. The Non-Voting Common Stock and the Company Preferred Stock other than the Voting Preferred Stock is not entitled to any vote on the Merger. Assuming due authorization, execution and delivery by CIENA, this Agreement constitutes, and the New Company Certificate will at the Effective Time constitute, a legal, valid and binding obligation of the Company, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors’ rights generally and by the application of general principles of equity.

(b) The Board of Directors of the Company has duly and unanimously approved this Agreement and the Merger and the other transactions contemplated hereby to which the Company is a party, and as of the date hereof has recommended adoption thereof by the Stockholders.

SECTION 2.5. No Conflict; Required Filings and Consents.

(a) The execution and delivery of this Agreement by the Company does not, and the performance by the Company of its obligations under this Agreement will not, (i) conflict with or violate the Company Certificate or the bylaws of the Company, (ii) conflict with or violate any Law applicable to the Company, or (iii) result in any breach of or constitute a default (or an event which with notice or lapse of time or both would become a default) under any note, bond, mortgage, indenture, contract, agreement, lease, license, permit, franchise or other instrument or obligation to which it is subject, except with respect to (ii) or (iii) above, for those instances which would not delay or affect the terms of the transactions contemplated hereby or would otherwise not reasonably be expected to have a Company Material Adverse Effect.

(b) Except as set forth in **Schedule 2.5(b)**, the execution and delivery of this Agreement by the Company does not, and the performance of this Agreement by the Company will not, require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Entity by the Company, except for (i) the filing of a Certificate of Merger under the DGCL, (ii) required filings with and/or exemptions from the Ontario Securities Commission and any other relevant Canadian securities regulatory authority, (iii) filings under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended (the “Hart-Scott-Rodino Act”), (iv) filings under the Investment Canada Act and (v) state securities law filings.

(c) All consents and waivers required from any person in order to (i) carry out the transactions contemplated hereby under any contract, lease or agreement to which the Company or its Subsidiary is a party, or (ii) to assign such contract, lease or agreement to the Surviving Company, are set forth on **Schedule 2.5(c)**, except for licenses of widely available “shrink-wrap,” “click wrap” or similarly licensed software.

SECTION 2.6. Financial Statements.

Attached hereto as **Schedule 2.6** are the audited consolidated balance sheets of the Company as of December 31, 2001, 2002 and 2003 and the audited consolidated statements of operations and cash flows for such periods (collectively, the “Financial Statements”). The audited financial statements referred to in

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this **Section 2.6** present fairly, in all material respects, the financial condition of the Company and its Subsidiary as of the respective dates and the results of operations and cash flows for the respective periods indicated and have been prepared in accordance with United States generally accepted accounting principles (“GAAP”) applied on a consistent basis. The Financial Statements are accompanied by unqualified audit reports of Ernst & Young LLP. Except as reflected in the most recent balance sheet of the Company contained in the Financial Statements, as of December 31, 2003 (the “Balance Sheet Date”), the Company had no liabilities, contingent or absolute, matured or unmatured, known or unknown, and knows of no basis for such liabilities, except for liabilities (a) not required under GAAP applied on a consistent basis with that of the preceding accounting periods to be reported on such Financial Statements, and (b) incurred in the Ordinary Course of Business.

SECTION 2.7. Absence of Certain Changes or Events.

(a) Since the Balance Sheet Date, there has been no event or set of circumstances that resulted in or is reasonably likely to result in a Company Material Adverse Effect. Except as set forth on **Schedule 2.7(a)**, since the Balance Sheet Date, the Company and its Subsidiary have each conducted its business in the Ordinary Course of Business, and have not (i) paid any dividend or distribution in respect of, or redeemed or repurchased any of, its capital stock other than the Company’s repurchase of shares, at the original purchase price paid per share, from terminating employees or consultants in amounts and from persons described in **Schedule 2.7(a)**; (ii) incurred, or become subject to, any material liability (absolute or contingent, matured or unmatured), and knows of no basis for such liabilities, except current liabilities incurred in the Ordinary Course of Business; (iii) mortgaged, pledged or subjected to any Encumbrance (other than Permitted Encumbrances) any of the Assets; (iv) sold, exchanged, transferred or otherwise disposed of any material Assets except in the Ordinary Course of Business; (v) written down the value of any Assets or written off as uncollectible any accounts receivable, except write downs and write-offs in the Ordinary Course of Business, none of which, individually or in the aggregate, could reasonably be expected to have a Company Material Adverse Effect; (vi) entered into any material transactions, other than in the Ordinary Course of Business; (vii) made any change in any method of accounting or accounting practice except for changes made after the date of this Agreement as required by changes in GAAP or the application of SEC rules and regulations and related interpretations; or (viii) made any agreement to do any of the foregoing, other than negotiations with CIENA and its representatives regarding the transactions contemplated by this Agreement.

(b) Since the Balance Sheet Date, except as set forth on **Schedule 2.7(b)**, there has not been: (i) any damage, destruction or loss (whether or not covered by insurance) or any other event negatively affecting the business or Assets of the Company or its Subsidiary except for those which could not reasonably be expected to have a Company Material Adverse Effect; (ii) any forgiveness or cancellation of debts or claims owed to the Company or its Subsidiary; (iii) any increase in the rate of compensation or benefits payable or to become payable by the Company or its Subsidiary to any of the directors, officers, consultants or employees of the Company or its Subsidiary, other than salary increases in connection with customary performance reviews and customary bonuses consistent with past practices, the terms and amounts of which are set forth on **Schedule 2.7(b)**; (iv) any discharge or satisfaction of any Lien or payment of any liability or obligation by the Company or its Subsidiary other than current liabilities in the Ordinary Course of Business; or (v) any agreement to do any of the foregoing, other than negotiations with CIENA and its representatives regarding the transactions contemplated by this Agreement.

SECTION 2.8. Ownership and Condition of the Assets.

Except as set forth on **Schedule 2.8**, the Company or its Subsidiary is the sole and exclusive legal and equitable owner of and has good and marketable title to the Assets it purports to own and such Assets are free and clear of all Encumbrances other than Permitted Encumbrances. No person or Governmental Entity has an option to purchase, right of first refusal or other similar right with respect to all or any part of such Assets other than in the Ordinary Course of Business. All of the personal property of the Company and its Subsidiary is in good working order and repair, ordinary wear and tear excepted, and is

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suitable and adequate for the uses for which it is intended or is being used except for instances which could not reasonably be expected to have a Company Material Adverse Effect.

SECTION 2.9. Leases.

Schedule 2.9 lists all leases and other agreements under which the Company or its Subsidiary is lessee or lessor of any Asset, or holds, manages or operates any Asset owned by any third party, or under which any Asset owned by the Company or its Subsidiary is held, operated or managed by a third party. The Company or its Subsidiary is the holder of all the leasehold estates purported to be granted to such entity by the leases listed in **Schedule 2.9** and is the owner of all equipment, machinery and other Assets purported to be owned by the Company or its Subsidiary thereon, free and clear of all Encumbrances other than Permitted Encumbrances. Each such lease and other agreement is in full force and effect and constitutes a legal, valid and binding obligation of, and is legally enforceable against the Company or its Subsidiary and, to the Knowledge of the Company, the other respective parties thereto (except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors' rights generally and by the application of general principles of equity) and grants any leasehold estate it purports to grant free and clear of all Encumbrances other than Permitted Encumbrances. All necessary governmental approvals required to be obtained by the Company or its Subsidiary with respect thereto have been obtained, all necessary filings or registrations therefor have been made, and to the Company's Knowledge, there have been no threatened cancellations thereof and are no outstanding disputes thereunder. The Company and its Subsidiary have each performed in all material respects all obligations thereunder required to be performed by such entity to date. Neither the Company nor its Subsidiary is in default in any material respect under any of the foregoing and to the Company's Knowledge, no other party is in default in any material respect under any of the foregoing, and there has not occurred any event which (whether with or without notice, lapse of time or the happening or occurrence of any other event) would, constitute a default on the part of the Company or its Subsidiary, or to the Company's Knowledge, a party other than the Company.

SECTION 2.10. Other Agreements.

(a) **Schedule 2.10** is an accurate list of all material contracts and agreements to which the Company or its Subsidiary is a party, or which it or any of its property is bound, (including, without limitation, joint venture agreements, employment contracts, loan agreements, bonds, mortgages, liens, pledges or other security agreements), in each case as of the date of this Agreement, used in connection with, or relating to the conduct of the business of the Company or its Subsidiary (the "Contracts").

(b) Except as set forth on **Schedule 2.10** (and without limiting the foregoing), with respect to the conduct of the business of the Company and its Subsidiary and ownership of the Assets, as of the date of this Agreement, neither the Company nor its Subsidiary is:

- (1) a party to any contract, purchase or sales orders, or commitment that involves a dollar amount in excess of \$50,000;
- (2) a party to any employment contracts with employees, agents or consultants other than offer letters for non-executive new hires entered into in the Ordinary Course of Business;
- (3) a party to any contract with sales or other agents, brokers, franchisees, distributors or dealers;
- (4) a party to any partnership or joint venture agreement;
- (5) a party to any lease or other occupancy or use agreements, oral or written, nor has the Company or its Subsidiary granted any options, rights of first refusal or security or other interests other than Permitted Encumbrances in or relating to the Assets or the business of the Company or its Subsidiary;

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- (6) a party to any agreements giving any party the right to renegotiate or require a reduction in price or refund of payments previously made in connection with the business of the Company or its Subsidiary;
- (7) a party to any agreements for the borrowing or lending of money with respect to the business of the Company or its Subsidiary and is not a party to any guaranty agreement;
- (8) a party to any agreements that contain any provisions requiring the Company or its Subsidiary to indemnify any other party thereto other than agreements entered into in the Ordinary Course of Business which could not reasonably be expected to have a Company Material Adverse Effect;
- (9) a party to any agreement for the sale of goods or services to any Governmental Entity;
- (10) a party to any agreement granting any Person a Lien on any of the Assets other than Permitted Encumbrances;
- (11) a party to any agreement under which the Company or its Subsidiary licenses or transfers any rights to any Company intellectual property rights or under which the Company licenses any intellectual property rights of others except for licenses of widely available “shrink wrap,” “click wrap” or similarly licensed software or “end user” licenses in the form previously provided to CIENA enabling the Company’s customers to use the Company’s products;
- (12) a party to any joint venture, co-development, corporate partnering or similar agreement involving the development, marketing or sale of goods or services;
- (13) a party to any severance, bonus, executive or deferred compensation, profit sharing, pension or retirement, stock option or stock purchase, hospitalization, insurance, medical reimbursement or other plan, agreement or arrangement or practice providing employee or executive benefits to any officer or employee or former officer or former employee that is not otherwise set forth on **Schedule 2.17(a)**; and
- (14) a party to or bound by any non-competition, secrecy or confidentiality agreement relating to the business of the Company or its Subsidiary or the Assets that is currently in effect (other than employee proprietary information agreements and consulting agreements containing confidentiality provisions, in each case that are substantially in the forms of which have been provided to CIENA) or any other contract restricting its right to conduct the business the Company or its Subsidiary at any time, in any manner or at any place in the world, or the expansion thereof to other geographical areas, customers, suppliers or lines of business.
- (c) A true and correct copy of each Contract has been made available to CIENA prior to the date hereof. Each Contract is now valid, in full force and effect and enforceable against the Company or its Subsidiary and to the Company’s Knowledge, the other parties thereto in accordance with its terms (except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors’ rights generally and by the application of general principles of equity). Neither the Company nor its Subsidiary has breached or improperly terminated any such Contract, the effect of which would reasonably be expected to have a Company Material Adverse Effect, and neither the Company, its Subsidiary nor, to the Knowledge of the Company, any third party is in default under any such Contract, the effect of which would have a Company Material Adverse Effect. To the Company’s Knowledge, there exists no condition or event that, after notice or lapse of time or both, would constitute any such breach, termination or default. Except as set forth on **Schedule 2.10** and responses to open requests for proposals that have been provided to CIENA prior to the date of this Agreement, to the Company’s Knowledge, there is no bid or contract proposal made by the Company or its Subsidiary that, if accepted and entered into, is likely to result in a loss to the Company or its Subsidiary.

SECTION 2.11. Real Property.

Schedule 2.11 contains a list of all leasehold interests in real estate, easements, rights to access, rights-of-way and other real property interests which are owned, or are leased, used or held for use by the Company or its Subsidiary (collectively, the “Real Property”). The Real Property listed in **Schedule 2.11** constitutes all real property interests necessary to conduct the business and operations of the Company and its Subsidiary as now conducted. To the Company’s Knowledge, there are no easements or other real property interests, other than those listed in **Schedule 2.11**, that are required, or that have been asserted by a Governmental Entity to be required, to conduct the business and operations of the Company or its Subsidiary. The Company has made available to CIENA true and complete copies of all deeds, leases, easements, rights-of-way and other instruments pertaining to the Real Property (including any and all amendments and other modifications of such instruments). All Real Property (including the improvements thereon) (i) is in good condition and repair other than conditions that do not adversely affect its use by the Company or its Subsidiary consistent with its present use, (ii) is available to the Company or its Subsidiary for immediate use in the conduct of its business and operations, and (iii) to the Knowledge of the Company complies in all material respects with all applicable building or zoning codes and in the regulations of any Governmental Entity having jurisdiction.

SECTION 2.12. Environmental Matters.

(a) The Company and its Subsidiary have complied in all material respects with all Environmental Laws. There are no pending or, to the Knowledge of the Company, threatened actions, suits, claims, legal proceedings or other proceedings against the Company or its Subsidiary based on any Environmental Laws, and the Company has not received any notice of any complaint, order, directive, citation, warrant, notice of violation, notice of responsibility, notice of potential responsibility, or information request from any Governmental Entity or any other person arising out of or attributable to: (i) the current or past presence at any part of the Real Property of Hazardous Materials (as defined below) or any substances that pose a hazard, a harm or threatened harm to human health, the environment or an impediment to working conditions; (ii) the current or past release or threatened release into the environment from the Real Property (including, without limitation, into any storm drain, sewer, septic system or publicly owned treatment works) or arising from the Company’s and its Subsidiary’s activities of any Hazardous Materials or any substances that pose a hazard, a harm or threatened harm to human health, the environment or an impediment to working conditions; (iii) the off-site disposal of Hazardous Materials originating on or from the Real Property or arising from the Company’s and its Subsidiary’s activities; (iv) any facility operations or procedures of the Company or its Subsidiary which do not conform to requirements of the Environmental Laws; or (v) any violation of Environmental Laws at any part of the Real Property or otherwise arising from the Company’s and its Subsidiary’s activities involving Hazardous Materials.

(b) The Company or its Subsidiary has been duly issued, and currently has all material permits, licenses, certificates and approvals required to be maintained by the Company or its Subsidiary, as the case may be, under any Environmental Law with respect to the use of the Real Property by the Company or its Subsidiary and to conduct its activities. A true and complete list of such permits, licenses, certificates and approvals, all of which are valid and in full force and effect, is set out in **Schedule 2.12**. Except in accordance with such permits, licenses, certificates and approvals, there has been no discharge of any Hazardous Materials or any other material or substances regulated by such permits, licenses, certificates or approvals.

(c) To the Knowledge of the Company, none of the Real Property contains any underground or aboveground storage tanks, or underground or aboveground piping associated with such tanks, used currently or in the past for Hazardous Materials.

SECTION 2.13. Litigation.

Except as set forth on **Schedule 2.13**, neither the Company nor its Subsidiary a party to any pending action, suit, investigation, claim, arbitration or litigation and, to the Knowledge of the Company, no such

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matter is threatened against or involving the Company, its Subsidiary or the Assets, at law or in equity, or before or by any court, arbitrator or Governmental Entity. Neither the Company nor its Subsidiary is operating under, or subject to, any judgment, writ, order, injunction, award or decree of any court, judge, justice or magistrate, including any bankruptcy court or judge, or any order of or by any Governmental Entity. No property or Assets of the Company or its Subsidiary has been taken or expropriated by any federal, state, provincial, municipal or other Governmental Entity nor has any notice or proceeding with respect to thereof been given or commenced, nor, to the Company's Knowledge, is there any intent or proposal by any Governmental Entity to give any such notice or commence any such proceeding.

SECTION 2.14. Compliance with Laws.

The Company and its Subsidiary are in compliance in all respects with all Laws applicable to the Assets and its business and operations, including all Laws applicable to the Company's and the Subsidiary's relationship with its respective employees except where noncompliance would not be reasonably expected to have a Company Material Adverse Effect.

SECTION 2.15. Intellectual Property.

(a) Except as set forth on **Schedule 2.15(a)**, the Company or its Subsidiary has all right, title, interest and license rights necessary to use all intellectual property used in the business of the Company and its Subsidiary as presently conducted and, to the Company's Knowledge, has the right, title, interest and license rights to use all intellectual property that is currently anticipated by the Company to be required to carry out the Company's product development and marketing plans through at least the next 6 months (the "Intellectual Property Rights"). Except as set forth on **Schedule 2.15(a)**, there are no claims or demands against the Company by any other Person pertaining to any of such Intellectual Property Rights and no proceedings have been instituted, or are pending or to the Knowledge of the Company, threatened, which challenge the rights of the Company or its Subsidiary in respect thereof. The Company or its Subsidiary have the right to use, without infringing the rights of others, all customer lists, designs, manufacturing or other processes, computer software, systems, data compilations, research results and other information required for or incident to its products or its business as presently conducted.

(b) **Schedule 2.15(b)** lists all patents, patent applications, registered trademarks, trademark applications and registrations and registered copyrights owned by or registered in the name of the Company or its Subsidiary or used by either the Company or its Subsidiary in its business as presently conducted, and generally describes any other unregistered trademarks or copyrights or other intellectual property owned by the Company that are material to the business or operations of the Company or its Subsidiary. All of such patents, patent applications, registered trademarks, trademark applications and registrations and registered copyrights, if any, have been duly registered in, filed in or issued by the United States Patent and Trademark Office, the United States Register of Copyrights, or the corresponding offices of other jurisdictions as identified on **Schedule 2.15(b)**, and have been properly maintained and renewed in accordance with all applicable provisions of law and administrative regulations in the United States and each such jurisdiction except as set forth on **Schedule 2.15(b)**. All material Intellectual Property Rights, other than those described in **Schedule 2.15(c)**, are owned by or registered in the name of the Company's Subsidiary, not the Company.

(c) All licenses or other agreements under which the Company or its Subsidiary is granted rights in Intellectual Property Rights are listed on **Schedule 2.15(c)** except for licenses of widely available "shrink-wrap," "click-wrap" or similarly licensed software. All such licenses or other Agreements are in full force and effect, there is no material default by the Company or its Subsidiary or, to the Company's Knowledge, any party thereto. To the Knowledge of the Company, the licensors under such licenses and other agreements have and had all requisite power and authority to grant the rights purported to be conferred thereby. True and complete copies of all such licenses or other Agreements, and any amendments thereto, have been furnished to CIENA.

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(d) All licenses or other agreements under which the Company or its Subsidiary has granted rights to others in Intellectual Property Rights owned or licensed by the Company are listed on **Schedule 2.15(d)** except for licenses of “shrink-wrap,” “click-wrap” or similarly licensed software or “end user” licenses in the form previously provided to CIENA enabling the Company’s customers to use the Company’s products. All of such licenses or other agreements are in full force and effect, there is no material default by the Company or its Subsidiary, or to the Company’s Knowledge, by any party thereto. True and complete copies of all such licenses or other agreements, and any amendments thereto, have been furnished to CIENA.

(e) The Company and its Subsidiary have each taken all reasonable steps it believes to be required in accordance with sound business practice to establish and preserve its ownership of all material copyright, trade secret and other proprietary rights with respect to its products and technology, have required each current and former employee and independent contractor to enter into a valid and binding written agreement with the Company or its Subsidiary sufficient to vest title in the Company or its Subsidiary of all Intellectual Property Rights created by such employee or independent contractor in the scope of his or her services to the Company and all such Persons have waived their moral rights in any copyright works within the Intellectual Property Rights. The Company and its Subsidiary have each required all professional and technical employees and independent contractors having access to valuable non-public information of the Company and its Subsidiary to execute agreements under which such persons are required to maintain the confidentiality of such information and appropriately restricting the use thereof. The Company does not have Knowledge of any infringement by others of any Intellectual Property Rights of the Company or its Subsidiary.

(f) To the Knowledge of the Company, except as set forth on **Schedule 2.15(f)**, the present business, activities and products of the Company and its Subsidiary do not infringe any Intellectual Property Rights of any other Person. No proceeding charging the Company or its Subsidiary with infringement of any Intellectual Property Rights has been filed or, to the Knowledge of the Company, is threatened or likely to be filed. Except as set forth on **Schedule 2.15(f)**, to the Knowledge of the Company, there exists no unexpired patent or patent application that includes claims that would be infringed by the products, activities or business of the Company or its Subsidiary. To the Knowledge of the Company, neither the Company nor its Subsidiary is making any unauthorized use of any confidential information or trade secrets of any Person, including without limitation, any customer of the Company or its Subsidiary, or any past or present employee of the Company or its Subsidiary. Except for customer contracts in the Ordinary Course of Business and confidentiality agreements by Employees with former employers, neither the Company or its Subsidiary nor, to the Knowledge of the Company, any of its employees have any agreements or arrangements with any Persons other than the Company related to confidential information or trade secrets of such Persons or restricting any such employee’s engagement in business activities of any nature. The activities of its employees on behalf of the Company or its Subsidiary do not violate any such agreements or arrangements known to the Company that would reasonably be expected to have a Material Adverse Effect.

(g) To the Knowledge of the Company, none of the current officers and employees of the Company or its Subsidiary has any issued patent or patent application pending for any device, process, design or invention of any kind used (currently or in the 12 months prior to the date hereof) by the Company or its Subsidiary, or is intended to be used by the Company or its Subsidiary or its successor in the future, which patent or patent application has not been assigned to the Company or its Subsidiary, with such assignment duly recorded in the patent office of the relevant jurisdiction. Binding, written assignments to the Company or its Subsidiary have been executed by all inventors for those patents and patent applications set forth on **Schedule 2.15(b)**.

SECTION 2.16. Taxes and Assessments.

(a) Except as set forth on **Schedule 2.16**, the Company and its Subsidiary have each (i) duly and timely paid all Taxes which have become due and payable by it, and there are no agreements, waivers or other arrangements providing for an extension of time with respect to the filing of any Tax Return or the

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payment of any Tax; (ii) received no written notice of, nor does the Company have any Knowledge of, any notice of deficiency or assessment or proposed deficiency or assessment from any taxing Governmental Entity; (iii) no Knowledge of any audits pending and there are no outstanding agreements or waivers by the Company or its Subsidiary that extend the statutory period of limitations applicable to any federal, state, local, or foreign tax returns or Taxes; and (iv) not entered into any discussions with any federal, state, provincial, local, or foreign authority with respect to any Tax asserted by such authority but not yet paid by the Company or its Subsidiary. Except as set forth on **Schedule 2.16**, since the inception of the Company, the Tax Returns of the Company and its Subsidiary have never been audited by federal, state, provincial, local, or foreign authorities. There are no Liens for Taxes (other than Taxes not yet due and payable) on any property of the Company or its Subsidiary. The Company and its Subsidiary have withheld from each payment made to any of its past or present employees, officers or directors, and to any non-residents, the amount of Taxes and other deductions required to be withheld therefrom and have paid the same (or set aside for timely payment) to the proper Tax or other receiving officers within the time required under applicable Laws. The provision for Taxes of the Company, if any, as shown in the Financial Statements is adequate for Taxes due or accrued as of the date thereof.

(b) The Company and its Subsidiary have not, and have never been deemed to have for Tax purposes, acquired or had the use of property for proceeds greater than the fair market value thereof from, or disposed of property for proceeds less than the fair market value thereof to, or received or performed services for other than the fair market value from or to, or paid or received interest or any other amount other than at a fair market value rate to or from, any Person, firm or corporation with whom it does not deal at arm's length within the meaning ascribed to that expression in the Income Tax Act (Canada), as amended (the "ITA").

(c) All research and development investment tax credits ("ITCs") were claimed by the Subsidiary in accordance with the ITA and the relevant provincial legislation and the Subsidiary satisfied at all times the relevant criteria and conditions entitling it to such ITCs. All refunds of ITCs received or receivable by the Subsidiary in any fiscal year were claimed in accordance with the ITA and the relevant provincial legislation and the Subsidiary satisfied at all times the relevant criteria and conditions entitling it to claim a refund of such ITCs.

SECTION 2.17. Employment and Benefit Matters.

(a) Pension and Benefit Plans and Other Arrangements. **Schedule 2.17(a)** lists each employee benefit plan, program, arrangement and contract (including, without limitation, any "employee benefit plan" as defined by Section 3(3) of ERISA), applicable to employees or former employees of the Company or its Subsidiary to which it has contributed or under which it has any material liability and all Foreign Employee Plans applicable to employees and former employees of the Company or its Subsidiary who worked or have worked in Canada (collectively, the "Company Benefit Plans"). The Company has made available to CIENA, to the extent they exist, a true and correct copy of (i) the most recent annual report (Form 5500 series) filed with the Internal Revenue Service (the "IRS") with respect to each Company Benefit Plan or similar report of the jurisdiction in which such employee benefit plan is located, (ii) each such Company Benefit Plan document and any amendments thereto, (iii) each trust agreement or other funding vehicle relating to each such Company Benefit Plan, (iv) the most recent summary plan description for each Company Benefit Plan for which a summary plan description is required, and (v) the most recent determination letter, if applicable, or opinion letter issued by the IRS with respect to any Company Benefit Plan qualified under Section 401(a) of the Code or similar report of the jurisdiction in which such employee benefit plan is located.

(b) Compliance. The Company and its Subsidiary have complied in all material respects with the terms of the Company Benefit Plans and all applicable provisions of the Code, ERISA, and all other applicable Laws pertaining to the Company Benefit Plans. The Company and its Subsidiary have no liability for any delinquent contributions within the meaning of Section 515 of ERISA (including, without limitation, related attorneys' fees, costs, liquidated damages and interest) or for any arrearages of wages. The Company and its Subsidiary have no pending unfair labor practice charges, contract grievances under

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any collective bargaining agreement, other administrative charges, claims, grievances or lawsuits before any court, governmental agency, regulatory body, or arbiter arising under any Law governing any Company Benefit Plan, and, to the Knowledge of the Company, there exist no facts that could reasonably be expected to give rise to such a claim.

(c) Collective Bargaining Agreements. There are no collective bargaining agreements applicable to the Company's and its Subsidiary's employees and the Company and its Subsidiary have no duty to bargain with any labor organization with respect to any such persons. There is no pending demand for recognition or any other request or demand from a labor organization for representative status with respect to any persons employed by the Company or its Subsidiary. Moreover, there are no current, nor threatened attempts to organize or establish any trade union or employee association with respect to the Company and its Subsidiary and there has not been for a period of 12 consecutive months prior to the date hereof, nor is there existent or, to the Knowledge of the Company or its Subsidiary threatened any strike, slow-down or work stoppage with respect to the Company or its Subsidiary.

(d) Employee Information. The Company has made available to CIENA and will update on or immediately before the Closing Date, a list of the names, positions, dates of hire and rates of compensation of all officers, directors, employees and consultants of the Company and its Subsidiary, as of the date hereof, showing each such person's name, positions, and annual remuneration, bonuses, accrued vacation, material fringe benefits and any severance or change of control agreement in place for the current fiscal year and the most recently completed fiscal year. The list referenced in the preceding sentence lists all employees currently on a leave of absence approved the Company or its Subsidiary, including, without limitation, parental or pregnancy leave or a leave related to the receipt of short-term or long-term disability benefits or workers' compensation benefits and indicates the date of the beginning of the leave, the type of leave and the expected date of return to work. With respect to any persons employed by the Company or its Subsidiary, the Company and its Subsidiary are in material compliance with all Laws respecting employment conditions and practices, have withheld all amounts required by any applicable Laws to be withheld and paid from wages, and neither the Company nor its Subsidiary have any liability for any Taxes or penalties for failure to comply with any of the foregoing.

(e) Employment Practices. Except as set forth on **Schedule 2.17(e)**, with respect to any persons employed by the Company or its Subsidiary, (i) the Company and its Subsidiary have not engaged in any unfair labor practice within the meaning of the National Labor Relations Act and the Labour Relations Act 1995, have complied in all material respects with the Ontario Human Rights Code, the Workplace Safety and Insurance Act, the Employment Standards Act 2000, the Occupational Health and Safety Act, the Pay Equity Act and any other Canadian Federal or Provincial laws related to employment or labour relations and has not violated any legal requirement prohibiting discrimination on the basis of race, color, national origin, sex, religion, age, marital status, or handicap in its employment conditions or practices; and (ii) there are no pending or, to the Knowledge of the Company, threatened unfair labor practice charges or discrimination complaints relating to race, color, national origin, sex, religion, age, marital status, or handicap against the Company or its Subsidiary before any Governmental Entity nor, to the Knowledge of the Company, does any basis therefor exist.

(f) Contributions to the Company Benefit Plans. All contributions to, and payments from, each Company Benefit Plan which may have been required to be made in accordance with the terms of such plan, and, where applicable, the laws of the jurisdiction which govern such plan, have been made in a timely manner, and all material reports, returns and similar documents (including applications for approval of contributions) with respect to any Company Benefit Plan required to be filed with any Governmental Entity or distributed to any participant of such plan have been duly filed on a timely basis or properly distributed. No Company Benefit Plan is subject to Title IV of ERISA.

(g) Immigration Laws. The Company and its Subsidiary have complied, in all material respects, with all Laws governing the employment of personnel by U.S. companies and the employment of non-U.S. nationals in the United States, including, but not limited to, the Immigration and Nationality Act 8 U.S.C. Sections 1101 et seq. and its implementing regulations.

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(h) Parachute Payments. Except as set forth on **Schedule 2.17(h)**, no amount required to be paid or payable to or with respect to any employee or other service provider of the Company or its Subsidiary in connection with the transactions contemplated hereby (either solely as a result thereof or as a result of such transactions in conjunction with any other event) will be subject to withholding under Sections 3402 and 4999 of the Code as an “excess parachute payment” within the meaning of Section 280G of the Code. **Schedule 2.17(h)** sets forth the name of each such employee or other service provider, any payments that may be classified as “parachute payments” and the agreements pursuant to which such payments may be made. No employee or other service provider of the Company or its Subsidiary is entitled to, or shall become entitled to, in connection with the transactions contemplated hereby, a tax gross-up payment from the Company or its Subsidiary with regard to “parachute payments” under Section 280G of the Code.

(i) COBRA. **Schedule 2.17(i)** sets forth a list of all persons who are current qualified beneficiaries (as defined in Section 4980B of the Code) as of the date hereof.

SECTION 2.18. Transactions with Related Parties.

Except (i) for standard confidentiality, assignment of invention and non-competition agreements, and stock option awards and restricted stock grants and awards on standard forms under the Company Stock Plan, the purchase of restricted stock under customary founder stock purchase agreements, and payment of wages and provision of benefits in the Ordinary Course of Business, (ii) for agreements relating to the purchase of Company Preferred Stock, copies of which have been made available to CIENA prior to the date hereof, (iii) as set forth on **Schedule 2.18**, and (iv) for any transactions between the Company or its Subsidiary and CIENA, neither any present or former officer, director, stockholder of the Company or its Subsidiary or person known by the Company to be an Affiliate of any of them, is currently a party to any transaction or agreement with the Company or its Subsidiary, including, without limitation, any loan, extension of credit or arrangement for the extension of credit, any agreement providing for the employment of, furnishing of services by, rental of Assets from or to, or otherwise requiring payments to, any such officer, director, stockholder or Affiliate or its Subsidiary.

SECTION 2.19. Insurance and List of Claims.

Schedule 2.19 contains a list of all policies of title, property, fire, casualty, liability, life, workmen’s compensation, libel and slander, and other forms of insurance of any kind relating to the business and operations of the Company and its Subsidiary in each case which are in full force and effect as of the date hereof. The Company has made available to CIENA true and correct copies of all such policies. All such policies: (a) are sufficient for compliance by the Company and its Subsidiary with all requirements of applicable Law and of all licenses, franchises and other agreements to which the Company or its Subsidiary is a party, except for instances in which non-compliance could not reasonably be expected to have a Company Material Adverse Effect and (b) are, to the Company’s Knowledge, valid, outstanding, and enforceable policies. All premiums due and payable on all such policies have been paid. A true and complete list of all claims made between January 1, 2001 and the date of this Agreement under any of the policies (or their predecessors) listed on **Schedule 2.19** is included on **Schedule 2.19**.

SECTION 2.20. Brokers and Transaction Fees.

Except for arrangements with Goldman, Sachs & Co., the payment terms of which are fully described on **Schedule 2.20**, no broker, finder, investment banker or other person is entitled to any brokerage, finder’s or other fee or commission of any kind in connection with the transactions contemplated by this Agreement based upon arrangements made by or on behalf of any of the Company or any of its Affiliates.

SECTION 2.21. Disclosure.

True and complete copies of all documents listed in the Schedules have been made available or provided to CIENA. The books of account, stock record books and other financial and corporate records of the Company and its Subsidiary, including the minute books of the Company’s Stockholders and Board

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of Directors, all of which have been made available to CIENA, are complete and correct in all material respects and have been maintained in accordance with good business practices, including the maintenance of an adequate system of internal accounting controls, and such book and records are accurately reflected in the Financial Statements.

SECTION 2.22. Absence of Violation.

To the Knowledge of the Company, none of the Company, its Subsidiary nor any of its officers, directors, employees or agents (or stockholders, distributors, representatives or other persons acting on the express, implied or apparent authority of any of the Company or its Subsidiary) have paid, given or received or have offered or promised to pay, give or receive, any bribe or other unlawful payment of money or other thing of value, any extraordinary discount, or any other unlawful inducement, to or from any person, business association or governmental official or entity in the United States or elsewhere in connection with or in furtherance of the business of the Company or its Subsidiary (including, without limitation, any unlawful offer, payment or promise to pay money or other thing of value (i) to any foreign official or political party (or official thereof) for the purposes of influencing any act, decision or omission in order to assist the Company or its Subsidiary in obtaining business for or with, or directing business to, any person, or (ii) to any person, while knowing that all or a portion of such money or other thing of value will be offered, given or promised to any such official or party for such purposes). To the Knowledge of the Company, the business of the Company and its Subsidiary is not in any manner dependent upon the making or receipt of such unlawful payments, discounts or other inducements.

SECTION 2.23. Customers and Suppliers.

Except as set forth on **Schedule 2.23**, the Company does not have Knowledge of (i) any termination or cancellation of (or any intent to terminate or cancel) the business relationship of the Company or its Subsidiary with (y) any single customer or any group of customers who represented ten percent (10%) or more of the revenues of the business of the Company or its Subsidiary during the fiscal year ended December 31, 2003, or (z) any single supplier or any group of affiliated suppliers who accounted for five percent (5%) or more of the amounts payable to suppliers of the Company or its Subsidiary incurred during the fiscal year ended December 31, 2003, or (ii) any existing condition, state of facts or circumstances that in the reasonable judgment of the Company will cause the Company or any of the customers described above to terminate their relationships. To the Knowledge of the Company, none of the business or prospective business of the Company or its Subsidiary is in any manner dependent upon the making or receipt of any payments, discounts or other inducements to any officers, directors, employees, representatives or agents of any customer.

SECTION 2.24. Competition Act; Investment Canada Act.

(a) Competition Act. The aggregate value of the assets in Canada, determined as of such time and in such manner as is prescribed by the Competition Act (Canada) and the regulations thereto, that are owned by the Company, does not exceed Cdn.\$50,000,000, and the gross revenues from sales in or from Canada, determined for such annual period and in such manner as is prescribed by the Competition Act (Canada) and the regulations thereto, generated from the assets referred to above, do not exceed Cdn.\$50,000,000.

(b) Investment Canada Act. At the end of the last completed fiscal year or years of the Company ending prior to the date of this Agreement and, if different, the Effective Time, the assets of the Company and its Subsidiary located in Canada, as determined in accordance with the provisions of the Investment Canada Act were less than Cdn.\$223,000,000. The Company and its Subsidiary are not engaged in any of the business activities set out in subsection 14.1(5) of the Investment Canada Act.

ARTICLE III

REPRESENTATIONS AND WARRANTIES OF CIENA

CIENA represents and warrants to the Company as follows:

SECTION 3.1. Organization and Qualification.

CIENA is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware. CIENA has the requisite power and authority to own, lease and operate its Assets and properties, to carry on its business as now being conducted and to perform the terms of this Agreement and the transactions contemplated hereby. CIENA is duly qualified to conduct its business, and is in good standing, in each jurisdiction where the ownership or leasing of its properties or the nature of its activities in connection with the conduct of its business makes such qualification necessary.

SECTION 3.2. Certificate of Incorporation and Bylaws.

CIENA has previously made available to Company complete and correct copies of CIENA's Certificate of Incorporation and its Bylaws, as amended to date (together, the "CIENA Charter Documents"). Such CIENA Charter Documents and equivalent organizational documents of each of its Subsidiaries are in full force and effect.

SECTION 3.3. Authority.

The execution and delivery of this Agreement by CIENA and the consummation by CIENA of the transactions contemplated hereby have been duly and validly authorized by all necessary corporate action and no other corporate proceedings on the part of CIENA are necessary to authorize this Agreement or to consummate the transactions contemplated hereby. This Agreement has been duly executed and delivered by CIENA and, assuming the due authorization, execution and delivery by the Company, constitutes a legal, valid and binding obligation of CIENA, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors' rights generally and by the application of general principles of equity.

SECTION 3.4. No Conflict; Required Filings and Consents.

(a) The execution and delivery of this Agreement by CIENA does not, and the performance by CIENA of its obligations under this Agreement will not, (i) conflict with or violate the CIENA Charter Documents, (ii) conflict with or violate any Law applicable to CIENA or its Assets and properties, or (iii) result in any breach of or constitute a default (or an event which with the notice or lapse of time or both would become a default) under any note, bond, mortgage, indenture, contract, agreement, lease, license, permit, franchise or other instrument or obligation to which CIENA is a party or by which CIENA is bound, or by which any of its properties or Assets is subject.

(b) The execution and delivery of this Agreement by CIENA does not, and the performance of this Agreement by CIENA will not, require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Entity other than (i) the filing of the Certificate of Merger under the DGCL, (ii) required filings with the Securities and Exchange Commission and NASDAQ, (iii) required filings with and/or exemptions from the Ontario Securities Commission and any other relevant Canadian securities regulatory authority, (iv) required filings under the Investment Canada Act, and (v) filings under the Hart-Scott-Rodino Act.

SECTION 3.5. Brokers.

No broker, finder or investment banker is entitled to any brokerage, finder's or other fee or commission in connection with the transactions contemplated by this Agreement based upon arrangements

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made by or on behalf of CIENA, except for the fee to be paid by CIENA to Morgan, Stanley & Co. Incorporated.

SECTION 3.6. Issuance of CIENA Common Stock.

Upon consummation of the Merger, and as of the Effective Time, the CIENA Common Stock to be issued in the Merger will be duly and validly issued, fully paid and non-assessable, free and clear of all Encumbrances imposed by CIENA, except as contemplated hereby.

SECTION 3.7. SEC Filings.

CIENA has filed all reports required to be filed by it with the Securities and Exchange Commission (the "SEC") during the last twelve months (the "SEC Filings"). The SEC Filings (i) were prepared in accordance with the requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and (ii) did not, at the time they were filed, contain any untrue statements of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading. Since the date of CIENA's last periodic report filed with the SEC there has been no event that has resulted in, or development that would reasonably be expected to result in, a CIENA Material Adverse Effect. The financial statements (including the related notes) of CIENA included in the SEC Filings complied, when filed, as to form in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto, were prepared in accordance with GAAP (except, in the case of unaudited statements, as permitted by Form 10-Q of the SEC) applied on a consistent basis during the periods involved (except as may be indicated in the notes thereto) and fairly presented in all material respects the consolidated financial position of CIENA and its consolidated Subsidiaries as of the dates thereof and their consolidated results of operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal and recurring year-end audit adjustments and the absence of footnotes).

SECTION 3.8 Litigation.

Except as disclosed in CIENA's SEC Filings filed prior to the date hereof, there is no action, suit, investigation, claim, arbitration or litigation pending or, to the Knowledge of CIENA, threatened against or involving CIENA or its Assets or the business and operations of CIENA, at law or in equity, or before or by any court, arbitrator or Governmental Entity that would reasonably be expected to result in a CIENA Material Adverse Effect. Except under proceedings that have been disclosed in CIENA's SEC Filings filed prior to the date hereof, CIENA is not operating under nor is it subject to any judgment, writ, order, injunction, award or decree of any court, judge, justice or magistrate, including any bankruptcy court or judge, or any order of or by any Governmental Entity. No property or Assets of CIENA has been taken or expropriated by any federal, state, provincial, municipal or other Governmental Entity nor has any notice or proceeding with respect to thereof been given or commenced nor is CIENA aware of any intent or proposal to give any such notice or commence any such proceeding.

SECTION 3.9 Capitalization.

The authorized capital stock of CIENA consists of 980,000,000 shares of common stock, \$0.01 par value per share, of which 474,947,608 shares are issued and outstanding as of February 17, 2004 and 20,000,000 shares of Preferred Stock, par value \$0.01 per share, none of which are issued and outstanding. Except (i) as described in public announcements by CIENA or in its SEC Filings, (ii) for shares issuable in the Merger Agreement, and (iii) for 50,836,231 shares issuable under outstanding stock options and 18,512,811 shares issuable under stock purchase plans and the shares issuable under the terms of the Rights Agreement, there are no options, warrants or other agreements obligating CIENA to issue or sell any shares of capital stock of, or other equity interests in CIENA. Except as disclosed in the SEC Filings, there are no outstanding obligations of CIENA to repurchase, redeem or otherwise acquire any shares of its capital stock. All of the issued and outstanding shares of CIENA capital stock have been duly

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authorized and validly issued in accordance with applicable laws and are fully paid and non-assessable and not subject to preemptive rights.

SECTION 3.10 **Absence of Certain Changes or Events.**

Since October 31, 2003, except as described in public announcements by CIENA or in its SEC Filings, there has not been: (i) any CIENA Material Adverse Effect, (ii) any declaration, setting aside or payment of any dividend on, or other distribution (whether in cash, stock or property) in respect of any of CIENA's capital stock, or any purchase, redemption or other acquisition by CIENA of any of CIENA's capital stock or any other securities of CIENA or any options, warrants, calls or rights to acquire any such shares or other securities except for repurchases from employees following their termination pursuant to the terms of their pre-existing stock option or purchase agreements, (iii) any split, combination or reclassification of any of CIENA's capital stock, or (iv) any material change by CIENA in its accounting methods, principles or practices, except as required by concurrent changes in GAAP, SEC rules and regulations and related interpretations.

ARTICLE IV

COVENANTS

SECTION 4.1. **Conduct of Business Pending Closing.**

From the date hereof until the Closing or the termination of this Agreement, the Company shall and shall cause its Subsidiary to:

- (i) maintain its existence in good standing;
- (ii) conduct its business in the Ordinary Course of Business, except as expressly permitted by this Agreement;
- (iii) maintain business and accounting records consistent with past practices, except as required by concurrent changes in GAAP and the application of SEC rules and regulations and related interpretations; and
- (iv) use commercially reasonable efforts (a) to preserve its business intact, (b) to keep available to the Company the services of its present officers and employees, and (c) to preserve for the Company the goodwill of its suppliers, customers and others having business relations with the Company.

SECTION 4.2. **Prohibited Actions Pending Closing.**

(a) Unless approved by the Company in writing (unless such approval would violate legal requirements) or if necessary in order to comply with applicable Laws, from the date hereof until Closing or termination of this Agreement, CIENA shall not:

(i) declare, set aside, or pay any dividends or make any other distributions (whether in cash, stock, equity securities or property) in respect to CIENA's capital stock, except where (A) an adjustment is made to the Exchange Ratios in accordance with **Section 1.6** or (B) the holders of Company Capital Stock will otherwise receive an equivalent, proportional dividend or distribution (based on the respective Exchange Ratios, as adjusted pursuant to **Section 1.6**) in connection with the Merger as if they had been holders of CIENA Common Stock on the record date for such dividend or distribution; or

(ii) agree in writing or otherwise take any of the actions described in **Section 4.2(a)(i)** above.

(b) Unless otherwise provided for herein or otherwise necessary in order to comply with applicable Laws or the Company's obligations hereunder or approved by CIENA in writing (unless such approval would violate legal requirements), including, without limitation, by electronic mail (which approval shall

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not be unreasonably withheld, conditioned or delayed), from the date hereof until the Closing or the termination of this Agreement, the Company and its Subsidiary shall not:

- (i) amend or otherwise change the Company Certificate, other than the adoption of the New Company Certificate, or the bylaws of the Company or the articles or bylaws of the Subsidiary;
- (ii) issue or sell or authorize for issuance or sale (other than any issuance of Company Capital Stock upon the exercise of any outstanding option or warrant to purchase Company Capital Stock set forth on **Schedule 2.3** which option or warrant was issued prior to the date hereof or which are subsequently issued in accordance with the succeeding limitations of this **Section 4.2(b)**), or grant any options or restricted stock or make other agreements with respect to, any shares of its capital stock or any other of its securities or modify the terms of existing stock options to purchase Company Stock or restricted stock grants which have been issued under the Company Stock Plan, except that (A) stock options to purchase Company Common Stock or restricted stock grants may be granted under the Company Stock Plan to new hires in accordance with past practices, provided the exercise price per share of each such option is not less than the fair market value per share of Company Common Stock on the grant date, and (B) the Company may carry out those provisions of any agreement with the Exchange Agent which provisions are in furtherance of this Agreement;
- (iii) declare, set aside, make or pay any dividend or other distribution, payable in cash, stock, property or otherwise with respect to any of its capital stock;
- (iv) reclassify, combine, split, subdivide or redeem, purchase or otherwise acquire, directly or indirectly, any of its capital stock except for the effects of the changes in the New Company Certificate and repurchases of shares in connection with the termination of any employee or consultant pursuant to stock option, restricted stock purchase agreements or stock award agreements, each pursuant to the Company Stock Plan;
- (v) incur any indebtedness for borrowed money (other than borrowing funds from Silicon Valley Bank pursuant to the Company's existing accounts receivable financing facility, as long as such funds are repaid prior to Closing) or issue any debt securities or assume, guarantee or endorse, or otherwise as an accommodation become responsible for, the obligations of any Person, or make any loans or advances, except in the Ordinary Course of Business, consistent with past practice;
- (vi) acquire (including, without limitation, by merger, consolidation, or acquisition of stock or Assets) any corporation, partnership, other business organization or any division thereof, or acquire, except in the Ordinary Course of Business, any material amount of Assets;
- (vii) enter into any contract or agreement other than in the Ordinary Course of Business;
- (viii) authorize any capital commitment or capital lease which is in excess of \$100,000 or capital expenditures which are, in the aggregate, in excess of \$500,000;
- (ix) mortgage, pledge or subject to Encumbrance other than Permitted Encumbrances, any of its Assets or properties or agree to do so other than in the Ordinary Course of Business;
- (x) assume, guarantee or otherwise become responsible for the obligations of any other Person, other than its Subsidiary, or agree to so do;
- (xi) enter into or agree to enter into any employment agreement (other than offer letters for non-executive new hires entered into in the Ordinary Course of Business);
- (xii) increase the rate of compensation payable or to become payable to its officers or employees, or grant any severance or termination pay to, or enter into any severance agreement with any director, officer or other employee of the Company, or establish, adopt, enter into or amend any collective bargaining, bonus, profit sharing, thrift, compensation, stock option, restricted stock, pension, retirement, deferred compensation, employment, termination, severance or other plan, agreement, trust, fund, policy or arrangement for the benefit of any such director, officer or employee, except that

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the Company may make any amendments to existing employee benefit plans to the extent necessary to maintain their compliance with applicable Laws;

(xiii) take any action to change in any respect its accounting policies or procedures (including, without limitation, procedures with respect to the payment of accounts payable and collection of accounts receivables), except as required by concurrent changes in GAAP or the application of SEC rules and regulations and related interpretations;

(xiv) make any Tax election or settle or compromise any federal, state, local or foreign income material Tax liability in excess of \$50,000;

(xv) settle or compromise any pending or threatened suit, action or claim or initiate any litigation against any third party;

(xvi) pay, discharge or satisfy any claim, liability or obligation (absolute, accrued, asserted or unasserted, contingent or otherwise), other than the payment, discharge or satisfaction, in the Ordinary Course of Business and consistent with past practice, of liabilities reflected or reserved against in the latest balance sheet included in the Financial Statements provided to CIENA or subsequently incurred in the Ordinary Course of Business in amounts not in excess of \$100,000;

(xvii) sell, assign, transfer, license or sublicense, pledge or otherwise encumber any of the Intellectual Property Rights (other than in the Ordinary Course of Business); or

(xviii) announce an intention, commit or agree to do any of the foregoing.

SECTION 4.3. Access; Documents; Supplemental Information.

(a) From and after the date hereof until the Closing or the termination of this Agreement, the Company shall afford, and, with respect to clause (ii) below, shall use its reasonable best efforts to cause the independent certified public accountants for the Company to afford, (i) to the officers, independent certified public accountants, counsel and other representatives of CIENA, upon reasonable notice, free and full access at all reasonable times to the properties, books and records including tax returns filed and those in preparation of the Company and the right to consult with the officers, employees, accountants, counsel and other representatives of the Company and its Subsidiary in order that CIENA may have full opportunity to make such investigations as it shall deem necessary of the operations, properties, business, financial condition and prospects of the Company, (ii) to the independent certified public accountants of CIENA, free and full access at all reasonable times to the work papers and other records of the accountants relating to the Company and its Subsidiary, and (iii) to CIENA and its representatives, such additional financial and operating data and other information as to the properties, operations, business, financial condition and prospects of the Company and its Subsidiary as CIENA shall from time to time require.

(b) From the date of this Agreement until the Closing or the termination of this Agreement, the Company will furnish to CIENA, and CIENA will furnish to the Company, copies of any notices, documents, requests, court papers, or other materials received from any governmental agency or any other third party with respect to the transactions contemplated by this Agreement.

SECTION 4.4. No Solicitation.

The Company shall not, nor shall it authorize or permit any of its Affiliates or any officer, director, employee, investment banker, attorney or other adviser or representative of the Company or any of its Affiliates to (a) solicit, initiate or encourage any Acquisition Proposal (as hereinafter defined), (b) enter into any agreement with respect to any Acquisition Proposal or (c) participate in any discussions or negotiations regarding, or furnish to any Person any information with the intent of facilitating the making of, or take any other action to facilitate any inquiries or the making of, any proposal that constitutes, or may reasonably be expected to lead to, any Acquisition Proposal other than the transactions contemplated hereby; provided, however, that nothing contained in this Agreement shall prevent the Company or its

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Board of Directors or any officer, director, employee, investment banker, attorney or other adviser or representative of the Company, acting at the direction of and on behalf of the Company, at any time prior to the time the Merger has been approved by the Company's Stockholders from (aa) providing information in response to a request therefor by a Person who has delivered to the Company an unsolicited bona fide written Acquisition Proposal if the Company receives from the Person so requesting such information an executed confidentiality agreement the terms of which are (without regard to the terms of the Acquisition Proposal) (i) no less favorable to the Company and (ii) no less restrictive on the Person requesting such information than those contained in the Confidentiality Agreement; or (bb) engaging in negotiations or discussions with a Person who has delivered to the Company an unsolicited bona fide written Acquisition Proposal; if, and only to the extent that, in each such case referred to in clause (aa) or (bb) above, (x) the Board of Directors of the Company determines in good faith (after consultation with its financial advisor and outside legal counsel) that the Acquisition Proposal, if accepted, is reasonably likely to be consummated, (y) the Board of Directors of the Company determines in good faith (after consultation with its financial advisor) that the Acquisition Proposal would, if consummated, result in a transaction that is more favorable to the Company's Stockholders than the Merger (any Acquisition Proposal as to which such determinations are made being referred to in this Agreement as a "Superior Proposal") and (z) the Board of Directors determines in good faith (after consultation with outside legal counsel) that the failure by the Board of Directors to require the Company to take such action would be inconsistent with the fiduciary duties of the Board of Directors to the Company's Stockholders under applicable law. Without limiting the foregoing, it is understood that any violation of the restrictions set forth in the immediately preceding sentence by any officer, director, employee, investment banker, attorney, employee, or other advisor or representative of the Company or any of its Affiliates, whether or not such Person is purporting to act on behalf of the Company or any of its Affiliates or otherwise, shall be deemed to be a breach of this **Section 4.4** by the Company. Nothing in this **Section 4.4** shall permit the Company to enter into any agreement, orally or in writing, with respect to an Acquisition Proposal during the term of this Agreement (other than a confidentiality agreement as described above). The Company promptly shall advise CIENA of any Acquisition Proposal (including the terms thereof and the identity of the person making the Acquisition Proposal) and inquiries with respect to any Acquisition Proposal and shall keep CIENA informed on a current basis of the status of any discussions regarding an Acquisition Proposal. Nothing herein shall prevent the Board of Directors from complying with Rule 14e-2 under the Exchange Act. "Acquisition Proposal" means any proposal for a merger or other business combination involving the Company or any proposal or offer to acquire in any manner, directly or indirectly, 20% or more of the equity securities or Assets of the Company (except for sales of products in the Ordinary Course of Business). Except as otherwise provided in this Agreement, the Company will, and will cause its Affiliates to, immediately cease any activities, discussions or negotiations existing as of the date of this Agreement with any Persons (other than CIENA and its representatives) conducted heretofore with respect to any Acquisition Proposal, and will not pursue, directly or indirectly, any Acquisition Proposal received on or prior to the date of this Agreement from any Person (other than CIENA and its representatives). The Company shall not release any third party from, or waive any provisions of, any confidentiality or standstill agreement relating to an Acquisition Proposal to which such party is a party.

SECTION 4.5. Information Supplied.

Each of the Company and CIENA agree that none of the information supplied or to be supplied by it for inclusion or incorporation by reference in (a) the Registration Statement on Form S-4 to be filed with the SEC by CIENA in connection with the issuance of shares of CIENA Common Stock in the Merger (including the proxy statement and prospectus (the "Proxy Statement/ Prospectus") constituting a part thereof) (the "S-4 Registration Statement") will, at the time the S-4 Registration Statement becomes effective under the Securities Act of 1933, as amended (the "Securities Act") contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, not misleading, and (b) the Proxy Statement/ Prospectus and any amendment or supplement thereto will, at the date of mailing to the Company's Stockholders and at the

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times of the meeting of the Company's Stockholders to be held in connection with the Merger, contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

SECTION 4.6. Stockholders' Meeting.

Whether or not the Board of Directors of the Company shall take any action permitted by the third sentence of this **Section 4.6**, the Company shall cause a meeting of its Stockholders (the "Stockholders' Meeting") to be duly called and held as soon as practicable after the date of this Agreement for the purpose of voting on the adoption of this Agreement and the New Company Certificate or, subject to approval of CIENA, the Company shall solicit written consents of stockholders in lieu of a Stockholders' Meeting. The Board of Directors of the Company shall (i) include in the Proxy Statement/ Prospectus prepared therefor its recommendation in favor of adoption of the Merger Agreement and the New Company Certificate (the "Board Recommendation") and (ii) use its reasonable best efforts to obtain the necessary vote in favor of the adoption of this Agreement and the New Company Certificate by its Stockholders. The Board of Directors of the Company shall not withdraw, amend, modify or qualify in a manner adverse to CIENA the Board Recommendation (or announce its intention to do so), except that, prior to the receipt of the Company Requisite Vote, the Board of Directors of the Company shall be permitted to withhold, withdraw, amend, modify or materially qualify in a manner adverse to CIENA the Board Recommendation and shall be released from its obligations under clauses (i) and (ii) above, following two Business Days' prior notice to CIENA, but only if (A) the Company has complied in all respects with **Section 4.4** of this Agreement, and (B) after consulting with outside legal counsel, the Board of Directors determines in good faith that to include the Board Recommendation or not withhold, withdraw, amend, modify or qualify the Board Recommendation would be inconsistent with its fiduciary duties to the Stockholders of the Company under applicable law.

SECTION 4.7. Filings; Other Actions; Notification.

(a) CIENA shall prepare and file with the SEC the S-4 Registration Statement as promptly as practicable. CIENA shall use its reasonable best efforts to have the S-4 Registration Statement declared effective under the Securities Act as promptly as practicable after such filing, and promptly thereafter mail the Proxy Statement/ Prospectus to the Stockholders of the Company. CIENA shall also use its reasonable best efforts to obtain prior to the effective date of the S-4 Registration Statement all necessary state securities law or "blue sky" permits and approvals required in connection with the Merger and to consummate the other transactions contemplated by this Agreement.

(b) The Company and CIENA each shall from the date hereof until the Effective Time cooperate with the other and use its reasonable best efforts to cause to be done all things necessary, proper or advisable on its part under this Agreement and applicable Laws to consummate and make effective the Merger and the other transactions contemplated by this Agreement as soon as practicable, including preparing and filing as promptly as practicable all documentation to effect all necessary notices, reports and other filings and to obtain as promptly as practicable all consents, registrations, approvals, permits and authorizations necessary or advisable to be obtained from any third party and/or any Governmental Entity, including filings under the Investment Canada Act and the Hart-Scott-Rodino Act, in order to consummate the Merger or any of the other transactions contemplated by this Agreement. CIENA will advise the Company promptly, and the Company will advise CIENA promptly, in respect of any understandings or arguments which it proposes to make or has made with applicable federal, state or foreign Governmental Entities having jurisdiction over or rights of review with respect to antitrust law, in connection with the Merger, and CIENA and the Company shall use their reasonable best efforts to seek to resolve any objections to the Merger as may be asserted by a Governmental Entity under applicable laws. Notwithstanding, the foregoing, nothing herein shall require CIENA, in connection with the receipt of any regulatory approval, to agree to sell or divest any material assets or business or agree to restrict in

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any material way any business conducted by or proposed to be conducted by CIENA or to litigate or formally contest any proceeding relating to any regulatory approval process in connection with the Merger.

(c) The Company and CIENA each shall, upon request by the other, furnish the other with all information concerning itself, its Subsidiaries, directors, executive officers and stockholders and such other matters as may be reasonably necessary or advisable in connection with the Prospectus, the S-4 Registration Statement or any other statement, filing, notice or application made by or on behalf of CIENA, the Company or any of their respective Subsidiaries to any third party and/or any Governmental Entity in connection with the Merger and the transactions contemplated by this Agreement.

(d) The Company shall cause Cooley Godward, LLP, U.S. counsel to the Company, and CIENA shall cause Hogan & Hartson L.L.P., counsel to CIENA, to deliver a tax opinion for inclusion in the S-4 Registration Statement in the form required by the SEC. In rendering such opinions, Cooley Godward LLP, and Hogan & Hartson L.L.P. may require delivery of and rely upon representation letters delivered by CIENA and the Company in customary form.

(e) The Company and CIENA each shall keep the other apprised of the status of matters relating to completion of the transactions contemplated hereby.

SECTION 4.8. NASDAQ Listing.

To the extent required by the rules of the National Association of Securities Dealers, Inc., as soon as practicable after the date hereof and in any event prior to the Effective Time, CIENA shall list on NASDAQ the shares of CIENA Common Stock to be issued in connection with the Merger and upon exercise of the Assumed Options (as defined below) and the Company Warrants.

SECTION 4.9. Company Options; Company Warrants.

(a) Concurrent with the Effective Time, each Company Option which is outstanding immediately prior to the Effective Time pursuant to the Company Stock Plan in effect on the date hereof shall, together with the Company Stock Plan, be assumed by CIENA and shall thereby be converted into an option (an "Assumed Option") to purchase the number of shares of CIENA Common Stock (decreased to the nearest full share) determined by multiplying (i) the number of shares of Company Common Stock subject to such Company Option immediately prior to the Effective Time by (ii) the Common Stock Exchange Ratio, at an exercise price per share of CIENA Common Stock (increased to the nearest whole cent) equal to the exercise price per share of Company Common Stock in effect under such Company Options immediately prior to the Effective Time divided by the Common Stock Exchange Ratio. Except for the foregoing adjustments and the Rights and except as contemplated by this **Section 4.9(a)**, all the terms and conditions in effect for each Assumed Option immediately prior to the Effective Time, including the vesting thereof under the Company Stock Plan, shall continue in effect following the assumption of such option in accordance with this Agreement. The Company agrees that it will not grant any stock appreciation rights or limited stock appreciation rights and will not permit cash payments to holders of Company Stock Options in lieu of the substitution therefor of Assumed Options. The Company shall take all actions necessary to assure that no acceleration of vesting of Assumed Options shall occur solely as a result of the Merger. Notwithstanding the foregoing, any person listed on **Schedule 4.9(a)** terminated at or prior to Closing, and any Continuing Employee terminated following the Closing under the circumstances described on **Schedule 4.9(a)** attached hereto, shall be entitled to acceleration of vesting as described thereon.

(b) CIENA shall take all corporate action necessary to reserve for issuance a sufficient number of shares of CIENA Common Stock for delivery upon the exercise of the Assumed Options and the Company Warrants. As soon as practicable after the Effective Time, CIENA shall deliver to the holders of Company Options appropriate notices setting forth such holders' rights pursuant to CIENA's stock option plans and the agreements evidencing the grants of such Assumed Options and that such Assumed Options shall continue in effect on the same terms and conditions as the Company Options (subject to the adjustment set forth in this **Section 4.9**).

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(c) As soon as practicable after the Effective Time, but no later than ten Business Days after the Effective Time, CIENA shall prepare and file with the SEC a registration statement on Form S-8 (or another appropriate form) registering the number of shares subject to the Assumed Options. Such registration statement shall be kept effective (and the current status of the prospectus required thereby shall be maintained in accordance with the relevant requirements of the Securities Act and the Exchange Act) at least for so long as any Assumed Options remain outstanding.

(d) Concurrent with the Effective Time, (i) each Company Warrant to purchase Company Preferred Stock that is then outstanding and exercisable described in **Schedule 2.3**, if any (each, a “Company Preferred Warrant”), without any action on the part of the holder, shall be deemed assumed by CIENA and shall constitute a warrant to acquire, on the same terms and conditions as were applicable under such Company Preferred Warrant, a number of shares of CIENA Common Stock equivalent to (A) the number of shares of Company Preferred Stock that could have been purchased immediately prior to the Effective Time under such Company Preferred Warrant multiplied by (B) the Preferred Stock Exchange Ratio for the series of Company Preferred Stock into which such Company Preferred Stock Warrant is exercisable (rounded down to the nearest whole number), at a price per share of CIENA Common Stock (rounded up to the nearest whole cent) equal to the exercise price per share pursuant to such Company Preferred Warrant immediately prior to the Effective Time divided by the applicable Preferred Stock Exchange Ratio for the series of Company Preferred Stock into which such Company Preferred Warrant is exercisable, and (ii) each Company Warrant to purchase Company Common Stock that is then outstanding and exercisable described in **Schedule 2.3**, if any (each, a “Company Common Warrant”), without any action on the part of the holder, shall be deemed assumed by CIENA and shall constitute a warrant to acquire, on the same terms and conditions as were applicable under such Company Common Warrant, a number of shares of CIENA Common Stock equivalent to (A) the number of shares of Company Common Stock that could have been purchased immediately prior to the Effective Time under such Company Common Warrant multiplied by (B) the Common Stock Exchange Ratio (rounded down to the nearest whole number), at a price per share of CIENA Common Stock (rounded up to the nearest whole cent) equal to the exercise price per share pursuant to such Company Common Warrant immediately prior to the Effective Time divided by the Common Stock Exchange Ratio. At or prior to the Effective Time, the Company shall make all necessary arrangements with respect to the Company Warrants to permit the assumption of the unexercised Company Warrants by CIENA pursuant to this **Section 4.9(d)**.

(e) Each share of Company Common Stock that is subject to vesting restrictions under the Company Stock Plan shall, upon conversion into CIENA Common Stock in the Merger, continue to be subject to vesting restrictions as provided in the Company Stock Plan, except as otherwise provided in **Schedule 4.9(a)**.

SECTION 4.10. Notification of Certain Matters.

The Company shall give prompt notice to CIENA, and CIENA shall give prompt notice to the Company, of (a) the occurrence, or non-occurrence, of any event which would be likely to cause (i) any representation or warranty contained in this Agreement to be untrue or inaccurate in any material respect or (ii) any covenant, condition or agreement contained in this Agreement not to be complied with or satisfied; and (iii) any failure of the Company or CIENA, as the case may be, to comply with or satisfy any covenant, condition or agreement to be complied with or satisfied by it hereunder; provided that the delivery of any notice pursuant to this **Section 4.10** shall not limit or otherwise affect the remedies available to the party receiving such notice. Notwithstanding anything in this Agreement to the contrary, any failure to provide a notice called for hereunder shall not be deemed a material breach of this Agreement unless the underlying information required to be disclosed would enable the party entitled to receive such information to terminate this Agreement pursuant to **Section 8.5(c)(ii)** or **Section 8.5(d)**, as applicable, due to an inaccuracy in representations and warranties.

SECTION 4.11. Reorganization.

(a) Each of CIENA and the Company shall use its reasonable best efforts to cause the business combination to be effected by the Merger to be qualified as a “reorganization” described in Section 368(a) of the Code. CIENA shall not take or fail to take, or cause any Person to take or fail to take, any action which action or failure would reasonably be expected to cause the Merger to fail to qualify as a “reorganization” within the meaning of Section 368(a) of the Code.

(b) The Merger shall be reported as a “reorganization” within the meaning of Section 368(a) of the Code in all federal, and to the extent permitted, state and local Tax Returns filed after the Effective Time.

SECTION 4.12. Indemnification.

(a) From and after the Effective Time for a period of six years, CIENA shall fulfill the obligations of the Company and the Company’s Subsidiary to indemnify each person who is or was a director or officer of the Company and the Company’s Subsidiary against losses such person may incur based upon matters existing or occurring prior to the Effective Time pursuant to any applicable indemnification agreements and any indemnification provision of the Company Certificate or its bylaws (and the articles of incorporation or bylaws of the Company’s Subsidiary) as each is in effect on the date hereof.

(b) In the event a current or former director or officer of the Company or its Subsidiary is entitled to indemnification under this **Section 4.12**, such director or officer shall be entitled to reimbursement from CIENA (from and after the Closing Date) for reasonable attorney fees and expenses incurred by such director or officer in pursuing such indemnification, including payment of such fees and expenses by CIENA, in advance of the final disposition of such action upon receipt of an undertaking by such current or former director or officer to repay such payment if it shall be adjudicated that such current or former director or officer was not entitled to such payment.

(c) If CIENA or any of its successors or assigns (i) consolidates with or merges into any other Person and shall not be the continuing or surviving corporation or entity of such consolidation or merger, or (ii) transfers all of substantially all of its properties and assets to any Person, then, and in each such case, proper provision shall be made so that the successors and assigns of CIENA assume, as a matter of law or otherwise, the obligations set forth in this **Section 4.12**.

SECTION 4.13. Employee Benefits Matters.

(a) The Company will adopt, or will cause to be adopted, all necessary corporate resolutions to terminate the Company 401(k) Retirement Plan, and any other 401(k) Plan maintained by the Company or its Subsidiary, effective as of no later than one day prior to Closing. Immediately prior to such termination, the Company will make all necessary payments to fund the contributions: (i) necessary or required to maintain the tax-qualified status of the 401(k) Plan; (ii) for elective deferrals made pursuant to the 401(k) Plan for the period prior to termination; and (iii) for employer matching contributions for the period prior to termination. A 401(k) Plan means a qualified plan under Code Section 401(a) sponsored and maintained by the Company or its Subsidiary, which includes a qualified cash or deferred arrangement, as defined in Section 401(k) of the Code. The Company shall provide CIENA with a copy of resolutions duly adopted by the Company’s (or the Company Subsidiary’s as applicable) board of directors terminating the 401(k) Plan. CIENA will take such steps as are reasonably necessary to ensure that CIENA’s 401(k) Plan will permit Company employees to make individual rollover contributions to CIENA’s 401(k) Plan of any “eligible rollover distributions,” as such term is defined in CIENA’s 401(k) Plan, distributed by the Company 401(k) Plan. Effective as of the Closing Date, Continuing Employees (as defined below) will be eligible to participate in the CIENA 401(k) Plan.

(b) Following the Closing Date, CIENA shall arrange for employees of the Company and its Subsidiary who continue employment with the Surviving Company (“Continuing Employees”) to participate in the benefit plans of CIENA (“CIENA Benefit Plans”) on terms no less favorable than

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those offered to similarly situated Canadian employees of CIENA, and CIENA shall use commercially reasonable efforts to ensure that Continuing Employees who are actually employed and currently working for the Company at the Effective Time do not have a lapse of coverage in the transition from Company Benefit Plans to CIENA Benefit Plans. For purposes of any length of service requirements, waiting periods, vesting periods or differential benefits based on length of service, and required co-payments and deductibles under any CIENA Benefit Plan (including the CIENA 401(k) Plan) for which a Continuing Employee may be eligible after the Closing Date, CIENA shall use its commercially reasonable efforts to ensure that (i) service by such Continuing Employee with the Company or its Subsidiary shall be deemed to have been service with CIENA, and (ii) co-payments and deductibles paid by such Continuing Employee under a Company Benefit Plan for the plan year in which the Closing Date occurs shall be counted as if paid under the comparable CIENA Benefit Plan, with the goal of placing the Continuing Employee in the same position as if the Merger had not occurred.

SECTION 4.14. Section 16.

Assuming that the Company delivers to CIENA the Section 16 Information (as defined below) in a timely fashion, the Board of Directors of CIENA, or a committee of two or more Non-Employee Directors thereof (as such item is defined for purposes of Rule 16b-3 under the Exchange Act), shall adopt resolutions prior to the consummation of the Merger, providing that the receipt by the Company Insiders (as defined below) of CIENA Common Stock in exchange for capital stock of the Company pursuant to the transactions contemplated hereby and to the extent such securities are listed in the Section 16 Information, are intended to be exempt from liability pursuant to Section 16(b) under the Exchange Act. Such resolutions shall comply with the approval conditions of Rule 16b-3 under the Exchange Act for purposes of such Section 16(b) exemption, including, but not limited to, specifying the name of the Company Insiders, the numbers of securities to be acquired or disposed of for each such person, the material terms of any derivative securities, and that the approval is intended make the receipt of such securities exempt pursuant to Rule 16b-3(d). "Section 16 Information" shall mean information accurate in all respects regarding the Company Insiders, the number of shares of capital stock of the Company held by each such Company Insider and expected to be exchanged for CIENA Common Stock in the Merger. "Company Insiders" shall mean those officers and directors of the Company whom CIENA notifies the Company prior to the Merger will be subject to the reporting requirements of Section 16 of the Exchange Act with respect to CIENA and who are listed in the Section 16 Information.

ARTICLE V

CONDITIONS PRECEDENT

SECTION 5.1. Conditions Precedent to Each Party's Obligation to Effect the Merger.

The respective obligations of each party hereto to effect the Merger shall be subject to the fulfillment or satisfaction, prior to or on the Closing Date of the following conditions:

(a) Approvals. All authorizations, consents, orders, declarations or approvals of, or filings with, or terminations or expirations of waiting periods imposed by (including without limitation, expiration of any Hart-Scott-Rodino waiting period and any filings required by the Investment Canada Act), any Governmental Entity, which the failure to obtain, make or occur would have the effect of making the Merger or any of the transactions contemplated hereby illegal in all jurisdictions requiring such authorizations, consents, orders, declarations or approvals or filings, assuming the Merger had taken place, or would have a CIENA Material Adverse Effect or a Company Material Adverse Effect, shall be in effect.

(b) Litigation. No court or Governmental Entity of competent jurisdiction shall have enacted, issued, promulgated, enforced or entered any Law, judgment, decree, injunction or other order (whether temporary, preliminary or permanent) that is in effect and restrains, enjoins or otherwise prohibits or

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consummation of the Merger (collectively, an “Order”) and no Governmental Entity shall have instituted any proceeding which continues to be pending seeking any such Order.

(c) S-4. The S-4 Registration Statement shall have become effective under the Securities Act. No stop order suspending the effectiveness of the S-4 Registration Statement shall have been issued, and no proceeding for that purpose shall have been initiated or be threatened, by the SEC.

(d) Stockholder Approval. The Merger and the New Company Certificate shall have been duly approved by holders of Company Capital Stock constituting the Company Requisite Vote. The New Company Certificate shall have been filed with the Secretary of State of the State of Delaware.

SECTION 5.2. Conditions Precedent to Obligations of CIENA.

The obligations of CIENA to effect the Merger shall be subject to the fulfillment or satisfaction, prior to or on the Closing Date, of each of the following conditions precedent:

(a) Performance of Obligations; Representations and Warranties. The Company shall have performed in all material respects and complied in all material respects with all agreements contained in this Agreement that are required to be performed or complied with by it prior to or at the Closing. Each of the Company’s representations and warranties contained in **Article II** of this Agreement shall be true and correct in all material respects, in each case, on and as of the Closing with the same effect as though such representations and warranties were made on and as of the Closing (except for inaccuracies permitted by this Agreement and except to the extent that such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall be as of such earlier date), it being understood that any inaccuracies that, individually or in the aggregate, that have not had and could not reasonably be expected to have a Company Material Adverse Effect shall be disregarded. CIENA shall have received a certificate dated the Closing Date and signed by the Chief Executive Officer, President or a Vice President of the Company, certifying that, the conditions specified in this **Section 5.2(a)** have been satisfied. In addition, the Company’s Chief Executive Officer and Vice President of Finance shall execute and deliver to CIENA a bring-down certification dated the Closing Date in the form attached as **Exhibit C** attached hereto.

(b) Consents. The Company shall have received consents or waivers, in form and substance reasonably satisfactory to CIENA from the other parties to the contracts, leases or agreements to which the Company is a party and which are set forth on **Schedule 5.2(b)**.

(c) Escrow Agreement. The Stockholder Representative shall have executed and delivered the Escrow Agreement substantially in the form attached hereto as **Exhibit D**, on behalf of all Stockholders other than the holders of Dissenting Shares.

(d) Opinions of Counsel. CIENA shall have received the favorable written opinions dated the Closing Date of (i) Cooley Godward LLP, U.S. counsel to the Company, to the effect set forth in **Exhibit E** attached hereto, (ii) Stikeman Elliott LLP, Canadian counsel to CNC Sub, covering the capitalization of CNC Sub, in form satisfactory to CIENA and (iii) the opinion of Hogan & Hartson L.L.P., counsel to CIENA, dated the Closing Date, to the effect that the Merger will not result in taxation to CIENA under the Code. In rendering such opinion, Hogan & Hartson L.L.P. may require delivery of and rely upon representation letters delivered by CIENA in customary form.

(e) Termination of Agreements. The Investor Rights Agreement shall be inapplicable to the Merger and shall have been terminated. All security interests in any of the Company’s or its Subsidiary’s Assets held by Lighthouse Capital Partners II, Lighthouse Capital Partners IV or Silicon Valley Bank shall have been released.

SECTION 5.3. Conditions Precedent to the Company's Obligations.

The obligations of the Company to effect the Merger shall be subject to the fulfillment or satisfaction, prior to or on the Closing Date, of each of the following conditions precedent:

(a) Performance of Obligations; Representations and Warranties. CIENA shall have performed in all material respects and complied in all material respects with all agreements and conditions contained in this Agreement that are required to be performed or complied with by it prior to or at the Closing. Each of the representations and warranties of CIENA contained in **Article III** of this Agreement shall be true and correct in all respects, in each case, on and as of the Closing with the same effect as though such representations and warranties were made on and as of the Closing (except for changes permitted by this Agreement and except to the extent that such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall be as of such earlier date), it being understood that any inaccuracies that, individually or in the aggregate, that have not had and could not reasonably be expected to have a CIENA Material Adverse Effect shall be disregarded. The Company shall have received certificates dated the Closing Date and signed by the Chairman, President or a Senior Vice-President of CIENA, certifying that the conditions specified in this **Section 5.3(a)** have been satisfied.

(b) NASDAQ Listing. To the extent required by the rules of the National Association of Securities Dealers, Inc., CIENA shall have timely filed a Notification Form: Listing of Additional Shares with respect to the CIENA Common Stock to be issued in the Merger and upon exercise of Company Warrants.

(c) Opinions of Counsel. The Company shall have received (i) the favorable written opinion dated the Closing Date of Hogan & Hartson L.L.P., counsel to CIENA, in form satisfactory to the Company, to the effect set forth in **Exhibit F** attached hereto, and (ii) the opinion of Cooley Godward LLP, counsel to the Company, dated the Closing Date, to the effect that the Merger will not result in taxation to the Company's Stockholders under the Code. In rendering such opinion, Cooley Godward LLP may require delivery of and rely upon representation letters delivered by the Company in customary form.

(d) Escrow Agreement. CIENA shall have executed and delivered the Escrow Agreement substantially in the form attached hereto as **Exhibit D**.

(e) Average Closing Price. The average closing price of a share of CIENA Common Stock as reported on NASDAQ for the ten most recent days that CIENA Common Stock has traded ending on the last trading day prior the date that is the later of (i) the date upon which the Company Requisite Vote is obtained, or (ii) the date upon which the Hart-Scott-Rodino waiting period shall expire, shall be at least \$3.12.

ARTICLE VI

SURVIVAL OF REPRESENTATIONS AND WARRANTIES; INDEMNIFICATION

SECTION 6.1. Survival of Representations and Warranties.

All of the Company's and CIENA's representations and warranties in this Agreement or in the certificates described in **Section 5.2(a)** and **Section 5.3(a)** shall survive the Merger and continue until the date which is one year following the Closing Date (the "Indemnification Expiration Date"), provided, however, that the Company's representations set forth in **Section 2.16(a)** hereof shall survive until 60 days after the expiration (including extensions) of the applicable statute of limitations and the Company's representations set forth in the second sentence of **Section 2.3** shall survive indefinitely.

SECTION 6.2. Indemnification by Stockholders; Escrow Agreement.

(a) Indemnification. From and after the Effective Time, CIENA and its respective officers, directors and Affiliates (the "CIENA Indemnified Parties") shall be indemnified and held harmless by the

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Stockholders (other than those dissenting stockholders exercising rights of appraisal under Section 262 of the DGCL who do not receive CIENA Common Stock in the Merger) against all claims, losses, liabilities, damages, deficiencies, costs and expenses, including reasonable attorneys' fees and expenses of investigation (hereinafter individually a "Loss" and collectively "Losses") incurred prior to the Indemnification Expiration Date by the CIENA Indemnified Parties directly or indirectly as a result of: (i) any inaccuracy of a representation or breach of a warranty of the Company contained in this Agreement or contained in any certificate described in **Section 5.2(a)** (it being understood that, notwithstanding the Closing, CIENA shall be entitled to indemnification for breach or inaccuracies of representations and warranties when made and as if made again on the Closing Date except to the extent that such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall be as of such earlier date), (ii) any failure by the Company to perform or comply with any covenant or agreement contained in this Agreement, (iii) costs incurred by CIENA in responding to any exercise of dissenters' rights by any holder of Company Capital Stock, provided, however, that if any holders of Dissenting Shares successfully exercises dissenters' rights pursuant to **Section 1.7** and the DGCL, the Stockholders shall be responsible hereunder solely for the incremental costs incurred by the CIENA Indemnified Parties above and beyond the value of the CIENA Common Stock (determined on the basis of the average closing price thereof for the 10 days preceding the date hereof) that such holders would have received hereunder if such holder did not exercise dissenters' rights or (iv) fees and expenses incurred by or on behalf of the Company or its Stockholders of the type described in **Section 7.1** in excess of the amount set forth in **Section 7.1** hereof. Nothing herein shall limit the liability of the Company for any willful breach of any covenant or agreement prior to the termination of this Agreement.

(b) Indemnification Threshold and Limitations.

(i) Except as set forth below, there shall be no liability for any Stockholder under **Section 6.2** unless the aggregate amount of Losses incurred by the CIENA Indemnified Parties exceeds \$750,000 (the "CIENA Indemnification Threshold") in the aggregate, in which event the entire aggregate amount of the Losses shall be indemnifiable pursuant to **Section 6.2(a)**, provided that any Loss incurred pursuant to clause (iv) of **Section 6.2(a)** shall be payable without reference to the CIENA Indemnification Threshold, and provided further that, except as provided in **Section 6.6**, the aggregate amount of Losses for which any Stockholder shall be liable (both through claims against the Escrow Fund and directly against Stockholders) shall in no event exceed the product of (A) the number of Shares to which the Stockholder was entitled pursuant to **Section 1.5(c)** and (B) the average closing price of CIENA Common Stock over the ten trading days ending on the trading day immediately prior to the closing (the "Per Share Price").

(ii) Subject to the last sentence of **Section 6.2(a)** and **Section 6.5**, the CIENA Indemnified Parties' sole and exclusive remedy for any Losses incurred directly or indirectly as a result of any of the items referred to in clauses (i) (other than Losses resulting from a breach of the representations contained in the second sentence of **Section 2.3** or in **Section 2.16(a)**), (ii), (iii) and (iv) of **Section 6.2(a)** shall be indemnification pursuant to this **Article VI**. Subject to the last sentence of **Section 6.2(a)** and **Section 6.5**, the liability of the Stockholders under and the right of the CIENA Indemnified Parties to seek such indemnification shall be limited solely and exclusively to the Escrow Amount (other than with respect to Losses resulting from a breach of the representations contained in the second sentence of **Section 2.3** or in **Section 2.16(a)**).

(c) Satisfaction of Indemnification Obligations; Escrow Fund; Reimbursement Fund.

Each of the Stockholders receiving CIENA Common Stock in the Merger will be deemed to have received and deposited with the Escrow Agent (as defined below) the Escrow Amount and the Reimbursement Amount (plus, in each case, any additional shares as may be issued upon any stock split, stock dividend or recapitalization effected by CIENA after the Effective Time with respect to the Escrow Amount or the Reimbursement Amount, as applicable). The Escrow Amount will be deposited with and will be held by an institution mutually acceptable to CIENA and the Stockholders' Representative (as

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defined in **Section 6.4**) as Escrow Agent (the “Escrow Agent”), such deposit to constitute an escrow fund (the “Escrow Fund”) to be governed by the terms set forth in the Escrow Agreement. Payment of any Loss from the Escrow Amount shall be taken ratably from the Escrow Shares (as defined in the Escrow Agreement). The Reimbursement Amount will be deposited with and will be held by the Escrow Agent, such deposit to constitute a reimbursement fund (the “Reimbursement Fund”) to be governed by the terms set forth in the Escrow Agreement. Payment of any amount out of the Reimbursement Amount, if any, shall be taken ratably from the Reimbursement Shares (as defined in the Escrow Agreement).

SECTION 6.3. Indemnification by CIENA.

(a) Indemnification. From and after the Effective Time, the Stockholders and the Company and its respective officers, directors and Affiliates (the “Company Indemnified Parties”) shall be indemnified and held harmless by CIENA against all Losses incurred prior to the Indemnification Expiration Date by the Company Indemnified Parties directly or indirectly as a result of: (i) any inaccuracy or breach of a representation or warranty of CIENA contained in this Agreement or contained in a certificate described in **Section 5.3(a)** (it being understood that, notwithstanding the Closing, the Stockholders shall be entitled to indemnification for breach or inaccuracies of representations and warranties when made and as if made again on the Closing Date, except to the extent that such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall be as of such earlier date), or (ii) any failure by CIENA to perform or comply with any covenant or agreement contained in this Agreement. Nothing herein shall limit the liability of CIENA for any willful breach of any covenant or agreement prior to the termination of this Agreement.

(b) Indemnification Threshold and Limitations.

(i) Except as set forth below, there shall be no liability for CIENA under **Section 6.3** unless the aggregate amount of Losses incurred by the Company Indemnified Parties exceeds \$750,000 (the “Company Indemnification Threshold”) in the aggregate, in which event the entire aggregate amount of the Losses shall be indemnifiable pursuant to **Section 6.3(a)**, and provided further that, except as provided in **Section 6.6**, the aggregate amount of Losses for which CIENA shall be liable shall in no event exceed the product of Aggregate Share Consideration and the Per Share Price.

(ii) Subject to the last sentence of **Section 6.3(a)** and **Section 6.6**, the Company Indemnified Parties’ sole and exclusive remedy for any Losses incurred directly or indirectly as a result of any of the items referred to in clauses (i) and (ii) of **Section 6.3(a)** shall be indemnification pursuant to this **Article VI**.

SECTION 6.4. Stockholders’ Representative.

(a) Appointment. In the event the Stockholders approve the Merger, effective upon such vote and without any further action by the Stockholders, the Company and, by their approval and adoption of this Agreement, the Stockholders hereby appoint Gary Morgenthaler as agent and attorney-in-fact (the “Stockholders’ Representative”) for each Stockholder receiving CIENA Common Stock in the Merger, for and on behalf of the Stockholders. The Stockholders’ Representative shall have full power and authority to represent all of the Stockholders and their successors with respect to all matters arising under this Agreement and the Escrow Agreement and all actions taken by the Stockholders’ Representative hereunder and thereunder shall be binding upon all such Stockholders and their successors as if expressly confirmed and ratified in writing by each of them and no Stockholder shall have the right to object, dissent, protest or otherwise contest the same. The Stockholders’ Representative shall take any and all actions which he believes are necessary or appropriate under this Agreement and the Escrow Agreement for and on behalf of the Stockholders, as fully as if the Stockholders were acting on their own behalf, including, without limitation, executing the Escrow Agreement as Stockholders’ Representative, giving and receiving any notice or instruction permitted or required under this Agreement or the Escrow Agreement by the Stockholders’ Representative or any Stockholder, interpreting all of the terms and provisions of this Agreement and the Escrow Agreement, authorizing payments to be made with respect hereto or thereto,

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obtaining reimbursement as provided for herein for all out-of-pocket fees and expenses and other obligations of or incurred by the Stockholders' Representative in connection with this Agreement and the Escrow Agreement, defending all indemnity claims against the Stockholders pursuant to **Section 6.2** of this Agreement (an "Indemnity Claim"), consenting to, compromising or settling all Indemnity Claims, conducting negotiations with CIENA and its agents regarding such claims, dealing with CIENA and the Escrow Agent under this Agreement and the Escrow Agreement with respect to all matters arising under this Agreement and the Escrow Agreement, taking any and all other actions specified in or contemplated by this Agreement and the Escrow Agreement, and engaging counsel, accountants or other Stockholders' Representatives in connection with the foregoing matters. Without limiting the generality of the foregoing, the Stockholders' Representative shall have full power and authority to interpret all the terms and provisions of this Agreement and the Escrow Agreement and to consent to any amendment hereof or thereof on behalf of all such Stockholders and such successors. Notwithstanding the foregoing, each Stockholder shall have the right to exercise any voting rights appertaining to the Escrow Shares and the Reimbursement Shares.

(b) Authorization. The Company hereby authorizes the Stockholders' Representative, on its and the Stockholders' behalf (and by their approval of this Agreement and the Merger, the Stockholders hereby authorize the Stockholders' Representative), to:

(i) Receive all notices or documents given or to be given to any of the Stockholders by CIENA pursuant hereto or to the Escrow Agreement or in connection herewith or therewith and to receive and accept service of legal process in connection with any suit or proceeding arising under this Agreement or the Escrow Agreement;

(ii) Deliver to CIENA at the Closing all certificates and documents to be delivered to CIENA by any of the Stockholders pursuant to this Agreement, together with any other certificates and documents executed by any of the Stockholders and deposited with the Stockholders' Representative for such purpose;

(iii) Engage counsel, and such accountants and other advisors for any of the Stockholders and incur such other expenses on behalf of any of the Stockholders in connection with this Agreement or the Escrow Agreement and the transactions contemplated hereby or thereby as the Stockholders' Representative may in its sole discretion deem appropriate; and

(iv) Take such action on behalf of any of the Stockholders as the Stockholders' Representative may in its sole discretion deem appropriate in respect of:

(A) waiving any inaccuracies in the representations or warranties of CIENA contained in this Agreement or in any document delivered by CIENA pursuant hereto;

(B) waiving the fulfillment of any of the conditions precedent to the Company's obligations hereunder or pursuant to the Escrow Agreement;

(C) taking such other action as the Stockholders' Representative or any of the Stockholders is authorized to take under this Agreement or the Escrow Agreement;

(D) receiving all documents or certificates and making all determinations, on behalf of any of the Stockholders, required under this Agreement or the Escrow Agreement;

(E) all such other matters as the Stockholders' Representative may in its sole discretion deem necessary or appropriate to consummate this Agreement or the Escrow Agreement and the transactions contemplated hereby and thereby; and

(F) all such action as may be necessary after the Closing Date to carry out any of the transactions contemplated by this Agreement and the Escrow Agreement, including, without limitation, the defense and/or settlement of any claims for which indemnification is sought pursuant to **Article VI** and any waiver of any obligation of CIENA or the Surviving Company.

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All actions, decisions and instructions of the Stockholders' Representative shall be conclusive and binding upon all of the Stockholders and no Stockholder nor any other Person shall have any claim or cause of action against the Stockholders' Representative, and the Stockholders' Representative shall have no liability to any Stockholder or any other Person, for any action taken, decision made or instruction given by the Stockholders' Representative in connection with the Escrow Agreement or this Agreement, except in the case of his own willful misconduct.

(c) Indemnification of Stockholders' Representative. The Stockholders' Representative shall incur no liability to the Stockholders or the Escrow Agent or any other person with respect to any action taken or suffered by it in reliance upon any note, direction, instruction, consent, statement or other documents reasonably believed by the Stockholders' Representative to be genuinely and duly authorized by at least a majority in interest of the Stockholders (or the successors or assigns thereto), nor for other action or inaction taken or omitted in good faith in connection herewith or with the Escrow Agreement, in any case except for liability to the Stockholders for his own willful misconduct. The Stockholders' Representative shall be indemnified for and shall be held harmless against any loss, liability or expense incurred by the Stockholders' Representative or any of its Affiliates and any of their respective partners, directors, officers, employees, agents, stockholders, consultants, attorneys, accountants, advisors, brokers, representatives or controlling persons, in each case relating to the Stockholders' Representative's conduct as Stockholders' Representative, other than such losses, liabilities or expenses resulting from the Stockholders' Representative's willful misconduct in connection with its performance under this Agreement and the Escrow Agreement. This indemnification shall survive the termination of this Agreement. The costs of such indemnification (including the costs and expenses of enforcing this right of indemnification) shall be paid (i) by CIENA to the extent that such costs, together with any and all expenses of the Company of the kind described in **Section 7.1**, shall not exceed \$7,000,000 in the aggregate, or (ii) if such expenses shall exceed \$7,000,000 in the aggregate, from the principal portion of the Reimbursement Fund (or, to the extent the Reimbursement Fund is insufficient to satisfy such costs and expenses, from the Escrow Fund). For all purposes hereunder, a majority in interest of the Stockholders shall be determined on the basis of each Stockholder's ownership of Company Common Stock immediately prior to the Effective Time (assuming the exercise or conversion of all Company Preferred Stock and Company Warrants outstanding immediately prior to the Effective Time). The Stockholders' Representative may, in all questions arising under this Agreement, rely on the advice of counsel and for anything done, omitted or suffered in good faith by the Stockholders' Representative in accordance with such advice, the Stockholders' Representative shall not be liable to the Stockholders or the Escrow Agent or any other person. In no event shall the Stockholders' Representative be liable hereunder or in connection herewith for (i) any indirect, punitive, special or consequential damages, or (ii) any amounts other than, to the extent provided for herein, those that are satisfied out of the Reimbursement Fund or the Escrow Fund. The Escrow Agent shall from time to time sell such amount of the Escrow Shares as necessary to pay such Stockholders' Representative's costs and expenses, to the extent required by this **Section 6.4(c)**.

(d) Access to Information. The Stockholders' Representative shall have reasonable access to information of and concerning any Indemnity Claim and which is in the possession, custody or control of CIENA and the reasonable assistance of CIENA's officers and employees for purposes of performing the Stockholders' Representative's duties under this Agreement or the Escrow Agreement and exercising its rights under this Agreement and the Escrow Agreement, including for the purpose of evaluating any Indemnity Claim against the Escrow Amount by CIENA; provided that the Stockholders' Representative shall treat confidentially and not, except in connection with enforcing its rights or the rights of the Stockholders hereunder or under this Agreement and the Escrow Agreement, disclose any nonpublic information from or concerning any Indemnity Claim to anyone (except to the Stockholders' Representative's attorneys, accountants or other advisers, to Stockholders, to the arbitrators appointed to resolve disputes pursuant to this Agreement, and on a need-to-know basis to other individuals who agree to keep such information confidential).

(e) Reasonable Reliance. In the performance of his duties hereunder, the Stockholders' Representative shall be entitled to rely upon any document or instrument reasonably believed by him to be genuine,

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accurate as to content and signed by any Stockholder or CIENA. The Stockholders' Representative may assume that any person purporting to give any notice in accordance with the provisions hereof has been duly authorized to do so.

(f) Attorney-in-Fact.

(i) The Stockholders' Representative is hereby appointed and constituted the true and lawful attorney-in-fact of each Stockholder other than a holder of Dissenting Shares, with full power in his, her or its name and on his, her or its behalf to act according to the terms of this Agreement and the Escrow Agreement in the absolute discretion of the Stockholders' Representative; and in general to do all things and to perform all acts including, without limitation, executing and delivering the Escrow Agreement and any other agreements, certificates, receipts, instructions, notices or instruments contemplated by or deemed advisable in connection with the Escrow Agreement.

(ii) This power of attorney and all authority hereby conferred is granted and shall be irrevocable and shall not be terminated by any act of any Stockholder, by operation of law, whether by such Stockholder's death, disability protective supervision or any other event. Without limitation to the foregoing, this power of attorney is to ensure the performance of a special obligation and, accordingly, each Stockholder hereby renounces its, his or her right to renounce this power of attorney unilaterally any time before the end of the Escrow Period (as such term is defined in the Escrow Agreement).

(iii) Each Stockholder hereby waives any and all defenses which may be available to contest, negate or disaffirm the action of the Stockholders' Representative taken in good faith under the Escrow Agreement.

(iv) Notwithstanding the power of attorney granted in this **Section 6.4**, no agreement, instrument, acknowledgement or other act or document shall be ineffective by reason only of the Stockholders having signed or given such directly instead of the Stockholders' Representative.

(g) Liability. If the Stockholders' Representative is required by the terms of the Escrow Agreement to determine the occurrence of any event or contingency, the Stockholders' Representative shall, in making such determination, be liable to the Stockholders only for his proven willful misconduct as determined in light of all the circumstances, including the time and facilities available to him in the ordinary conduct of business. In determining the occurrence of any such event or contingency, the Stockholders' Representative may request from any of the Stockholders or any other person such reasonable additional evidence as the Stockholders' Representative in his sole discretion may deem necessary to determine any fact relating to the occurrence of such event or contingency, and may at any time inquire of and consult with others, including any of the Stockholders, and the Stockholders' Representative shall not be liable to any Stockholder for any damages resulting from his delay in acting hereunder pending his receipt and examination of additional evidence requested by him.

(h) Orders. The Stockholders' Representative is authorized, in his sole discretion, to comply with final, nonappealable orders or decisions issued or process entered by any court of competent jurisdiction or arbitrator with respect to the Escrow Fund or the Reimbursement Fund. If any portion of the Escrow Fund or the Reimbursement Fund is disbursed to the Stockholders' Representative and is at any time attached, garnished or levied upon under any court order, or in case the payment, assignment, transfer, conveyance or delivery of any such property shall be stayed or enjoined by any court order, or in case any order, judgment or decree shall be made or entered by any court affecting such property or any part thereof, then and in any such event, the Stockholders' Representative is authorized, in his sole discretion, but in good faith, to rely upon and comply with any such order, writ, judgment or decree which he is advised by legal counsel selected by him is binding upon him without the need for appeal or other action; and if the Stockholders' Representative complies with any such order, writ, judgment or decree, he shall

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not be liable to any Stockholder or to any other Person by reason of such compliance even though such order, writ, judgment or decree may be subsequently reversed, modified, annulled, set aside or vacated.

(i) Removal of Stockholders' Representative; Authority of Successor Stockholders' Representative. Stockholders who in the aggregate hold at least a majority of the Stockholders' interest in the Escrow Fund shall have the right at any time during the term of the Escrow Agreement to remove the then-acting Stockholders' Representative and to appoint a successor Stockholders' Representative; provided, however, that neither such removal of the then acting Stockholders' Representative nor such appointment of a successor Stockholders' Representative shall be effective until the delivery to the Escrow Agent of executed counterparts of a writing signed by each such Stockholder with respect to such removal and appointment, together with an acknowledgment signed by the successor Stockholders' Representative appointed in such writing that he or she accepts the responsibility of successor Stockholders' Representative and agrees to perform and be bound by all of the provisions of this Agreement applicable to the Stockholders' Representative. Each successor Stockholders' Representative shall have all of the power, authority, rights and privileges conferred by this Agreement upon the original Stockholders' Representative, and the term "Stockholders' Representative" as used herein and in the Escrow Agreement shall be deemed to include any interim or successor Stockholders' Representative.

(j) Expenses of the Stockholders' Representative. To the extent that CIENA is not responsible therefor pursuant to the terms of **Section 6.4(c)** above, the Stockholders' Representative shall be entitled to withdraw cash amounts held in the Reimbursement Fund (or, as provided for in the Escrow Agreement, from the Escrow Fund) in reimbursement for out-of-pocket fees and expenses (including legal, accounting and other advisors' fees and expenses, if applicable) incurred by the Stockholders' Representative in performing under this Agreement and the Escrow Agreement. The Stockholders (i) shall have no claim or cause of action against, may not assert any claim against, and shall indemnify and hold harmless the Stockholders' Representative and each of its Affiliates and any of their respective partners, directors, officers, employees, agents, stockholders, consultants, attorneys, accountants, advisors, brokers, representatives or controlling persons, as provided for in **Section 6.4(c)** above; and (ii) shall pay to the Stockholders' Representative, promptly upon request, such Stockholder's pro rata share of any amounts paid by the Stockholders' Representative on behalf of the Stockholders and all costs and expenses (including legal, accounting and other advisors' fees and expenses, if applicable) incurred by the Stockholders' Representative in connection with the protection, defense or enforcement of any rights under this Agreement or the Escrow Agreement to the extent such costs, expenses and other amounts exceed the amount available to the Stockholders' Representative in the Reimbursement Fund and/or the Escrow Fund, as the case may be.

(k) Irrevocable Appointment. Subject to **Section 6.4(i)**, the appointment of the Stockholders' Representative hereunder is irrevocable and any action taken by the Stockholders' Representative pursuant to the authority granted in this **Section 6.4** shall be effective and absolutely binding on the Company and each stockholder thereof notwithstanding any contrary action of, or direction from, the Company or any Stockholder, except for actions taken by the Stockholders' Representative which constitute willful misconduct.

(l) CIENA's Reliance. CIENA shall not be obliged to inquire into the authority of the Stockholders' Representative, and CIENA shall be fully protected in dealing with the Stockholders' Representative in good faith.

SECTION 6.5. Defense of Third Party Claims.

With respect to any claims or demands by third parties as to which CIENA, on the one hand, or the Stockholders, on the other, may seek indemnification hereunder (the party seeking indemnification being referred to herein as the "Indemnified Party"), whenever the Indemnified Party will have received a written notice that such a claim or demand has been asserted or threatened, the Indemnified Party will promptly notify the Stockholders' Representative, if indemnification is being sought under **Section 6.2**, or CIENA, if indemnification is sought under **Section 6.3** (such Person being referred to herein as the

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“Indemnifying Party”) of such claim or demand and of the facts within the Indemnified Party’s knowledge that relate thereto within a reasonable time after receiving such written notice. The Indemnifying Party will then have the right to defend, contest, negotiate or settle any such claim or demand through counsel of his or its own selection (who shall be reasonably acceptable to the Indemnified Party, at the Indemnifying Party’s own cost and expense (which costs and expenses, to the extent they relate to a claim asserted under **Section 6.2**, will be payable by CIENA or out of the Reimbursement Fund and the Escrow Fund as provided for in the Escrow Agreement, as provided in **Section 6.4(c)**), and the Indemnified Party shall cooperate with and assist the Indemnifying Party in the defense of such claim or demand. Notwithstanding the preceding sentence, the Indemnifying Party will not settle, compromise, or offer to settle or compromise any such claim or demand without the prior written consent of the Indemnified Party, which consent will not be unreasonably withheld, conditioned or delayed. If the Indemnifying Party gives notice to the Indemnified Party within twenty Business Days after the Indemnified Party has notified the Indemnifying Party that any such claim or demand has been made in writing, that the Indemnifying Party elects to have the Indemnified Party defend, contest, negotiate, or settle any such claim or demand, then the Indemnified Party will have the right to contest and/or settle any such claim or demand and the Indemnifying Party shall cooperate with and assist the Indemnified Party in the defense of such claim or demand, provided, however, that the Indemnified Party will not settle, compromise, or offer to settle or compromise any such claim or demand without the prior written consent (which may include a general or limited consent) of the Indemnifying Party, which consent will not be unreasonably withheld, conditioned or delayed. In the event that the Stockholders’ Representative has consented to any settlement, the Stockholders shall have no power or authority to object under any provision of this Agreement to the amount of such settlement.

SECTION 6.6. Limitations.

Notwithstanding anything to the contrary herein, the existence of this Article and of the rights and restrictions set forth herein do not limit any legal remedy against the parties hereto for claims based on fraud. No Stockholder shall have any right to contribution from the Company for any claim made by CIENA with respect to any Loss claimed by CIENA after the Effective Time.

ARTICLE VII

GENERAL; TERMINATION

SECTION 7.1. Expenses.

Regardless of whether or not the transactions contemplated hereby have been consummated at the Closing, each party hereto shall pay its own expenses incidental to the preparation of this Agreement, the carrying out of the provisions of this Agreement and the consummation of the transactions contemplated hereby. Following the Effective Time, CIENA will not be liable for the Company’s out-of-pocket expenses paid or payable in connection with the Merger (including for this purpose fees and costs payable to bankers, accountants and lawyers, as well as any payments required in connection with consents to be obtained, and the cost of employee entitlements as a result of change in control or non-standard severance provisions (excluding customary and usual severance and any accelerated vesting of Company Options required by **Section 4.9** hereof or pursuant to any agreement between CIENA and any holder of Company Options to be effective as of the Effective Time), tax gross-ups or otherwise) in excess of \$7,000,000, and any expenses in excess thereof shall be recoverable by CIENA to the extent necessary from the Escrow Amount.

SECTION 7.2. Press Releases.

Neither the Company nor CIENA shall issue any press release or otherwise make public any information with respect to this Agreement nor the transactions contemplated hereby, prior to the Closing, without the prior written consent of the other party, except as may be required by applicable Law. The

parties shall issue a joint initial press release announcing the execution of this Agreement as may be mutually agreed.

SECTION 7.3. Contents of Agreement; Parties in Interest; Etc.

This Agreement and the agreements referred to or contemplated herein and the letter agreement dated June 1, 2003, concerning confidentiality (the "Confidentiality Agreement") set forth the entire understanding of the parties hereto with respect to the transactions contemplated hereby, and, except as set forth in this Agreement, such other agreements and the Exhibits hereto and the Confidentiality Agreement, there are no representations or warranties, express or implied, made by any party to this Agreement with respect to the subject matter of this Agreement and the Confidentiality Agreement. Except for the matters set forth in the Confidentiality Agreement, any and all previous agreements and understandings between or among the parties regarding the subject matter hereof, whether written or oral, are superseded by this Agreement and the agreements referred to or contemplated herein.

SECTION 7.4. Assignment and Binding Effect.

This Agreement may not be assigned by either party hereto without the prior written consent of the other party; provided, that CIENA may assign its rights and obligations under this Agreement to any directly or indirectly wholly-owned Subsidiary of CIENA, upon written notice to the Company if the assignee shall assume the obligations of CIENA hereunder and CIENA shall remain liable for its obligations hereunder. All the terms and provisions of this Agreement shall be binding upon and inure to the benefit of and be enforceable by the respective successors and assigns of the parties hereto.

SECTION 7.5. Termination.

(a) Termination by Mutual Consent. This Agreement may be terminated and the Merger may be abandoned at any time prior to the Effective Time, whether before or after the approval by Stockholders of the Company referred to in **Section 5.1(d)**, by mutual written consent of the Company and CIENA.

(b) Termination by Either CIENA or the Company. This Agreement may be terminated and the Merger may be abandoned at any time prior to the Effective Time by action of the Board of Directors of either CIENA or the Company if (i) the Merger shall not have been consummated by July 31, 2004, whether such date is before or after the date of approval by the Stockholders of the Company (the "Termination Date"); (ii) the approval of the Company's Stockholders required by **Section 5.1(d)** shall not have been obtained within twenty Business Days after solicitation of the Company's Stockholders by written consent or upon the closing of the voting at a meeting duly convened therefor, or at any adjournment or postponement thereof; or (iii) any Order permanently restraining, enjoining or otherwise prohibiting consummation of the Merger shall become final and non-appealable; provided, that the right to terminate this Agreement pursuant to clause (i) or (ii) above shall not be available to any party that has breached its obligations under this Agreement in any manner that shall have caused the occurrence of the failure of the Merger to be consummated or the stockholder approval to be obtained.

(c) Termination by the Company. This Agreement may be terminated and the Merger may be abandoned at any time prior to the receipt of the approval of the Company's Stockholders required by **Section 5.1(d)**, by action of the Board of Directors of the Company:

(i) if (A) the Company is not in material breach of any of its obligations under this Agreement, (B) the Board of Directors of the Company authorizes the Company, subject to complying with the terms of this Agreement, to enter into a binding written agreement concerning a transaction that constitutes a Superior Proposal and the Company notifies CIENA in writing that it intends to enter into such an agreement, attaching the most current version of such agreement to such notice if available or, if not available, including all material terms and conditions of such agreement in the notice, (C) CIENA does not make, within two Business Days of receipt of the Company's written notification of its intention to enter into a binding agreement for a Superior Proposal, an offer that the Board of Directors of the Company determines, in good faith after consultation with its

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outside legal counsel and its financial advisors, is at least as favorable to the Stockholders of the Company as the Superior Proposal, and (D) the Company prior to such termination pays to CIENA in immediately available funds the fees required to be paid pursuant to **Section 7.5(e)**. The Company agrees (1) that it will not enter into a binding agreement referred to in clause (B) above until at least the third Business Day after it has provided the notice to CIENA required thereby and (2) to notify CIENA promptly if its intention to enter into a written agreement referred to in its notification shall change at any time after giving such notification; or

(ii) if it is not in material breach of its obligations under the Agreement and there is an inaccuracy in any representation or warranty made by CIENA or any breach by CIENA of any covenant or agreement contained in this Agreement and such breach or inaccuracy has not been cured within ten days after written notice thereof to CIENA, or such breach or inaccuracy cannot be cured, and would cause a condition set forth in **Section 5.1** or **Section 5.3** to be incapable of being satisfied.

(d) Termination by CIENA. This Agreement may be terminated and the Merger may be abandoned at any time prior to the Effective Time, whether before or after the receipt of the approval of the Company's Stockholders required by **Section 5.1(d)**, by written notice given to the Company by CIENA

(i) if the Company or its Board of Directors shall have (A) withdrawn, modified or amended in any respect adverse to CIENA its recommendation of the adoption of this Agreement or the New Company Certificate or failed to reconfirm its recommendation of this Agreement or the Merger or the New Company Certificate, as the case may be, within three Business Days after a written request by CIENA to do so ("Change in the Board Recommendation"), or (B) recommended to the Stockholders or entered into an agreement with respect to, or consummated, any Acquisition Proposal from a person other than CIENA or any of its Affiliates; or

(ii) if it is not in material breach of its obligations under the Agreement and there is an inaccuracy in any representation or warranty made by the Company or the Principal Officers or any breach by the Company of any covenant or agreement contained in this Agreement and such breach or inaccuracy has not been cured within ten days after written notice thereof to the Company or such breach or inaccuracy cannot be cured and would cause a condition set forth in **Section 5.1** or **5.2** to be incapable of being satisfied.

(e) Effect of Termination and Abandonment.

(i) In the event of termination of this Agreement and the abandonment of the Merger pursuant to this **Section 7.5**, this Agreement (other than as set forth in this **Section 7.5(e)**) shall become void and of no effect with no liability on the part of any party hereto (or of any of its directors, officers, employees, agents, legal and financial advisors or other representatives); provided, however, except as otherwise provided herein, no such termination shall relieve any party hereto of any liability or damages resulting from any willful breach of this Agreement.

(ii) In the event that this Agreement is terminated (A) by the Company pursuant to **Section 7.5(c)(i)** or (B) by CIENA pursuant to **Section 7.5(d)(i)**, then the Company shall promptly, but in no event later than the earlier of the date of such termination or date of entrance into an agreement concerning an Acquisition Proposal, pay to CIENA a termination fee of \$14,484,750 (the "Termination Fee") payable by wire transfer of same day funds (provided that if following the termination of this Agreement CIENA shall exercise one or more options to acquire Company Capital Stock from certain Stockholders dated the date hereof and in the form of **Exhibit A** and within 12 months after the date of termination, the Company shall consummate an Acquisition Proposal in which CIENA shall either vote those shares of Company Capital Stock acquired in favor thereof or tender the shares in response thereto, to the extent that such Acquisition Proposal upon consummation provides net proceeds to CIENA with respect to such shares of Company Capital

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Stock equal to or in excess of the Termination Fee, CIENA shall remit to the Company the amount of the Termination Fee previously paid by the Company pursuant to this paragraph).

(iii) In the event that this Agreement is terminated pursuant to **Section 7.5(b)(ii)** and at or prior to the time of the Company Stockholders' Meeting any Person shall have made an Acquisition Proposal to the Company or any of its Stockholders or shall have publicly announced an intention (whether or not conditional) to make an Acquisition Proposal with respect to the Company (the "Triggering Proposal"), if within 12 months of such termination the Company enters into an agreement concerning an Acquisition Proposal with the person that made that Triggering Proposal, the Company shall at the time of entering into such agreement, pay to CIENA the Termination Fee payable by wire transfer of same day funds (provided that if following the termination of this Agreement CIENA shall exercise one or more options to acquire Company Capital Stock from certain Stockholders dated the date hereof and in the form of **Exhibit A** and CIENA shall either vote the shares of Company Capital Stock acquired in favor of the Triggering Proposal or tender the shares in response thereto, to the extent that such Triggering Proposal upon consummation provides net proceeds to CIENA with respect to such shares of Company Capital Stock equal to or in excess of the Termination Fee, CIENA shall remit to the Company the amount of the Termination Fee previously paid by the Company pursuant to this paragraph).

(iv) The Company and CIENA each acknowledge that the agreements contained in **Sections 7.5(e)(ii)** and **(iii)** are an integral part of the transactions contemplated by this Agreement, and that, without these agreements, the Company and CIENA would not enter into this Agreement; accordingly, if the Company fails to promptly pay the amounts due pursuant to this Section, and, in order to obtain such payment, CIENA commences a suit which results in a judgment against the Company for the fees set forth in this **Section 7.5**, the Company shall pay to CIENA its costs and expenses (including attorneys' fees) in connection with such suit, together with interest from the date of termination of this Agreement on the amounts owed at the prime rate of Wachovia Bank, N.A. in effect from time to time during such period plus two percent.

SECTION 7.6. Definitions.

As used in this Agreement the terms set forth below shall have the following meanings:

- (a) "*Affiliate*" of a Person means any other Person who directly or indirectly through one or more intermediaries controls, is controlled by or is under common control with such Person. "Control" means the possession of the power, directly or indirectly, to direct or cause the direction of the management and policies of a Person whether through the ownership of voting securities, by contract or otherwise.
- (b) "*Assets*" means assets of every kind and everything that is or may be available for the payment of liabilities (whether inchoate, tangible or intangible), including, without limitation, real and personal property but excluding Intellectual Property Rights.
- (c) "*Business Day*" means a day other than Saturday or Sunday or a day on which banks are required or authorized to close in the State of Maryland or Delaware.
- (d) "*CIENA Material Adverse Effect*" means a material adverse effect on the business, financial condition or results of operations of CIENA and its Subsidiaries, taken as a whole; provided, however, that none of the following shall be deemed in themselves, either alone or in combination, to constitute, and none of the following shall be taken into account in determining whether there has been or will be, a CIENA Material Adverse Effect: (a) any adverse change, effect, event, occurrence, state of facts or development to the extent attributable to the announcement of the Merger (including any cancellations of or delays in customer orders, any reduction in sales, any disruption in supplier, distributor, partner or similar relationships or any loss of employees but only to the extent attributable to the announcement of the Merger); (b) any adverse change, effect, event, occurrence, state of facts or development attributable to conditions generally affecting the industries in which CIENA participates, the U.S. economy as a whole or foreign economies in any locations where CIENA has material operations or sales or suppliers or

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customers; or (c) any adverse change, effect, event, occurrence, state of facts or development resulting from or relating to compliance with the terms of, or the taking of any action required by, this Agreement.

(e) “Code” means the Internal Revenue Code of 1986, as amended.

(f) “Company Material Adverse Effect” means a material adverse effect on the business, financial condition or results of operations of the Company and its Subsidiary, taken as a whole; provided, however, that none of the following shall be deemed in themselves, either alone or in combination, to constitute, and none of the following shall be taken into account in determining whether there has been or will be, a Company Material Adverse Effect: (a) any adverse change, effect, event, occurrence, state of facts or development to the extent attributable to the announcement of the Merger (including any cancellations of or delays in customer orders, any reduction in sales, any disruption in supplier, distributor, partner or similar relationships or any loss of employees but only to the extent attributable to the announcement of the Merger); (b) any adverse change, effect, event, occurrence, state of facts or development attributable to conditions generally affecting the industries in which Company participates, the U.S. economy as a whole or foreign economies in any locations where Company has material operations or sales or suppliers or customers; or (c) any adverse change, effect, event, occurrence, state of facts or development resulting from or relating to compliance with the terms of, or the taking of any action required by, this Agreement.

(g) “Encumbrances” means Liens, security interests, deeds of trust, encroachments, reservations, orders of Governmental Entities, decrees, judgments, contract rights, claims or equity of any kind.

(h) “Environmental Laws” means all applicable federal, state, provincial, municipal, local or foreign laws, rules and regulations, bylaws, orders, decrees, judgments, permits, filings and licenses relating (i) to protection and clean-up of the environment and activities or conditions related thereto, including those relating to the generation, handling, disposal, recycling, transportation or release of Hazardous Substances and (ii) the health or safety of employees in the workplace environment, all as amended from time to time, and shall also include any common law theory based on nuisance, trespass, negligence or other tortious conduct.

(i) “ERISA” means the Employee Retirement Income Security Act of 1974, as amended, and all Laws promulgated pursuant thereto or in connection therewith.

(j) “Exchange Agent” means a bank or trust company designated as the exchange agent by CIENA (which designation shall be reasonably acceptable to the Stockholders’ Representative).

(k) “Exchange Ratios” means the respective exchange ratios set forth in **Section 1.5(c)**.

(l) “Foreign Employee Plans” means all employee benefit, fringe benefit, supplements unemployment benefit, bonus, incentive, profit sharing, termination, severance, change of control, pension, retirement, stock option, stock purchase, stock appreciation, phantom stock, health, welfare, medical, dental, disability, life, insurance and similar plans, programs, arrangements or practices relating to current or former employees, officers or directors, whether written or oral, funded or unfunded, insured or self-insured, registered or unregistered, other than government-sponsored employment insurance, workers’ compensation, health insurance or pension plans.

(m) “Governmental Entity” means any United States or other national, state, provincial, municipal or local government, domestic or foreign, any subdivision, agency, entity, commission or authority thereof, or any quasi-governmental or private body exercising any regulatory, taxing, importing or other governmental or quasi-governmental authority.

(n) “Hazardous Substances” means any and all hazardous and toxic substances, wastes or materials, any pollutants, contaminants, radioactives or dangerous materials (including, but not limited to, polychlorinated biphenyls, PCBs, friable asbestos, volatile and semi-volatile organic compounds, oil, petroleum products and fractions, and any materials which include hazardous constituents or become hazardous, toxic, or dangerous when their composition or state is changed), or any other similar substances or materials which are included under or regulated by any Environmental Laws.

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(o) “*Knowledge of the Company*” or “*Company’s Knowledge*” means the actual knowledge of the Company’s Chief Executive Officer, Vice President of Finance, Vice President of Operations or Vice President of Sales.

(p) “*Laws*” means all foreign, federal, state, provincial, municipal and local statutes, laws, ordinances, regulations, rules, codes, policies, resolutions, orders, determinations, writs, injunctions, awards (including, without limitation, awards of any arbitrator), judgments and decrees applicable to the specified persons or entities.

(q) “*Liens*” means any mortgage, pledge, lien, security interest, conditional or installment sale agreement, encumbrance, charge or other claims of third parties of any kind.

(r) “*Ordinary Course of Business*” means all actions taken by a Person if such action is consistent with the past practices of such Person and is taken in the ordinary course of the normal day-to-day operations of such Person.

(s) “*Permitted Encumbrances*” means (i) Liens for Taxes not yet due or which are being contested in good faith by appropriate proceedings and for which adequate reserves have been established in accordance with applicable generally accepted accounting principles; (ii) such minor encumbrances, easements or reservations of, or rights of others for, sewers, electric lines, telegraph and telephone lines and other similar purposes, or zoning restrictions as to the use of real properties, which do not materially interfere with the use, occupation and enjoyment of the property subject to the Lien by and in connection with the applicable business; (iii) Liens incurred in the Ordinary Course of Business in connection with workers’ compensation, unemployment insurance and other types of social security; and (iv) Liens in favor of customs authorities arising as a matter of law to secure payment of customs duties in connection with the importation of goods to the extent accrued on the relevant Financial Statements.

(t) “*Person*” means any individual, corporation, partnership, limited partnership, limited liability company, trust, association or entity or government agency or authority.

(u) “*Principal Officers*” means the Company’s Chief Executive Officer, Vice President of Finance, Vice President of Operations and Vice President of Sales.

(v) “*Subsidiary*” of a Person means any corporation, partnership, joint venture or other entity in which such person (a) owns, directly or indirectly, 50% or more of the outstanding voting securities or equity interests or (b) is a general partner.

(w) “*Tax*” (and, with correlative meaning, “*Taxes*” and “*Taxable*”) means any federal, state, provincial, municipal, local or foreign net income, gross income, gross receipts, windfall profit, severance, property, production, sales, use, license, excise, franchise, employment, payroll, health, workers’ compensation, withholding, alternative or add-on minimum, ad valorem, value-added, transfer, stamp, or environmental tax, or any other tax, custom, duty, governmental fee or other like assessment or charge of any kind whatsoever, including Canada Pension Plan and Provincial Pension Plan contributions and unemployment insurance contributions and employment insurance contributions, together with any interest or penalty, addition to tax or additional amount imposed by any taxing governmental entity.

(x) “*Tax Return*” means any return, report or similar statement required to be filed with respect to any Tax (including any attached schedules), including, without limitation, any information return, claim for refund, amended return or declaration of estimated Tax.

(y) “*Terminated Employees*” means any employees of the Company who are not employed by CIENA or the Surviving Company immediately following the Effective Time.

(z) “*Transitional Employees*” means any employees of the Company identified by CIENA at Closing expected to remain employed by CIENA or the Surviving Company for a period not exceeding six (6) months following the Effective Time.

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SECTION 7.7. Notices.

Any notice, request, demand, waiver, consent, approval, or other communication which is required or permitted to be given to any party hereunder shall be in writing and shall be deemed given only if delivered to the party personally or sent to the party by facsimile transmission (promptly followed by a hard-copy delivered in accordance with this **Section 7.7**), by next Business Day delivery by an internationally-recognized courier service such as Federal Express or DHL, or by registered or certified mail (return receipt requested), with postage and registration or certification fees thereon prepaid, addressed to the party at its address set forth below:

If to CIENA:

CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090
Attention: General Counsel
Facsimile: (410) 981-7414

with a copy to:

Hogan & Hartson L.L.P.
111 South Calvert Street, 16th Floor
Baltimore, Maryland 21202
Attention: Michael J. Silver
Facsimile: (410) 539-6981

If to the Company:

Catena Networks, Inc.
307 Legget Drive
Kanata, Ontario
Canada
K2K 3C8
Attention: Gudmundur (Jim) Hjartarson
Facsimile: (613) 599-0445

with a copy to:

Cooley Godward LLP
One Maritime Plaza
20th Floor
San Francisco, California 94111
Attention: Jodie M. Bourdet
Facsimile: (415) 951-3699

If to the Stockholders' Representative:

Gary Morgenthaler
Morgenthaler Ventures
2710 Sand Hill Road
Suite 100
Menlo Park, California 94025
Facsimile: (650) 388-7613

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with a copy to:

Cooley Godward LLP
One Maritime Plaza
20th Floor
San Francisco, California 94111
Attention: Jodie M. Bourdet
Facsimile: (415) 951-3699

or to such other address or Person as any party may have specified in a notice duly given to the other party as provided herein. Such notice, request, demand, waiver, consent, approval or other communication will be deemed to have been given as of the date so delivered, telegraphed or mailed.

SECTION 7.8. Amendment.

This Agreement may be amended, modified or supplemented (i) at any time prior to the Effective Time, by mutual agreement of the respective Boards of Directors of the Company and CIENA, except as provided in Section 251(d) of the DGCL and (ii) at any time after the Effective Time, by mutual agreement of CIENA and the Stockholders' Representative. Any amendment, modification or revision of this Agreement and any waiver of compliance or consent with respect hereto shall be effective only if in a written instrument executed by the parties hereto.

SECTION 7.9. Governing Law.

This Agreement shall be governed by and interpreted and enforced in accordance with the laws of the State of Delaware as applied to contracts made and fully performed in such state.

SECTION 7.10. No Benefit to Others.

The representations, warranties, covenants and agreements contained in this Agreement are for the sole benefit of the parties hereto, and their respective successors and assigns, and they shall not be construed as conferring, and are not intended to confer, any rights on any other Person except as provided in **Articles I, IV and VI**.

SECTION 7.11. Severability.

If any term or other provision of this Agreement is determined to be invalid, illegal or incapable of being enforced by any rule of law or public policy, all other terms and provisions of the Agreement shall remain in full force and effect. Upon such determination, the parties hereto shall negotiate in good faith to modify this Agreement so as to give effect to the original intent of the parties to the fullest extent permitted by applicable law.

SECTION 7.12. Section Headings.

All section headings are for convenience only and shall in no way modify or restrict any of the terms or provisions hereof.

SECTION 7.13. Schedules and Exhibits.

All Schedules and Exhibits referred to herein are intended to be and hereby are specifically made a part of this Agreement.

SECTION 7.14. Extensions.

At any time prior to the Effective Time, CIENA, on the one hand, and the Company on the other may by corporate action, extend the time for compliance by or waive performance of any representation,

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warranty, condition or obligation of the other party subject to the provisions of **Section 8.8** regarding the manner of waiver.

SECTION 7.15. Counterparts.

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and the Company and CIENA may become a party hereto by executing a counterpart hereof. This Agreement and any counterpart so executed shall be deemed to be one and the same instrument.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound hereby, have duly executed this Agreement and Plan of Merger as of the date first above written.

CIENA CORPORATION

By: /s/ GARY B. SMITH

Name: Gary B. Smith
Title: President and Chief Executive Officer

CATENA NETWORKS, INC.

By: /s/ GUDMUNDUR HJARTARSON

Name: Gudmundur Hjartarson
Title: President and Chief Executive Officer

PRINCIPAL OFFICERS:

By: /s/ GUDMUNDUR HJARTARSON

Gudmundur Hjartarson

By: /s/ KEVIN FORBES

Kevin Forbes

By: /s/ RICHARD DEGABRIELLE

Richard DeGabrielle

By: /s/ JEFFREY REECE

Jeffrey Reece

GLOSSARY OF DEFINED TERMS

<i>DEFINED TERM</i>	<i>LOCATION OF DEFINITION</i>
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Affiliate Letters	Recitals
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CIENA Indemnification Threshold	Section 6.2
CIENA Indemnified Parties	Section 6.2
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Company Common Stock	Recitals
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FIRST AMENDMENT TO AGREEMENT AND PLAN OF MERGER

THIS FIRST AMENDMENT TO AGREEMENT AND PLAN OF MERGER (this “First Amendment”) is made as of March 4, 2004 by and among **CIENA CORPORATION**, a Delaware corporation (“CIENA”), and **CATENA NETWORKS, INC.**, a Delaware corporation (the “Company”).

RECITALS

WHEREAS, CIENA, the Principal Officers and the Company are parties to that certain Agreement and Plan of Merger dated as of February 18, 2004 (the “Merger Agreement”);

WHEREAS, CIENA and the Company desire to amend certain terms of the Merger Agreement;

NOW, THEREFORE, in consideration of the foregoing and the mutual representations, warranties, covenants and agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto intending to be legally bound do hereby agree as follows:

SECTION 1. Amendments to Merger Agreement.

The following amendments to the Merger Agreement are made hereby:

1.1 Amendment to Section 1.5(c) of the Merger Agreement.

(a) The definition of “Aggregate Share Consideration” is hereby deleted and the following inserted in lieu thereof:

“75,894,864 shares of CIENA Common Stock”

(b) The definition of “Liquidation” is hereby deleted and the following inserted in lieu thereof:

“the allocation of the Aggregate Share Consideration to the holders of outstanding Company Common Stock and Company Preferred Stock (other than any allocation of Aggregate Share Consideration in respect of any declared and unpaid dividends) that would result from the Merger if: (a) the Merger were a “liquidation” for purposes of the Company’s certificate of incorporation; (b) all Company Options included in Company Common Stock Outstanding and all Company Warrants outstanding immediately prior to the Effective Time were exercised in full for cash immediately prior to the Effective Time; and (c) the holders of Company Preferred Stock (including holders that would acquire shares of Company Preferred Stock upon exercise of Company Warrants) converted shares of Company Preferred Stock into Company Common Stock to the extent that such conversion would result in a greater number of shares of CIENA Common Stock being issuable therefor in the Merger (disregarding for this purpose any provisions in the Company’s certificate of incorporation prohibiting such conversion).”

1.2 Amendment to Section 2.4(a) of the Merger Agreement. Section 2.4(a) is hereby amended to read in its entirety as follows:

“(a) The execution and delivery of this Agreement by the Company and the consummation by the Company of the transactions contemplated hereby, including, without limitation, the filing of the New Company Certificate, have been duly and validly authorized by all necessary corporate action and no other corporate proceedings on the part of the Company are necessary to authorize this Agreement or to consummate the transactions contemplated hereby, except that approval of the New Company Certificate and the Merger requires (i) approval by holders of a majority of the shares of the Company Common Stock (excluding the Non-Voting Common Stock), (ii) approval by holders of a majority of the shares of the Series A Preferred Stock, the Series AA Preferred Stock, the Series A-1 Preferred Stock, the Series AA-1 Preferred Stock, the Series B Preferred Stock, Series BB Preferred Stock, Series C Preferred Stock, Series CC Preferred Stock, Series D Preferred Stock and Series DD Preferred Stock (collectively, the “Voting Preferred Stock”), and the Company Common

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Stock (excluding the Non-Voting Common Stock), all voting together as a single class on an as converted to Company Common Stock basis, (iii) approval by the holders of not less than a majority of the then outstanding Voting Preferred Stock, voting as a separate class on an as converted to Company Common Stock basis, including three unaffiliated Major Investors (as defined in the Amended and Restated Investor Rights Agreement dated January 22, 2002 by and among the Company and the other parties thereto (the “Investor Rights Agreement”), and (iv) with respect to approval of the New Company Certificate only, approval by the holders of not less than 70% of the then outstanding Series C Preferred Stock and Series CC Preferred Stock, voting together as a separate class on an as converted to Company Common Stock basis (the “Company Requisite Vote”). The term “unaffiliated Major Investors” means Major Investors as defined in the Investor Rights Agreement that are not officers, directors or affiliates (within the meaning of the federal securities laws) of the Company. The Non-Voting Common Stock and the Company Preferred Stock other than the Voting Preferred Stock is not entitled to any vote on the Merger. Assuming due authorization, execution and delivery by CIENA, this Agreement constitutes, and the New Company Certificate will at the Effective Time constitute, a legal, valid and binding obligation of the Company, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors’ rights generally and by the application of general principles of equity.”

1.3 Amendment to Section 4.2(b)(iii) of the Merger Agreement. Section 4.2(b)(iii) is hereby amended to read in its entirety as follows:

“(iii) declare, set aside, make or pay any dividend or other distribution, payable in cash, stock, property or otherwise with respect to any of its capital stock, except that at any time prior to the Closing the Company may take such action as may be required to declare, set aside and pay cash dividends to the holders of Company Preferred Stock in an aggregate amount equal to \$10,000,000, including but not limited to the solicitation of consents from those Stockholders whose approval may be required for the declaration and payment of such dividends;”

1.4 Amendment to Section 5.2(a) of the Merger Agreement. Section 5.2(a) is hereby amended to read in its entirety as follows:

“(a) Performance of Obligations; Representations and Warranties. The Company shall have performed in all material respects and complied in all material respects with all agreements contained in this Agreement that are required to be performed or complied with by it prior to or at the Closing. Each of the Company’s representations and warranties contained in **Article II** of this Agreement shall be true and correct in all material respects, in each case, on and as of the Closing with the same effect as though such representations and warranties were made on and as of the Closing (except: (i) for inaccuracies permitted by this Agreement, (ii) to the extent that such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall be as of such earlier date, and (iii) to the extent that such representations and warranties would be rendered untrue or incorrect solely as a result of the declaration, setting aside, or payment of the cash dividends to holders of Company Preferred Stock that are expressly permitted under **Section 4.2(b)(iii)** of this Agreement), it being understood that any inaccuracies that, individually or in the aggregate, that have not had and could not reasonably be expected to have a Company Material Adverse Effect shall be disregarded. CIENA shall have received a certificate dated the Closing Date and signed by the Chief Executive Officer, President or a Vice President of the Company, certifying that, the conditions specified in this **Section 5.2(a)** have been satisfied. In addition, the Company’s Chief Executive Officer and Vice President of Finance shall execute and deliver to CIENA a bring-down certification dated the Closing Date in the form attached as **Exhibit C** attached hereto.”

1.5 Amendment to Section 5.2(e) of the Merger Agreement. Section 5.2(e) is hereby amended to read in its entirety as follows:

“(e) Termination of Agreements. The Investor Rights Agreement shall be inapplicable to the Merger and shall have been terminated. All security interests in any of the Company’s or its

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Subsidiary's Assets held by Lighthouse Capital Partners II, Lighthouse Capital Partners III, Lighthouse Capital Partners IV or Silicon Valley Bank shall have been released and the indebtedness related thereto shall have been repaid.”

1.6 Amendment to Section 6.2(b) of the Merger Agreement. Section 6.2(b) is hereby amended by inserting a new clause (iii) at the end thereof to read as follows:

“(iii) Notwithstanding anything in this Agreement to the contrary, the CIENA Indemnified Parties shall not be entitled to indemnification for any Losses incurred directly or indirectly as a result of (A) any inaccuracy or a representation or breach of a warranty of the Company contained in this Agreement or contained in any certificate described in Section 5.2(a) or (B) any failure by the Company to perform or comply with any covenant or agreement contained in this Agreement, in each case to the extent that such inaccuracy, breach or failure is the result of the declaration, setting aside or payment of the cash dividends to holders of Company Preferred Stock that are expressly permitted under Section 4.2(b)(iii) of this Agreement.”

SECTION 2. Representations and Warranties.

2.1 Authority of the Company. On or prior to the date of this First Amendment, the Board of Directors of the Company has declared the Merger (on terms and conditions set forth in the Merger Agreement as amended by this First Amendment) advisable and fair to and in the best interest of the Company and its stockholders, approved and adopted this First Amendment in accordance with the DGCL, confirmed its resolution to recommend the approval and adoption of the Merger Agreement (as amended hereby) by the Company's Stockholders and directed that the Merger Agreement (as amended hereby) be submitted to the Company's Stockholders for approval and adoption. The Company has all requisite corporate power and authority to enter into this First Amendment and, subject to approval by the Stockholders of the Company, to consummate the transactions contemplated by the Merger Agreement, as amended hereby. The execution and delivery of this First Amendment by the Company and the consummation by the Company of the transactions contemplated by the Merger Agreement, as amended hereby, have been duly authorized by all necessary corporate action on the part of the Company, subject, in the case of the Merger Agreement, as amended hereby, only to (x) the approval of the Merger Agreement, as amended hereby, by the Stockholders of the Company and (y) the filing of appropriate Merger documents as required by the DGCL. This First Amendment has been duly executed and delivered by the Company and, assuming the due authorization, execution and delivery of this First Amendment by CIENA, constitutes a legal, valid and binding obligation of the Company, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors' rights generally and by the application of general principles of equity.

2.2 Authority of CIENA. The execution and delivery of this First Amendment by CIENA and the consummation by CIENA of the transactions contemplated by the Merger Agreement, as amended hereby, have been duly and validly authorized by all necessary corporate action and no other corporate proceedings on the part of CIENA are necessary to authorize this First Amendment or to consummate the transactions contemplated by the Merger Agreement, as amended hereby. This First Amendment has been duly executed and delivered by CIENA and, assuming the due authorization, execution and delivery by the Company, constitutes a legal, valid and binding obligation of CIENA, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws of general applicability relating to or affecting creditors' rights generally and by the application of general principles of equity.

SECTION 3. Miscellaneous.

3.1 Merger Agreement. The terms and provisions of the Merger Agreement, except as specifically amended hereby, shall remain in full force and effect. All references to the Merger Agreement contained therein shall mean the Merger Agreement, as amended hereby. Except as otherwise defined or modified

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herein, all capitalized terms used in this First Amendment shall have the meanings set forth in the Merger Agreement.

3.2 Counterparts. This First Amendment may be executed in two or more counterparts, each of which shall be deemed an original, and the Company and CIENA may become a party hereto by executing a counterpart hereof. This Agreement and any counterpart so executed shall be deemed to be one and the same instrument.

3.3 Governing Law. This First Amendment shall be governed by and interpreted and enforced in accordance with the laws of the State of Delaware as applied to contracts made and fully performed in such state.

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IN WITNESS WHEREOF, the parties hereto, intending to be legally bound hereby, have duly executed this First Amendment to Agreement and Plan of Merger as of the date first above written.

CIENA CORPORATION

By: /s/ RUSSELL B. STEVENSON, JR.

Name: Russell B. Stevenson, Jr.
Title: Senior Vice President, General
Counsel and Secretary

CATENA NETWORKS, INC.

By: /s/ GUDMUNDUR HJARTARSON

Name: Gudmundur Hjartarson
Title: President and Chief Executive Officer

DELAWARE GENERAL CORPORATION LAW

SECTION 262

§ 262 Appraisal rights.

(a) Any stockholder of a corporation of this State who holds shares of stock on the date of the making of a demand pursuant to subsection (d) of this section with respect to such shares, who continuously holds such shares through the effective date of the merger or consolidation, who has otherwise complied with subsection (d) of this section and who has neither voted in favor of the merger or consolidation nor consented thereto in writing pursuant to § 228 of this title shall be entitled to an appraisal by the Court of Chancery of the fair value of the stockholder's shares of stock under the circumstances described in subsections (b) and (c) of this section. As used in this section, the word "stockholder" means a holder of record of stock in a stock corporation and also a member of record of a nonstock corporation; the words "stock" and "share" mean and include what is ordinarily meant by those words and also membership or membership interest of a member of a nonstock corporation; and the words "depository receipt" mean a receipt or other instrument issued by a depository representing an interest in one or more shares, or fractions thereof, solely of stock of a corporation, which stock is deposited with the depository.

(b) Appraisal rights shall be available for the shares of any class or series of stock of a constituent corporation in a merger or consolidation to be effected pursuant to § 251 (other than a merger effected pursuant to § 251(g) of this title), § 252, § 254, § 257, § 258, § 263 or § 264 of this title:

(1) Provided, however, that no appraisal rights under this section shall be available for the shares of any class or series of stock, which stock, or depository receipts in respect thereof, at the record date fixed to determine the stockholders entitled to receive notice of and to vote at the meeting of stockholders to act upon the agreement of merger or consolidation, were either (i) listed on a national securities exchange or designated as a national market system security on an interdealer quotation system by the National Association of Securities Dealers, Inc. or (ii) held of record by more than 2,000 holders; and further provided that no appraisal rights shall be available for any shares of stock of the constituent corporation surviving a merger if the merger did not require for its approval the vote of the stockholders of the surviving corporation as provided in subsection (f) of § 251 of this title.

(2) Notwithstanding paragraph (1) of this subsection, appraisal rights under this section shall be available for the shares of any class or series of stock of a constituent corporation if the holders thereof are required by the terms of an agreement of merger or consolidation pursuant to §§ 251, 252, 254, 257, 258, 263 and 264 of this title to accept for such stock anything except:

- a. Shares of stock of the corporation surviving or resulting from such merger or consolidation, or depository receipts in respect thereof;
- b. Shares of stock of any other corporation, or depository receipts in respect thereof, which shares of stock (or depository receipts in respect thereof) or depository receipts at the effective date of the merger or consolidation will be either listed on a national securities exchange or designated as a national market system security on an interdealer quotation system by the National Association of Securities Dealers, Inc. or held of record by more than 2,000 holders;
- c. Cash in lieu of fractional shares or fractional depository receipts described in the foregoing subparagraphs a. and b. of this paragraph; or
- d. Any combination of the shares of stock, depository receipts and cash in lieu of fractional shares or fractional depository receipts described in the foregoing subparagraphs a., b. and c. of this paragraph.

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(3) In the event all of the stock of a subsidiary Delaware corporation party to a merger effected under § 253 of this title is not owned by the parent corporation immediately prior to the merger, appraisal rights shall be available for the shares of the subsidiary Delaware corporation.

(c) Any corporation may provide in its certificate of incorporation that appraisal rights under this section shall be available for the shares of any class or series of its stock as a result of an amendment to its certificate of incorporation, any merger or consolidation in which the corporation is a constituent corporation or the sale of all or substantially all of the assets of the corporation. If the certificate of incorporation contains such a provision, the procedures of this section, including those set forth in subsections (d) and (e) of this section, shall apply as nearly as is practicable.

(d) Appraisal rights shall be perfected as follows:

(1) If a proposed merger or consolidation for which appraisal rights are provided under this section is to be submitted for approval at a meeting of stockholders, the corporation, not less than 20 days prior to the meeting, shall notify each of its stockholders who was such on the record date for such meeting with respect to shares for which appraisal rights are available pursuant to subsection (b) or (c) hereof that appraisal rights are available for any or all of the shares of the constituent corporations, and shall include in such notice a copy of this section. Each stockholder electing to demand the appraisal of such stockholder's shares shall deliver to the corporation, before the taking of the vote on the merger or consolidation, a written demand for appraisal of such stockholder's shares. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such stockholder's shares. A proxy or vote against the merger or consolidation shall not constitute such a demand. A stockholder electing to take such action must do so by a separate written demand as herein provided. Within 10 days after the effective date of such merger or consolidation, the surviving or resulting corporation shall notify each stockholder of each constituent corporation who has complied with this subsection and has not voted in favor of or consented to the merger or consolidation of the date that the merger or consolidation has become effective; or

(2) If the merger or consolidation was approved pursuant to § 228 or § 253 of this title, then, either a constituent corporation before the effective date of the merger or consolidation, or the surviving or resulting corporation within ten days thereafter, shall notify each of the holders of any class or series of stock of such constituent corporation who are entitled to appraisal rights of the approval of the merger or consolidation and that appraisal rights are available for any or all shares of such class or series of stock of such constituent corporation, and shall include in such notice a copy of this section. Such notice may, and, if given on or after the effective date of the merger or consolidation, shall, also notify such stockholders of the effective date of the merger or consolidation. Any stockholder entitled to appraisal rights may, within 20 days after the date of mailing of such notice, demand in writing from the surviving or resulting corporation the appraisal of such holder's shares. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such holder's shares. If such notice did not notify stockholders of the effective date of the merger or consolidation, either (i) each such constituent corporation shall send a second notice before the effective date of the merger or consolidation notifying each of the holders of any class or series of stock of such constituent corporation that are entitled to appraisal rights of the effective date of the merger or consolidation or (ii) the surviving or resulting corporation shall send such a second notice to all such holders on or within 10 days after such effective date; provided, however, that if such second notice is sent more than 20 days following the sending of the first notice, such second notice need only be sent to each stockholder who is entitled to appraisal rights and who has demanded appraisal of such holder's shares in accordance with this subsection. An affidavit of the secretary or assistant secretary or of the transfer agent of the corporation that is required to give either notice that such notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein. For purposes of determining the stockholders entitled to receive either notice, each constituent corporation may fix, in advance, a record date that shall be not more than 10 days prior to the date the notice is given,

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provided, that if the notice is given on or after the effective date of the merger or consolidation, the record date shall be such effective date. If no record date is fixed and the notice is given prior to the effective date, the record date shall be the close of business on the day next preceding the day on which the notice is given.

(e) Within 120 days after the effective date of the merger or consolidation, the surviving or resulting corporation or any stockholder who has complied with subsections (a) and (d) hereof and who is otherwise entitled to appraisal rights, may file a petition in the Court of Chancery demanding a determination of the value of the stock of all such stockholders. Notwithstanding the foregoing, at any time within 60 days after the effective date of the merger or consolidation, any stockholder shall have the right to withdraw such stockholder's demand for appraisal and to accept the terms offered upon the merger or consolidation. Within 120 days after the effective date of the merger or consolidation, any stockholder who has complied with the requirements of subsections (a) and (d) hereof, upon written request, shall be entitled to receive from the corporation surviving the merger or resulting from the consolidation a statement setting forth the aggregate number of shares not voted in favor of the merger or consolidation and with respect to which demands for appraisal have been received and the aggregate number of holders of such shares. Such written statement shall be mailed to the stockholder within 10 days after such stockholder's written request for such a statement is received by the surviving or resulting corporation or within 10 days after expiration of the period for delivery of demands for appraisal under subsection (d) hereof, whichever is later.

(f) Upon the filing of any such petition by a stockholder, service of a copy thereof shall be made upon the surviving or resulting corporation, which shall within 20 days after such service file in the office of the Register in Chancery in which the petition was filed a duly verified list containing the names and addresses of all stockholders who have demanded payment for their shares and with whom agreements as to the value of their shares have not been reached by the surviving or resulting corporation. If the petition shall be filed by the surviving or resulting corporation, the petition shall be accompanied by such a duly verified list. The Register in Chancery, if so ordered by the Court, shall give notice of the time and place fixed for the hearing of such petition by registered or certified mail to the surviving or resulting corporation and to the stockholders shown on the list at the addresses therein stated. Such notice shall also be given by 1 or more publications at least 1 week before the day of the hearing, in a newspaper of general circulation published in the City of Wilmington, Delaware or such publication as the Court deems advisable. The forms of the notices by mail and by publication shall be approved by the Court, and the costs thereof shall be borne by the surviving or resulting corporation.

(g) At the hearing on such petition, the Court shall determine the stockholders who have complied with this section and who have become entitled to appraisal rights. The Court may require the stockholders who have demanded an appraisal for their shares and who hold stock represented by certificates to submit their certificates of stock to the Register in Chancery for notation thereon of the pendency of the appraisal proceedings; and if any stockholder fails to comply with such direction, the Court may dismiss the proceedings as to such stockholder.

(h) After determining the stockholders entitled to an appraisal, the Court shall appraise the shares, determining their fair value exclusive of any element of value arising from the accomplishment or expectation of the merger or consolidation, together with a fair rate of interest, if any, to be paid upon the amount determined to be the fair value. In determining such fair value, the Court shall take into account all relevant factors. In determining the fair rate of interest, the Court may consider all relevant factors, including the rate of interest which the surviving or resulting corporation would have had to pay to borrow money during the pendency of the proceeding. Upon application by the surviving or resulting corporation or by any stockholder entitled to participate in the appraisal proceeding, the Court may, in its discretion, permit discovery or other pretrial proceedings and may proceed to trial upon the appraisal prior to the final determination of the stockholder entitled to an appraisal. Any stockholder whose name appears on the list filed by the surviving or resulting corporation pursuant to subsection (f) of this section and who has

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submitted such stockholder's certificates of stock to the Register in Chancery, if such is required, may participate fully in all proceedings until it is finally determined that such stockholder is not entitled to appraisal rights under this section.

(i) The Court shall direct the payment of the fair value of the shares, together with interest, if any, by the surviving or resulting corporation to the stockholders entitled thereto. Interest may be simple or compound, as the Court may direct. Payment shall be so made to each such stockholder, in the case of holders of uncertificated stock forthwith, and the case of holders of shares represented by certificates upon the surrender to the corporation of the certificates representing such stock. The Court's decree may be enforced as other decrees in the Court of Chancery may be enforced, whether such surviving or resulting corporation be a corporation of this State or of any state.

(j) The costs of the proceeding may be determined by the Court and taxed upon the parties as the Court deems equitable in the circumstances. Upon application of a stockholder, the Court may order all or a portion of the expenses incurred by any stockholder in connection with the appraisal proceeding, including, without limitation, reasonable attorney's fees and the fees and expenses of experts, to be charged pro rata against the value of all the shares entitled to an appraisal.

(k) From and after the effective date of the merger or consolidation, no stockholder who has demanded appraisal rights as provided in subsection (d) of this section shall be entitled to vote such stock for any purpose or to receive payment of dividends or other distributions on the stock (except dividends or other distributions payable to stockholders of record at a date which is prior to the effective date of the merger or consolidation); provided, however, that if no petition for an appraisal shall be filed within the time provided in subsection (e) of this section, or if such stockholder shall deliver to the surviving or resulting corporation a written withdrawal of such stockholder's demand for an appraisal and an acceptance of the merger or consolidation, either within 60 days after the effective date of the merger or consolidation as provided in subsection (e) of this section or thereafter with the written approval of the corporation, then the right of such stockholder to an appraisal shall cease. Notwithstanding the foregoing, no appraisal proceeding in the Court of Chancery shall be dismissed as to any stockholder without the approval of the Court, and such approval may be conditioned upon such terms as the Court deems just.

(l) The shares of the surviving or resulting corporation to which the shares of such objecting stockholders would have been converted had they assented to the merger or consolidation shall have the status of authorized and unissued shares of the surviving or resulting corporation.

Escrow Agreement

THIS ESCROW AGREEMENT (the “**Agreement**”) is made and dated as of [], 2004 by and among **CIENA CORPORATION**, a Delaware corporation (“**CIENA**”), U.S. Bank Trust National Association, a national banking association, as Escrow Agent (the “**Escrow Agent**”), and Gary Morgenthaler, acting as Stockholders’ Representative (the “**Stockholders’ Representative**”) by virtue of the Agreement and Plan of Merger dated as of February 18, 2004 (the “**Merger Agreement**”).

WITNESSETH:

WHEREAS, CIENA, Catena Networks, Inc., a Delaware corporation (the “**Company**”) and certain principal officers of the Company have entered into the Merger Agreement, providing for the merger of the Company with and into CIENA, and in connection with which the Stockholders of the Company shall receive as consideration a number of shares of Common Stock of CIENA (the “**CIENA Common Stock**”) as set forth in the Merger Agreement;

WHEREAS, pursuant to the Merger Agreement, CIENA and the Company have agreed that the rights of indemnification under Article VI of the Merger Agreement shall survive the consummation of the transactions contemplated by the Merger Agreement for a period of twelve months from the Closing Date, and shall be secured, pursuant to this Agreement, by certain shares of CIENA Common Stock (together with any accumulations thereto as provided herein, the “**Escrow Shares**”), to be registered in the name of the Escrow Agent, as escrow agent hereunder, and deposited in escrow with the Escrow Agent;

WHEREAS, pursuant to the Merger Agreement, the Stockholders’ Representative is entitled to full reimbursement for out-of-pocket fees and expenses and other obligations of or incurred by the Stockholders’ Representative in connection with the Merger Agreement and this Agreement, which reimbursement (to the extent that CIENA is not required to indemnify the Stockholders’ Representative under Section 6.4(c) of the Merger Agreement) shall be satisfied out of the Escrow Shares if satisfaction is not sufficient from the proceeds from certain shares of CIENA Common Stock (together with any accumulations thereto as provided herein, the “**Reimbursement Shares**”), to be registered in the name of the Escrow Agent, as escrow agent hereunder, and deposited in escrow with the Escrow Agent;

WHEREAS, the Escrow Agent is willing to act in the capacity of Escrow Agent hereunder subject to, and upon the terms and conditions of this Agreement;

WHEREAS, pursuant to the Merger Agreement, the Stockholders’ Representative has been appointed as the Stockholders’ attorney-in-fact and authorized and empowered to act, for and on behalf of any or all of the Stockholders (with full power of substitution in the premises) in connection with the indemnity provisions of the Merger Agreement, this Escrow Agreement, and such other matters as are reasonably necessary for the consummation of the transactions contemplated hereby and thereby; and

WHEREAS, capitalized terms used and not defined herein have the meanings assigned to such terms in the Merger Agreement.

NOW, THEREFORE, in consideration of the promises, covenants and agreements set forth in this Agreement and of other good and valuable consideration, the receipt and legal sufficiency of which they hereby acknowledge, and intending to be legally bound hereby, and as an inducement for the execution

and delivery of the Merger Agreement, CIENA, the Escrow Agent and the Stockholders' Representative hereby agree as follows:

ARTICLE I

DESIGNATION OF ESCROW AGENT AND CAPITAL SHARES
SUBJECT TO ESCROW

1.1 Designation of Escrow Agent. CIENA and the Stockholders' Representative hereby mutually designate and appoint U.S. Bank Trust National Association, a national banking association, having an office and place of business located at 100 Wall Street, New York, New York 10005, as Escrow Agent for the purposes set forth herein. The Escrow Agent hereby accepts such appointment and agrees to act in furtherance of the provisions of the Merger Agreement, but only upon the terms and conditions provided in this Agreement.

1.2 Capital Stock Subject to Escrow. In accordance with Section 6.2 of the Merger Agreement, CIENA shall on [], 2004 issue and deliver, or cause to be delivered, on behalf of the Stockholders to the Escrow Agent one or more stock certificates (the "Escrow Certificates"), each of which shall be registered in the name of the Escrow Agent as escrow agent hereunder evidencing the Escrow Amount. The Escrow Agent shall hold and distribute the Escrow Certificates and Escrow Shares in accordance with the terms hereof.

1.3 Value of Escrow Shares. For all purposes pursuant to this Agreement, including without limitation the distribution of Escrow Shares, the value of each Escrow Share shall be equal to the Per Share Price (as adjusted for stock dividends, stock splits or combinations affecting the Escrow Shares).

1.4 Powers of Stockholders' Representative. The Stockholders' Representative shall act with respect to all matters arising in connection with this Agreement, including but not limited to having the power and authority on behalf of each Stockholder (other than in his or her own right and excluding holders of Dissenting Shares) to do any one or all of the following:

(i) Receive all notices or documents given or to be given to any of the Stockholders by CIENA pursuant hereto or to the Merger Agreement or in connection herewith or therewith and to receive and accept service of legal process in connection with any suit or proceeding arising under this Agreement or the Merger Agreement;

(ii) Deliver to CIENA at the Closing all certificates and documents to be delivered to CIENA by any of the Stockholders pursuant to the Merger Agreement, together with any other certificates and documents executed by any of the Stockholders and deposited with the Stockholders' Representative for such purpose;

(iii) Engage counsel, and such accountants and other advisors for any of the Stockholders and incur such other expenses on behalf of any of the Stockholders in connection with this Agreement or the Merger Agreement and the transactions contemplated hereby or thereby as the Stockholders' Representative may in its sole discretion deem appropriate; and

(iv) Take such action on behalf of any of the Stockholders as the Stockholders' Representative may in its sole discretion deem appropriate in respect of:

(A) waiving any inaccuracies in the representations or warranties of CIENA contained in this Agreement or in any document delivered by CIENA pursuant hereto;

(B) waiving the fulfillment of any of the conditions precedent to the Company's obligations hereunder or pursuant to the Merger Agreement;

(C) taking such other action as the Stockholders' Representative or any of the Stockholders is authorized to take under this Agreement or the Merger Agreement;

(D) receiving all documents or certificates and making all determinations, on behalf of any of the Stockholders, required under this Agreement or the Merger Agreement;

(E) all such other matters as the Stockholders' Representative may in its sole discretion deem necessary or appropriate to consummate this Agreement or the Merger Agreement and the transactions contemplated hereby and thereby; and

(F) all such action as may be necessary after the Closing Date to carry out any of the transactions contemplated by this Agreement, and the Merger Agreement, including, without limitation, the defense and/or settlement of any claims for which indemnification is sought pursuant to [Article VI](#) of the Merger Agreement and any waiver of any obligation of CIENA.

All actions, decisions and instructions of the Stockholders' Representative shall be conclusive and binding upon all of the Stockholders and no Stockholder nor any other Person shall have any claim or cause of action against the Stockholders' Representative, and the Stockholders' Representative shall have no liability to any Stockholder or any other Person, for any action taken, decision made or instruction given by the Stockholders' Representative in connection with the Merger Agreement or this Agreement, except in the case of his own willful misconduct.

ARTICLE II

TREATMENT OF ACCUMULATIONS TO ESCROW SHARES

2.1 Escrow Period; Distribution Upon Termination of Escrow Periods. Subject to the following requirements, the Escrow Fund shall be in existence immediately following the Closing Date and shall terminate on the first anniversary of that date, [], 2005 (the "**Escrow Period**"); provided, however, that the Escrow Period shall not terminate with respect to any amount which, in the reasonable judgment of CIENA, is necessary to satisfy any Losses incurred by CIENA (or properly accrued in accordance with GAAP applied on a consistent basis for a Loss that CIENA reasonably believes it will have to pay with respect to a third-party claim of which CIENA has received notice prior to the termination of the Escrow Period) and specified in any Officer's Certificate (as defined below) delivered to the Escrow Agent prior to termination of such Escrow Period with respect to facts and circumstances existing prior to the termination of such Escrow Period. The Escrow Agent shall promptly deliver to EquiServe Trust Company, N.A., as exchange agent, for distribution to the Stockholders, and the Escrow Period shall terminate with respect to, the remaining portion of the Escrow Fund not required to satisfy such actual or properly accrued Losses following the termination of the Escrow Period (less the amount of any out-of-pocket fees and expenses and other obligations to (or anticipated obligations to) or obligations incurred or anticipated to be incurred by the Stockholders' Representative in connection with the Merger Agreement and this Agreement, and which are not the subject of indemnification by CIENA under Section 6.4(c) of the Merger Agreement or covered by the Reimbursement Fund and were not previously paid to the Stockholders' Representative out of the Reimbursement Fund (as defined below), and for which the Stockholders' Representative has provided notice to the Escrow Agent prior to such distribution). The number of Escrow Shares to be released to each Stockholder shall be rounded down to the next whole share to avoid the release of fractional shares. As soon as all such claims for indemnification have been resolved and obligations have been satisfied, the Escrow Agent shall deliver to EquiServe Trust Company, N.A., as exchange agent, for distribution to the Stockholders all portions of the Escrow Fund not required to satisfy such claims (less the amount of any out-of-pocket fees and expenses and other obligations to (or anticipated obligations to) or obligations incurred or anticipated to be incurred by the Stockholders' Representative in connection with the Merger Agreement and this Agreement, and which are not the subject of indemnification by CIENA under Section 6.4(c) of the Merger Agreement and were not previously paid to the Stockholders' Representative out of the Reimbursement Fund, and for which the Stockholders' Representative has provided notice to the Escrow Agent prior to such delivery). Any amounts withheld from Stockholders of any distribution of the Escrow Fund (or any portion thereof) to satisfy anticipated out-of-pocket fees and expenses and other obligations of or to the Stockholders' Representative shall be paid to the Stockholders' Representative or delivered to EquiServe Trust Company, N.A., as exchange agent, for distribution to the Stockholders in accordance with the written instruction of the Stockholders' Representative to the Escrow Agent.

2.2 Protection of Escrow Fund.

(a) The Escrow Agent shall hold and safeguard the Escrow Fund during the Escrow Period, shall treat such fund as a trust fund for the benefit of the Stockholders in accordance with the terms of this Agreement and not as the property of CIENA, and shall hold and dispose of the Escrow Fund only in accordance with the terms hereof.

(b) Any shares of CIENA Common Stock or other equity securities issued or distributed by CIENA (including shares issued upon a stock split) (“**New Shares**”) in respect of CIENA Common Stock in the Escrow Fund which have not been released from the Escrow Fund shall be added to the Escrow Fund and become a part thereof. New Shares issued in respect of shares of CIENA Common Stock which have been released from the Escrow Fund shall not be added to the Escrow Fund but shall be distributed to the record holders thereof. Cash dividends, if any, on CIENA Common Stock shall not be added to the Escrow Fund but shall be distributed to the Stockholders in proportion to their respective original contributions to the Escrow Fund.

(c) Each Stockholder shall have voting rights and the right to distributions of cash dividends with respect to the Escrow Shares contributed to the Escrow Fund by such Stockholder (and on any voting securities added to the Escrow Fund in respect of such shares of CIENA Common Stock). As the record holder of such shares, the Escrow Agent shall vote such shares in accordance with the instructions of the Stockholders having the beneficial interest therein and shall ensure that copies of all proxy solicitation materials are promptly delivered to such Stockholders.

2.3 Additional Property Subject to Escrow. If at any time after the date hereof and prior to the distribution of the Escrow Shares any of the Stockholders shall become entitled to receive or shall receive in connection with the Escrow Shares any (i) non-taxable distribution of securities of CIENA or of any other entity including, without limitation, any certificate in connection with any increase or reduction of capital, reclassification, recapitalization, merger, business combination, consolidation, sale of assets, stock split-up or spin-off; or (ii) any non-taxable distribution of stock options, warrants or rights, whether as an addition to or in substitution of or exchange for any of the Escrow Shares; or (iii) non-taxable stock dividend or other non-taxable distribution payable in securities or property of any description, all of the shares of capital stock, or other property resulting from any such distribution, stock option, warrant, right or stock dividend shall be deemed to be Escrow Shares and shall be subject to the terms hereof to the same extent as the original Escrow Shares. Any cash dividends and any taxable stock dividends paid with respect to the Escrow Shares shall be paid to the Stockholders in accordance with their respective proportionate interests in the Escrow Shares and any taxable stock dividends. Each of the Stockholders shall recognize as income on a current basis all of the cash dividends which such Stockholder is entitled to receive and for any non-cash dividend and any other non-taxable distribution shall, through the Stockholders’ Representative, execute stock powers or other appropriate instruments of transfer for all shares, options, warrants or rights as required for transfer.

2.4 Retained Voting and Other Rights. The Escrow Agent shall hold the Escrow Shares and any additional property acquired with respect thereto pursuant to Section 2.3 above in safekeeping and dispose thereof only in accordance with the terms of this Agreement. The Escrow Agent may treat the Stockholders’ Representative as the duly authorized agent and representative of the Stockholders with respect to any additional property related to the Escrow Shares. The Escrow Agent shall hold the Escrow Shares in accordance with each Stockholder’s proportionate interest in the Escrow Shares and shall (to the extent legally permissible) vote the Escrow Shares in accordance with the written instructions of the Stockholder for whose account such Escrow Shares are held.

ARTICLE III

**DISTRIBUTION OF ESCROW SHARES UPON TERMINATION
OF THE AGREEMENT**

3.1 Third-Party Claims. In the event CIENA becomes aware of an event that CIENA reasonably believes may result in a demand against the Escrow Fund, CIENA will notify the Stockholders' Representative of such claim. The Stockholders' Representative will then have the right to defend, contest, negotiate or settle any such claim or demand through counsel of his own selection (who shall be reasonably acceptable to CIENA), at CIENA's own cost and expense, and CIENA shall cooperate with and assist the Stockholders' Representative in the defense of such claim or demand, provided that if CIENA shall notify the Stockholders' Representative that the amount of any out-of-pocket expenses paid or to be paid by CIENA pursuant to Section 7.1 of the Merger Agreement (including any expenses incurred by the Stockholders' Representative previously indemnified by CIENA) shall equal or exceed \$7,000,000, the Stockholders' Representative's costs and expenses will be payable immediately out of the Reimbursement Fund and the Escrow Fund. Notwithstanding the preceding sentence, the Stockholders' Representative will not settle, compromise, or offer to settle or compromise any such claim or demand without the prior written consent of CIENA, which consent will not be unreasonably withheld, conditioned or delayed. Upon receipt by the Escrow Agent of a written instrument that is executed by the Stockholders' Representative and that instructs the Escrow Agent as to the disbursement of some or all of the Reimbursement Fund (or, to the extent the Reimbursement Fund is insufficient to satisfy such costs and expenses, from the Escrow Fund), the Escrow Agent shall within five (5) business days of such instruction disburse to the Stockholders' Representative the amount so instructed in such written instrument whereupon the then current Reimbursement Fund balance or Escrow Fund balance, as applicable, shall be reduced by such amount. If the Stockholders' Representative gives notice to CIENA that the Stockholders' Representative elects to have CIENA defend, contest, negotiate, or settle any such claim or demand, then CIENA will have the right to contest and/or settle any such claim or demand and the Stockholders' Representative shall cooperate with and assist CIENA in the defense of such claim or demand, *provided, however*, that CIENA will not settle, compromise, or offer to settle or compromise any such claim or demand without the prior written consent (which may include a general or limited consent) of the Stockholders' Representative, which consent will not be unreasonably withheld, conditioned or delayed. Notwithstanding the foregoing, any conflict or ambiguity between this Section 3.1 and the terms of the Merger Agreement will be determined in favor of the provisions set forth in the Merger Agreement. In the event that the Stockholders' Representative has consented to any settlement, the Stockholders shall have no power or authority to object under any provision of this Agreement to the amount of such settlement.

3.2 Claims Upon Escrow Fund.

(a) Upon receipt by the Escrow Agent at any time on or before the last day of the Escrow Period of a certificate signed by any officer of CIENA (an "**Officer's Certificate**"): (A) stating that CIENA (i) has incurred a Loss for which CIENA is entitled to indemnification under the Merger Agreement, or (ii) has properly accrued (or reasonably anticipates that it will have to accrue) in accordance with GAAP applied on a consistent basis, for a Loss that CIENA reasonably believes it will have to pay with respect to facts and circumstances existing prior to the termination of such Escrow Period, and (B) specifying in reasonable detail the matter for which it claims entitlement for indemnification and/or the individual items of Losses included in the amount so stated, the date each such item was paid or properly accrued or the basis for such anticipated accrual, and the nature of the misrepresentation, breach of warranty or covenant to which such item is related, the Escrow Agent shall deliver to CIENA, as promptly as practicable, but subject to Section 3.3 below, an amount equal to the Escrow Payment (as defined below) in the manner set forth in the immediately following sentence; provided, however, that in the event of a third party claim that is the subject of the demand on the Escrow Fund, no Escrow Payment shall be delivered until the claim is settled or adjudicated unless the Stockholders Representative and CIENA otherwise agree. The Escrow Agent shall allocate any amount of Loss it is required to reimburse to CIENA in accordance with this Agreement based

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on the number of shares of CIENA Common Stock held in the Escrow Fund for the benefit of each Stockholder (each of which shall be valued at the Per Share Price in accordance with Section 1.3 hereof). Any Escrow Shares used to satisfy an Escrow Payment and delivered to CIENA out of the Escrow Fund shall (i) reduce each such Stockholder's interest in the Escrow Fund in the form of CIENA Common Stock in proportion to such Stockholder's respective original contributions to the Escrow Fund and (ii) consist of vested and unvested Escrow Shares ratably in proportion to the amount of vested and unvested shares held in the Escrow Fund with respect to such Stockholder at the time of such delivery. Notwithstanding anything herein to the contrary, the Escrow Agent shall rely conclusively on the Officer's Certificate and shall have no responsibility to determine whether the information set forth therein is accurate or correct, or whether the claim has been specified in reasonable detail.

(b) **"Escrow Payment"** shall mean, at CIENA's election, either (i) such number of Escrow Shares out of the Escrow Fund (each of which shall be valued at the Per Share Price in accordance with Section 1.3 hereof) with an aggregate value equal to the Losses for which the Escrow Payment is being made, rounded up to the next whole share to avoid the release of fractional shares (the **"Payment Shares"**), or (ii) the proceeds from the sale of such Payment Shares by the Escrow Agent on behalf of each Stockholder's account; provided, however that in no event shall the Escrow Payment exceed the number of Escrow Shares (or proceeds from the sale of the Escrow Shares) in the Escrow Fund at the time of such Escrow Payment.

3.3 Notification of Stockholders' Representative. At the time of delivery of any Officer's Certificate to the Escrow Agent, a duplicate copy of such certificate shall be delivered to the Stockholders' Representative (with proof of such delivery to the Escrow Agent (which proof of delivery may consist of a photocopy of the registered or certified mail or overnight courier receipt of the signed receipt if delivered by hand)(the **"Proof of Delivery"**)), and for a period of thirty (30) days after such delivery, the Escrow Agent shall make no delivery to CIENA of any Escrow Payment unless the Escrow Agent shall have received written authorization from the Stockholders' Representative to make such delivery. After the expiration of thirty (30) days following the Escrow Agent's receipt of the Officer's Certificate, the Escrow Agent shall make delivery of the Escrow Payment; provided, however, that no such payment or delivery may be made if the Stockholders' Representative shall object in a written statement to the claim made in the Officer's Certificate, and such statement shall have been delivered to the Escrow Agent prior to the expiration of such thirty (30) day period. The Escrow Agent shall have no responsibility to determine whether a copy of the Officer's Certificate was delivered to the Stockholders' Representative other than confirming it has received the Proof of Delivery from CIENA.

3.4 Resolution of Conflicts; Arbitration.

(a) In case the Stockholders' Representative shall object in writing to any claim or claims made in any Officer's Certificate, the Stockholders' Representative and CIENA shall attempt in good faith to agree upon the rights of the respective parties with respect to each of such claims. If the Stockholders' Representative and CIENA should so agree, a memorandum setting forth such agreement shall be prepared and signed by both parties and shall be furnished to the Escrow Agent.

(b) If no such agreement can be reached after good faith negotiation, either CIENA or the Stockholders' Representative may demand arbitration of the matter unless the amount of the claim or Loss is at issue in pending litigation with a third party, in which event arbitration shall not be commenced until such amount is ascertained or both parties agree to arbitration; and in either such event the matter shall be settled by arbitration conducted by one arbitrator mutually agreeable to CIENA and the Stockholders' Representative. In the event that within forty-five (45) days after submission of any dispute to arbitration, CIENA and the Stockholders' Representative cannot mutually agree on one arbitrator, CIENA and the Stockholders' Representative shall each select one arbitrator, and the two arbitrators so selected shall select a third arbitrator. The arbitrator or arbitrators, as the case may be, shall set a limited time period and establish procedures designed to reduce the cost and time for discovery while allowing the parties an opportunity, adequate in the sole

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judgment of the arbitrator or majority of the three arbitrators, as the case may be, to discover relevant information from the opposing parties about the subject matter of the dispute. The arbitrator or a majority of the three arbitrators, as the case may be, shall rule upon motions to compel or limit discovery and shall have the authority to impose sanctions, including attorneys' fees and costs, to the same extent as a competent court of law or equity, should the arbitrators or a majority of the three arbitrators, as the case may be, determine that discovery was sought without substantial justification or that discovery was refused or objected to without substantial justification. The decision of the arbitrator or a majority of the three arbitrators, as the case may be, as to the validity and amount of any claim in such Officer's Certificate shall be binding and conclusive upon the parties to this Agreement. Such decision shall be written and shall be supported by written findings of fact and conclusions which shall set forth the award, judgment, decree or order awarded by the arbitrator(s).

(c) Judgment upon any award rendered by the arbitrator(s) may be entered in any court having jurisdiction. Any such arbitration shall be held in Baltimore, Maryland, under the rules then in effect of the American Arbitration Association. The arbitrator(s) shall determine how all expenses relating to the arbitration shall be paid, including without limitation, the respective expenses of each party, the fees of each arbitrator and the administrative fee of the American Arbitration Association.

ARTICLE IV

ESCROW AGENT

4.1 Escrow Agent's Duties.

(a) The Escrow Agent (i) shall be obligated only for the performance of such duties as are specifically set forth herein, and as set forth in any additional written escrow instructions which the Escrow Agent may receive after the date of this Agreement which are signed by an officer of CIENA and the Stockholders' Representative, and shall have no duty to exercise any greater degree of care with respect to the Escrow Fund than it would for its own property and this Agreement shall not be deemed to create a fiduciary duty between the parties under state or federal law, (ii) may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed to be genuine and to have been signed or presented by the proper party or parties, and (iii) shall not be obligated to take any legal or other action hereunder which might in its judgment involve or cause it to incur any expense or liability unless it shall have been provided with acceptable indemnification. The Escrow Agent may rely on the Stockholders' Representative as the exclusive agent of the Stockholders under this Agreement and the Merger Agreement and shall incur no liability to any party with respect to any action taken or suffered by it in good faith in reliance thereon. The Escrow Agent shall not be liable for any act done or omitted hereunder as Escrow Agent while acting in good faith and in the exercise of reasonable judgment, and any act done or omitted pursuant to the advice of counsel shall be conclusive evidence of such good faith. The Escrow Agent is not a party to nor shall be liable for any of the agreements referred to or described herein (including, without limitation, the Merger Agreement).

(b) The Escrow Agent is hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person, and is hereby expressly authorized to comply with and obey any final non-appealable orders, judgments or decrees of any court or of the arbitrator(s). In case the Escrow Agent obeys or complies with any such order, judgment or decree of any court or of the arbitration panel, the Escrow Agent shall not be liable to any of the parties hereto or to any other person by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

(c) The Escrow Agent shall not be liable in any respect on account of the identity, authority or rights of the parties executing or delivering or purporting to execute or deliver this Agreement or any documents or papers deposited or called for hereunder.

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(d) The Escrow Agent shall not be liable for the expiration of any rights under any statute of limitations with respect to this Agreement or any documents deposited with the Escrow Agent.

(e) In performing any duties under this Agreement, the Escrow Agent shall not be liable to any party for damages, losses, or expenses, except for negligence or willful misconduct on the part of the Escrow Agent. The Escrow Agent shall not incur any such liability for any action taken or omitted in reliance upon any instrument, including any written statement or affidavit provided for in this Agreement that the Escrow Agent shall in good faith believe to be genuine, nor will the Escrow Agent be liable or responsible for forgeries, fraud, impersonations, or determining the scope of any representative authority. In addition, the Escrow Agent may consult with legal counsel in connection with Escrow Agent's duties under this Agreement and shall be fully protected in any act taken, suffered, or permitted by him/her in good faith in accordance with the advice of counsel. The Escrow Agent is not responsible for determining and verifying the authority of any person acting or purporting to act on behalf of any party to this Agreement, provided such determination or verification is in good faith.

(f) If any controversy arises between the parties to this Agreement, or with any other party, concerning the subject matter of this Agreement, its terms or conditions, the Escrow Agent will not be required to resolve the controversy or to take any action regarding it. The Escrow Agent may hold all documents and Escrow Shares and may wait for settlement of any such controversy by final appropriate legal proceedings or other means as, in the Escrow Agent's discretion, the Escrow Agent may reasonably require, despite what may be set forth elsewhere in this Agreement. In such event, the Escrow Agent will not be liable for any damages. Furthermore, the Escrow Agent may at its option, file an action of interpleader requiring the parties to answer and litigate any claims and rights among themselves. The Escrow Agent is authorized to deposit with the clerk of the court all documents and Escrow Shares held in escrow, except all costs, expenses, charges and reasonable attorney's fees incurred by the Escrow Agent due to the interpleader action and which the parties jointly and severally agree to pay. Upon initiating such action, the Escrow Agent shall be fully released and discharged of and from all obligations and liability by the terms of this Agreement.

(g) The parties and their respective successors and assigns agree jointly and severally to indemnify and hold Escrow Agent harmless against any and all losses, claims, damages, liabilities, and expenses, including reasonable costs of investigation, counsel fees, including allocated costs of in-house counsel and disbursements that may be imposed on Escrow Agent or incurred by Escrow Agent in connection with the performance of his/her duties under this Agreement, including but not limited to any litigation or arbitration arising from this Agreement or involving its subject matter other than arising out of its negligence or willful misconduct.

(h) The Escrow Agent may resign at any time upon giving at least thirty (30) days written notice to the parties; provided, however, that no such resignation shall become effective until the appointment of a successor escrow agent which shall be accomplished as follows: the parties shall use their best efforts to mutually agree on a successor escrow agent within thirty (30) days after receiving such notice. If the parties fail to agree upon a successor escrow agent within such time, the Escrow Agent shall have the right to appoint a successor escrow agent authorized to do business in the State of Delaware or the Escrow Agent may apply to a court of competent jurisdiction for appointment of a successor escrow agent. The successor escrow agent shall execute and deliver an instrument accepting such appointment and it shall, without further acts, be vested with all the estates, properties, rights, powers, and duties of the predecessor escrow agent as if originally named as Escrow Agent. Upon appointment of a successor escrow agent, the Escrow Agent shall be discharged from any further duties and liability under this Agreement.

4.2 Fees. All fees of the Escrow Agent for performance of its duties hereunder shall be paid by CIENA in accordance with the fee schedule of the Escrow Agent attached hereto, which schedule may be subject to change hereafter on an annual basis subject to CIENA's prior approval. It is understood that the fees and usual charges agreed upon for services of the Escrow Agent shall be considered compensation

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for ordinary services as contemplated by this Agreement. In the event that the conditions of this Agreement are not promptly fulfilled, or if the Escrow Agent renders any service not provided for in this Agreement, or if the parties request a substantial modification of its terms, or if any controversy arises, or if the Escrow Agent is made a party to, or intervenes in, any litigation or arbitration pertaining to the Escrow Fund or its subject matter, the Escrow Agent shall be reasonably compensated for such extraordinary services and reimbursed for all costs, attorney's fees, including allocated costs of in-house counsel, and expenses occasioned by such default, delay, controversy or litigation or arbitration.

4.3 Consequential Damages. Subject to the provisions of Section 4.1(c) hereof, in no event shall the Escrow Agent be liable for special, indirect or consequential loss or damage of any kind whatsoever (including but not limited to lost profits), even if the Escrow Agent has been advised of the likelihood of such loss or damage and regardless of the form of action.

4.4 Successor Escrow Agents. Any corporation into which the Escrow Agent in its individual capacity may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Escrow Agent in its individual capacity shall be a party, or any corporation to which substantially all the corporate trust business of the Escrow Agent in its individual capacity may be transferred, shall be the Escrow Agent under this Escrow Agreement without further act.

ARTICLE V

THE STOCKHOLDERS' REPRESENTATIVE

5.1 Stockholders' Representative Powers and Authority. The Stockholders' Representative shall have full power and authority to represent all of the Stockholders and their successors with respect to all matters arising under this Agreement and the Merger Agreement and all actions taken by the Stockholders' Representative hereunder and thereunder shall be binding upon all such Stockholders and their successors as if expressly confirmed and ratified in writing by each of them and no Stockholder shall have the right to object, dissent, protest or otherwise contest the same. The Stockholders' Representative shall take any and all actions which he believes are necessary or appropriate under this Agreement and the Merger Agreement for and on behalf of the Stockholders, as fully as if the Stockholders were acting on their own behalf, including, without limitation, executing this Agreement as Stockholders' Representative, giving and receiving any notice or instruction permitted or required under this Agreement or the Merger Agreement by the Stockholders' Representative or any Stockholder, interpreting all of the terms and provisions of this Agreement and the Merger Agreement, authorizing payments to be made with respect hereto or thereto, obtaining reimbursement as provided for herein for all out-of-pocket fees and expenses and other obligations of or incurred by the Stockholders' Representative in connection with this Agreement and the Merger Agreement, defending or pursuing all indemnity claims by or against the Stockholders pursuant to Article VI of the Merger Agreement (an "**Indemnity Claim**"), consenting to, compromising or settling all Indemnity Claims, conducting negotiations with CIENA and its agents regarding such claims, dealing with CIENA and the Escrow Agent under this Agreement and the Merger Agreement with respect to all matters arising under this Agreement and the Merger Agreement, taking any and all other actions specified in or contemplated by this Agreement and the Merger Agreement, and engaging counsel, accountants or other Stockholders' Representatives in connection with the foregoing matters. Without limiting the generality of the foregoing, the Stockholders' Representative shall have full power and authority to interpret all the terms and provisions of this Agreement and the Merger Agreement and to consent to any amendment hereof or thereof on behalf of all such Stockholders and such successors. Notwithstanding the foregoing, each Stockholder shall have the right to exercise any voting rights appertaining to the Escrow Shares.

5.2 Indemnification of Stockholders' Representative. The Stockholders' Representative shall incur no liability to the Stockholders or the Escrow Agent or any other person with respect to any action taken or suffered by it in reliance upon any note, direction, instruction, consent, statement or other documents reasonably believed by the Stockholders' Representative to be genuinely and duly authorized by at least a

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majority in interest of the Stockholders (or the successors or assigns thereto), nor for other action or inaction taken or omitted in good faith in connection herewith or with the Merger Agreement, in any case except for liability to the Stockholders for its own willful misconduct. The Stockholders' Representative shall be indemnified for and shall be held harmless against any loss, liability or expense incurred without willful misconduct on the part of the Stockholders' Representative arising out of or in connection with its performance under this Agreement and the Merger Agreement. This indemnification shall survive the termination of this Agreement. The costs of such indemnification (including the costs and expenses of enforcing this right of indemnification) shall be paid (i) by CIENA to the extent that such costs, together with any and all expenses of the Company of the kind described in Section 7.1 of the Merger Agreement, shall not exceed \$7,000,000 in the aggregate, or (ii) if such expenses shall exceed \$7,000,000 in the aggregate, from the principal portion of the Reimbursement Fund (or, to the extent the Reimbursement Fund is insufficient to satisfy such costs and expenses, from the Escrow Fund). For all purposes hereunder, a majority in interest of the Stockholders shall be determined on the basis of each Stockholder's ownership of Company Common Stock outstanding immediately prior to the Effective Time (assuming the exercise or conversion of all Company Preferred Stock and Company Warrants outstanding immediately prior to the Effective Time). The Stockholders' Representative may, in all questions arising under this Agreement, rely on the advice of counsel and for anything done, omitted or suffered in good faith by the Stockholders' Representative in accordance with such advice, the Stockholders' Representative shall not be liable to the Stockholders or the Escrow Agent or any other person. In no event shall the Stockholders' Representative be liable hereunder or in connection herewith for (i) any indirect, punitive, special or consequential damages, or (ii) any amounts other than those that are satisfied out of the Reimbursement Fund or, to the extent provided for herein, the Escrow Fund. The Escrow Agent shall from time to time sell such amount of the Escrow Shares as necessary to pay such Stockholders' Representative's costs and expenses, to the extent required by this [Section 5.2](#).

5.3 Access to Information. The Stockholders' Representative shall have reasonable access to information of and concerning any Indemnity Claim and which is in the possession, custody or control of CIENA and the reasonable assistance of CIENA's officers and employees for purposes of performing the Stockholders' Representative's duties under this Agreement or the Merger Agreement and exercising his rights under this Agreement and the Merger Agreement, including for the purpose of evaluating any Indemnity Claim against the Escrow Shares by CIENA; provided that the Stockholders' Representative shall treat confidentially and not disclose any nonpublic information from or concerning any Indemnity Claim to anyone (except to the Stockholders' Representative's attorneys, accountants and other advisers, to Stockholders, to the arbitrators appointed to resolve disputes pursuant to this Agreement, and on a need-to-know basis to other individuals who agree to keep such information confidential).

5.4 Reasonable Reliance. In the performance of his duties hereunder, the Stockholders' Representative shall be entitled to rely upon any document or instrument reasonably believed by him to be genuine, accurate as to content and signed by any Stockholder or CIENA. The Stockholders' Representative may assume that any person purporting to give any notice in accordance with the provisions hereof has been duly authorized to do so. Notwithstanding anything herein to the contrary, each party to this Agreement (and each employee, representative, or other agent of such party) may disclose to any and all persons, without limitation of any kind, the tax treatment and tax structure of the transactions contemplated herein and all materials of any kind (including opinions or other tax analyses) that are provided to such party relating to such tax treatment and tax structure.

5.5 Attorney-in-Fact.

(a) The Stockholders' Representative is hereby appointed and constituted the true and lawful attorney-in-fact of each Stockholder other than a holder of Dissenting Shares, with full power in his, her or its name and on his, her or its behalf to act according to the terms of this Agreement and the Merger Agreement in the absolute discretion of the Stockholders' Representative; and in general to do all things and to perform all acts including, without limitation, executing and delivering this Agreement and any other agreements, certificates, receipts, instructions, notices or instruments contemplated by or deemed advisable in connection with this Agreement.

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(b) This power of attorney and all authority hereby conferred is granted and shall be irrevocable and shall not be terminated by any act of any Stockholder, by operation of law, whether by such Stockholder's death, disability protective supervision or any other event. Without limitation to the foregoing, this power of attorney is to ensure the performance of a special obligation and, accordingly, each Stockholder hereby renounces its, his or her right to renounce this power of attorney unilaterally any time before the end of the Escrow Period.

(c) Notwithstanding the power of attorney granted in this Article V, no agreement, instrument, acknowledgement or other act or document shall be ineffective by reason only of the Stockholders having signed or given such directly instead of the Stockholders' Representative.

5.6 Liability. If the Stockholders' Representative is required by the terms of this Agreement to determine the occurrence of any event or contingency, the Stockholders' Representative shall, in making such determination, be liable to the Stockholders only for his proven willful misconduct as determined in light of all the circumstances, including the time and facilities available to him in the ordinary conduct of business. In determining the occurrence of any such event or contingency, the Stockholders' Representative may request from any of the Stockholders or any other person such reasonable additional evidence as the Stockholders' Representative in his sole discretion may deem necessary to determine any fact relating to the occurrence of such event or contingency, and may at any time inquire of and consult with others, including any of the Stockholders, and the Stockholders' Representative shall not be liable to any Stockholder for any damages resulting from his delay in acting hereunder pending his receipt and examination of additional evidence requested by him.

5.7 Orders. The Stockholders' Representative is authorized, in his sole discretion, to comply with final, nonappealable orders or decisions issued or process entered by any court of competent jurisdiction or arbitrator with respect to the Escrow Shares. If any portion of the Escrow Shares is disbursed to the Stockholders' Representative and is at any time attached, garnished or levied upon under any court order, or in case the payment, assignment, transfer, conveyance or delivery of any such property shall be stayed or enjoined by any court order, or in case any order, judgment or decree shall be made or entered by any court affecting such property or any part thereof, then and in any such event, the Stockholders' Representative is authorized, in his sole discretion, but in good faith, to rely upon and comply with any such order, writ, judgment or decree which he is advised by legal counsel selected by him is binding upon him without the need for appeal or other action; and if the Stockholders' Representative complies with any such order, writ, judgment or decree, he shall not be liable to any Stockholder or to any other Person by reason of such compliance even though such order, writ, judgment or decree may be subsequently reversed, modified, annulled, set aside or vacated.

5.8 Removal of Stockholders' Representative; Authority of Successor Stockholders' Representative. Stockholders who in the aggregate hold at least a majority of the Stockholders' interest in the Escrow Fund shall have the right at any time during the term of the Escrow Agreement to remove the then-acting Stockholders' Representative and to appoint a successor Stockholders' Representative; provided, however, that neither such removal of the then acting Stockholders' Representative nor such appointment of a successor Stockholders' Representative shall be effective until the delivery to the Escrow Agent of executed counterparts of a writing signed by each such Stockholder with respect to such removal and appointment, together with an acknowledgment signed by the successor Stockholders' Representative appointed in such writing that he or she accepts the responsibility of successor Stockholders' Representative and agrees to perform and be bound by all of the provisions of this Agreement applicable to the Stockholders' Representative. Each successor Stockholders' Representative shall have all of the power, authority, rights and privileges conferred by this Agreement upon the original Stockholders' Representative, and the term "**Stockholders' Representative**" as used herein and in the Escrow Agreement shall be deemed to include any interim or successor Stockholders' Representative.

5.9 Reimbursement Fund.

(a) Deposit of Reimbursement Shares. In accordance with Section 6.2 of the Merger Agreement, CIENA shall on _____, 2004 issue and deliver, or cause to be delivered, on behalf of

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the Company Stockholders to the Escrow Agent one or more stock certificates (the **“Reimbursement Certificates”**) representing the Reimbursement Shares and having an aggregate number of shares of CIENA common stock equal to 40,128, each of which shall be registered in the name of the Escrow Agent, as escrow agent hereunder, evidencing the Reimbursement Amount (as defined in the Merger Agreement). The Escrow Agent shall hold and distribute the Reimbursement Certificates and Reimbursement Shares in accordance with the terms hereof.

(b) Sale of Reimbursement Shares. Upon receiving instruction from the Stockholders’ Representative, the Escrow Agent shall sell on the open market any or all of the Reimbursement Shares and hold the proceeds from such sale (the **“Reimbursement Proceeds”**) in the Reimbursement Fund (as defined below). For purposes of this Agreement, the term **“Reimbursement Fund”** shall mean the Reimbursement Shares until sold in accordance with this Section 5.9(b) and thereafter the Reimbursement Proceeds, together with any interest or other income earned thereon or distributions received in respect thereof.

(c) Reimbursement Fund. Pursuant to Section 6.4 of the Merger Agreement and this Article V, the Stockholders’ Representative is entitled to full reimbursement for out-of-pocket fees and expenses and other obligations of or incurred by the Stockholders’ Representative in connection with the Merger Agreement and this Agreement. The Reimbursement Fund shall be used to reimburse the Stockholders’ Representative for out-of-pocket fees and expenses and to pay other obligations to or of the Stockholders’ Representative to the extent not subject to indemnification by CIENA, or shall (to the extent not previously distributed to the Stockholders’ Representative as provided for above or subject to a claim by the Stockholders’ Representative) be distributed to the Stockholders at such time as the Escrow Fund is fully and finally distributed in accordance with the terms of this Agreement. In the event the Reimbursement Fund is unavailable or insufficient to satisfy in full the out-of-pocket fees and expenses of and other obligations to or of the Stockholders’ Representative, then the Stockholders’ Representative shall be entitled to reimbursement for such out-of-pocket fees and expenses and other obligations to or of the Stockholders’ Representative out of the Escrow Fund.

(d) Treatment of the Reimbursement Fund. The Escrow Agent shall hold and safeguard the Reimbursement Fund during the Escrow Period, shall treat the Reimbursement Fund as a trust fund for the benefit of the Stockholders and the Stockholders’ Representative in accordance with the terms of this Agreement and not as the property of CIENA, and shall hold and dispose of the Reimbursement Fund only in accordance with the terms hereof.

(e) Investment of Reimbursement Fund. The Escrow Agent shall invest the Reimbursement Proceeds in the Escrow Agent’s **“MMIS Business Insured Savings Account.”** Earnings received from the investment of the Reimbursement Proceeds shall be held in the Reimbursement Fund in accordance with the terms of this Agreement. The Escrow Agent shall have no liability for any investment losses, including without limitation any market loss on any investment liquidated prior to maturity in order to make a payment required hereunder.

(f) Disbursement of the Reimbursement Fund. The Escrow Agent shall disburse the Reimbursement Fund only in accordance with a written instrument delivered to the Escrow Agent that is executed by the Stockholders’ Representative and that instructs the Escrow Agent as to the disbursement of some or all of the Reimbursement Fund. Upon receipt by the Escrow Agent of a written instrument that is executed by the Stockholders’ Representative and that instructs the Escrow Agent as to the disbursement of some or all of the Reimbursement Fund, the Escrow Agent shall within five (5) business days of such instruction disburse to the Stockholders’ Representative the amount so instructed in such written instrument whereupon the then current Reimbursement Fund balance shall be reduced by such amount. In the event the Reimbursement Fund is unavailable or insufficient to satisfy in full the out-of-pocket fees and expenses of and other obligations to or of the Stockholders’ Representative, then upon receipt by the Escrow Agent of a written instrument that is executed by the Stockholders’ Representative and that instructs the Escrow Agent as to the

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disbursement of some or all of the Escrow Fund in satisfaction of the out-of-pocket fees and expenses of and other obligations to or of the Stockholders' Representative, the Escrow Agent shall within two (2) business days of such instruction disburse to the Stockholders' Representative the amount so instructed in such written instrument whereupon the then current Escrow Fund balance shall be reduced by such amount.

(g) Distribution of Earnings; Tax Reporting. Any interest or income earned on the Reimbursement Proceeds (or any cash dividends or taxable stock dividends paid with respect to the Reimbursement Shares) shall be paid to the Stockholders at least annually in accordance with their respective proportionate interests in the Reimbursement Fund. For tax reporting purposes, all interest or other income earned from the investment of the Reimbursement Proceeds (and all cash dividends or taxable stock dividends earned in respect of the Reimbursement Shares) in any tax year shall, to the extent such interest or other income is distributed by the Escrow Agent to any person or entity pursuant to the terms of this Agreement during such tax year, be reported as allocated to such person or entity.

ARTICLE VI

MISCELLANEOUS

6.1 Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of Stockholders (by and through the Stockholders' Representative), CIENA and the Escrow Agent, and their respective successors and assigns, whether so expressed or not.

6.2 Waiver of Consent. No failure or delay on the part of any party hereto in exercising any power or right hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right or power, or any abandonment or discontinuance of steps to enforce such a right or power, preclude any other or further exercise thereof or the exercise of any other right or power. The rights and remedies of the parties hereunder are cumulative and not exclusive of any rights or remedies which they would otherwise have. No modification or waiver of any provision of this Agreement, nor consent to any departure by any party therefrom, shall in any event be effective unless the same shall be in writing, and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. No notice to or demand on any party in any case shall entitle such party to any other or further notice or demand in similar or other circumstances.

6.3 Captions. The Article and Section captions used herein are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement.

6.4 Notices. Any notice or other communication required or permitted hereunder shall be sufficiently given if delivered in person or sent by telex, telecopy or by registered or certified mail or by recognized overnight courier, postage prepaid, addressed as follows:

If to CIENA, to:

CIENA Corporation

1201 Winterson Road
Linthicum, Maryland 21090
Attention: General Counsel
Facsimile: (410) 981-7414

with a copy to its counsel:

Hogan & Hartson L.L.P.

111 South Calvert Street, 16th Floor
Baltimore, Maryland 21202
Attention: Michael J. Silver
Telecopy: (410) 659-2741

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if to the Escrow Agent, to:

U.S. Bank Trust National Association

100 Wall Street, Suite 1600
New York, New York 10005
Attention: Jean Clarke
Telecopy: (212) 361-6173

if to the Stockholders' Representative, to:

Gary Morgenthaler

Morgenthaler Ventures
2710 Sand Hill Road
Suite 100
Menlo Park, California 94025
Facsimile: (650) 388-7613

with a copy to his counsel:

Cooley Godward LLP

One Maritime Plaza, 20th Floor
San Francisco, California 94111
Attention: Jodie M. Bourdet
Telecopy: (415) 951-3699

Such notice or communication shall be deemed to have been given as of the date so delivered, sent by telecopies, telex or mailed.

6.5 Counterparts. This Agreement may be executed in two or more counterparts, all of which shall be considered one and the same agreement and each of which shall be deemed an original.

6.6 Governing Law. The interpretation and construction of this Agreement, and all matters relating thereto, shall be governed by the laws of the State of Delaware, without regard to the choice of law provisions thereof. Except as set forth in Section 3.4(c) with respect to any arbitration commenced pursuant to Section 3.4, the non-prevailing party in any dispute arising hereunder shall bear and pay the costs and expenses (including without limitation reasonable attorneys' fees and expenses) incurred by the prevailing party or parties in connection with resolving such dispute.

6.7 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction or other authority to be invalid, void, unenforceable or against its regulatory policy, the remainder of the terms, provisions, covenants and restrictions of this Agreement shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

6.8 Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given without the written consent of CIENA, the Stockholders' Representative and the Escrow Agent, and any amendment or waiver hereunder shall be effective and binding upon all Stockholders if signed by the Stockholders' Representative.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, CIENA and the Escrow Agent have caused their corporate names to be hereunto subscribed by their respective officers thereunto duly authorized, and the Stockholders' Representative has executed this Agreement, all as of the day and year first above written.

CIENA CORPORATION

By: _____
Name: _____
Title: _____

STOCKHOLDERS' REPRESENTATIVE:

Gary Morgenthaler

U.S. BANK TRUST NATIONAL ASSOCIATION

Authorized Officer

STOCKHOLDER AGREEMENT

STOCKHOLDER AGREEMENT, dated as of February 18, 2004 (this “Agreement”), by the undersigned stockholder (the “Stockholder”) of Catena Networks, Inc., a Delaware corporation (the “Company”), for the benefit of CIENA Corporation, a Delaware corporation (“CIENA”).

RECITALS

WHEREAS, CIENA, the Company and certain principal officers of the Company are entering into an Agreement and Plan of Merger dated as of February 18, 2004 (the “Merger Agreement”) whereby, upon the terms and subject to the conditions stated therein, the Company will merge with and into CIENA (the “Merger”). Under the terms of the Merger, each share of capital stock of the Company (“Company Shares”) not owned by the Company will, subject to the terms and conditions of the Merger Agreement, be converted into shares of Common Stock, \$0.01 par value per share of CIENA (“CIENA Common Stock”);

WHEREAS, the Stockholder owns of record and/or holds (a) stock options, convertible securities or warrants (whether or not vested) to acquire Company Shares and (b) Company Shares, in each case in that number and class of Company Shares appearing on Schedule A hereto (such options, convertible securities, warrants and/or Company Shares, together with any other such options, warrants and/or shares of capital stock of the Company acquired by such Stockholder after the date hereof and during the term of this Option, being collectively referred to herein as the “Subject Shares); and

WHEREAS, as a condition to its willingness to enter into the Merger Agreement, CIENA has required that the Stockholder agree, and in order to induce CIENA to enter into the Merger Agreement, the Stockholder has agreed, to enter into this Agreement. Capitalized terms not defined herein shall have the meanings ascribed to them in the Merger Agreement.

NOW, THEREFORE, in consideration of the promises and the mutual covenants and agreements set forth herein, the Stockholder agrees as follows:

1. *Grant of Option.* The Stockholder hereby grants CIENA an irrevocable option (the “Option”, and together with all other options granted pursuant to Option Agreements (as defined herein) the “Options”) to purchase all, but not less than all (except to the extent required by Section 1(d) below), of the Subject Shares on the terms and subject to the conditions set forth below:

(a) *Exercise.* At any time after termination of the Merger Agreement but prior to the termination of the Option in accordance with the terms hereof, CIENA (or a wholly owned subsidiary of CIENA designated by CIENA) may exercise the Option in accordance with the terms of this Agreement, if, and only if (i) the Merger Agreement has been terminated in accordance with its terms by the Company pursuant to Section 7.5(b) or Section 7.5(c) (other than pursuant to (x) Section 7.5(b)(i) of the Merger Agreement because one or more conditions set forth in Section 5.1(a), (b) or (c) was unable to be satisfied and the failure to satisfy such condition was not the direct or indirect result of the Company’s breach of any of its obligations under the Merger Agreement, (y) Section 7.5(b)(iii) of the Merger Agreement or (z) Section 7.5(c)(ii) of the Merger Agreement) or by CIENA pursuant to Section 7.5(d)(i) of the Merger Agreement, or (ii) there is a material breach by the Stockholder of the covenants in **Section 4** of this Agreement (any such event, a “Trigger Event”). The Stockholder shall notify CIENA promptly in writing of the occurrence of any Trigger Event of which it is aware; provided, however, that notice shall not be a condition to the right of CIENA to exercise the Option.

(b) *Exercise Procedure.* In the event CIENA wishes to exercise the Option, CIENA shall deliver to the Stockholder a written notice (an “Exercise Notice”). The Exercise Notice shall specify that number of shares for which the Cash Exercise Price and the Stock Exercise Price, each as

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defined below, are applicable. Provided that the conditions to closing set forth in **Section 1(f)** hereof have been satisfied or waived, CIENA shall, upon delivery of the Exercise Notice and tender of the applicable aggregate Exercise Price (as defined below), to the Stockholder in accordance with Section 1(g) immediately thereafter be deemed to be the holder of record of the Subject Shares purchased, notwithstanding that the stock transfer books of the Company may be closed or that certificates representing the Subject Shares may not theretofore have been delivered to CIENA. The closing of the purchase of the Subject Shares (a "Closing") shall occur at a place, on a date and at a time designated by CIENA in a notice delivered at least two (2) business days prior to the date of the Closing, and shall occur no later than the later of (i) fifteen (15) days after the Exercise Notice is delivered or (ii) the date any conditions to closing set forth in **Section 1(f)** are satisfied.

(c) *Termination of the Option.* The Option shall terminate, unless earlier exercised, upon the earlier of: (i) immediately prior to the Effective Time or (ii) twelve (12) months following the termination of the Merger Agreement. Notwithstanding the foregoing, if the Option cannot be exercised by reason of any applicable judgment, decree, order, law or regulation, the Option shall remain exercisable and shall not terminate until the earlier of (x) the date on which such impediment shall become final and not subject to appeal, (y) 5:00 p.m. New York City Time, on the tenth (10th) business day after such impediment shall have been removed, or (z) December 31, 2005. Notwithstanding the termination of the Option, CIENA shall be entitled to purchase the Subject Shares in accordance with the terms of this Option with respect to which CIENA had exercised the Option prior to such termination.

(d) *Contemporaneous Exercise.* In the event CIENA determines to exercise the Option, CIENA hereby covenants and agrees that it will contemporaneously exercise options to purchase the aggregate number of Company Shares under agreements of each other stockholder of the Company who has entered into a stockholder agreement with CIENA that is substantially identical to this Agreement in connection with the Merger Agreement (collectively, the "Option Agreements"). Notwithstanding any other provision of this **Section 1**, the maximum number of Company Shares and vested stock options, convertible securities or warrants to acquire Company Shares that may be acquired by CIENA pursuant to this Agreement and all other Option Agreements shall be limited to 45% of the Company's issued and outstanding capital stock entitled to vote (including vested options and warrants) immediately prior to Closing.

(e) *Exercise Price.* The purchase price for each Subject Share purchased pursuant to the Option (the "Exercise Price") shall be (i) an amount in cash equal to the product of (x) the Exchange Ratio applicable to that class or series of Subject Shares under Section 1.5(c) of the Merger Agreement (determined for this purpose as if the Closing Date was the date of execution of the Merger Agreement, and, as so determined with respect to any class or series of Subject Shares, the "Assumed Exchange Ratio") multiplied by (y) \$6.23 (the "Cash Exercise Price"), or (ii) a number of shares of CIENA Common Stock equal to the Assumed Exchange Ratio for such class or series of Subject Shares ("Stock Exercise Price"); provided that in the case of any Subject Share constituting an option or warrant, the Exercise Price otherwise payable hereunder in respect of such Subject Share shall be reduced by the amount of the exercise price payable pursuant to the terms of such option or warrant upon full exercise thereof in accordance with its terms. CIENA may pay the Exercise Price for the Subject Shares in cash, CIENA Common Stock or any combination thereof.

(f) *Conditions to Closing.* The obligation of the Stockholder to sell the Subject Shares to CIENA hereunder is subject to the conditions that (i) all waiting periods, if any, under the Hart-Scott Rodino Act applicable to the transactions contemplated hereunder shall have expired or have been terminated; (ii) all consents, approvals, orders or authorizations of, or registrations, declarations, filings with, any Governmental Entity or filings pursuant to the Investment Canada Act, if any, or the compliance by the Stockholder or CIENA, as the case may be, with any of the provisions thereof, required in connection with the sale of the Subject Shares by the Stockholder and the acquisition of the Subject Shares by CIENA hereunder shall have been obtained or made, as the case may be, (iii) no preliminary or permanent injunction or other order by any court of competent jurisdiction

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prohibiting or otherwise restraining such sale shall be in effect and (iv) the CIENA Common Stock to be paid to the Stockholder upon exercise of this Option, if applicable, shall be, when issued, duly and validly authorized and outstanding, fully-paid and non-assessable.

(g) *Closing.* At any Closing, (i) the Stockholder shall deliver to CIENA a certificate or certificates evidencing the Subject Shares being purchased, duly endorsed in blank, or with appropriate stock powers, duly executed in blank, in proper form for transfer, with the signature of the Stockholder thereon guaranteed, and with all applicable taxes paid or provided for; and (ii) CIENA shall deliver to the Stockholder in payment of the aggregate Exercise Price for the Subject Shares, as applicable, (a) a bank check or wire transfer in immediately available funds equal to the Cash Exercise Price and/or (b) one or more certificates evidencing that number of shares of CIENA Common Stock equal to the Stock Exercise Price.

(h) *Registration.* In the event this Option is exercised and CIENA elects to pay all or a portion of the Exercise Price in the form of the Stock Exercise Price, CIENA shall file within 15 days following the Closing a shelf registration statement covering resale of CIENA's common stock on Form S-3 and use its reasonable best efforts to have it declared effective promptly thereafter, and shall maintain the effectiveness thereof until the earlier of (i) two years from the date of effectiveness (subject to extensions as provided in the last sentence of this **Section 1(h)**) and (ii) such time as such shares may be sold pursuant to Rule 144 without regard to the volume restrictions under Rule 144(e). CIENA's obligation to file and maintain the effectiveness of the registration statement is subject to the Stockholder's obligation to provide CIENA with all information customarily required regarding selling stockholders in registrations of that type. Notwithstanding the foregoing, CIENA may suspend the use of any prospectus associated with the registration statement for up to 90 days in any twelve (12) month period (and not more than 30 consecutive days on any one occasion) if CIENA finds it necessary to do so due to the pendency of a material corporate transaction or other material development, provided that CIENA's requirement to maintain the effectiveness of the registration statement shall be extended for a period of time equal to the period of time of any such suspension.

2. *Representations and Warranties of the Stockholder.* The Stockholder hereby represents and warrants to CIENA as follows:

(a) *Organization; Authority; Execution and Delivery; Enforceability.* The Stockholder (i) is, if not a natural person, duly organized, validly existing and in good standing under the laws of its jurisdiction of organization, and (ii) has the requisite corporate, company, partnership or other power and authority to execute and deliver this Agreement, to consummate the transactions contemplated hereby and to comply with the terms hereof. The execution and delivery by the Stockholder, the consummation by the Stockholder of the transactions contemplated hereby and compliance by the Stockholder with the provisions hereof have been duly authorized by all necessary corporate, company, partnership or other action on the part of the Stockholder and no other corporate, company, partnership or other proceedings on the part of the Stockholder are necessary to authorize this Agreement, to consummate the transactions contemplated hereby or to comply with the provisions hereof. This Agreement has been duly executed and delivered by the Stockholder and constitutes a valid and binding obligation of the Stockholder and, assuming this Agreement constitutes a valid and binding obligation of CIENA, is enforceable against the Stockholder in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, fraudulent conveyance, reorganization, moratorium and other laws affecting the rights and remedies of creditors generally and general principles of equity (whether considered in a proceeding in equity or at law). The execution and delivery of this Agreement, the consummation of the transactions contemplated hereby and compliance with the provisions hereof do not and will not conflict with, or result in any violation or breach of, or default (with or without notice or lapse of time, or both) under any provision of (1) any certificate of incorporation or by-laws, partnership agreement or limited liability company agreement (or similar organizational documents) of the Stockholder, (2) any material contract to which the Stockholder is a party or any of the properties or assets of the Stockholder is subject or (3) subject to

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the governmental filings and other matters referred to in the following sentence, any (A) statute, law, ordinance, rule or regulation or (B) judgment, order or decree, in each case, applicable to the Stockholder or its properties or assets, other than, in the case of clauses (2) and (3), any such conflicts, violations, breaches, defaults, rights, losses, liens or entitlements that individually or in the aggregate could not reasonably be expected to impair in any material respect the ability of the Stockholder to perform its obligations under this Agreement or prevent or materially impede or delay the consummation of any of the transactions contemplated by this Agreement. No consent, approval, order or authorization of, or registration, declaration or filing with, any Governmental Entity is required by or with respect to the Stockholder in connection with the execution and delivery of this Agreement by such Stockholder, the consummation by the Stockholder of the transactions contemplated hereby or the compliance by the Stockholder with the provisions hereof, except for (1) filings under the Hart-Scott-Rodino Act and any other applicable competition, merger control, antitrust or similar law or regulation, (2) filings under the Investment Canada Act, and (3) such other consents, approvals, orders, authorizations, registrations, declarations and filings the failure of which to be obtained or made individually or in the aggregate could not reasonably be expected to impair in any material respect the ability of the Stockholder to perform its obligations under this Agreement or prevent or materially impede or delay the consummation of any of the transactions contemplated hereby.

(b) *The Subject Shares.* (i) The Stockholder is the record and beneficial owner of, and has good and clear title to, the Subject Shares set forth opposite its name on Schedule A hereto, free and clear of any Liens except as set forth on Schedule A. As of the date hereof, other than as set forth on Schedule A hereto, the Stockholder does not own (of record or beneficially) any shares of capital stock of the Company, and the Stockholder does not own (of record or beneficially) any options, warrants, rights or other similar instruments to acquire any capital stock or other voting securities of the Company. Except as set forth on Schedule A, the Stockholder has the sole right to Transfer (as defined in **Section 4(b)**) and direct the voting of the Subject Shares, and none of such Subject Shares is subject to any voting trust or other agreement, arrangement or restriction with respect to the Transfer or the voting of the Subject Shares, except as set forth in **Sections 1** and **4** of this Agreement or the Company's Investor Rights Agreement dated as of January 22, 2003 (the provisions of which have been effectively amended or waived in order to allow the Stockholder to enter into and perform its obligations under this Agreement).

(ii) In the event CIENA exercises its Option pursuant to **Section 1**, upon delivery of the Subject Shares covered thereby and payment of the aggregate Exercise Price therefor as contemplated in **Section 1**, CIENA will be a "protected purchaser" of the Subject Shares (as defined in Section 8-303 of the Uniform Commercial Code) and will acquire a valid "security entitlement" (within the meaning of Section 8-501 of the Uniform Commercial Code), and no action based on an "adverse claim" (as defined in Section 8-102 of the Uniform Commercial Code) may be asserted against CIENA with respect to such security entitlement (assuming CIENA is without notice of any such adverse claim).

(c) *Investment Representations of the Stockholder.* The Stockholder represents, warrants, and covenants to CIENA as follows:

(i) the Stockholder understands that the issuance of CIENA Common Stock to such Stockholder that may occur pursuant to the exercise of the Option (the "Restricted Securities") is intended to be exempt from registration under the Securities Act by virtue of Section 4(2) of the Securities Act or Regulation D promulgated thereunder, and that no registration statement relating to the issuance of the Restricted Securities has been or will be filed with the SEC or any state securities commission;

(ii) the Stockholder intends to acquire the Restricted Securities solely for its own account, for investment purposes only and not with a view to the resale or distribution other than pursuant to an effective resale registration statement or valid exemption;

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(iii) the Stockholder agrees not to sell (other than pursuant to an effective resale registration statement), transfer, exchange, pledge or otherwise dispose of, or make any offer or agreement relating to the Restricted Securities and/or any option, right or other interest with respect to the Restricted Securities that the Stockholder may acquire, unless: (A) counsel representing the Stockholder, which counsel is reasonably satisfactory to CIENA and CIENA's legal counsel, shall have advised CIENA in a written opinion letter satisfactory to CIENA and CIENA's legal counsel, and upon which CIENA and CIENA's legal counsel may rely, that no registration under the Securities Act would be required in connection with the proposed sale, transfer, exchange, pledge or other disposition, and (B) all transferees (and other subsequent transferees) who receive the Restricted Securities agree to be bound by the investment and other restrictions to which the Stockholder was subject under this Option in accordance with its terms;

(iv) the Stockholder is an "accredited investor" as defined in Rule 501 of Regulation D under the Securities Act, has the capacity to protect the Stockholder's interests in connection with this Agreement, and has such knowledge and experience in financial, tax and business matters to be capable of evaluating the merits and risks of an investment in the Restricted Securities and in protecting the Stockholder's interests in connection with the investment and, in the Stockholder's judgment, has obtained sufficient information from CIENA to evaluate the merits and risks of an investment in the Restricted Securities;

(v) the Stockholder acknowledges that (A) it has conducted its own investigation and review of the business and affairs of CIENA, (B) it has not relied on any representations or warranties of CIENA concerning the business and affairs of CIENA or an investment in the Restricted Securities, (C) it has had the opportunity to ask questions of and receive information and answers from CIENA concerning the terms and conditions of this Agreement, the Restricted Securities and other matters pertaining to an investment in the Restricted Securities, and (D) it has been given the opportunity to verify the information provided to it in order for the Stockholder to evaluate the merits and risks of an investment in the Restricted Securities, and all such questions have been answered and all such information has been provided to the full satisfaction of the Stockholder;

(vi) the Stockholder further acknowledges, represents, agrees and is aware that the representations, warranties, agreements, undertakings and acknowledgments made by the Stockholder in this Agreement are made with the intent that they be relied upon by CIENA in determining the suitability of the Stockholder as an investor in the Restricted Securities; and

(vii) the Stockholder undertakes to notify CIENA reasonably promptly of any change in any representation, warranty or other information relating to the Stockholder set forth in this subsection (c).

3. *Representations and Warranties of CIENA.* CIENA hereby represents and warrants to the Stockholder as follows:

(a) *Organization; Authority; Execution and Delivery; Enforceability.* CIENA (i) is duly incorporated, validly existing and in good standing under the laws of the State of Delaware and (ii) has all requisite corporate power and authority to execute and deliver this Agreement, to consummate the transactions contemplated hereby and to comply with the terms hereof. The execution and delivery of this Agreement by CIENA, the consummation by CIENA of the transactions contemplated hereby and compliance by CIENA with the provisions hereof have been duly authorized by all necessary corporate action on the part of CIENA and no other corporate proceedings on the part of CIENA are necessary to authorize this Agreement, to consummate the transactions contemplated hereby or to comply with the provisions hereof. This Agreement has been duly executed and delivered by CIENA and, assuming due execution by the Stockholder, constitutes a valid and binding obligation of CIENA enforceable against CIENA in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, fraudulent conveyance, reorganization, moratorium and other laws affecting the rights and remedies of creditors generally and

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general principles of equity (whether considered in a proceeding in equity or at law). The execution and delivery of this Agreement, the consummation of the transactions contemplated hereby and compliance with the provisions hereof do not and will not conflict with, or result in any violation or breach of, or default (with or without notice or lapse of time, or both) under, or give rise to a right of, or result in, termination, cancellation or acceleration of any obligation or to loss of a material benefit under, or result in the creation of any lien in or upon any of the properties or assets of the Stockholder under, or give rise to any increased, additional, accelerated or guaranteed rights or entitlements under, any provision of (1) the Amended and Restated Certificate of Incorporation or Amended and Restated By-laws of CIENA, (2) any contract to which CIENA is a party or any of its properties or assets is subject or (3) subject to the governmental filings and other matters referred to in the following sentence, any (A) statute, law, ordinance, rule or regulation or (B) judgment, order or decree, in each case, applicable to CIENA or its properties or assets, other than, in the case of clauses (2) and (3), any such conflicts, violations, breaches, defaults, rights, losses, Liens or entitlements that individually or in the aggregate could not reasonably be expected to impair in any material respect the ability of CIENA to perform its obligations under this Agreement or prevent or materially delay the consummation of any of the transactions contemplated by this Agreement. No consent, approval, order or authorization of, or registration, declaration or filing with, any Governmental Entity is required by or with respect to CIENA in connection with the execution and delivery of this Agreement by CIENA, the consummation by CIENA of the transactions contemplated hereby or compliance by CIENA with the provisions hereof, except for (w) filings under the Hart-Scott-Rodino Act and any other applicable competition, merger control, antitrust or similar law or regulation, (x) filings under the Investment Canada Act, (y) filings with the SEC of such reports under the Exchange Act as may be required in connection with this Agreement and the transactions contemplated hereby and (z) such other consents, approvals, orders, authorizations, registrations, declarations and filings the failure of which to be obtained or made individually or in the aggregate could not reasonably be expected to impair in any material respect the ability of CIENA to perform its obligations under this Agreement or prevent or materially delay the consummation of any of the transactions contemplated hereby.

(b) *Investment Representations of CIENA.* CIENA represents, warrants, and covenants to the Stockholder as follows (except as contemplated by this Agreement and the transactions contemplated thereby):

(i) CIENA does not now have, and as of any Closing will not have, any present plan or intention to sell, transfer, exchange, pledge or otherwise dispose of, or to effect any other transaction with respect to the Subject Shares;

(ii) CIENA understands that any sale of the Subject Shares hereunder is intended to be exempt from registration, and that no registration statement relating to the sale of the Subject Shares in connection with this Agreement has been or will be filed with the SEC or any state securities commission;

(iii) CIENA intends to acquire the Subject Shares solely for its own account, for investment purposes only and not with a view to the resale or distribution thereof;

(iv) CIENA agrees not to sell, transfer, exchange, pledge or otherwise dispose of, or make any offer or agreement relating to the Subject Shares and/or any option, right or other interest with respect to the Subject Shares that CIENA may acquire, unless: (A) counsel representing CIENA, which counsel is reasonably satisfactory to the Company and the Company's legal counsel, shall have advised the Company in a written opinion letter satisfactory to the Company and the Company's legal counsel, and upon which the Company and the Company's legal counsel may rely, that no registration under the Securities Act would be required in connection with the proposed sale, transfer, exchange, pledge or other disposition, and (B) all transferees (and other subsequent transferees) who receive the Subject Shares agree to be bound by the investment and other restrictions to which CIENA was subject;

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(v) CIENA is an “accredited investor” as defined in Rule 501 of Regulation D under the Securities Act, has the capacity to protect its interests in connection with this Agreement, and has such knowledge and experience in financial, tax and business matters to be capable of evaluating the merits and risks of an investment in the Subject Shares and in protecting its interests in connection with the investment and, in CIENA’s judgment, has obtained sufficient information from the Company to evaluate the merits and risks of an investment in the Subject Shares;

(vi) CIENA acknowledges that (A) it has conducted its own investigation and review of the business and affairs of the Company, (B) it has not relied on any representations or warranties of the Company concerning the business and affairs of the Company or an investment in the Subject Shares other than as set forth in the Merger Agreement, (C) it has had the opportunity to ask questions of and receive information and answers from the Company concerning matters pertaining to an investment in the Subject Shares, and (D) it has been given the opportunity to verify the information provided to it in order for CIENA to evaluate the merits and risks of an investment in the Subject Shares, and all such questions have been answered and all such information has been provided to the full satisfaction of CIENA;

(vii) CIENA further acknowledges, represents, agrees and is aware that the representations, warranties, agreements, undertakings and acknowledgments made by CIENA in this Agreement are made with the intent that they be relied upon by such Stockholder and the Company in determining the suitability of CIENA as an investor in the Subject Shares; and

(viii) CIENA undertakes to notify the Stockholder reasonably promptly of any change in any representation, warranty or other information relating to CIENA set forth in this subsection (b).

4. *Covenants of Stockholder.* Until the earlier of termination of this Agreement or termination of the Merger Agreement (except for **Section 4(b)** which shall survive until termination of this Agreement), Stockholder agrees as follows:

(a) At any meeting of stockholders of the Company or at any adjournment thereof or in any other circumstances upon which the Stockholder’s vote, consent or other approval is sought, the Stockholder shall vote (or cause to be voted) the Subject Shares (i) in favor of the Merger and each of the terms of the Merger Agreement and in favor of the New Company Certificate, (ii) against any proposal, amendment or agreement that would in any manner impede, frustrate, prevent or nullify the Merger Agreement, the Merger, this Agreement or change in any manner the voting rights of any class of capital stock of the Company, and (iii) against any Acquisition Proposal (as defined in the Merger Agreement);

(b) Other than pursuant to this Agreement, the Stockholder agrees not to (i) sell, transfer, pledge, assign or otherwise dispose of (including by gift) (collectively, “Transfer”), or enter into any contract, option or other arrangement (including any profit-sharing arrangement) with respect to the Transfer of the Subject Shares to any person or (ii) enter into any voting arrangement, whether by proxy, voting agreement or otherwise, in relation to the Subject Shares, and agrees not to commit or agree to take any of the foregoing actions. Notwithstanding anything to the contrary contained herein, the Stockholder is permitted to Transfer the Subject Shares to an “accredited investor” as defined in Rule 501 of Regulation D under the Securities Act that is an affiliate of the stockholder provided that such transferee agrees in writing with the Stockholder and CIENA to be bound by the terms of this Agreement and acknowledges by written notice to CIENA that it understands and accepts its obligations under this Agreement to deliver the Subject Shares to CIENA upon exercise of the Option granted hereunder pursuant to the terms and conditions hereof;

(c) The Stockholder shall not, nor shall the Stockholder permit any of its affiliates, directors, officers, employees, investment bankers, attorneys or other advisors or representative of the Stockholder to (i) directly or indirectly solicit, initiate or knowingly encourage the submission of, any

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Acquisition Proposal or (ii) directly or indirectly participate in any discussions or negotiations regarding, or furnish to any person any information with respect to, or take any other action to facilitate any inquiries or the making of any proposal that constitutes or may reasonably be expected to lead to, Acquisition Proposal; and

(d) The Stockholder shall use reasonable best efforts to take, or cause to be taken, all actions, and to do, or cause to be done, and to assist and cooperate with CIENA in doing, all things necessary, proper or advisable to support and to consummate and make effective, in the most expeditious manner practicable, the Merger and the other transactions contemplated by the Merger Agreement.

5. *Termination.* Except as set forth below, this Agreement shall terminate on the earlier of the time when the Option expires under **Section 1(c)** or such time as the parties hereto may mutually agree. In the event of the termination of this Agreement by mutual agreement of the parties pursuant to this **Section 5**, except as set forth herein, this Agreement shall forthwith become null and void, there shall be no liability on the part of any of the parties, and except as set forth in this **Section 5** all rights and obligations of each party hereto shall cease; provided, however, that no such termination of this Agreement shall relieve any party hereto from any liability for any willful and material breach of any provision of this Agreement prior to termination.

6. *Further Assurances.* The Stockholder will, from time to time, execute and deliver, or cause to be executed and delivered, such additional or further consents, documents and other instruments as CIENA may reasonably request for the purpose of effectively carrying out the transactions contemplated by this Agreement in accordance with its terms.

7. *Successors, Assigns and Transferees Bound.* (a) The Stockholder agrees that this Agreement and the obligations hereunder shall attach to the Subject Shares from the date hereof through the termination of this Agreement and shall be binding upon any person or entity to which legal or beneficial ownership of the Subject Shares shall pass, whether by operation of law or otherwise, including the Stockholder's heirs, guardians, administrators or successors, and the Stockholder further agrees to take all actions necessary to effectuate the foregoing. The Stockholder agrees that each certificate representing the Subject Shares shall be inscribed with the legend required by **Section 7(b)**. Subject to the expiration or termination of this Option, in the event of any stock split, stock dividend, reclassification, merger, reorganization, recapitalization or other change in the capital structure of the Company affecting the capital stock of the Company, the number of Subject Shares shall be adjusted appropriately. Subject to the expiration or termination of this Option, in the event of any change in the Company's capital stock by reason of stock dividends, stock splits, mergers, recapitalizations, combinations, exchange of shares or the like, the type and number of shares or securities subject to the Option, and the purchase price per share provided in **Section 1(e)** hereof, shall be adjusted appropriately, and proper provision shall be made in the agreements governing such transaction so that CIENA shall receive, upon exercise of the Option, the number and class of shares or other securities or property that CIENA would have received in respect of the Company's capital stock if the Option had been exercised immediately prior to such event or the record date therefor, as applicable. In addition, in the event of any other acquisition of additional shares of capital stock of the Company or other voting securities of the Company convertible to or exercisable for shares of the Company's capital stock by the Stockholder (including through the exercise of any warrants, stock options or similar instruments), the number of Subject Shares listed on Schedule A hereto shall be increased appropriately. This Agreement and the representations, warranties, covenants, agreements and obligations hereunder shall attach to any additional shares of capital stock of the Company or other voting securities of the Company convertible to or exercisable for shares of the Company's capital stock as may be issued to or acquired by the Stockholder directly or indirectly (including through the exercise of any warrants, stock options or similar instruments).

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(b) The Stockholder shall request that the Company cause the certificated Subject Shares to have a legend placed conspicuously on such certificate to the following effect:

“The shares evidenced by this certificate are subject to a Stockholder Agreement dated February 18, 2004, entered into by the record owner of such shares and CIENA Corporation.”

The Stockholder shall cause a counterpart of this Agreement to be deposited with the Company at its principal place of business or registered office where it shall be subject to the same right of examination by a stockholder of the Company, in person or by agent or attorney, as are the books and records of the Company.

8. *Remedies.* The Stockholder acknowledges that money damages would be both incalculable and an insufficient remedy for any breach of this Agreement by it, and that any such breach would cause CIENA irreparable harm. Accordingly, the Stockholder agrees that in the event of any breach or threatened breach of this Agreement, CIENA, in addition to any other remedies at law or in equity it may have, shall be entitled, to seek equitable relief, including injunctive relief and specific performance.

9. *Severability.* The invalidity or unenforceability of any provision of this Agreement in any jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement in such jurisdiction, or the validity or enforceability of any provision of this Agreement in any other jurisdiction.

10. *Amendment.* This Agreement may be amended only by means of a written instrument executed and delivered by the Stockholder and CIENA.

11. *Governing Law.* This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, regardless of the laws that might otherwise govern under applicable principles of conflicts of laws thereof.

12. *Counterparts.* For the convenience of the parties, this Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13. *No Limitation on Actions of the Stockholder as Director.* In the event the Stockholder is a director of the Company, notwithstanding anything to the contrary in this Agreement, nothing in this Agreement is intended or shall be construed to require the Stockholder to take any action that is incompatible with the Stockholder's fiduciary duties as a director of the Company or in any way limit any action that the Stockholder may take to discharge the Stockholder's fiduciary duties as a director of the Company.

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IN WITNESS WHEREOF, Stockholder has caused this Agreement to be executed as of the date first above written.

[STOCKHOLDER]

By: _____
Name: _____
Title: _____

Accepted and Agreed to as of the date set forth above:

CIENA CORPORATION

By: _____
Name: _____
Title: _____

SCHEDULE A

	Number of Subject Shares
	Owned of Record or Pursuant
Name and Address of Stockholder:	to Vested or Unvested Options, Warrants or
	Convertible Securities
[NAME]	shares of Company Common Stock
[ADDRESS]	shares of Company Common
	Stock issuable upon exercise of stock options,
	warrants or convertible securities (assuming
	exercise of such options, warrants or convertible
	securities and, if applicable, conversion into
	Company Common Stock of any Company
	Preferred Stock issued pursuant to such exercise)

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 20. Indemnification of Directors and Officers

Under Section 145 of the DGCL, a corporation may indemnify its directors, officers, employees and agents and its former directors, officers, employees and agents and those who serve, at the corporation's request, in such capacities with another enterprise, against expenses (including attorneys' fees), as well as judgments, fines and settlements in nonderivative lawsuits, actually and reasonably incurred in connection with the defense of any action, suit or proceeding in which they or any of them were or are made parties or are threatened to be made parties by reason of their serving or having served in such capacity. The DGCL provides, however, that such person must have acted in good faith and in a manner such person reasonably believed to be in (or not opposed to) the best interests of the corporation and, in the case of a criminal action, such person must have had no reasonable cause to believe his or her conduct was unlawful. In addition, the DGCL does not permit indemnification in an action or suit by or in the right of the corporation, where such person has been adjudged liable to the corporation, unless, and only to the extent that, a court determines that such person fairly and reasonably is entitled to indemnity for costs the court deems proper in light of liability adjudication. Indemnity is mandatory to the extent a claim, issue or matter has been successfully defended.

The Third Restated Certificate of Incorporation of CIENA (the "CIENA Certificate") contains provisions that provide that no director of CIENA shall be liable for breach of fiduciary duty as a director, except for: (1) any breach of the directors' duty of loyalty to CIENA or its stockholders; (2) acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of the law; (3) liability under Section 174 of the DGCL; or (4) any transaction from which the director derived an improper personal benefit. The CIENA Certificate contains provisions that further provide for the indemnification of directors and officers to the fullest extent permitted by the DGCL. Under the bylaws of CIENA, CIENA is required to advance expenses incurred by an officer or director in defending any such action if the director or officer undertakes to repay such amount if it is determined that the director or officer is not entitled to indemnification. In addition, CIENA has entered into indemnity agreements with each of its directors pursuant to which CIENA has agreed to indemnify the directors as permitted by the DGCL. CIENA has obtained directors and officers liability insurance against certain liabilities, including liabilities under the Securities Act.

Item 21. Exhibits and Financial Statement Schedules

(a) Exhibits

INDEX TO EXHIBITS

2.1	Agreement and Plan of Merger, dated as of February 18, 2004, by and among CIENA Corporation, Catena Networks, Inc., Gudmundur Hjartarson, Kevin Forbes, Richard DeGabrielle and Jeffrey Reece (filed herewith in Annex A to the proxy statement/ prospectus)
2.2	First Amendment to Agreement and Plan of Merger, dated March 4, 2004 (filed herewith in Annex A to the proxy statement/ prospectus.)
5.1	Hogan & Hartson L.L.P. Opinion (filed herewith)
8.1	Hogan & Hartson L.L.P. Tax Opinion (filed herewith)
8.2	Cooley Godward LLP Tax Opinion (filed herewith)
23.1	Consent of PricewaterhouseCoopers LLP (filed herewith)
23.2	Consent of Hogan & Hartson L.L.P. (contained in Exhibits 5.1 and 8.1)
23.3	Consent of Cooley Godward LLP (contained in Exhibit 8.2)
24.1	Power of Attorney (previously filed with signature page)

Item 22. Undertakings

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes to respond to requests for information that is incorporated by reference into the prospectus pursuant to Item 4, 10(b), 11 or 13 of this form, within one business day of receipt of such request, and to send the incorporated documents by first class mail or other equally prompt means. This includes information contained in documents filed subsequent to the effective date of this Registration Statement through the date of responding to the request.

The undersigned registrant hereby undertakes to supply by means of a post-effective amendment all information concerning a transaction, and the company being acquired involved therein, that was not the subject of and included in the registration statement when it became effective.

The undersigned registrant hereby undertakes:

(1) to file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with

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the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in this Registration Statement.

provided, however, that paragraphs (1)(i) and (1)(ii) do not apply if the registration statement is on Form S-3, Form S-8 or Form F-3, and the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) that, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) to remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

The undersigned registrant hereby undertakes as follows: that prior to any public reoffering of the securities registered hereunder through the use of a prospectus which is a part of this registration statement, by any person or party who is deemed to be an underwriter within the meaning of Rule 145(c), the issuer undertakes that such reoffering prospectus will contain the information called for by the applicable registration form with respect to reofferings by persons who may be deemed underwriters, in addition to the information called for by the other items of the applicable form.

The registrant undertakes that every prospectus: (i) that is filed pursuant to the immediately preceding paragraph, or (ii) that purports to meet the requirements of Section 10(a)(3) of the Act and is used in connection with an offering of securities subject to Rule 415, will be filed as a part of an amendment to the registration statement and will not be used until such amendment is effective, and that, for purposes of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act, CIENA Corporation has duly caused this Pre-Effective Amendment No. 1 to Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Linthicum, Maryland, on this 25th day of March, 2004.

CIENA CORPORATION

/s/ RUSSELL B. STEVENSON, JR.

Russell B. Stevenson, Jr.
Senior Vice President, General Counsel
and Secretary

Pursuant to the requirements of Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the date indicated.

March 25, 2004

By: /s/ PATRICK H. NETTLES, PH.D.*

Patrick H. Nettles, Ph.D.
Executive Chairman of the
Board of Directors

March 25, 2004

/s/ GARY B. SMITH*

Gary B. Smith
President, Chief Executive Officer
and Director
(Principal Executive Officer)

March 25, 2004

/s/ JOSEPH R. CHINNICI*

Joseph R. Chinnici
Sr. Vice President, Finance and
Chief Financial Officer
(Principal Financial Officer)

March 25, 2004

/s/ ANDREW C. PETRIK*

Andrew C. Petrik
Vice President, Controller and Treasurer
(Principal Accounting Officer)

Stephen P. Bradley
Director

Harvey B. Cash
Director

March 25, 2004

/s/ DON H. DAVIS, JR.*

Don H. Davis, Jr.
Director

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March 25, 2004

/s/ JOHN R. DILLON*

John R. Dillon
Director

March 25, 2004

/s/ LAWTON W. FITT*

Lawton W. Fitt
Director

March 25, 2004

/s/ JUDITH M. O'BRIEN*

Judith M. O'Brien
Director

March 25, 2004

/s/ GERALD H. TAYLOR*

Gerald H. Taylor
Director

* Pursuant to Power of Attorney

By: /s/ RUSSELL B. STEVENSON, JR.

Russell B. Stevenson, Jr.
Attorney-in-fact

INDEX TO EXHIBITS

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2.2	First Amendment to Agreement and Plan of Merger, dated March 4, 2004 (filed herewith in Annex A to the proxy statement/ prospectus)
5.1	Hogan & Hartson L.L.P. Opinion (filed herewith)
8.1	Hogan & Hartson L.L.P. Tax Opinion (filed herewith)
8.2	Cooley Godward LLP Tax Opinion (filed herewith)
23.1	Consent of PricewaterhouseCoopers LLP (filed herewith)
23.2	Consent of Hogan & Hartson L.L.P. (contained in Exhibits 5.1 and 8.1)
23.3	Consent of Cooley Godward LLP (contained in Exhibit 8.2)
24.1	Power of Attorney (previously filed with signature page)

CATENA NETWORKS, INC.

PROXY FOR SPECIAL MEETING OF STOCKHOLDERS

to be held on April 29, 2004

The undersigned, having received notice of a Special Meeting of Stockholders of Catena Networks, Inc. (the "Company") and revoking all prior proxies, hereby appoints Gudmundur Hjartarson and Kevin Forbes, and each of them, attorneys of the undersigned (with full power of substitution in them and each of them) for and in the name of the undersigned to attend the Special Meeting of Stockholders of the Company to be held at the offices of the Company at 307 Legget Drive, Kanata, Ontario, Canada on Thursday, April 29, 2004 at 8:00 a.m., local time, and any adjournments of that meeting, and to vote and act upon the following matters in respect of all shares of stock of the Company of each and every class that the undersigned is entitled to vote or act upon, with all powers the undersigned would possess if personally present:

1. To approve and adopt the Agreement and Plan of Merger, dated as of February 18, 2004, as amended, by and among the Company, CIENA Corporation, a Delaware corporation, and certain officers of the Company.

FOR AGAINST ABSTAIN

2. To approve and adopt the amendment and restatement of Catena's certificate of incorporation, as amended, to provide that the merger of Catena into CIENA is not an "Acquisition" or "Asset Transfer" of Catena that would be treated as a "liquidation" of Catena as defined therein;

FOR AGAINST ABSTAIN

3. To approve the payments to Gary Bolton of amounts that would otherwise result in "parachute payments" under Section 280G of the Internal Revenue Code of 1986.

FOR AGAINST ABSTAIN

4. To grant discretionary authority to the board of directors to adjourn or postpone the special meeting to solicit additional votes to approve the matters considered at the special meeting, if necessary.

FOR AGAINST ABSTAIN

5. Upon, or with regard to, any other matters that may properly come before the special meeting or any adjournments thereof.

Unless otherwise expressly provided hereon, this proxy shall be deemed to apply to shares of each class and series that the undersigned has the right to vote and shall be voted either as a separate class or series and/or with all other classes or series of capital stock of the Company as provided for by the Company's Amended and Restated Certificate of Incorporation.

YOU MAY REVOKE YOUR PROXY IN THE MANNER DESCRIBED IN THE ACCOMPANYING PROXY STATEMENT/ PROSPECTUS AT ANY TIME BEFORE IT HAS BEEN VOTED AT THE SPECIAL MEETING OF STOCKHOLDERS OF THE COMPANY. ANY STOCKHOLDER ATTENDING THE SPECIAL MEETING MAY VOTE IN PERSON EVEN IF HE OR SHE HAS RETURNED A PROXY.

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Attendance of the undersigned at the meeting or any adjournment of that meeting will not be deemed to revoke this proxy unless the undersigned shall affirmatively indicate at such meeting the intention of the undersigned to vote his shares in person. If the undersigned holds any of the shares of the Company in a joint capacity, this proxy is signed by the undersigned in such capacity as well as individually.

THE SHARES REPRESENTED BY THIS PROXY WILL BE VOTED AS DIRECTED OR, IF NO DIRECTION IS GIVEN, WILL BE VOTED “FOR” THE PROPOSALS IN ITEMS 1, 2, 3 AND 4 AND SHALL BE VOTED AT THE DISCRETION OF THE PROXY HOLDER FOR ANY PROPOSAL BROUGHT BEFORE THE MEETING UNDER ITEM 5.

Date: _____, 2004

Signature(s):

Please Print Name:

Name Listed on Stock Certificate (if different from above):

If this Proxy applies to fewer than all shares of each class and series that the undersigned has the right to vote please indicate as to which shares of which class or series this proxy does not apply:

Please date this Proxy and sign exactly as your name(s) appear(s) on your stock certificate(s). A separate Proxy is required for each stockholder. Stock held jointly, in trust or otherwise is deemed to be held by a different stockholder than stock held in one’s individual capacity. If you need additional proxies, please contact Kevin Forbes at (613) 591-7838. When signing as attorney, agent, executor, administrator, trustee, guardian or corporate officer, please give your full title as such.

PLEASE SIGN AND MAIL THIS PROXY IN THE ENCLOSED ENVELOPE AS SOON

AS POSSIBLE AND IN NO EVENT LATER THAN April 22, 2004

I/We will attend the meeting. Yes No

[Hogan & Hartson L.L.P. Letterhead]

March 25, 2004

Board of Directors
CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090

Ladies and Gentlemen:

We are acting as counsel to CIENA Corporation, a Delaware corporation (the "**Company**"), in connection with its registration statement on Form S-4, as amended (the "**Registration Statement**"), filed with the Securities and Exchange Commission relating to the registration of up to 75,894,864 shares of the Company's common stock, par value \$0.01 per share (the "**Shares**"), pursuant to the terms of the Agreement and Plan of Merger dated as of February 18, 2004, as amended, by and among the Company, Catena Networks, Inc. ("**Catena**") and certain officers of Catena (together with all amendments, the "**Merger Agreement**"), which provides for the merger of Catena with and into the Company with the Company surviving the merger and related transactions (the "**Merger**"). This opinion letter is furnished to you at your request to enable you to fulfill the requirements of Item 601(b)(5) of Regulation S-K, 17 C.F.R. § 229.601(b)(5), in connection with the Registration Statement.

For purposes of this opinion letter, we have examined copies of the following documents:

1. An executed copy of the Registration Statement.
 2. An executed copy of the Merger Agreement.
 3. Resolutions of the Board of Directors of the Company adopted at a special meeting held on February 18, 2004, as certified by the Secretary of the Company on the date hereof as being complete, true, accurate, and in effect, relating to (a) the issuance and sale of the Shares pursuant to the terms of the Merger Agreement and arrangements in connection therewith; (b) the assumption of the Catena 1998 Equity Incentive Plan (the "**Incentive Plan**") and the issuance of Shares pursuant to the Incentive Plan; and (c) the assumption of the outstanding warrants to purchase the common stock and preferred stock of Catena (together, the "**Warrants**") and the issuance of Shares pursuant to such Warrants.
 4. The Third Restated Certificate of Incorporation of the Company, as amended, as certified by the Secretary of the State of the State of
-

Delaware on March 25, 2004 and by the Secretary of the Company on the date hereof as being complete, accurate, and in effect.

5. The Amended and Restated Bylaws of the Company, as certified by the Secretary of the Company on the date hereof as being complete, accurate, and in effect.

In our examination of the aforesaid documents, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the accuracy and completeness of all documents submitted to us, the authenticity of all original documents, and the conformity to authentic original documents of all documents submitted to us as copies (including telecopies). This opinion letter is given, and all statements herein are made, in the context of the foregoing.

This opinion letter is based as to matters of law solely on the Delaware General Corporation Law, as amended. We express no opinion herein as to any other laws, statutes, ordinances, rules, or regulations. As used herein, the term "Delaware General Corporation Law, as amended" includes the statutory provisions contained therein, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting these laws.

Based upon, subject to and limited by the foregoing, we are of the opinion that (i) following completion of the Merger pursuant to the Delaware General Corporation Law, as amended, and the Merger Agreement and (ii) in the case of the Shares issuable upon exercise of options and warrants, following issuance of such Shares in accordance with the terms of (a) the option agreements issued under the Incentive Plan or (b) the Warrants, the Shares will be validly issued, fully paid, and nonassessable.

This opinion letter has been prepared for your use in connection with the Registration Statement. We assume no obligation to advise you of any changes in the foregoing subsequent to the delivery of this opinion letter.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the reference to this firm under the caption "Legal Matters" in the prospectus constituting a part of the Registration Statement. In giving this consent, we do not thereby admit that we are an "expert" within the meaning of the Securities Act of 1933, as amended.

Very truly yours,

/S/ HOGAN & HARTSON L.L.P.

[Hogan & Hartson L.L.P. Letterhead]

March 25, 2004

Board of Directors
CIENA Corporation
1201 Winterson Road
Linthicum, Maryland 21090

Gentlemen/Ladies:

This opinion is being delivered to you in connection with the proposed merger of Catena Networks, Inc. (the "Company"), a Delaware corporation, with and into CIENA Corporation ("CIENA"), a Delaware corporation, with the separate corporate existence of the Company ceasing and CIENA continuing as the surviving corporation (the "Merger"). The Merger will be consummated pursuant to the Agreement and Plan of Merger (the "Agreement"), dated as of February 18, 2004, as amended on March 4, 2004, by and among CIENA, the Principal Officers and the Company.

In connection with the preparation of this opinion, we have examined and with your consent relied upon (without any independent investigation or review thereof) the following documents (including all exhibits and schedules thereto): (1) the Agreement; (2) the Registration Statement on Form S-4 to be filed with the Securities and Exchange Commission (the "Registration Statement") and/or the Proxy Statement/Prospectus of CIENA and the Company; (3) factual representations and certifications made to us by CIENA; (4) factual representations and certifications made to us by the Company; (5) such other instruments and documents related to the formation, organization and operation of CIENA and the Company or to the consummation of the Merger and the transactions contemplated thereby as we have deemed necessary or appropriate. In addition, we have reviewed the form of opinion of counsel received by the Company from Cooley Godward LLP, with respect to the tax consequences of the proposed transaction (the "Cooley Godward Opinion").^{1/}

The Proposed Transaction

^{1/} All capitalized terms used herein and not otherwise defined shall have the same meaning as they have in the Agreement. All section references, unless otherwise indicated, are to the Internal Revenue Code of 1986, as amended (the "Code").

Based solely upon our review of the documents set forth above, and upon such information as CIENA and the Company have provided to us (which we have not attempted to verify in any respect), and in reliance upon such documents and information, we understand that the proposed transaction and the relevant facts with respect thereto are as follows:

CIENA is a leader in innovative networking solutions to service providers worldwide. The Company's integrated broadband access solutions enable service providers to profitably deliver voice, data and video services and smoothly migrate to packet-based networks.

For the reasons set forth in the Registration Statement, it is proposed that pursuant to the Agreement and the laws of the State of Delaware, the Company merge with and into CIENA. The Company's separate corporate existence will cease and CIENA will be the surviving corporation (the "Surviving Corporation"). As the Surviving Corporation, CIENA will succeed to all of the assets and liabilities of the Company under Delaware corporate law.

By virtue of the Merger, each share of Company Capital Stock issued and outstanding at the Effective Time will be converted into and become exchangeable for the right to receive CIENA Common Stock in amounts determined pursuant to the Exchange Ratios. Fractional shares of CIENA Common Stock will not be issued in the Merger. Rather, each holder of Company Capital Stock who would otherwise have been entitled to receive a fractional share will receive a cash payment in lieu thereof in an amount determined by multiplying (i) the per share price on the Nasdaq National Market of CIENA Common Stock on the date on which the Effective Time shall occur by (ii) the fractional share to which such holder would otherwise be entitled. Dissenting Shares will be entitled to receive such consideration determined to be due with respect to such shares in accordance with Section 262 of the DGCL.

Assumptions and Representations

In connection with rendering this opinion, we have assumed or obtained representations (and, with your consent, are relying thereon, without any independent investigation or review thereof, although we are not aware of any material facts or circumstances contrary to or inconsistent therewith) that:

1. All information contained in each of the documents we have examined and relied upon in connection with the preparation of this opinion is accurate and completely describes all material facts relevant to our opinion, all

copies are accurate and all signatures are genuine. We have also assumed that there has been (or will be by the Effective Time of the Merger) due execution and delivery of all documents where due execution and delivery are prerequisites to the effectiveness thereof.

2. The Merger will be consummated in accordance with applicable state law and will qualify as a statutory merger under applicable state law.

3. All representations made in the exhibits hereto are true, correct, and complete in all material respects. Any representation or statement made "to the best of knowledge" or similarly qualified is correct without such qualification.

4. The Merger will be consummated in accordance with the Agreement and as described in the Registration Statement (including satisfaction of all covenants and conditions to the obligations of the parties without amendment or waiver thereof); CIENA and the Company will comply with all reporting obligations with respect to the Merger required under the Code and the Treasury Regulations thereunder; and the Agreement and all other documents and instruments referred to therein or in the Registration Statement are valid and binding in accordance with their terms.

5. The Cooley Godward Opinion has been concurrently delivered and not withdrawn.

Opinion — U.S. Federal Income Tax Consequences

Based upon and subject to the assumptions and qualifications set forth herein, we are of the opinion that the discussion in the Registration Statement under the caption "U.S. Federal Income Tax Consequences," to the extent that it purports to describe provisions of federal income tax law or legal conclusions with respect thereto, is correct in all material respects as of the date hereof.

In addition to the assumptions set forth above, this opinion is subject to the exceptions, limitations and qualifications set forth below:

1. This opinion represents and is based upon our best judgment regarding the application of relevant current provisions of the Code and interpretations of the foregoing as expressed in existing court decisions, administrative determinations (including the practices and procedures of the Internal Revenue Service (the "IRS") in issuing private letter rulings, which are not binding on the IRS except with respect to the taxpayer that receives such a ruling)

and published rulings and procedures all as of the date hereof. An opinion of counsel merely represents counsel's best judgment with respect to the probable outcome on the merits and is not binding on the IRS or the courts. There can be no assurance that positions contrary to our opinions will not be taken by the IRS, or that a court considering the issues would not hold contrary to such opinions. CIENA has not requested a ruling from the IRS (and no ruling will be sought) as to any of the federal income tax consequences addressed in this opinion. Furthermore, no assurance can be given that future legislative, judicial or administrative changes, on either a prospective or retroactive basis, would not adversely affect the accuracy of the opinion expressed herein. Nevertheless, we undertake no responsibility to advise you of any new developments in the law or in the application or interpretation of the federal income tax laws after the Effective Time.

2. This letter addresses only the specific tax opinions set forth above. This letter does not address any other federal, state, local or foreign tax consequences that may result from the Merger or any other transaction (including any transaction undertaken in connection with the Merger). We express no opinion regarding, among other things, the tax consequences of the Merger (including the opinion set forth above) as applied to specific stockholders of the Company that may be relevant to particular classes of the Company shareholders, such as dealers in securities, corporate shareholders subject to the alternative minimum tax, foreign persons, and holders of shares acquired upon exercise of stock options or in other compensatory transactions.

3. Our opinion set forth herein is based upon the description of the contemplated transactions as set forth above in the section captioned "The Proposed Transaction," the Agreement and the Registration Statement. If the actual facts relating to any aspect of the transactions differ from this description in any material respect, our opinion may become inapplicable. No opinion is expressed as to any transaction other than those set forth in the section captioned "The Proposed Transaction," the Agreement and the Registration Statement or to any transaction whatsoever, including the Merger, if all the transactions described in the section captioned "The Proposed Transaction," the Agreement and the Registration Statement are not consummated in accordance with the terms of the section captioned "The Proposed Transaction," the Agreement and the Registration Statement and without waiver or breach of any material provision thereof or if all of the representations, warranties, statements and assumptions upon which we relied are not true and accurate at all relevant times. In the event any one of the statements, representations, warranties or assumptions upon which we have relied

to issue this opinion is incorrect, our opinion might be adversely affected and may not be relied upon.

This opinion letter has been provided for your use in connection with the Registration Statement. We hereby consent to the use of the opinion letter as an exhibit to the Registration Statement and to the use of our name in the U.S. Federal Income Tax Consequences and Legal Matters sections of the Registration Statement. In giving the consent, we do not thereby admit that we are an “expert” within the meaning of the Securities Act of 1933, as amended.

Sincerely yours,

/S/ HOGAN & HARTSON L.L.P.



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March 25, 2004

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SUSAN COOPER PHILPOT
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philpots@cooley.com

Catena Networks, Inc.
307 Legget Drive
Kanata, Ontario
Canada K2K 3C8

Dear Sir or Madam:

We have acted as counsel to Catena Networks, Inc., a Delaware corporation ("Catena") in connection with the Agreement and Plan of Merger dated as of February 18, 2004 by and among CIENA Corporation, a Delaware corporation ("CIENA"), and Catena providing for the merger of Catena with and into CIENA (the "Merger").

You have asked us to review the discussion of U.S. federal income tax matters contained in CIENA's Form S-4 Registration Statement filed with the Securities and Exchange Commission in connection with the Merger (the "Registration Statement"). We have reviewed the discussion entitled "U.S. Federal Income Tax Consequences" contained in the Registration Statement and are of the opinion that, subject to the qualifications and limitations contained therein, such information fairly presents the current U.S. federal income tax law applicable to the Merger and the material U.S. federal tax consequences to the Catena stockholders as a result of the Merger and, insofar as it relates to statements of law or legal conclusions, is correct in all material respects.

We consent to the reference to our firm under the captions "U.S. Federal Income Tax Consequences" and "Legal Matters" included in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

Cooley Godward llp

By: /s/Susan Cooper Philpot
Susan Cooper Philpot

SCP:kme

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Pre-effective Amendment No. 1 to Registration Statement on Form S-4 of CIENA Corporation of our report dated December 9, 2003 relating to the financial statements, which appears in CIENA Corporation's Annual Report on Form 10-K for the year ended October 31, 2003. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/PricewaterhouseCoopers LLP

McLean, Virginia
March 25, 2004