



Ciena Corporation

Next-Gen Metro and Edge Investor Chalk Talk

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PRESENTATION

Operator

Welcome, everyone, to Ciena's Next-Gen Metro and Edge Investor Chalk Talk.

Today's conference is being recorded. All lines have been placed on mute to prevent any background noise. After the speakers' remarks, there will be a question-and-answer session.

Thank you, Gregg Lampf, Vice President of Investor Relations. You may begin your conference.

Gregg Lampf

Thank you, David.

Welcome, everyone, and thanks for joining us today. We hope you've had the opportunity to take the roughly 30 minutes to listen to the recording we uploaded last week before today's Q&A call. If not, please do go and check it out on the Events page at your convenience. There's a lot of great information there. We know a lot of you have been asking us questions on this topic that we certainly tried to address there as well as during this call today.

We're certainly excited to host this discussion about Ciena's next-gen metro and edge journey and the expanding TAM (phon) opportunities we've been investing towards over the past several years, and today, we're going to focus on your questions.

Leading the call today will be Scott McFeely, who many of you know, and he'll be joined by subject matter experts Brodie Gage, Vice President of Product Line Marketing, and Joe Marsella, Vice President of Metro and Edge Product Line Management. Scott will take a couple of minutes to provide a high-level review of the presentation before we kick off the Q&A.

Before handing it off to Scott, I just wanted to remind everyone that Ciena is in its quiet period. Won't be discussing current financial information, results, expectations, or economic conditions. While we won't be discussing these items, we do expect to talk directionally about the technology market, and as such, please do take note of our Safe Harbor language from our most recent financial results call on March 7 of 2022, as well as our form 10-Q filed with the SEC on March 9, 2022, for more details there.

With that, I'll hand the call over to Scott.

Scott McFeely

Thanks, Gregg, and good afternoon, everyone. It's good to speak to you again, and thanks for your time today and your interest in this topic and in Ciena.

Hopefully you had, as Gregg said, a chance to listen to the—or watch the prepared video with the stars of the show, Brodie and Joe. I wanted to just, for those that maybe haven't had a chance, at a really high-level summarize some of the key points we were trying to get across in the video.

We absolutely see a significant amount of change happening at the edge of the network. That's driven by well discussed attributes and how we live our lives, how enterprises, how consumers are living their lives, and the drive for bandwidth at the edge of the network, and the folks that provide those networks driving to a more cost-effective way to serve that bandwidth, with the right performance attributes for the applications that they're trying to serve up.

What's that is driving, is higher bandwidth per flow. Fiber densification and fiber deeper into the network, and then in an attempt to drive down or bend the cost curve the disaggregation of services that, historically, would have been integrated into rudders (phon) into solutions that take advantage of commercial off-the-shelf compute capabilities.

What that means for us is there's a bunch of architectural change out there, which gives us opportunity, and we fundamentally believe the key attributes for stepping into those opportunities are—optical becomes a more important part of the solution set, both in terms of the light sources, but also the optical layer that the tonics (phon) and the inteligists (phon) around the optical layer for carrying those higher bandwidth flows. A next generation IP networking capability that is not tied down by the legacy services that were all integrated in these service edge betters (phon) in the past, and a multiple-year operational set of tools that allow our customers to substantiate (phon) these technology capabilities in their network offers.

Those dimensions are things that we had been investing in for quite some time, and we've been sort of funneling those investments into primarily four different use cases that we think is a great growth opportunity for Ciena over the next number of years. Just to reiterate them, we talked to them in some detail in the video, but wireless transport, and everything from front hall, mid hall, and back hall included in that, enterprise networking, next generation residential fiber access, our XGS-PON.

Then backing off from the sort of more access parts of the network into the—deeper into the network into our converged metro network that's capable of carrying (phon) all of the traffic coming at us from those different use cases. We've had some early success in each of those use cases. We highlighted some of those in the video, but we're happy to get into it a bit more here in the Q&A.

With that, sort of for those of you that maybe didn't have a chance, that's sort of the background, and we'll just jump right into it.

Operator

Thank you.

We'll take our first question from Simon Leopold with Raymond James. Your line's open.

Simon Leopold

Thanks for taking the question.

I guess my big takeaway from the session, the Chalk Talk, was Ciena's argument of why ZR would not be a big threat, but I guess some of the metrics we've heard suggested ZR traction's been pretty good ramping in the beginning of this year. I wanted to hear your latest takes on how you're sizing the ZR market in this year, and then several years out. Thank you.

Scott McFeely

Yes, so, let me try that, Simon. By the way, good afternoon. How are you?

The ZR market, specifically—and you've heard me talk about this before, let me separate out ZR specifically from the extension of ZR, ZR+, ZR++, whatever label you want to put to it, which is sort of pluggables (phon) beyond just the definition of ZR. When we're talking about next generation metro and edge, by the way, we kind of separate out the inter-data center-connectivity and the ZR piece, but I'll talk to it anyways.

The ZR piece—we haven't changed our perspective on it, by the way. We think the market size is around that \$500 million a year, as this gets matured, we actually do believe that it will be a consumption model that we'll have a place to play in the sort of campus/metro data center rear (phon) connect that's the single span, less than 80 kilometers, very simple network in between. We think we have a great offer there, and we will participate in that. As you say, it's starting to get going, but it's still in front of us in term of being a significant part of anybody's spent (phon).

Even at \$500 million, when you're talking about an overall addressable optical market or whatever, \$12 billion or \$13 billion, depending on who you look to count it, it's still a relatively niche application in the ZR context. For Ciena, I'll just remind you that our exposure to the folks that will rule this out, which are the left scalars, it is largely dominated by core infrastructure and submarine. We had some exposure on the metro, but for the metro, it's as much an upside opportunity for us than it is a threat.

Now let me take it to the part of the question I think that does apply to the next generation metro and edge piece of it which is: will pluggables have a play in the technology piece? Not necessarily ZR to the spec (phon), but coherent in a pluggable form factor, lower power footprint than maybe a submarine solution. We believe absolutely they will, and it's an important part of the winning hand; but the winning hand also includes sophisticated photonics, an IP forwarding and routing capability, and the management tools for the folks that deploy these type of networks, which is the service providers for the most part, to

be able to operationalize this. Just because it may be “a plug-up solution” we still think the dominating (phon) consumption model is going to be buying that from an end-to-end system vendor.

Now, Brodie, if you wanted to add anything to that, please feel free to jump in.

Brodie Gage

No, that’s exactly right. ZR is doctive (phon) enemy for metro DCI use cases almost solely, that’s a net opportunity for us, and service provider metro, ZR does not play there; higher performance, pluggable optics do play there, but you need to have that end-to-end hand of photonics, modems, IP platforms, NOS (phon) off-box software, automation intelligence that sits on top of it for it to be successful in the service providers space.

Simon Leopold

Yes, maybe just a quick follow-up that you’re sort of alluding to here is, I think folks understand one of the limitations of ZR is the reach, typically about 80 kilometers. What are some of the other limitations that would dissuade an operator from using ZR besides range?

Brodie Gage

Yes, so ZR optics are optimized for the metro DCI use case. So, things like the Tunable Optical Filter, the Edge Cloud that provides high-performance output power, the linear and non-linear compensation has all been pulled out of it to make it cost-effective and low power for that DCI use case. Those optics are not relevant for a metro service provider or regional applications, because they can go through rodems (phon), and they can meet the applications that the service providers once they deploy them.

Simon Leopold

Thank you for taking my questions.

Scott McFeely

Thanks, Simon.

Brodie Gage

You’re Welcome.

Operator

Next, we’ll go to Fahad Najam with Loop Capital. Your line is now open.

Fahad Najam

Thank you for taking my question.

My question is more on the software-related opportunity in the edge, and to give you a bit of a context of what I’m talking about, I recently attended a conference which was primarily enterprise IT, so nothing to do with telecom, and I was pleasantly surprised to see Ciena there making presentations to CIOs about orchestrating and managing their (inaudible) deployments. To the extent that coherent technology further

penetrates potentially in the campus environment at 1.6 terra (phon), or even higher speeds, what is the related software opportunity, and how are you thinking about that opportunity overall?

Scott McFeely

Brodie, do you want to talk to some of our thought process on high-speed enterprise connect, enterprise cloud connect?

Brodie Gage

(Audio interference) a couple things in (audio interference).

Joe Marsella

Oh, what happened?

Scott McFeely

Brodie?

Operator

Go ahead Joe (phon), your line's open.

Brodie Gage

Can you hear us okay now? We're having technical problems with the (audio interference).

Male Speaker

(Inaudible).

Gregg Lampf

Yes, (inaudible) now.

Female Speaker

We can hear (multiple speakers).

Male Speaker

There we go.

Brodie Gage

Okay. Yes, so there was a couple things in that question. Number one, with regards to higher speed connectivity within the data center, as you move (audio interference).

Can you still hear us, okay?

Fahad Najam

No, you're choppy.

Scott McFeely

You're clipping.

Brodie Gage

Okay.

Joe Marsella

Yes, audio's breaking up.

Brodie Gage

Okay, we'll try again. There's a couple things in that question. As data centers move to higher capacities within the data center, so as you move from 400-gig to A-optics (phon) to 800-gig to 1.60 and 3.2 T, etc., there's absolutely an opportunity going forward for coherent implementations for those what we call Korean (phon) light implementations (audio interference).

Gregg Lampf

Brodie, we're going to have to move on.

Brodie Gage

Yes, we're cutting (multiple speakers).

Joe Marsella

We're going to switch rooms to a different phone. We'll be back.

Gregg Lampf

Okay.

Brodie Gage

Sorry about that.

Gregg Lampf

Thank you.

Scott McFeely

Yes, so maybe I'll jump in and tell you where we have offers today, and where we see this going in terms of the—I'll just call it the virtual edge.

Today, if I look at our offers there, we've built a capability on top of our physical managed service infrastructure basically, where you can drop one of our never-terminating equipments and either your (inaudible) in there, the software infrastructure to run various different VNFs, and we've created a greater number of VNFs that we take that to market through a number of service providers, that sort of the networking offer. Above and beyond that, within our Blue Planet orchestration we had the capability to offer orchestration of those virtual assets, including bundled of course with our networking offer.

Going forward, the other incremental piece of that that we see is as you start where you once started with your question, when you start to see higher bandwidth going into those enterprises, and that bandwidth being Cloud Connect services, we do see an opportunity to actually sort of have a programmable, if you like, virtual wave service that would be offered as a cloud connect service, either via a service provider, or via one of the hosting companies.

That's the future. The other ones I talked about are existing offers today.

Fahad Najam

Scott, if I could follow up, to the extent that we talk about 5G and fiber 5G and potential for Edge Cloud to be as much an enterprise-driven initiative as much as it is a service provider that they should have bought (phon) a cloud provider, that they should have... Just—I'm trying to understand in terms of the fact that if coherent gets pushed deeper into the network, there is obviously the transport opportunity for you, but my real question is more on what emerging software opportunity do you guys see from the Edge Cloud and the metro edge overall, and especially as it pertains to enterprise opportunity, and—because I think that's something that I wasn't privy to, that you guys had meaningful exposure to. Maybe if you could just dive a little bit deeper on that?

Scott McFeely

Yes, I think on the software piece there, first of all, as you—you mentioned 5G and then you mentioned the software piece so I'm going to—I'll talk to both. On the 5G piece of it today, we've had significant success in two domains. One is on the transport part of it, and that's obviously your next generation ex-haul (phon) to meet to architectures that are looking at C-RAN, etc. That's one, and we talked to this some of that in the Chalk Talk. Second one, actually, is as an N band (phon) orchestrator for 5G services with the demand for slicing capabilities and whatnot. That's today on a classic 5G, what our mobility network.

You mentioned private 5G, and lots of talk about that, and people are sort of starting to, say, have worked on proof of concepts and thinking about how they go to market with that. We are participating in there with a couple of different partners on that have radio and compute pieces, and we are providing sort of the networking infrastructure and some SI services around that as well, so we think that's an opportunity, but it's more of future opportunity than people actually making money decisions today.

In terms of the software assets that could fit into that or a broader enterprise play, obviously we talked about the orchestration capabilities of Blue Planet, but we also have, as you know, picked up some assets with the Vyatta acquisition that we did, and in-year right now, they're pretty much focussed on satisfying existing commitments within their install-based customers, but we are getting our mind around: how do we take that to a broader market as well?

Fahad Najam

Appreciate the answers.

Thank you.

Scott McFeely

Thanks, Fahad.

Gregg Lampf

Thanks, Fahad.

Operator

Next, we're going to go to Tim Savageaux with Northland Capital Markets. Your line is now open.

Tim Savageaux

Hi there. Wanted to ask a question, kind of breaking down the TAM increase that you guys talked about in Chalk Talk, in next gen metro edge going from \$6 billion to \$14 billion, is most of that kind of the global GPON, residential PON market if you will? Or are there other pieces worth calling out? And should we be looking at Ciena as much of a candidate to pursue 10G PON business for a lot of these fiber builds that are going on in the U.S. and globally is as much as the incoming players such as a Nokia or someone like that?

Scott McFeely

Yes, thanks, thanks, Tim. Thanks for the question.

Brodie, do you want to take a crack at that one? If you're back.

Brodie Gage

Sure, sounds good. Yes, can you hear me okay, Scott?

Scott McFeely

We can now, yes.

Brodie Gage

Sorry about that, earlier challenges.

With regards to the TAM expansion, we stated that in the next gen metro and edge we're going from \$6 billion to \$14 billion. The current \$6 billion, or the historical \$6 billion that we had at the L2 and L3 access and aggregation business, and the metro WDM market. The additional TAM is based on the service edge routing market that will move to an IP optimal convergence pipe, as well as a portion of the PON market, specifically the 10-gig XGS-PON portion of that market. Those are the two major things that drive the TAM expansion for Ciena.

Tim Savageaux

Should I think about that as a 50/50? Or does that buy us one way or the other between the two...

Brodie Gage

At least initially, it's more biased towards—the heavier portion of it is the edge routing market versus the 10-gig XGS-PON. Over time, 10-gig XGS-PON will grow to be a substantial part of the overall PON market, but that'll take a few years.

Tim Savageaux

Okay (multiple speakers).

Scott McFeely

But I think the other dimension that you have to factor into the addressable piece of it is if you go to the wireless use case that we talked about in the Chalk Talk, historically we've had great success in parts of the world where there has been a Layer 2 wholesale service for wireless, but we'd been cut out of the sell-site rudder domain because we didn't—when those decisions were made 10 years ago, we didn't have an IP offer. We've been building purpose-built portfolio for that opportunity set that's going to present itself, and it's starting to present itself as people start to look at their architecture changes to 5G.

Whether it's numerically in those numbers or not, it's a significant part of the opportunity expansion for us.

Tim Savageaux

Right, so maybe that's a piece of what you might call the edge router market, but a very specialized piece around 5G and sell time (phon).

Scott McFeely

Exactly.

Tim Savageaux

Got it. Then to follow up, to the extent that you're moving closer to the edge, I wonder if there're any kind of meaningful margin implications as you move out in that direction. Historically, the PON market in particular could see a little bit lower margins. I know you're approaching it differently with a pluggable—not a coherent pluggable, and kind of IP capability. But any thoughts on how this increasing presence in metro and access might impact on gross margins over time?

Scott McFeely

Yes, I think, look, I think from the solution sets that we've picked on as our primary focus, Tim, net across all those four use cases we talked about, I think the margins will be at or better than corporate average. The specifics you're talking about as you get closer to the edge, I think we'll probably be at with the corporate average in terms of the approach that we're taking at it, so I don't see we're going to see a significant delta to our corporate average. As this comes as, I'll say, more routing and switching revenue for us, as we've talked about in the past, routing and switching is at a slightly higher margin rate than our corporate average is.

Tim Savageaux

Got it, thanks. I'll pass it on.

Operator

Next, we'll go to Tal Leoni with Bank of America. Your line's open.

Tal Leoni

Hi. I want to go to the basics. What's the advantage of going with Ciena routers? I see that Juniper, for example, is addressing the same market, and again, to my understanding, correct me if I'm wrong, but addressing with the same market with their own routers, access routers, and Ciena is coming from the other side. What's the advantage of using Ciena versus using an existing routing vendor that is already probably providing other routing needs in the network?

Scott McFeely

Yes, I'll paraphrase the question, and I'm going to pass it to—I'm going to ask Joe to speak to it, because Joe was at the coalface at just about every competitive engagement that we have around this part of the portfolio, so he's the perfect guy to speak to it.

Joe, why do we win the different use cases that we have?

Joe Marsella

That's a good question, and one I probably get asked quite a lot these days. At a high level, it's back to the approach that we've taken. We've come at it from a slightly different approach that's not just about protocols and speeds and seeds. Those are certainly important in table stakes to be in the IP game, and I don't want to discount those by any means but we've taken a more operation approach, and this approach we've defined adaptive IP, which is built around the idea of closed-loop automation and creating a multi-vendor capable IP network that's more about how you manage, and the lifecycle of the IP network, and the Day 1 protocols.

Not to speak about specific vendors, as you mentioned, but that story is resonating pretty well, and I think the combination with the optical side of things, as IP and optical converges with the intelligent controller that we talked about, all of that adds to, I think, our bullishness in this space and our belief that we can be successful.

Scott McFeely

If I could add to that, it's also dependant on the use case, so in 5G, in the reason that we've already had winds and been very successful in that space, is one, we had incumbency on the wholesale, that call portion of it, so we had incumbency there, and two, we built the set of purpose-built routers for that application knowing that 5G was going to drive more towers and more capacity for tower, we kind of got ahead of the curve and built routers specific for that use case.

In PON, we've been successful already with multiple accounts, because we've combined the routing function together with the OLT, the head end of the PON function are combined into the router, where it's historical architectures has the OLT and router as separate devices. We've been successful there.

We've been successful in the metro core because we can solve all aspects of the winning end—photronics, coherent modems, IP platforms, NOTS off-box (phon) software including automation and control that allows the customers to manage that entire architecture, that's why we've been successful in these areas already.

Tal Leoni

So, someone that comes—a carrier that comes to Ciena for these solutions, they need to subscribe to your wholistic view of how to manage the IP network, or are they buying it to the point (phon) product to do aggregation of self-site?

Joe Marsella

They can do both. The wholistic view is an architecture that—we built it from a set of disaggregated principles which means you can select some, all, or none of those principles to build a network off of. It's very open from that perspective.

Tal Leoni

What's the reality? How do you see customers deploying it?

Joe Marsella

I mean, it depends on what you're talking about. Tier 1, or the rest of the world? Tier 1s typically buy point products because they have more people, they have more—they can do more analysis, they do our RSPs per product. If you get into the Tier 2s, Tier 3s, rest of the world, they typically like to buy more wholistically from a complete solution perspective, from a single vendor.

Tal Leoni

Got it. Just, my last question—sorry, I'm taking too much time, but I want to finish this topic. When you look at your revenue so far, your order book, etc., give us some—maybe not even data, just call it tentatively talk about the breakdown between Tier 1 and Tier 2s, 3s, and so on.

Scott McFeely

Can you repeat the question? I apologize.

Tal Leoni

Yes. You said that there're different use case, or different kind of deployment cases for Tier 1s, that they're buying more points solutions, and then Tier 3s, Tier 4s, that are doing more wholistic view of their IP network, and they're taking Ciena for higher-level reasons. So when you look at your revenue so far, your order book so far, how is the exposure that you have on the tier 1s who are buying it as a points solution versus someone who is subscribing more to your more wholistic view on IP networks?

Joe Marsella

I think it's pretty evenly split is the best answer I could probably give you.

Tal Leoni

Got it. Great. Thank you.

Scott McFeely

Thanks, Tal.

Operator

Next, we'll have a follow-up from Fahad Najam with Loop Capital. Your line is open.

Fahad, your line's open.

Fahad Najam

Thank you for squeezing me back in.

Scott, I wanted to ask you, in terms of—as you push deeper into the network, closer to the edge, at some point I'm assuming the access or the transport technology there usually comes agnostic, because I've heard of trials at large Tier 1 operators in North America where they were using the pluggable OLT from a company called Tiber (phon) Communications at (inaudible) routing platform, it almost sounds like you can plug in the transport technology into the more IP software-enabled platform. Is that something resonating with customers, or is that something that—kind of like as you push deeper in the (inaudible), you essentially become more agnostic to the transport?

Scott McFeely

Yes, you're absolutely right, Fahad. If you look at the XGS-PON offer, what's kind of unique about this is we brought XGS-PON to a routing platform, and on a sort of port-by-port basis you can configure whether or not you want that to be a PON interface, or an active (inaudible) base, etc. That has a value proposition to our customers that are serving multi use cases from what we call a universal aggregation device.

But what's important to them as well though is 100% consistent software stack, our next generation IP NOS, the fact that that OLT and the PON data path is operationally integrated into our networking capabilities, and that we manage this for them from our domain controller.

Brodie and Joe, you guys can jump in, because you guys are, like I said, you guys are every day talking about the solution in front of customers.

Joe Marsella

Yes, I would say those two main reasons were being successful In this space, and the 10G XGS-PON in particular, and number one, it's, I think Brodie touched on it earlier, in majority of architectures out there, there's no Ciena router sitting next to each other, and we've integrated the two together to simplify how that gets deployed, and that really resonates, particularly, now, back to my point earlier with the Tier 2 and Tier 3 space, less things to manage, less Capex, etc., etc.

The second big reason that I think we're having success, to the point Scott was getting at, is we've been able to better optimize the footprint that these locations—so, our architectural approach from a product perspective, is not about putting big chassis (phon) out in these sites; it's about more of a scalable, those up and down pizza box plug-base model which has quite significant power space, thermal advantages, that it played well into a number of opportunities. That combination of power space, thermal savings, coupled with the ability to combine functionality into a single platform, has really resonated against the traditional PON incumbents so far.

Scott McFeely

I guess, Joe, the other thing is when it makes sense, the fact that they can integrate on more of the networking facing side versus the access side, the world's (phon) best coherent optics is another part of the value proposition.

Joe Marsella

Yes, and I think—and keep in mind, we talk a lot about IP optical. I mean, PON is effectively another form of IP optical, it's just the optical technology's slightly different underneath the covers, so it's very well aligned to our strategy and our core competency, and we fully intend to be successful in this space.

Brodie Gage

And light coherent. It's not just about plugging the plugs in. There's an integration aspect of it, and we've done—like we've done on coherent, we're doing the same on 10-gig XGS-PON, which is integrating it into the platform, having an end-to-end winning hand including the off-box software nomination control and the services to support that.

Joe Marsella

It's a good point, both from the coherent plug perspective as well as the OLT plus perspective. It's not just about sticking a plug in a box. It's a lot of software that has to happen behind the scenes to implement all the functionality. I think we've done a pretty good job of doing that integration on both sides.

Fahad Najam

If I can maybe ask the question in a more high level way, the more value differentiation now becomes increasingly in the software as you push deeper into the edge, and the fact that your loop planner (phon) software has incumbency, and you know how to do service chaining orchestration, in place the (inaudible) to entry from other traditional wellbeing suppliers, why have they not been able to crack this opportunity?

Joe Marsella

Yes, I mean, software's the key part all the way from the network up to the orchestration there, as you said. In the metro and Edge, there's typically more technology types, more vendor types, more things to worry about, and our ability to layer Blue Planet over top of that has been a key contributor as well. It's sort of a one plus one equals three to couple with the underlying network solutions.

Fahad Najam

Appreciate the answers. Thank you.

Operator

Next, we have a follow-up from Tim Savageaux with Northland Capital Markets. Your line is open.

Tim Savageaux

Hi, yes, I wanted to follow-up on kind of the competitive landscape here, and think you'd mentioned that capability across both the kind of photonic area as well as IP would be critical to kind of making the most of this edge opportunity. I might argue also that some incumbency or a stronger presence at the edge or in the access network might be a factor as well. Maybe it's a two variable equation, maybe it's three. As I look across that, it seems like—actually, it seems like Nokia might be your most formidable competitor as

we're talking about these opportunities, perhaps Cisco as well; but I'd be interested in your comments on kind of the broader competitive landscape, whether you might agree with that given the combination of strong IP and optical technology of both of those players, and what you're seeing in the market currently, from a competitive standpoint.

Scott McFeely

Yes, Tim, I think at a high level, you're right in terms of who has the—some aspects of the winning hand, and (inaudible) debate the relative strengths and whatnot between optics, the photonics, the next generation IP, and a set of off-box software tools to be able to operationalize that network. I think it's important though to maybe refine the answer a little bit by use case.

And maybe I'll let Brodie sort of walk around the use cases to give a little bit more insight.

Brodie Gage

Yes, maybe if we just go—I think it's great to go through the different use cases. On the 5G side, who do we compete against? It's the traditional router vendors, as well as the RAN (phon) vendors that have a CSR or routing portfolio. Can you imagine who that is? Again, we've been successful there, because we've optimized our routing platforms for 5G and beyond, and we've gotten the time to market advantage to be successful there.

The other thing I'll point out and that we included in our deck is we do have a Samsung partnership, and the Samsung partnership, it does give us go-to-market benefit, but it also gives us technology benefit in building together solutions that are relevant for 5G and beyond wireless networks, and we've been successful there by being first to market.

On the PON side, if you look at the competitive dynamics, you have two major players: Nokia, you mentioned, Byway's (phon) the other, that have created in two thirds of that market, and if you look at who else is in that market, you have The Sand Zone (phon), K-Licks (phon) and ITrim (phon), relatively small players. Huawei has out of favor in the Western world, and we think there's a great opportunity together with Nokia to grow our market share there, and we're taking a differentiated approach by combining routing and the coherent—sorry, and the pluggable optics as part of that.

In the IP optical space, we believe that the winning hand, again, is the photonics the modems, the platforms, the NOS, and the off-box software. If you look at that, the traditional optical players that just have an optical portfolio will lack IP routing expertise and multi-layer control and automation. The traditional routing players, outside of Nokia, either have no optical capabilities, or have coherent modems that don't have the photonics, or the controller, the multi-layer orchestration and automation. We really like our competitive position there, because we have all aspects of the winning end, and there were very few other companies that have all aspect of the winning end. I think you mentioned one of them.

That's how I would break it down.

Tim Savageaux

Thanks for the color, really appreciate that.

Brodie Gage

Thank you.

Operator

I'm sure we have no further questions at this time. I'll now turn the call back over to Gregg Lampf for any additional or closing remarks.

Gregg Lampf

Great, thank you.

Again, we really do appreciate you taking the time. We know it's a busy time of the quarter for everybody. This was an important topic for us to cover, we wanted to make sure we covered it comprehensively between the presentation that, again, hopefully you all will have a chance to listen to if you haven't already on the website, and we certainly we continuing to talk about this going forward. We're excited, really excited about leveraging the investments we've made over the past several years, and taking about that in this past month's really coming to fruition, and building on the wings we've already developed and the momentum that we have, etc. Please listen up for more information on this, and we'll continue this series of Chalk Talks over time.

Thanks again for your interest and if you have any other questions, please do feel free to reach out to Patty (phon) and myself, and we'll be happy to answer them. Thank you and have a good day everybody.

Scott McFeely

(Multiple speakers).

Operator

This concludes today's conference call.