

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION,

Petitioner,

v.

ALEXANDER SOTO AND WALTER SOTO,

Patent Owner.

IPR2023-00960
Patent 8,238,754 B2

Record of Oral Hearing
Held: December 3, 2024

Before THU A. DANG, JOSIAH C. COCKS, and
KEVIN C. TROCK, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

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The above-entitled matter came on for hearing on Tuesday, December 3, 2024, commencing at 1:00 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

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JUDGE TROCK: Good day, everyone. This is Judge Trock. With me on the Panel today are Judges Dang and Cocks. We are here today for oral argument in IPR2023-00960 concerning U.S. Patent Number 8,238,754. The matter is *Nokia of America Corporation v. Alexander Soto and Walter Soto*.

Before we begin, let's start with appearances from counsel who will be arguing for Petitioner?

MR. STEVENS: Good afternoon. Can everybody hear me okay?

JUDGE TROCK: I can hear you.

MR. STEVENS: So, again, good afternoon. Scott Stevens from Alston & Bird. With me is Mary Riolo. On behalf of the Petitioner, I'll be handling the argument today.

JUDGE TROCK: Thank you, Mr. Stevens. Who will be arguing for Patent Owner?

MR. TONG: This is Peter Tong from Russ August & Kabat on behalf of the Patent Owners. With me are my colleagues Irene Lee and Benjamin Wang.

JUDGE TROCK: Good day, Mr. Tong. Before we begin, I'd like to cover a few guidelines for today's hearing.

First, our primary concern is your right to be heard. If at any time during the proceeding you have technical or other difficulties that undermine your ability to represent your client, let us know immediately, for example, by contacting the team member who gave you the connection information for today.

1 Second, when you're not speaking, please mute your microphone.

2 Third, every time you speak, please identify yourself. This helps the
3 court reporter prepare an accurate transcript.

4 Fourth, we have the entire record, including your demonstratives. So
5 when referring to either a demonstrative or an exhibit or a paper, please do
6 so by exhibit number, slide number, and page number. Also, give us a few
7 seconds after you identify it to pull it up on our screens.

8 And fifth, please be aware that this is a public hearing and members
9 of the public may be listening to it.

10 Finally, at the end of the hearing today, please stay on the line in
11 case the court reporter needs any assistance with spellings.

12 So before we begin, let me ask, Counsel for Petitioner, how much
13 time would you like to reserve for rebuttal?

14 MR. STEVENS: This is Scott Stevens for Petitioner. I'd like to
15 reserve 15 minutes.

16 JUDGE TROCK: That will give you 30 minutes for your main
17 argument. Counsel for Patent Owner, how much time would you like to
18 reserve?

19 MR. TONG: This is Peter Tong. We would like to reserve five
20 minutes, please.

21 JUDGE TROCK: That will give you 40 minutes for your argument.

22 So with that, we can begin. Petitioner, the floor is yours.

23 MR. STEVENS: Thank you and good afternoon again. This is Scott
24 Stevens on behalf of Petitioner, and we'll bring up our slide deck here, and
25 we'll get going. So if we can turn to slide 2, please, from Petitioner's deck.

1 I'm going to take my time here this afternoon to go through five different
2 points.

3 First, I will begin with the overview of the disputes from the
4 briefing.

5 The second part is I'll begin the overview of the challenged patent.

6 Third, I'll speak directly about the motivation to combine that we've
7 identified in our petition.

8 Number four, I'll go to ground 1.

9 Number five, I'll go to ground 2. So that would be the order of my
10 presentation here today.

11 JUDGE TROCK: Mr. Stevens, can I interrupt you for a moment? I'm
12 having difficulty understanding what you're saying. I don't know if it's
13 because of your microphone or because there is a technical issue, but you're
14 coming across kind of garbled. I don't know if there's something we can do
15 about that.

16 MR. STEVENS: That's certainly no good. Let me see if I can take
17 just a minute here and play with our audio settings, if I can make it better for
18 you.

19 JUDGE TROCK: That'd be great.

20 SPEAKER: Can you move the microphone closer? Is that possible?

21 MR. STEVENS: Is this any better?

22 JUDGE TROCK: Not really.

23 SPEAKER: No, it sounds the same.

24 MR. STEVENS: How about this? Is this any better or is that worse?

25 JUDGE TROCK: That sounds a little better.

26 MR. STEVENS: Okay.

1 JUDGE TROCK: Let's try that.

2 MR. STEVENS: All right. If for some reason you can't understand
3 me, please let me know and maybe we can take a quick break and I can
4 arrange a new microphone if that wouldn't inconvenience everyone. But if
5 you can understand me here, I'll try to speak up and speak relatively slowly.

6 JUDGE TROCK: Okay, thank you.

7 MR. STEVENS: Okay.

8 SPEAKER: Can we confirm with our court reporter, please, that she
9 can hear him? Okay, thank you.

10 MR. STEVENS: Okay. So now I'm looking at slide 4 of the
11 Petitioner's demonstratives. And again, one of the key disputes in this case
12 is what we do with the switch. Now, when we filed the petition, we didn't
13 think that this was going to be particularly in context. We are putting the
14 functionality --

15 JUDGE TROCK: Counsel, this is Judge Trock again. I see your slide
16 4 and I hear you referring to the switch. Is it possible for you to bring up --
17 my recollection is that there's more than one switch here with respect to I
18 believe the first reference that you're referring to is *Shraga*. There's a switch
19 on the head end and there's a switch on the client side. I don't know if you
20 can bring that illustration up, I believe it might be Figure 1.

21 MR. STEVENS: Sure. For example, on slide 14, if we could go to
22 that, we see Figure 1. Granted, it's annotated with some color there. But
23 does this work for you, Judge Trock?

24 JUDGE TROCK: That's better. Maybe I can direct you to what I'm
25 thinking.

26 MR. STEVENS: Yeah.

1 JUDGE TROCK: I just don't want to be confused as to what switch.

2 MR. STEVENS: Is this better what's on the screen now, which is
3 slide 18?

4 JUDGE TROCK: That's better. So take a look. On the client side
5 here on 26A, B, and C, you've got switch 64. Each one of them has a
6 switch, correct?

7 MR. STEVENS: That's right.

8 JUDGE TROCK: All right. But there's -- right. There's also a switch
9 in 22 --

10 MR. STEVENS: Correct.

11 JUDGE TROCK: -- which is switch 34. So which switch are you
12 referring to?

13 MR. STEVENS: So let me orient us a little bit what we're looking at.
14 On the left side, the bigger box is the head end, which sometimes is referred
15 to an OLT in this configuration of a passive optical network.

16 JUDGE TROCK: So that's 22, correct?

17 MR. STEVENS: That is correct. That's correct. The claims that
18 we're dealing with in this petition, in this patent, are directed to the devices
19 that would be at a home users, which are generally in the industry called an
20 ONU or an ONT. On the right, we see three sort of redundant ONUs. That
21 might be three different houses within a neighborhood. And so when we're
22 talking about the switch and the pluggable being plugged into a switch,
23 we're looking at the three switches on the right. For purposes of this
24 particular patent and its claims, what we see on the left side isn't terribly
25 relevant. There are other patents in this family that talk about using a

1 pluggable on the head end or the OLT side. That's not particularly relevant
2 to what we're here to talk about today.

3 So to directly answer your question, we're talking about the three
4 redundant ONUs or ONTs on the right and putting the PON functionality
5 into a pluggable that would be plugged directly into the switch.

6 JUDGE TROCK: Okay. So the switch would be, in Figure 1, switch
7 64, correct?

8 MR. STEVENS: Correct. That's right.

9 JUDGE TROCK: All right. Thank you.

10 MR. STEVENS: Yep. So if we go back to slide 4, if I can, and we
11 see here our combination was a pluggable optical transceiver module for use
12 in transmitting data communications over a PON. And we have at the
13 bottom figures from our two references that we're relying upon. You can see
14 on the right from *Shraga* is a block diagram of the logic that would be
15 required to enable communication over a passive optical network. And for
16 what it's worth, the control layer of that is referred to sometimes as a MAC
17 layer, M-A-C, media access control layer. Sometimes you'll see it referred
18 to specifically in PONs as the TC layer, but it's the layer of control of how
19 you're going to frame the data for use in a passive optical network.

20 On the left at the bottom you see Figure 1 from *Togami*, which is, in
21 fact, deployable. You can see right on the pluggable there is a PCB that has
22 control, logic, and memory and a processor and analog functionality, all of
23 which is on the PCB that interfaces on the left side with the actual physical
24 plug that goes into a switch. So all of that circuitry is already there in
25 *Togami*. All this patent purports to do is take some of the MAC layer
26 control functionality and move it to the pluggable. And we're going to show

1 that the prior art gave an explicit teaching to do that very thing and,
2 therefore, the patent should be found invalid as obvious.

3 JUDGE TROCK: Let me interrupt you again, Mr. Stevens. Your
4 slide 4 here, you have framed on the right-hand side of it what appears to be
5 the different elements that you're taking from *Shraga*. Is that correct or is
6 that from somewhere else?

7 MR. STEVENS: So that -- it's correct that this is the functional
8 aspects of *Shraga* that would be accomplished within *Togami*. It's not
9 necessarily that we're taking the specific circuitry. As I show on the left,
10 *Togami* already has the circuitry, *Togami* already has a controller, it already
11 has memory. But the functionality that we see on the right, the framing
12 functionality, for example, that would go into the pluggable along with the
13 actual optical interface.

14 JUDGE TROCK: All right. So I see that the functionality you have
15 framed on the right-hand side here from *Shraga* does not have a switch in it.
16 See that?

17 MR. STEVENS: Correct. We --

18 JUDGE TROCK: Okay. Was this illustrated in your petition that
19 they're -- in the manner that you have here on slide 4 in which you've
20 removed the switch from *Shraga*? Is that somewhere in your petition that I
21 can look at?

22 MR. STEVENS: So I direct you to several places in the petition. You
23 won't find precisely this illustration, but our explanation of the combination
24 is in the petition. For example, at pages 7 to 8 of the petition, when we're
25 describing what the patent is, we say, in other words, the allowance was
26 based on the fact that the PON data communication control functionalities

1 were placed in a pluggable form factor. So that's what the petition is all
2 about, the data communication control functionalities being in a pluggable
3 form factor.

4 We go on, on page 20 and 21 to describe the two different
5 references. And then on pages 26 through 28 of the petition, where we
6 specifically talk about element 1.C, we say, "*Shraga* discloses that each OLT
7 and ONT/ONU contains a control and logic unit, CLU, shown below in
8 yellow, coupled to the optical interface which controls via management
9 software the overall operation of the PON." Then it goes on to describe
10 what it does.

11 JUDGE TROCK: Right. So I'm on 28 in your petition and I'm
12 looking at Figure 1 from *Shraga*. The switches are still there. So I guess
13 what I'm asking is you're illustrating on slide 4 the switch not being there.
14 And the reason I'm asking this question, because it appears that the
15 controversy is whether or not the petition adequately identified whether or
16 not this switch was going to be part of the combination or not. And so when
17 I look on page 28 of your petition, I still see the switches there.

18 MR. STEVENS: Sure.

19 JUDGE TROCK: I'm asking the question, have you adequately
20 indicated that the switch was not going to be part of your combination?

21 MR. STEVENS: If I could take issue with part of the premise. We're
22 not suggesting that the switch is gone. Right? The switch is part of the
23 combination. The claim still requires the pluggable to be plugged into a
24 switch. Right? The question is simply what is the pluggable itself going to
25 include? What functionality is the pluggable itself going to include versus
26 what is going to be in the host device into which the pluggable plugs? So

1 we're not suggesting that a switch just goes away. What we're suggesting is
2 our combination, as we explained in the petition, was taking that PON MAC
3 control layer functionality and simply moving that from the box into the
4 plug hole. We never said that we were going to take the switch from *Shraga*
5 and try to put it into the pluggable. That was never our combination.

6 JUDGE TROCK: So are you suggesting here that the petition was
7 silent with how the switch was going to be handled?

8 MR. STEVENS: No. You know, in claim 1, we very much discussed
9 putting the pluggable into the switch. Right? I mean, *Togami* says
10 explicitly, and I'll get to this in a minute, *Togami* says explicitly that you're
11 going to plug the pluggable into the switch. That's what the petition said.
12 We say that several times in the petition. So that's where the switch is in the
13 petition. We never said put the switch onto the pluggable. What we said is
14 *Togami's* pluggable is going to be plugged into a switch, which is exactly
15 what we're saying now.

16 JUDGE TROCK: Okay. And where does it say that in the petition?

17 MR. STEVENS: So let me sort of look through my notes. I'm being
18 told on page 33 of the petition, among other places, that we're going to have
19 *Togami's* pluggable plug into a switch. And we discussed *Togami* where it
20 specifically says that's what it does.

21 So, again, this whole notion of we're trying to put the switch into the
22 pluggable, we never said that in the petition. Never once said that. What we
23 said is we're talking about the control layer functionality and putting that
24 into a pluggable and that pluggable is going to be plugged into a switch. I
25 mean, it's the very sort of nature of a pluggable. That's what the industry did

1 in the late '90s to come up with these pluggable form factors was to allow
2 them to be plugged directly into a switch.

3 JUDGE TROCK: Okay, thank you.

4 MR. STEVENS: You're welcome. So if we look at claim 5, you
5 know, first off, in fairness, we believe this is sort of a feigned issue about
6 where the switch is going to be that the Patent Owner has created. But if
7 there's any question about it, they found out very quickly in the deposition.
8 You know, we're moving *Shraga's* functionality, everything but the switch,
9 into *Togami*. Right? *Togami* already has the optical system. *Togami*
10 already has a controller. All we're saying is that MAC layer functionality
11 will go into the *Togami* chips on the pluggable on the PCB.

12 So if we go to slide 6, moreover, one of the things that has, as far as
13 my eyes have seen, has never been addressed by the Patent Owner to date is
14 that is *Fujimori's* explicit teaching to do this very thing. The *Fujimori* is a
15 patent specifically about optical plugins. And it says, "An optical-based
16 transceiver, for example, may implement tasks such as," and it lists a few
17 and then says, "media access control, MAC, controlling, and data storage."
18 So we have an explicit teaching in the prior art to put the MAC layer, that's
19 the layer that controls the passive optical network, put the MAC layer
20 directly onto the pluggable. We have that in black -- this is one of those rare
21 cases where we have a black-and-white teaching to do the very thing that
22 we're suggesting by way of this combination.

23 And again, if we can go to slide 7, this is a little bit more about what
24 *Togami* already has. *Togami* already has a circuit board that accommodates
25 the transceiver electronics 103 and the optics, which aren't shown, although
26 it could be comprised of any circuitry or components depending on the type

1 of module being used. We see right there, there's several things listed as
2 103, two of which are chips, two -- and then there's two analog devices
3 sitting right there. So it already has the hardware that you need on the
4 pluggable. All we're doing is moving a little bit of the management layer
5 that was once hosted in the host device onto the pluggable, exactly like
6 *Fujimori* told us to do.

7 And before I leave *Togami* for a moment, I want to talk about what
8 *Togami* was. As I mentioned earlier, *Togami* is a pluggable that is plugged
9 directly into a switch. It doesn't go into an OLT. It doesn't -- it's never
10 disclosed as going into a device itself that would have that MAC layer
11 already. It's disclosed going straight into a switch or a router. While that's
12 not explicit, that's a suggestion already that *Togami* has whatever MAC layer
13 or whatever control layer already on the pluggable because it's not disclosed
14 in being the host device. So we have *Togami* that says take this pluggable, it
15 will do everything you need to do in the optical domain, plug it into just a
16 regular old switch or router. And then we have *Fujimori* telling us explicitly
17 have the MAC layer on that transceiver.

18 Okay If we can go to slide 8, please, a couple things where there
19 does not seem to be a dispute. But for the challenges to claim 1, the PAC
20 owners do not challenge obviousness of most of the dependent claims and,
21 frankly, for those that we do, we don't think there's much of a challenge
22 anyway. Moreover, in the papers they seem to admit that the elements of
23 claim 1 are independently at least shown in *Shraga* and *Togami*. I suspect
24 we'll hear a different tune today, but this is what was said in the paper.

25 If we look at slide 9, now there's also ground 2 and we haven't seen a
26 challenge under ground 2 to anything except for claim 1. As far as what

1 we've read, we haven't seen any rebuttal or rejoinder, the notion that ground
2 2 discloses everything, all of the dependent claims, but for their dispute
3 about claim 1.

4 So moving along now on slide 10 to the overview of the '754 patent,
5 the challenged patent. On slide 11 there was a question in the Institution
6 Decision about whether we needed to get into a dispute about the priority
7 date of the patent. The good news is we don't because the Patent Owners in
8 writing have agreed to assume that the proper priority date is October 30th,
9 2003, and did not attempt in any way to justify an earlier priority. So taking
10 the Patent Owners at their word here, that October 30th, 2003, is the date,
11 there's no question that all the art that we point to in grounds 1 and grounds
12 2 qualify as prior art.

13 So, again, if we look at claim 12 -- I'm sorry, slide 12, the '754 patent
14 came about after a lot of innovation about pluggables and about passive
15 optimum. So the patent -- the '754 patent freely admits in the prior art, as we
16 see labeled here on Figure 13, that modules, pluggable module transceivers
17 were already known in the art. In fact, these MSAs, or multi-source
18 agreements, which, for what it's worth, are sort of like standards. It wasn't a
19 formal standards body, but many of the industry participants came together
20 to define the size and the interface of a pluggable module.

21 These began to publish in the '90s. And what we see here
22 specifically is the SFP MSA or standard that was years before the patent. So
23 there's no question that the notion of pluggable optics existed before the '754
24 patent.

25 If we look at slide 13. Moreover, there can be no question that
26 passive optical networks existed before the '754 patent. The APON standard

1 was back in the mid-'90s. The EPON standard was 2002. And so the notion
2 that there was some -- well, there can't be any notion here that the '754
3 patent invented the concepts of assigning uplink framing windows. Right?
4 That was all in the PON specifications. In fact, several of the drawings from
5 the patent, while they're not properly attributed, some of the drawings from
6 the patents on the timing diagrams are taken directly from what was
7 happening at the standards body, which one of the two named inventors, he
8 was attending those meetings as they went. So PONs were known,
9 pluggables were known, using pluggables for their optics within a PON, all
10 that was known before the patent. What the inventor has told us is the
11 concept here is simply taking that MAC layer functionality and putting that
12 onto the pluggable as well. And as we've already shown, that was
13 specifically suggested by the prior art.

14 So if we look at slide 14, again, the patent also refers to the PON
15 standards. I just want to be very clear, the G.984.3 has the timing
16 information that's disclosed in this patent. There's nothing about the timing
17 diagram that could possibly be new. And on the left in Figure 1, again, the
18 notion of an OLT, the notion of an ONU or ONT on the right, by the way, I
19 use those interchangeably, ONT and ONU for all intents and purposes
20 means the same thing, the device that would sit at the home, all those were
21 known before the patent.

22 So on slide 15, what's the patent really doing? Right? The patent is
23 taking the PON functionality that we see here in the middle, putting it on a
24 pluggable, and then plugging that into a switch or into another device that
25 one would have in the home. So we're taking known pluggables and moving

1 a little bit of functionality, the PON MAC layer specifically, into the
2 pluggable itself.

3 So on slide 16, I put up claim 1 here. I'm not going to read the whole
4 claim, but we see the first limitation is the optical port. There's no dispute
5 that pluggables had optical ports long before this patent. That's right in the
6 late '90s and early 2000 MSAs. No question that bidirectional optical
7 interface blocks, in other words, the block that would take something from
8 optical to electrical or convert from electrical to optical, those were known
9 before this patent on pluggable devices. There's the control module. No
10 dispute that pluggable devices had control modules. Again, the alleged
11 difference here is this -- the start times being controlled by the control
12 module. Again, that's just the PON MAC layer functionality. That's just the
13 basics of how one actually uses a PON being on the pluggable. And the
14 fourth element is the electrical network interface port. Obviously that's not
15 new either. Pluggables had a way to interface into the plug of a switch or an
16 ONU before this pattern.

17 So the only thing here is the notion of putting the start time
18 information, the start time control within the control module on the
19 pluggable. And again, as I showed you, that is already suggested by *Togami*
20 and explicitly mentioned by *Fujimori*.

21 If we can go to claim 17. So let's talk specifically about the motion
22 to -- I'm sorry, the motivation to combine. So on slide 18 we see our two
23 references.

24 On slide 19, again, before we do anything to them, *Togami* already
25 has all the hardware it needs right on the pluggable. It's already got control
26 circuitry. And then it says you can put any other circuitry you want right on

1 it. So we've already got a controller right on there. All we're doing is
2 putting a little bit of functionality onto that as explicitly told to us by other
3 patents.

4 Now, on slide 20, this is also from *Togami*, and I want to read this.
5 "Typically, a transceiver module is electrically interfaced with a host device,
6 such as a host computer, switching hub, network router, switch box,
7 computer I/O, and the like, via a compatible connection port." Okay. So
8 right now we're talking about plugging the pluggable into the connection
9 port in a host device. And what is specifically listed here as two potential
10 host devices are the network router and a switch box. What's not listed here
11 is putting the pluggable into an ONT or ONU that itself would have the PON
12 layer, the MAC layer of a passive optical network. That's not suggested
13 here. It's plugging directly into a switch, which means, by definition, as it
14 existed in *Togami*, the pluggable itself had to have all the control, logic, and
15 management functionality in it to be able to take whatever the physical
16 medium dependent layer is, the MAC layer, and turn it into ones and zeros
17 that can be transported over other electrical interfaces like an ethernet. So
18 *Togami* already tells us that we're plugging this right into a switch, so it's got
19 to have whatever functionality it needs on.

20 On slide 21 we go through the six bullet points of, in addition to
21 what is explicit in the references, why there would have been a motivation to
22 combine these: ease of installment, less downtime, compact size, more cost-
23 effective, universal compatibility, and simplification of system upgrades.
24 Now, the Patent Owner says, well, those are benefits of pluggables, period.
25 Not benefits of putting the MAC layer, the control layer, onto the pluggable
26 itself. But that's not exactly right.

1 The reason you put -- the reason there's a motivation to put the MAC
2 layer onto the pluggable is then you can put it right into switches. You don't
3 have to have an OLT at all, right? You can have a switch that has 8 or 12 or
4 16 ports or cages for these pluggables and plug those all in. And then if you
5 wanted to upgrade from EPON to GPON as the future happens, instead of
6 replacing that switch, the most costly device you can just leave in the shelf,
7 all you have to do is take out these pluggables and put new ones in. So the
8 cost-effectiveness of it comes from the fact that the main box is just a switch
9 that can sit there forever. It does not -- otherwise, if that PON functionality,
10 the MAC layer, were on the bigger box, you would have to pull that out
11 every time you wanted to upgrade to a new level, a new level of a faster
12 passive optical network.

13 If we look at slide 22, a POSITA would have known about this, as
14 we cite in the petition and as our declarant explains.

15 Again, slide 23, there's this notion of, you know, the trend of
16 shrinking. Sure. And that's all already on *Togami*. Again, I think what the
17 Patent Owner is going to say is, oh, you couldn't have shrunk the MAC
18 layer. Right? The MAC layer is simply functionality that could exist on a
19 processor. And again, we already see in *Togami* that it's right there in the
20 pluggable form factor ready for us to go.

21 And on slide 24, while I mentioned this earlier, I don't think there's
22 been any rejoinder to this in any of the paperwork that here there's an
23 explicit black-and-white motivation to do the very thing that we're talking
24 about. *Fujimori* tells us, again, an optical transceiver, for example, may
25 implement tasks such as, and it lists several, and goes on to say, "media
26 access control (MAC), controlling, and data storage." We have an explicit

1 reference to put the MAC layer onto a pluggable right there in black and
2 white.

3 On slide 25 there's a notion of again separating the control logic from
4 the switch. We're not suggesting -- I want to be very clear about this
5 because you're going to hear these five options of how one could view this
6 and I don't want there to be a question about what our argument is. We're
7 not suggesting that the controller for the switch would go into the plug. It's
8 the functionality of the MAC layer of the PON that we're putting into the
9 plug. The control functionality for the switch is going to stay with the
10 switch. We're not splitting up those two things. Controller for the switch
11 stays with the switch. Controller for the actual PON, the MAC layer of the
12 PON, is in the plug. That's what we're saying here. That's what those
13 *Fujimori* and *Togami* explicitly suggest is the way of looking at this.

14 So this notion that there's not a motivation to combine because we'd
15 be splitting up the switch from its own controller, we're not suggesting that.
16 That's not at all what our position is in this case.

17 JUDGE TROCK: Mr. Stevens, you have about two minutes left.

18 MR. STEVENS: Thank you. Then on the last motivation to combine
19 we see here on slide 26 -- and I'd like to -- there's this notion that this ONU
20 that they say is an exemplary ONU couldn't fit on a pluggable. If we
21 actually look at Exhibit 2025 for a second, I'd like to show the -- what they
22 have shown as the "exemplary" ONU, and it's this very high-end device. It's
23 an ONT for multi-dwelling unit. This is not a typical run of the mill device.
24 You can see right on the screen it provides 24 lines of voice service, it
25 provides 12 lines of DSL service, it provides 12 lines of coax service. We're
26 not trying to put the Motorola ONT 60,000 onto a pluggable. That's simply

1 not what we're doing. This is another straw man. All we're saying is taking
2 that control level layer functionality that's already defined by the standard
3 and putting that into a pluggable where the art tells us already to do it.

4 And while I won't walk through all of our grounds at this point in
5 time, again, I don't think there was any dispute in the papers that everything
6 is found within those. I suspect you're going to hear today that we didn't
7 show that the controller is electrically coupled to the electrical interface from
8 the pluggable into the host device. And I think, frankly, that's just silly. We
9 showed that several times in the petition as I showed you in *Togami*, it
10 explicitly shows the same PCB, the same board, has the actual interface on
11 one side and has the controller right there on it. So there is explicitly an
12 electrical coupling between the control module and the control module port
13 of both the pluggable which plugs into the switch or router.

14 So if there are any -- unless there's any other questions, I'll sit down
15 and reserve the rest of my time, but I'm happy to answer any questions that
16 anyone may have.

17 JUDGE COCKS: Mr. Stevens, this is Judge Cocks. I do have one
18 question. Is it fair to say that in your combination the functionality of
19 *Shraga's* switch 64 is retained, it's just performed by a different component,
20 presumably a switch of *Togami*? Is that accurate?

21 MR. STEVENS: That's right, yeah. Whether you view that as the
22 switch of *Togami* or the switch of *Shraga*, yes, that is retained. The switch
23 functionality, the controller for the switch, that's staying in the bigger device,
24 right, because you plug this pluggable into a switch and then, you know,
25 your switch might have a Wi-Fi router, it might plug into three different
26 computers, maybe you have your printer all networked. That's why you

1 need the switch. The passive optical network doesn't care about the devices
2 you're going to plug into it.

3 So that's exactly right. That's going to be retained. The switch
4 functionality is going to be retained into the host device into which you're
5 going to plug the pluggable just as in shown in *Togami* as well as suggested
6 -- or explicitly also shown in *Fujimori*.

7 Does that answer your question, Judge Cocks?

8 JUDGE COCKS: It does. Thank you.

9 MR. STEVENS: Thank you.

10 JUDGE TROCK: Okay. Hearing no other questions, thank you, Mr.
11 Stevens.

12 MR. STEVENS: Thank you.

13 JUDGE TROCK: Patent Owner, you have 40 minutes. You may
14 begin.

15 MR. TONG: Okay. Thank you. Can you hear me all right?

16 JUDGE TROCK: Can.

17 MR. TONG: Okay. So what you just heard from the Petitioner was
18 not the theory that they set forth into in the petition. From day one they
19 never had a real concrete theory as to how to combine *Shraga* and *Togami*.
20 And I'm going to go through how this all played out. But they eventually
21 end up with this split up, the CLU theory, and it has shifted four different
22 times.

23 The question that we're here to answer today is whether or not it
24 would have been obvious for an SFP pluggable that is this size -- I have
25 printed out and assembled from the SFP spec a 2.2-inch SFP pluggable
26 module. And I have to scale the ONT device that Dr. Prucnal pictured in his

1 surreply. Using this 4-inch edge of the battery for scale, he marked all of
2 this as a relevant functionality and maybe the yellow part, too. He's not very
3 clear. The question is wouldn't a PHOSITA have looked at this and thought,
4 oh, yeah, it's obvious that needs to go in here? And I respectfully submit the
5 answer is no.

6 I'm going to walk through the '754 patent and show how it basically
7 already discusses everything that's in *Shraga* and *Togami*. We don't have
8 any real new substantive evidence here except the declaration of Dr. Prucnal.
9 And that is just completely worthless because he is a paid expert. He's being
10 paid by Nokia \$725 an hour to give self-contradicting opinions to this Board
11 and to the District Court. I'm going to address every single combination
12 that's at issue and point out the deficiencies, and then I will explain why the
13 motivations that the Petitioner has raised are not tethered to what they're
14 actually proposing to do.

15 So let's -- I'm going to go ahead and share my screen. Can you guys
16 see this?

17 JUDGE TROCK: We can.

18 MR. TONG: Okay. So the '754 patent, this takes us back to 2003.
19 This data is no longer in dispute. Okay. But this goes over what was in a
20 typical optical module. You see there is no control module here. It's got the
21 laser, the photo detector, a serializer and deserializer, amplifiers. What they
22 said about *Togami* having already having a control module, that's not in
23 here. The Institution Decision also cited this figure showing what was in the
24 prior art, different levels of integration. Yes, these ICs might be integrated.
25 So, again, *Togami* is really not teaching us anything new. This was already
26 known.

1 Here what we have is an exemplary optical module. And you'll
2 notice that we're adding things like a microcontroller, a clock generator. We
3 have this discrete chip that was not previously assembled like this. So these
4 are all new components not in *Togami*.

5 And the '754 patent itself describes the industry trend of how the
6 industry was trying to shrink these things. It was trying to make them
7 smaller, more power efficient, less expensive. And that's kind of the point of
8 the invention, which is it really went against the grain. That's why it states
9 in the patent itself that the very nature of the intent of the invention is
10 contrary to the evolution of MSA 10 gigabit per second optical modules is
11 that an increase in power and number of components result while enabling
12 point-to-multipoint networks. That's the real benefit here. It is the ability to
13 enable point to multipoint networks.

14 But you notice that we are increasing the number of components
15 here. The motivation that they propose in hindsight of reducing costs, that's
16 not real because when you have more components, it gets more expensive.
17 So let's start with *Togami*. This is really just relied on for an SFP
18 transceiver. There's nothing new in here that wasn't already known to the
19 examiner. It's, you know, there's no dispute that really all it does is electrical
20 optical signal conversion. There's nothing in *Togami* that talks about how
21 it's doing any type of scheduling or any type of controlling or anything in
22 the, in the MAC layer. That's not in *Togami*. You won't find it.

23 This picture just shows it is an electrical optical converter one way or
24 the other. If we compare the typical optical module to *Togami*, this is what's
25 in there. There is no controller, there's no microcontroller. That was not
26 there when Petitioner was highlighting those yellow components. There's

1 nothing in *Togami* that says that that's already some type of controller. It's
2 just a serializer and deserializer is what it is.

3 JUDGE TROCK: Mr. Tong, this is Judge Trock. When you move
4 slides and you start referring to a different slide, if you could identify the
5 slide, that would be helpful.

6 MR. TONG: Thank you for the reminder, Judge. All right. Moving
7 to slide 14, both the experts agree that this SFP is exemplified and described
8 in the SFP MSA. So on slide 15, we take a look at this SFP MSA. When
9 we look at how big this thing is, slide 16 shows the dimensions. The largest
10 dimensions are 13.7 millimeters, 8.5 millimeters, and 56.2 millimeters. That
11 overall transceiver length is, again, just 2.2 inches, roughly the size of my
12 thumb. This is what we're dealing with. It has a power limit of 2 watts for
13 everything in there. That's all it can receive. That's all the heat that it can
14 dissipate. Anything beyond that, you're not going to be able to do it. You're
15 going to violate the SFP spec. If you had too many components that use too
16 much power, you're not going to be compliant.

17 This was that picture that I had printed out and assembled to show
18 you the actual size of this device. Now, there is an error here on slide 17.
19 The 8.7 millimeters should be 16 millimeters. That's half an inch, not a
20 quarter-inch, but it's tiny. If we look at the pins here, this is relevant to the
21 dispute about what *Shraga* CLU has to do. All of the pins are used up.
22 There are no extra pins that a CLU can use in order to control *Shraga's*
23 switch 64, which they admitted they're relying on.

24 JUDGE COCKS: Mr. Tong, this is Judge Cocks. I have a question.
25 Are we to take from the dimensions you have highlighted that those are hard

1 caps and that a person or any skill in the art would appreciate that larger
2 sizes are simply not feasible or not known or something to that effect?

3 MR. TONG: Larger sizes would not be compliant. This is an
4 industry standard. If you don't make -- you can certainly make a device
5 that's bigger than this, but you would lose the benefits of standardization.
6 And I don't think it's in dispute that that overriding detriment, losing the
7 benefits of standardization, would deter any other possible motivation you
8 would have to make a modification. It's very important that you stay
9 standardized so you, you know, you can be compliant with the industry.
10 You can have interchangeable devices. You know, they all fit in the same
11 slots, et cetera.

12 MR. TONG: Thank you.

13 Speaker C: So, moving on to slide 19. There's this dispute in the --
14 Petitioner's reply where they argue that Dr. Willner admitted that there are
15 control pins. There certainly are control pins, but these are for controlling
16 the SFP itself. There are not pins that allows a CLU inside of an SFP to
17 control a switch that is outside of the SFP. The control pins are what I've
18 highlighted here. It's the Transmitter fault, transmitter disable, the rate
19 select, and the loss of signal pins. These cannot be used by a controller
20 inside the SFP to control something outside.

21 If you take a look at the SFP spec at page 24, this is on slide 20, we
22 see the descriptions of what these do. None of these pins are for controlling
23 a switch.

24 Moving on to *Shraga*. So on slide 22, this is a picture of *Shraga*.
25 On slide 23 we have Figure 1 that is heavily relied upon. And the way this
26 works is we've generally discussed it, but you get fiber here from the head

1 end. All of this is fiber. There's some network that distributes these fiber
2 connections and they go into these ONTs. The ONTs have this optical
3 interface block 52 that converts your optical signal into an electrical signal
4 that can then be further processed electrically. Again, there's nothing here
5 that was that. That's really new. It was already disclosed and considered by
6 the examiner.

7 We see the -- from the '754 patent, it talks about what's in a
8 conventional switch. It talks about how there are these ports. It talks about
9 how there are framers. It talks about how there's egress and ingress blocks.
10 And it talks about how switches, again, these really big devices, may have
11 had big controllers, power-hungry controllers like the CLU. This was not
12 something in pluggable optical transceiver modules. And of course, here's
13 the big switch with multiple ports going out. So this is not something new.

14 Again, to put this in context, when I deposed Dr. Prucnal about it, I
15 asked him how big this was. He said it was maybe a foot by a foot and a
16 half. So this exemplary Motorola ONT, actually I've got it upside down,
17 again, printed out to scale with its left side being 425 millimeters long. This
18 is a big device. I'm not going to shy away from the fact that, yes, there is a
19 switch in here, there is a power supply in here, and they do take up a
20 substantial amount of room.

21 But if we look at what Dr. Prucnal annotated, this was from his
22 supplemental declaration as shown on slide 26. He drew the blue and
23 yellow box. These are 6 inches by 8 inches, approximately, each of the blue
24 and yellow boxes. That's how much circuitry is supposedly implementing
25 the functionality here being shown in *Shraga's* ONT. I think the yellow box

1 is supposed to represent the switching side and the blue box is supposed to
2 represent the other stuff.

3 So what part of *Shraga* are we looking at? Well, the Petitioner's
4 theory relied on these components heavily. The red CLU block, the yellow
5 FIFO blocks, and this blue switch box. These were annotated by the
6 Petitioner in the petition. And one thing you'll notice is that the CLU is
7 highlighted solidly. They didn't put a stripe in it in the petition. They've
8 now changed their theory to say, oh, well, we only want to move half the
9 CLU because you kind of pointed out that you can't move the entire CLU.
10 They're doing that in hindsight, Your Honor.

11 When we look, again, when we look at what Dr. Prucnal wrote in his
12 declaration, he is relying on the CLU, the switch, and the fact that this CLU
13 is electrically coupled to the switch. That was their theory. That's what they
14 pointed to. When I asked about this in deposition. He confirmed the control
15 module has to be electrically coupled to the switch. I asked him what, you
16 know, why? And he said that the CLU must be electrically coupled and it
17 does so in order to control the signals received from the CLU and so you can
18 switch between services.

19 He said the same thing in his expert report in litigation. Again,
20 they're relying on the entire CLU, the entire switch, and these FIFO blocks.
21 That's their theory.

22 So now I'm going to get into their combinations or their lack thereof.
23 The first thing that I want to point out is that the petition failed to actually
24 articulate what modification they are making. Sure they said that they are
25 combining *Shraga* and *Togami* somehow. But this is it. This is all the
26 detail. They didn't say we're going to split functionality out of the CLU.

1 They didn't say, okay, well, we're relying on the switch 64, but we're not
2 really proposing that it goes into the pluggable. We're proposing that you
3 actually separate that out. None of that is described in the petition itself.

4 Judge Trock was very astute in raising his initial question of, you
5 know, what switch we're relying on. As we just saw, they're relying on that
6 switch 64 and they do not have a theory of -- that is clearly articulated as to
7 what they're actually doing with it.

8 So that led to the POPR that we find. It was a while ago, but we had
9 thought that they were proposing to replace just the optical interface of
10 *Shraga* with *Togami*'s little SFP. That was the only thing that we thought
11 made sense because it just seemed ridiculous to propose taking such a large
12 device and shrinking it down into a two-inch pluggable module. So we
13 generally thought that they were suggesting to replace the optical interface.
14 That's what we address in the POPR.

15 The Board said, you know, that's not what they said. I suspect the
16 Board tried to look for what the actual combination was. And the Board
17 just, again, explained that you combine *Shraga* and *Togami*, but there's no
18 really explanation of how you're making that combination. So I spent a long
19 time in the deposition asking what exactly is your combination, Dr. Prucnal.
20 This is seen on slide 35 and we'll get to what he explained in deposition.

21 But first on slide 36 I want to talk about the unrebutted combination.
22 This is the combination that we propose in our POPR. It's the combination
23 that Dr. Willner suggests actually makes sense. The undisputed result of this
24 is that there is no CLU that is moved into *Togami*'s pluggable optical
25 transceiver module. But it makes sense. It works.

1 What is the combination? Slide 37 shows it. We see the electrical
2 and optical domains of *Shraga's* PON network. These yellow highlighted
3 optical interfaces do optical-to-electrical conversion.

4 On slide 38 we see the *Togami* pluggable module that does the same
5 thing. And Dr. Willner agreed with us in that as described in the POPR, if
6 you were to make this combination, all you would do is replace that optical
7 interface with *Togami's* pluggable transceiver module. This is the result. It
8 is a simple substitution of a component that does the exact same thing. You
9 have -- they're approximately the same size, they use about the same power.
10 It's simple and it works. It's un rebutted that this is what a PHOSITA would
11 actually have done if given *Togami* and *Shraga*.

12 JUDGE COCKS: So Mr. Tong, this is Judge Cocks. Ground me
13 here. So in this combination that you've characterized as Possibility 3, if it
14 works, what feature of the claim is then presumably absent from this
15 combination?

16 MR. TONG: Yes, Your Honor. The claim requires a controller or
17 control module be inside the pluggable optical transceiver. Here the CLU
18 remains outside. So that was in our POPR, our preliminary response, and it
19 is fully addressed there. And this is undisputed.

20 Again, for reference, if we want to look at the actual device, you
21 know, something this big, a two-inch pluggable module, it would just
22 replace that component right there. Makes sense. Just replace the optical
23 transceiver module.

24 Similar thing. If we were looking at Dr. Willner's supplemental
25 ONT from Verizon, that's where it would go as shown on slide 42. It does --

1 it just replaces a part that does the same thing. No size problems, no power
2 problem.

3 So this is the part. Slide 43 shows the part of Dr. Willner's
4 declaration, paragraphs 86 and 87. He explains how this makes sense and
5 how it could be done.

6 So this takes us to Possibility Number 3 on slide 44. Petitioner
7 absolutely proposed to stick everything from *Shraga* into *Togami*'s SFP,
8 even the switch. The reason why Petitioner proposed this is because they
9 are coming up with theories in hindsight. Petitioner is desperately trying to
10 run away from this. But I'm going to show you the evidence where they
11 explicitly said this was their theory.

12 Okay. To be clear, slide 45 shows what the theory is. You basically
13 take that gigantic ONT, you shove it into a two-inch pluggable. Doesn't
14 make sense, it's just too big. You can look at this and there is no PHOSITA
15 that is going to just assume you can do it. There's no reasonable expectation
16 of success.

17 In the petition pages 32 to 33, Petitioner highlighted switch 64 and
18 relied on *Shraga* for the switch or router. In the -- in Dr. Prucnal's
19 declaration he relied on *Shraga* for teaching that switch or router. When I
20 asked him in deposition about element 1E, claim 1 continues, "And
21 configured to removably couple to an optical module port of a switch or
22 router. Did I read that correctly?"

23 Answer, "Yes."

24 "What would be the switch or router that is taught by either of these
25 references?"

26 Answer, "Well, that's described in some detail in my report."

1 Question, "Is that switch 64 of Figure 1 of *Shraga*?"

2 Answer, "Yes, sorry, that's the switch. Yes, 64 is a switch."

3 Notice that Dr. Prucnal did not say no, I'm not relying on switch 64,
4 I'm relying on some other switch that is not here or I'm relying on some
5 generic switch or I'm disavowing the colored switch of *Shraga*. He didn't
6 say that. He said 64 is the switch.

7 JUDGE TROCK: For the record, this is slide 49. And Mr. Tong,
8 again, not to belabor it, but please identify the slide for purpose of the
9 transcript. Thank you.

10 MR. TONG: Yes, thank you. Moving to slide 50, not only did he
11 rely on switch 64, but, as we see from Exhibit 2021, page 95, Dr. Prucnal
12 said, "Now, I've also discussed, and I think I mentioned earlier, the
13 possibility that the pluggable also has a switch inside of it." That was Dr.
14 Prucnal's theory.

15 Moving to slide 51, he says it again. As we see on the right side
16 when I'm trying to clarify what his combination is, he says, "The only
17 difference is that the -- the ONT might or might not contain a switch; the
18 pluggable may or may not contain the switch. The switch can be inside or
19 outside the pluggable." He's coming up with these in hindsight.

20 So during the deposition I took a break. I clobbered together this
21 demonstrative exhibit and I put it in front of him. It's shown on slide 52 and
22 then the following line of questioning is on slide 53. I asked him, "Is this
23 what you were envisioning as the obvious result from reading *Shraga* and
24 *Togami*?" The witness said, "So this -- this is close. I've indicated that there
25 are two possibilities, which are a design choice, as I said in my declaration.
26 One of them being this. And the other one being that the switch 64 is also in

1 included in *Togami*'s module. And then it might be plugged into a different
2 switch."

3 So he is very much proposing as his combination to shove the entire
4 thing, including a multiport switch, into this two-inch pluggable optical
5 transceiver module in hindsight.

6 On slide 54 we see later in the deposition I asked him, you know,
7 how exactly would you do this? He said, "I haven't thought in detail about
8 how the circuit would be wired." He wasn't thinking about it, he just came
9 up with it in hindsight.

10 Slide 55 is a demonstrative of just how silly this thing would be. You
11 cannot have a switch that even has a minimum number of two ethernet
12 outputs. There's just no place for those to go on this device.

13 Possibility 4, slide 56, this is starting to get into what Petitioner
14 appears to be somewhat settling on is that you take everything from *Shraga*
15 except the switch and you somehow implement that in *Togami*.

16 Slide 57 from the Willner declaration shows how this is. One thing I
17 will point out is that we are citing to -- you know, this figure was used in our
18 Patent Owner response. Petitioner's slides and demonstratives, they omit the
19 switch 64 and they've replaced it with a brand new icon to try and distance
20 themselves. But they very much relied on switch 64 of *Shraga*.

21 What is the problem with this combination? That they are relying on
22 the CLU and the switch *Shraga* and Dr. Prucnal, as shown on slide 58, in his
23 declaration he said that, "A POSITA would have understood that, for the
24 switch and *Shraga* to operate according to controlling signals from the CLU,
25 it must have been electrically coupled to the switch." This means that

1 *Shraga's* CLU and switch, it is critical that they remain connected to each
2 other. The CLU controls the switch.

3 On slide 59, he confirmed the same thing in his deposition. He said,
4 "In other words, the control module has to be electrically coupled to the
5 switch. And the logic that I'm presenting is that *Shraga* teaches that the
6 switch is controlled by the CLU, and, therefore, the CLU must be
7 electrically coupled to the switch." The problem with the theory of
8 separating the CLU and the switch is that they can't remain connected and
9 control each other anymore.

10 Slide 60 shows that Dr. Prucnal said the same thing in his expert
11 declaration in litigation.

12 Slide 61, Dr. Willner analyzes this, and this is where Dr. Willner said
13 that, no, you can't actually do that. You cannot separate *Shraga's* CLU from
14 its switch 64 because there's no way to control it. As modified by Dr.
15 Prucnal, the two FIFO blocks and the CLU would "all need to be connected
16 through the SFP electrical interface of the switch. An SFP interface has
17 various standardized pins. There are not extra pins in the SFP interface for
18 accommodating control signals from the CLU to the switch." So that's why
19 you can't do it. That's something that Petitioner did not realize when they
20 came up with this theory.

21 Again, we've looked at these pins before, but all the pins are used up.
22 This table again gets into the control pins. These cannot be used by a CLU
23 to control a switch. This is what the Petitioner is pointing to in their
24 response.

25 So, again, even without the switch, is there an expectation of
26 success? If you want to look inside just the ONT, the exemplary ONT used

1 in a home that does not have a gigantic switch. Dr. Prucnal provided this.
2 He is the one who put this blue box around the components that are
3 somehow going to fit in a two-inch pluggable. And respectfully, no, that's
4 not obvious to do.

5 Why was it this big to begin with? He said that Verizon installed
6 this in his house around 2007. Why several years later, after the patent, did
7 Verizon not make the changes and modifications that Dr. Prucnal was
8 proposing? Why did Verizon not feel the need to reduce its own costs if
9 there were cost savings to be realized? Why did Verizon not find the need
10 to, you know, improve the replaceability of components? It's because those
11 benefits that I'll get to later, they don't make sense.

12 So this takes us to slide 66 where I'm addressing Possibility Number
13 5. We are looking at the new theory in the surreply, which is to take parts
14 from *Shraga* except for the switch and you put those into *Togami*, but
15 somehow you're splitting up functionality from the CLU. It's unclear what
16 functionality you're splitting out, but we'll address it here.

17 On slides 67 and 68, the point I want to make is this is not a theory in
18 their initial petition. If on rebuttal you ask Petitioner where did you talk
19 about splitting out CLU functionality? Give me a page in the initial petition
20 or the initial Dr. Prucnal declaration. It's not there. There's no mention of
21 splitting out functionality or separating the CLU into two CLUs.

22 What is this theory that Petitioner raised in its response? Well, they
23 want -- slide 69, this is from their petition reply. They want to separate out
24 the PON or ONT related components from non-PON related components. I
25 don't know what that means, Your Honor. If we look at slide 70, the ONT is
26 the entire right thing. It's unclear what part of that entire thing is being

1 separated out from the CLU. In slide 71, this just shows that in their petition
2 they also highlighted the entire red block as the ONT. They can't even
3 articulate what ONT functionality they're trying to separate out from here.

4 On slide 72, I want to make the point that *Shraga's* CLU is not a
5 generic CLU. *Shraga's* CLU is configured to perform this bandwidth
6 management method that is described in Figure 8. There's a CLU in the
7 head end, a CLU in the ONT, but they would perform their respective jobs.
8 If you split the CLU in half with some of it in a switch, some of it in a
9 pluggable, which part is going to be requesting or receiving these requests
10 for bandwidth changes? Which part of it is going to determine if sufficient
11 bandwidth is available? Which part of it is going to reallocate the time
12 slots? Is it the half of the CLU in the pluggable or the half of the CLU that's
13 still attached to the switch? How are they going to communicate with each
14 other? None of this was addressed by the Petitioner. It's unclear if this
15 could even be performed at all. And you would be basically disabling this
16 and changing its mode of operation.

17 On slide 73, no matter what combination you consider, Petitioner has
18 failed to show that this element is met by their combinations, an electrical
19 network interface port. Let's look at what they proposed.

20 In the petition on pages 31 to 32 as shown on slide 74, they are
21 talking about the connection between the FIFO blocks and the CLU. And
22 again they mention how the CLU controls data ingress.

23 On slide 75, this is what they highlighted again, the CLU, the FIFO
24 blocks. This is what they're relying on.

25 On slide 76, I didn't know exactly what they were pointing to as the
26 electrical network interface -- or, sorry, the electrical interface port. So I

1 asked them in deposition, "What exactly are you pointing to as the electrical
2 network interface port in the final combination that a PHOSITA would find
3 obvious?" Dr. Prucnal answered, "There's quite a bit covered in this section,
4 but the electrical interface port, as I described in paragraph 140, is the
5 connection between the FIFO and the CLU."

6 Slide 76 shows this connection. We don't dispute that the CLU is, in
7 fact, connected to these FIFO blocks, but that's the theory that Dr. Prucnal
8 has relied on.

9 We need to reconcile this with what's shown on slide 78, which is
10 that the corresponding part of *Togami* is this terminal electrical connector at
11 one end that is supposed to couple into a switch. Slide 79 shows how this
12 might be done. This means that Dr. Prucnal's identification of the electrical
13 network interface port, this terminal end of *Togami* is somehow supposed to
14 represent this connection between the CLU and the FIFO blocks. This
15 doesn't make sense. That would mean that either the FIFO block has to be
16 inside *Togami*'s SFP and the CLU is outside, or it means that CLU is inside
17 and the FIFO blocks are outside because it's the terminal end. They're just
18 pointing to things in the prior art without thinking about how to actually
19 combine them. This is all hindsight.

20 Starting on slide 80, I'll address the motivations and the objective
21 indicia of obviousness. So before I start, I want to give some context about
22 PONs. This is from Exhibit 1012. We see a picture here on slide 81. This
23 shows the typical use cases of a PON where you have an ISP, Internet
24 service provider, sending an optical fiber to an ONT which can -- or, sorry,
25 to an OLT which uses a passive optical network to provide Internet access or
26 other data access to either homes or apartments or businesses. What you'll

1 notice is that typically the connection upward, you have one connection
2 upward, that is to your Internet service provider. Your house, you probably
3 connect to Comcast or AT&T. You're not connecting to -- you know, you
4 don't have an uplink to all your other neighbors.

5 So if we look at these devices, they have one fiber uplink port. This
6 whole thing about port density, it's not a real concern. There's only one port.
7 The port density issue is not an issue that is a concern in PONs. It might be
8 a concern in data centers, but that's not a motivation to do anything with
9 *Shraga* because *Shraga* is a PON. You only have one uplink port. There is
10 no density problem.

11 If we look at the financial motivation, is it would this have reduced
12 prices? Would this have lowered manufacturing costs? Well, the evidence
13 is that when the Soto brothers tried to prototype this, they were unable to.
14 The Soto brothers tried to seek funding to make a prototype and no one
15 would fund them. It makes sense that if there was a lot of financial savings
16 to be made, there would be a big profit margin.

17 We see here some testimony on slide 83. The deposition testimony
18 from the litigation case was that we contemplated doing so, but it would
19 require a lot of custom boards, AKA it would be very expensive. And he
20 said that and that was expensive to do and, again, why we were seeking
21 funding.

22 On slide 84, again he talked -- the Soto brothers talked about how
23 they tried to get a prototype, but it was just too expensive. In the end, they
24 were unable to prototype because they couldn't get funding. The VC
25 funders, independent of this litigation, who aren't being paid 725 bucks an

1 hour, did not think that there was, you know, a financial incentive there.
2 That is something that, again, Petitioners are making up in hindsight.

3 When we look at compatibility, ease of installation, these are not
4 tethered to the theory of splitting up CLUs that Petitioner is now proposing.
5 We now have two CLUs. Is that supposed to somehow reduce your costs?
6 *Shraga* had a CLU that worked perfectly fine in generic ONTs, but now you
7 want to hire an engineering team, have them design and fabricate a second
8 separate CLU that, you know, somehow implements a -- just a select
9 fraction. You need to make that CLU somehow controls *Shraga* switch?
10 That requires a lot of industry coordination. You don't know what brand of
11 switcher your, you know, your CLU is going to eventually be plugged into.

12 There's lots of problems with this. Two CLUs are more expensive
13 than one CLU. You've got two CLUs that might break. You know, we were
14 looking at other motivations earlier. The patent itself, again, as shown on
15 slide 85, this is talking about increasing the number of components, it gets
16 more expensive. This is going against the industry. The issue of
17 replaceability, that is -- that benefit is achieved just by complying with the
18 MSA agreement. You have interchangeable parts. The MSA agreement
19 does not have provisions for including all of these components that
20 Petitioner is trying to shove in here. There's no evidence that *Togami*
21 originally had. All of -- you know, that -- what Petitioner's highlighted in
22 yellow, it's not that these -- the vast majority of these things were already in
23 there.

24 I want to address *Fujimori*, which Petitioner now relies on. *Fujimori*
25 is not in grounds 1 or 2. *Fujimori* is briefly, briefly mentioned in the
26 background of the petition and it is -- it's not really relied on. This is a brand

1 new combination based on *Fujimori* that Petitioners are coming up now and
2 it's not properly considered at this point.

3 Moving to slide 86 of Dr. Prucnal declaration. He was being asked -
4 -

5 JUDGE TROCK: Mr. Tong, this is Judge Trock. You have about
6 two minutes left.

7 MR. TONG: Thank you, Your Honor. He was being paid 725 an
8 hour. He gave the opinion that a PHOSITA "would not inherently know
9 how to make the control module of the claimed optical transceiver
10 pluggable, nor would I expect a PHOSITA to know how to do this in the
11 early 2000s." That's what he said. It's highlighted here on slide 88.

12 Again, he's got another. He said it again highlighted here on slide
13 89, "a POSITA would not have been able to utilize the alleged invention."
14 Petitioner attempts to distance itself from this opinion by saying, oh, well,
15 this is really an -- a written description opinion. Here in black and white he
16 has clearly stated what he thinks a PHOSITA would not have been able to
17 do. He cannot simultaneously offer these opinions.

18 So with that, I mean, just two housekeeping matters. I want to
19 briefly address dependent claim 18. Just, for example, this is the claim
20 related to assigning the ONT ID. If I write a letter to Director Kathi Vidal,
21 I've repeated her name, but I didn't assign her name. Her parents assigned
22 that name. That's what claim 18 is getting at.

23 So, in conclusion, Petitioner has constantly changed its theories
24 throughout this IPR. They still don't really know what their petition is.
25 What they're saying today is different from what's in the original petition and
26 in Dr. Prucnal's original declaration. As we point out in our surreply, they're

1 constantly shifting theories is evidence of hindsight. They are -- what they
2 really want to say is take out parts of *Shraga*'s CLU, but only the portions
3 that happen to match what's in the claim and ignore everything else. Their
4 motivations are untethered to that. There's no motivation to split up a CLU
5 of *Shraga*. And respectfully, you know, if you just look at this, Is it obvious
6 that that needs to go in here? That is the question. Is that obvious to do?

7 JUDGE TROCK: Okay. Mr. Tong, you're out of time.

8 Mr. Stevens, you have 15 minutes for rebuttal. You may begin.

9 MR. STEVENS: Thank you. So the question was asked, can I point
10 to something in the petition where we talked about us? What we're looking
11 for is the PON MAC layer software. Yes. When we actually look at 1C,
12 when we walk through ground 1 and that's also ground 2 of the petition and
13 you look on pages 27 through 29 where we talk about 1C, we never say
14 we're taking the switch and putting in the pluggable. We never say we're
15 taking the entirety of the CLU and putting it in the plug.

16 What we said there at the -- it's the last line on 27, it's the
17 management software. That's what we point to. It says *Shraga* discloses
18 that each OLT and ONT/ONU contains a component logic unit, CLU,
19 coupled to the optical interface which controls via management software the
20 overall operation of the PON. That management software is not some
21 amorphous thing. It is what's in the specification.

22 The notion that Mr. Tong doesn't know what functionality I'm
23 talking about is a figment of his imagination. I'm talking about the
24 functionality that is found in the standards themselves. That's where this
25 notion of framing and slotting uplink time slots comes from. And so what
26 we said in the petition and what we're saying now is the same thing. You

1 take that specific functionality that is defined by the standard and you put
2 that onto the controller that already exists, the logic that already exists in a
3 pluggable, that's all we're doing here.

4 There is also the notion of the switch. We're not running from the
5 switch. The claim requires a -- the pluggable, to be plugged into a switch.
6 That's true. That's what we're saying would happen. That's what *Togami*
7 shows. That's what *Fujimori* shows. It's very clear that there's a motivation
8 to plug the pluggable into the switch.

9 So I'm not suggesting that the switch in *Shraga* is ignored. It still
10 exists. You have to plug a pluggable into something and it tells us to plug it
11 into the switch. But we've never said, and you will look in vain in our
12 petition the points where we said put the switch into the pluggable. That
13 doesn't exist.

14 There were notions of the deposition of our expert that were put on
15 the screen near the end of his deposition where he was asked, is this
16 possible? You know, could it -- could one have switching functionality
17 unpluggable? And sure, one could, but that wasn't what we were talking
18 about. If we can go to our slide 5, please.

19 JUDGE TROCK: Mr. Stevens, this is Judge Trock.

20 MR. STEVENS: Yes, Judge Trock.

21 JUDGE TROCK: If you could turn to page 32 of your petition. You
22 have Figure 1 there and you've highlighted the CLU, the FIFO blocks, and
23 the switch in blue. So what is the purpose of highlighting the switch in
24 blue?

25 MR. STEVENS: In 1.D?

26 JUDGE TROCK: Yes.

1 MR. STEVENS: So this is 1.D, this is the optical port that must be
2 plugged into the switch. So this is -- now 1.C is where the magic allegedly
3 is, right? And then we didn't point the switch there. 1.D is there must be an
4 interface port for the pluggable to be put into a switch. So what we're
5 showing here is where that interface would happen. The controller controls
6 the FIFO buffers and all that's electrically connected to the switch is shown
7 in *Shraga*.

8 Also as shown in *Togami*, we see that on the PCB there's the
9 interface that we plug into the switch. So we're not suggesting by coloring
10 the switch box in here, it would go into pluggable. That's not what 1.D said.
11 The claim element 1.D requires there to be a connection, an electrical
12 connection between the pluggable and the switch itself. And that's where
13 the connection would be.

14 So if we go back to our slide 5 --

15 JUDGE COCKS: Actually, Mr. Stevens, I do have one question as
16 you give your rebuttal. The Patent Owner had presented what they
17 characterize as five possibilities as to the proposed combination. Is any one
18 of those possibilities an accurate expression of what you're proposing in the
19 petition?

20 MR. STEVENS: No, it's not, but the closest is number 5. So their
21 possibilities 1 through 4 are just completely wrong. We are not suggesting
22 one puts all the switch functionality into the pluggable. We're certainly not
23 suggesting that one would put the switch controller into the pluggable and
24 leave the switch itself in the host device. Again, that's nowhere -- that is
25 something that's made up as a straw man to make our combination look non-
26 workable. We've never said that. And so 1 through 4 of what you just heard

1 is not at all what we are actually relying on. Five comes the closest, but I
2 would not characterize it as we're splitting CLUs.

3 JUDGE TROCK: Mr. Stevens, this is Judge Truck. Help me out
4 here. If the switch is not going to be in the pluggable and it's outside, then
5 where's the electrical connection between the CLU and the switch?

6 MR. STEVENS: So it is -- if we --

7 JUDGE TROCK: And then follow up to that, how do you respond to
8 Patent Owner's argument that if you do separate these things that there's no
9 way for the CLU to control it because all the pins are already used?

10 MR. STEVENS: So we are not suggesting that the CLU in the
11 pluggable controls the switch. The controller of the switch would stay with
12 the switch. We've never -- that is not our combination. I'd like for that to be
13 as clear as we can possibly make it. We are not saying that one would
14 wholesale take the CLU and put it into the pluggable. All we're moving is
15 the management software layer for the PON, that which comes directly from
16 the standard.

17 And I want to be clear that that is what -- if we go to slide five for
18 just a second, we'll come back to 33. That is what our expert said. Yeah, so
19 he said right there, "It would be everything but the switch. Every other
20 functionality that's in that ONT would go into" -- so we're not saying that the
21 switch goes into *Togami*.

22 Moreover, when asked a follow-up question on page 87 through 88
23 of the deposition, he said, "I'm not just taking the CLU out of *Shraga*. I'm
24 not doing that." That was explicit to Mr. Tong near the beginning of the
25 deposition, and that's pages 87 to 88. And in our petition we said that it's the
26 management software that we're pointing to.

1 So we are not suggesting that the controller for the switch and the
2 switch would be separated such that they must communicate over the pins.
3 We're not saying that at all.

4 To answer your first question on slide 33, where is it optically -- I'm
5 sorry, where is it electrically connected? Well, in *Togami* it shows very --
6 Slide 33. *Togami* shows that the PCB -- can you pull up one that has the
7 *Togami*? At any rate, *Togami* shows that the PCB and says right in the -- for
8 example, slide 7, if you can. It says that the PCB itself "accommodates the
9 transceiver electronics." And figure 105 there is the interface.

10 So right there we see that 103, the controllers, are connected on the
11 same PCB with the 105 interface. Those pins on 105 are going to be the
12 thing that slides into the port shown above, that slides into the host device to
13 make that electrical connection between the two.

14 So the CLU -- the controller, the control module of the claim, clearly
15 is attached there electrically. That's going to be controlling exactly what
16 goes over those pins that we see there, regardless if it is telling the FIFO
17 buffer what to send or not. That is still electrically connected. But
18 moreover, Mr. Tong showed you on slides 18 through 20 several definitions
19 of the control logic that goes over these pins.

20 That's a direct coupling of the controller of the pluggable to the
21 interface. So slides 18 through 20 define the fact that whatever controller
22 you have of your pluggable must be addressing some of those pins directly.
23 So we have here *Togami* showing precisely, it's all on the same PCB. It's all
24 connected right there electronically. And for what it's worth, that just makes
25 sense as well.

1 JUDGE TROCK: Mr. Stevens, Judge Trock, again. How do you
2 respond to Patent Owner's argument that you're simply changing theories
3 using hindsight here? Now you're telling us that this is Patent Owner's
4 argument, I believe, that you're simply taking software from *Shraga*, MAC
5 control software, and putting it into this ICU 103 in *Togami*. Is that your
6 current theory?

7 MR. STEVENS: That's right. We're taking the MAC layer and
8 putting it into the pluggable. And that's what we intended to say at the
9 bottom of 27 via management software. That is, the claim is a control
10 module, right? A module has to have the software that's running on it. So
11 what we propose in the petition is we're going to put that management
12 software onto the pluggable. That's why we also mentioned *Fujimori*.

13 And I want to just -- I'll come back to your question, but there was a
14 notion by Mr. Tong that we should ignore *Fujimori* because it's not part of
15 the grounds. Again, the Federal Circuit is very clear that the teaching
16 suggestion or motivation does not have to come from the references
17 themselves. We are not suggesting that one should look at *Fujimori* as part
18 of the grounds.

19 But it tells you to put the PON layer on the pluggable. That is an
20 explicit teaching, suggestion, motivation. And you are allowed to look
21 beyond the references themselves. That's in our petition, too, where we cite
22 to that very notion of putting that management layer there.

23 So we are not changing theories. You will look in vain in our
24 petition to say that we're moving the entirety of the CLU and splitting up the
25 functionality of the switch and the CLU. That doesn't make logical sense.
26 Now, if we had known what Mr. Tong was going to say, we would have

1 written the footnotes that just so we're clear, we're not splitting these two
2 things that no one ever split up. We're not doing that. We're only looking at
3 the management software and moving that from one known place to another
4 known.

5 And the reason we're doing it is explicit motivation and teaching to do
6 exactly that, along with the notion that *Togami* largely suggests that because
7 you're plugging it directly into a switch, you're not plugging it into
8 something that would have the actual MAC layer functionality for whatever
9 the media dependent layer is.

10 I'd like to go to their slide 26. Mr. Tong's quite fun in pulling up,
11 you know, his demonstrative to scale. I enjoyed it. But there's one thing
12 that really struck me. He said that Dr. Prucnal did the blue part. And he
13 said that the yellow part is some batteries and things like that and blue is
14 everything else. Everything else is 24 plain old telephone connections.
15 Everything else is 12 VDSL connections. Everything else includes 12 coax
16 connections.

17 We're not saying that any of that stuff has anything to do with what
18 we're talking about. The only thing that would be put here is really sort of
19 what you see in black there and the part that would go into the optical
20 domain. We're not suggesting taking VDSL or coax cable and putting that
21 into an optical transceiver. That's nuts. And Dr. Prucnal never said that.

22 So this notion of size here appreciate in that box that says it's about 4
23 inches has all these other things for other media, plain old telephone, DSL,
24 cable, modem, Just a little bit of (inaudible). All we're -- we're not
25 suggesting taking any of that other stuff. All we're suggesting to do is take
26 the fiber and put that in there.

1 And so again, you know, this whole notion of we're doing something
2 different than we did in the petition, I would respectfully submit is just flat
3 out wrong. We never in the petition said move the whole switch. We never
4 said decouple the switch from its own controller. That's not what we said.

5 We said buy a management software at the bottom of 27. We said
6 *Fujimori* tells us to move the MAC layer functionality. That was our -- the
7 basis of our petition. When they deposed our expert, our expert said
8 everything but the switch. And then he said, "I'm not just taking the CLU
9 out of *Shraga*." He explained that that functionality would stay with the
10 switch and *Shraga*.

11 All we're moving is the PON functionality. And again, that's not an
12 amorphous thing. That's very much defined by the standards. It can go onto
13 the pluggable. *Togami* already shows control object on -- right on there to
14 begin with. And *Fujimori* tells us explicitly to do that.

15 Judge Cocks, you asked a question about the size of the pluggable in
16 the first smaller demonstrative that Mr. Tong showed. There are many
17 different sizes of pluggables. Right? I agree with the notion that you're
18 probably not going to make a non-standard one. But the SFP is one example
19 of that. There are others that are plenty bigger that are two or three or four
20 times the size. You see those in the prior art section of the '754 patent.

21 So the SFP specification and its size, that is one example of the size
22 that one could use. It is not the only. There are pluggables that are much,
23 much bigger. There are pluggables that are several inches wide and even
24 longer to accommodate additional functionality.

25 So this pack is not limited to SFP. There could be many other
26 modules. We see right here in Figure 13 the different sizes. That X pack at

1 the top is much, much wider than an SFP. So that is not - you know, we are
2 not limited to only a world where there's SFPs. We have submitted other
3 standards that existed at the time, MSAs, that were even bigger. But --

4 JUDGE TROCK: Mr. Stevens, you got about 20 seconds left.

5 MR. STEVENS: I'd like to end, again, with this notion of *Fujimori*.
6 This is something that the Patent Owner can't run from. That's all we're
7 doing here is suggesting moving the MAC layer functionality into the
8 pluggable. That is the essence of our argument. That was the only thing that
9 the inventor identified as being the inventive aspect. That's what we're
10 saying.

11 There's an explicit reference that says to do precisely that. The only
12 rejoinder we heard today is that that's not part of the grounds and so you
13 guys shouldn't look at it. That's not what the law is. That's a misstatement
14 of the law. We can look to teachings, suggestions, and motivations beyond
15 the actual references that are being combined.

16 With that, I respectfully pass --

17 JUDGE TROCK: Thank you, Mr. Stevens. Mr. Tong, you have five
18 minutes for rebuttal.

19 MR. TONG: Thank you, Your Honor. I want to start out by
20 addressing what the petition actually says in *Fujimori*.

21 On page 20 of the petition right here, this is the petition itself, it states
22 that *Fujimori* was filed on January 7th, demonstrates the general knowledge
23 of the PHOSITA. Okay. Pluggable modules of *Fujimori* may be configured
24 to communicate, namely transmit and receive data between computer
25 systems and optical network where the data transmitted and/or received may
26 be formatted in accordance with the well-known OSI protocol standard.

1 I'm sorry, I'm not sharing my screen. All right. This is what the
2 petition says about *Fujimori* on page 20. "*Fujimori* was not used as further
3 evidence or as a motivation to move certain parts of *Shraga* CLU, but not
4 other functionality." This is, again, something that Petitioner is coming up
5 in hindsight right now.

6 Next, I want to address what the Petitioner said about *Togami*. So
7 Petitioner is -- continues to assert that *Togami* already has a controller. If
8 the Board searches through *Togami*, you're going to find that *Togami* does
9 not say that any one of those components is a controller. Rather the -- you
10 know, that the prior components of *Togami* were described in the '754 patent
11 itself.

12 The inventors put in the background what was typically found in
13 pluggable optical transceiver module like *Togami* and it did not have a
14 controller. That's not there. There's no evidence of that.

15 Petitioner keeps trying to distance itself from all of the testimony of
16 Dr. Prucnal that you saw him give. You saw it was his testimony to put a
17 switch into a pluggable. He did say all sorts of things in his deposition. But
18 by doing so, what Petitioner has done is effectively distance itself from all of
19 the evidence that is in this case. You know, yeah, he said some very bad
20 things in deposition that Petitioner doesn't want to be associated with, but
21 those are evidence of hindsight. The petition was based on his hindsight
22 theories and Petitioner can't run from that now.

23 Petitioner appears to be coming up with some new theory to move
24 software now. I would respectfully submit that there's no evidence of that.
25 Dr. Prucnal didn't talk about moving software. And frankly, it's another new
26 ground that is improperly raised at this stage of the case.

1 I would ask that the Board give the petition a fair reading and really
2 ask itself what were we on fair notice of. We've genuinely tried to address
3 every single theory that we thought they were throwing at us. Petitioner
4 keeps coming up with new theories in hindsight. At this point it's just way
5 too late. We don't have fair notice. We can't really respond to them. That's
6 why these new theories should not be considered on their merits. They're
7 improper at this stage.

8 The last thing I'll ask the Board to consider is Petitioner's failure to
9 really address their inability to make the CLU FIFO block interface
10 correspond to that electrical interface at the end of *Togami* and that
11 Petitioner has completely ignored Dr. Prucnal's self-contradicting testimony
12 that no you could not -- a PHOSITA could not have done this. That is the
13 evidence that the Board is supplied with in order to answer the question
14 would it have been obvious to do this?

15 So with that, I would like to rest our case. Thank you very much.

16 JUDGE TROCK: Thank you, Mr. Tong.

17 Thank you both, Counsel, for your arguments today. They are very
18 helpful. The case has been submitted. We will consider this and issue a
19 final decision in due course. If you would please stay on the line and assist
20 the court reporter if she has any spellings that she needs to take care of, we
21 would really appreciate that. And with that, we're adjourned. Thank you.

22 (Whereupon, the proceedings at 2:36 p.m. were concluded.)

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