

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS INC.,

Petitioner,

v.

PORTSMOUTH NETWORK CORP.,

Patent Owner.

IPR2024-00506

US Patent No. 8,014,394

Wednesday, April 9, 2025

10:43 a.m. (EDT)

Remote Deposition of JAMES L. OLIVIER, PhD

(This proceeding was conducted via Zoom.

All participants appeared remotely.)

STENOGRAPHICALLY REPORTED BY:

Deanna J. Dean, RDR, CRR

Henderson Legal Services

202-220-4158

www.hendersonlegalservices.com

Juniper Exhibit 1029 Juniper v. Portsmouth IPR2024-00913
--

1

2

3

Wednesday, April 9, 2025

4

10:43 a.m. (EDT)

5

6

7

Remote deposition of JAMES L. OLIVIER,

8

PhD, held via Zoom videoconference, before

9

Deanna J. Dean, a Registered Diplomate

10

Reporter, Certified Realtime Reporter, and

11

licensed court reporter of the state of New

12

Hampshire.

13

14

15

16

17

18

19

20

21

22

23

24

25

1 A P P E A R A N C E S

2

3 DESMARAIS LLP

4 Attorneys for Petitioner

5 230 Park Avenue, 26th Floor

6 New York, NY 10169

7 (212) 808-1060

8 BY: TAEG SANG (TIM) CHO, PhD, ESQ.

9 tcho@desmaraisllp.com

10

11 STEPTOE & JOHNSON LLP

12 Attorneys for Patent Owner

13 227 West Monroe Street

14 Chicago, IL 60606

15 (312) 577-1285

16 BY: JAMES WINN, ESQ.

17 jwinn@steptoe.com

18

19

20

21

22

23

24

25

1 I N D E X

2

3	Examination	Page
4	JAMES L. OLIVIER, PhD	
5	By Attorney Cho	6

6

7

8

9 E X H I B I T S

10

11	Number	Description	Page
12	Exhibit 1032	Ex. B of Ex. 1007, Certified	67
13		Translation of WO 2007140702	
14		(Li), with Page Numbers	

15

16

17

18

19

20

21

22

23

24

25

1 P R O C E E D I N G S

2 THE REPORTER: Here begins the remote
3 deposition of James L. Olivier, PhD, taken in
4 the matter Cisco Systems Inc., Petitioner,
5 versus Portsmouth Network Corp., Patent Owner,
6 before the Patent Trial and Appeal Board,
7 Case, IPR2024-00506 for U.S. Patent 8,014,394.

8 Today's date is April 9, 2025.

9 The time is now 10:43 a.m. EDT.

10 This deposition is being held remotely by
11 Zoom videoconferencing. I am the licensed court
12 reporter, Deanna Dean, presenting on behalf of
13 Henderson Legal Services.

14 Will counsel please introduce themselves
15 and state whom they represent, beginning with
16 the party noticing the deposition.

17 ATTORNEY CHO: My name is Taeg Sang Cho,
18 and I represent Cisco, the petitioner.

19 ATTORNEY WINN: My name is James Winn. I
20 represent the patent owner and I have a pro hac
21 motion pending.

22 THE REPORTER: At this time, do all
23 parties agree to waive any objection, now or in
24 the future, to me swearing in the witness
25 remotely?

1 ATTORNEY CHO: I don't object.

2 ATTORNEY WINN: No objection.

3 JAMES L. OLIVIER, PhD,
4 a witness called for examination, having been first
5 duly sworn according to law, was deposed and
6 testified as follows:

7 ATTORNEY CHO: Before we proceed, I just
8 want to put on the record that Mr. Winn has not
9 yet made an appearance in this case. So he has
10 represented to me he is currently filing the
11 mandatory notices, the revised POA and the pro
12 hac motion.

13 And so with that representation, we'll
14 proceed, but petitioner reserves all rights.

15 ATTORNEY WINN: I want to state on the
16 record, too, that I don't think you had any
17 objection with me being admitted pro hac, too.
18 Is that correct?

19 ATTORNEY CHO: That is correct.

20 So with that, we'll proceed.

21 EXAMINATION

22 BY ATTORNEY CHO:

23 Q. Good morning, Dr. Olivier.

24 A. **Good morning.**

25 Q. Thanks for making the time today.

1 Could you please state your name for the
2 record.

3 **A. My name is James Lawrence Olivier.**

4 Q. And where do you live?

5 **A. I live in Boerne, Texas.**

6 Q. Is that where you are currently for this
7 deposition?

8 **A. Yes, it is.**

9 Q. Although we are conducting a remote
10 deposition today, you understand that you're under
11 oath. Right?

12 **A. Yes, I do.**

13 Q. And you understand that the oath requires
14 you to tell the truth as if you were at trial?

15 **A. Absolutely.**

16 Q. Is there any reason why you cannot provide
17 truthful and accurate testimony in response to my
18 questions today?

19 **A. None that I know of.**

20 Q. I'm sure you're familiar with the
21 deposition ground rules, but I just want to touch
22 on a couple of important ones so we are on the same
23 page.

24 To get a clean transcript, please wait
25 until I finish my question before you start

1 answering. I will try to do the same.

2 We'll try to take several breaks during
3 the deposition. If at any time you want to take a
4 break, please let me know and we'll take one. All
5 I ask is that there is no question pending.

6 Is that good?

7 **A. Yes.**

8 Q. And this deposition is for an IPR
9 proceeding, which means that during the breaks you
10 cannot discuss the substance of your testimony with
11 Portsmouth's counsel here, Mr. Winn.

12 You understand that; right?

13 **A. Yes.**

14 Q. And if you do discuss the substance of
15 your testimony with Mr. Winn during the breaks, I'm
16 entitled to know what you discussed. Okay?

17 **A. Okay.**

18 Q. Mr. Winn may object to my questions, but
19 unless you are instructed not to answer, you will
20 have to answer my question.

21 Is that fair?

22 **A. Yes.**

23 Q. Are you in your office today?

24 **A. My home office.**

25 Q. Is there anyone else in the home office

1 with you today?

2 **A. No.**

3 Q. Do you have any communication devices in
4 the office other than the computer that you are
5 using?

6 **A. I have a cell phone.**

7 Q. Can you put that away, please, so that we
8 can, one, focus on the deposition, and, two, make
9 sure that you are not communicating with anyone
10 else during the deposition?

11 **A. What would you like me to do?**

12 Q. Put it away so that you cannot see the
13 text messages or things like that.

14 **A. How about if I turn it off? Will that be**
15 **okay with you?**

16 Q. That would be even better.

17 Do you have any printed documents with
18 you?

19 **A. No.**

20 Q. And do you have any notes with you today?

21 **A. No.**

22 Q. And could you confirm that the only
23 program that you're using on your computer is the
24 Zoom application for the deposition and the file
25 system for the exhibits?

1 **A.** So there's three windows open: a Zoom
2 window, Henderson Legal Services, and Exhibit 2001.
3 I think it's open twice.

4 That's all that's running on my computer.
5 And a file -- a file folder. I will kill that if
6 that's okay with you.

7 **Okay.**

8 **Q.** If you ever run into an IT issue during
9 the deposition, please let me know and we'll stop
10 the deposition to fix the issues. And I will do
11 the same on my end.

12 **A.** **Okay.**

13 **Q.** Okay. So that's the basics. Let's move
14 on.

15 So you submitted a declaration in support
16 of Portsmouth patent owner response in
17 IPR2024-00506. Correct?

18 **A.** **Yes.**

19 **Q.** And IPR2024-00506 is a proceeding
20 challenging the US Patent No. 8,014,394. Correct?

21 **A.** **Correct.**

22 **Q.** And if I refer to the patent as the '394
23 patent, you will understand that. Right?

24 **A.** **Yes.**

25 **Q.** So if you look at the exhibit share drive

1 folder that was provided to you by the deposition
2 services, you will see Exhibit 2001. Can you
3 please pull that up?

4 I think that's already open on your
5 desktop. But, still, if you can pull that up, that
6 would be great.

7 **A. Yes, it's open on my desk.**

8 **It's kind of weird in that the -- it may**
9 **be a browser issue, but I don't get to see the**
10 **files. I just -- it just opened the one file. It**
11 **just opened it immediately.**

12 Q. Ah.

13 **A. We'll try to work around that. Maybe if**
14 **you put two files in, it might be different. But**
15 **if you could put them in under a directory.**

16 **Did you put them at the very top of the**
17 **directory tree?**

18 Q. I did.

19 **A. Yeah. Maybe that's the cause. But we'll**
20 **see what will happen.**

21 Q. Yeah. And if you have an issue with
22 browsing through the documents, please let me know
23 and we'll take time to fix it.

24 **A. Okay.**

25 Q. Okay.

1 So 2001 -- can you confirm that 2001 is
2 the declaration that you submitted?

3 **A. It appears so.**

4 Q. Okay. So if you turn to page 40 of your
5 declaration, the very last page of the PDF, you see
6 your signature. Right?

7 **A. Yes.**

8 Q. Did you sign this document?

9 **A. Yes. I mean, I signed it by typing my**
10 **name in like that.**

11 Q. Okay. When were you retained for this
12 declaration in this IPR?

13 **A. No idea.**

14 Q. You submitted this declaration, I want to
15 say about three months ago, but you don't remember
16 when you were retained for the IPR?

17 **A. Correct.**

18 Q. You also submitted a claim construction
19 brief in the District Court. Right?

20 **A. Yes. I think it was a couple years ago.**

21 Q. Do you have a rough recollection as to how
22 many years ago that was?

23 **A. No, I don't.**

24 Q. You also sent in an declarations in
25 support of Portsmouth in multiple IPRs against

1 Cisco, including this one. Correct?

2 **A. IPRs against Cisco? I thought Cisco was**
3 **the one bringing the IPRs.**

4 Q. Correct. So let me rephrase the question.

5 So you submitted the declaration in
6 support of Portsmouth in IPRs brought by Cisco.
7 Correct?

8 **A. Correct.**

9 Q. And in each of those declarations, you
10 opined that Cisco's expert was wrong. Correct?

11 **A. I don't think I said that Cisco's expert**
12 **was wrong. I said for reasons my opinions may**
13 **differ from his, or hers.**

14 Q. Understood.

15 What did you do to prepare for this
16 deposition today?

17 ATTORNEY WINN: I just want to caution the
18 witness not to reveal any attorney-client
19 privileged communications that we had.

20 To the extent you can answer the question
21 without revealing any of the substance of your
22 discussions with myself or any other attorneys,
23 you may answer the question.

24 **A. So I reviewed documents. I reviewed my**
25 **declaration, Dr. Houh's declaration, and several of**

1 **the patents that were referred to in my**
2 **declaration.**

3 Q. How many hours did you spend to prepare
4 for this deposition?

5 A. **About -- I would say eight.**

6 Q. Who did you meet with to prepare for this
7 dep?

8 A. **I'm sorry. Who did I meet with? I didn't**
9 **actually hear you.**

10 Q. I'm sorry.

11 Yeah. Who did you meet with in
12 preparation of this deposition?

13 A. **I met with James Winn.**

14 Q. Anyone else?

15 A. **No.**

16 Q. Did you speak with any -- strike that.
17 Did you speak with anyone other than
18 Mr. Winn in regards to this IPR proceeding?

19 A. **I spoke with other attorneys when I was**
20 **preparing my declaration.**

21 Q. And those attorneys are Portsmouth
22 attorneys. Correct?

23 A. **Yes, they are.**

24 Q. During the preparation of your
25 declaration, did you identify anything that is not

1 identified in your declaration?

2 **A. Did I review anything? No, I don't**
3 **believe so.**

4 Q. Did you review the patent owner response
5 before you -- before you -- as you were preparing
6 for this deposition?

7 **A. Again, it -- it was something that was**
8 **discussed. I wouldn't say I reviewed it.**

9 Q. Yeah. And I -- I want to make sure that
10 you don't reveal any of the substance of that
11 discussion, so I just wanted to put it out there.

12 Did you review the patent owner response
13 as you were preparing the declaration?

14 ATTORNEY WINN: So I'll just instruct you
15 to either answer yes or no.

16 **A. I don't actually remember one way or**
17 **another.**

18 Q. Understood.

19 And is there anything -- strike that.

20 I'm going to share with you Exhibit 1005.

21 **A. Okay.**

22 Q. And if you are having issues with the file
23 share, let me know and we can maybe go offline and
24 try to figure it out.

25 **A. Okay. Yeah, I've got two of them now.**

1 **That's good. Okay.**

2 **Okay. I got it.**

3 Q. Do you recognize this document?

4 **A. Yes, I do.**

5 Q. Exhibit 1005 is a reference called Weyman.

6 Correct?

7 **A. Correct.**

8 Q. Have you read Weyman?

9 **A. Yes.**

10 Q. Is there any part of Weyman that you did
11 not read?

12 **A. No.**

13 Q. Please turn to Figure 10 of Weyman, and
14 also look at paragraph 122 of Weyman.

15 **A. Oh. Which one? I only have one copy of
16 Weyman.**

17 **So what do you want to look at? Figure 10
18 or paragraph --**

19 Q. Let's look at Figure 10 for now.

20 **A. Okay.**

21 Q. The Figure 10 of Weyman shows a
22 distributed multicast router. Correct?

23 **A. Well, it shows the distributed router of
24 Weyman performing multicast functionality.**

25 Q. Take a look at paragraph 122, please.

1 **A. Okay.**

2 Q. It says, "Figure 10 represents one
3 embodiment of a distributed multicast router."
4 Correct?

5 **A. Correct.**

6 Q. So Figure 10 shows a distributed multicast
7 router. Correct?

8 ATTORNEY WINN: Objection. Form.

9 **A. Yeah, it shows one embodiment of**
10 **distributed multicast router.**

11 Q. The distributed router in Figure 10
12 operates in a communications network. Correct?

13 ATTORNEY WINN: Objection. Form.

14 **A. So by communication network, you mean**
15 **that's sending packets?**

16 Q. Does communications network mean anything
17 to you?

18 **A. It can mean various things. It can mean**
19 **everything from an analog cell -- analog phone to**
20 **high-speed packet router. So that's why I was**
21 **asking my question.**

22 Q. My question is does the distributed router
23 in Figure 10 operate in a communications network as
24 a person of ordinary skill in the art would
25 understand it?

1 ATTORNEY WINN: Object to form.

2 A. Sure. It communicates between different
3 systems.

4 Q. The distributed multicast router in Figure
5 10 includes two units, 10 and 20. Correct?

6 A. Yes.

7 Q. And the distributed multicast router there
8 also includes a fabric link. Right?

9 A. Correct.

10 Q. Unit 10 and Unit 20 each include user
11 ports. Right?

12 ATTORNEY WINN: Objection. Form.

13 A. Yes.

14 Q. And the user ports are connected to a
15 multicast source and multiple multicast clients.
16 Correct?

17 A. Correct.

18 ATTORNEY WINN: Objection. Form.

19 Q. So the user ports are connected externally
20 to other devices in the network. Is that right?

21 ATTORNEY WINN: Objection. Form.

22 A. The distributed multicast router is
23 connected to other -- what did you term them as?

24 Q. Devices.

25 A. -- devices.

1 **Yes, it's connected to other devices.**

2 Q. Just so that the record is clear, so the
3 user ports are connected externally to other
4 devices in the network. Correct?

5 **A. Correct.**

6 Q. Unit 10 and Unit 20 each include a fabric
7 port. Right?

8 ATTORNEY WINN: Objection. Form.

9 **A. Correct.**

10 Q. And unit 10 and Unit 20 are connected via
11 a fabric link. Correct?

12 ATTORNEY WINN: Objection. Form.

13 **A. Yes.**

14 Q. The fabric link is labeled as 30 in Figure
15 10. Correct?

16 **A. Correct.**

17 Q. Unit 10 and unit 20 communicate with each
18 other via the fabric ports and the fabric link.
19 Right?

20 ATTORNEY WINN: Objection. Form.

21 **A. Yes. They communicate via a fabric port**
22 **that's connected to a fabric link.**

23 Q. The fabric ports are not connected to an
24 external network. Isn't that right?

25 ATTORNEY WINN: Objection. Form.

1 **A. Correct.**

2 Q. And the fabric --

3 **A. And it's -- sorry. Just be clear, it's**
4 **external to the distributed multicast router -- I**
5 **mean distributed router in Weyman.**

6 Q. Can you turn to paragraph 25 of Weyman.

7 **A. Did you say paragraph 25 or 125?**

8 Q. 25, please.

9 **A. 25. Gotcha.**

10 **I'm there.**

11 Q. Towards the bottom of that paragraph,
12 there is a sentence that starts "in the following
13 description."

14 Do you see that?

15 **A. Yes.**

16 Q. And then I'll read out the full sentence
17 here. "In the following description, there will be
18 an explanation of the requirements which must be
19 met in practice by the data plane and the control
20 plane in each device so that when several units are
21 connected through their fabric ports (i.e., ports
22 connected only to other units within the fabric and
23 not to the external network)"

24 Do you see that?

25 **A. Yes.**

1 Q. So fabric ports are not connected to the
2 external network. Correct?

3 **A. Correct.**

4 ATTORNEY WINN: Objection. Form.

5 ATTORNEY CHO: Basis?

6 ATTORNEY WINN: "Basis," you said?

7 ATTORNEY CHO: Yes.

8 ATTORNEY WINN: It's a leading question.

9 ATTORNEY CHO: This is cross- examination,
10 so it's supposed to be leading.

11 ATTORNEY WINN: I mean, I still maintain
12 my objection.

13 ATTORNEY CHO: Let me re-ask the question
14 and let me know if you want to re-object.

15 BY ATTORNEY CHO:

16 Q. So fabric ports are not connected to the
17 external network. Correct?

18 **A. Correct.**

19 Q. The fabric link is connected to the fabric
20 ports, so it cannot be an external network. Right?

21 **A. It can't be external to the distributed**
22 **router that's described in Weyman.**

23 Q. Well, you just agreed with me that the
24 fabric ports are not connected to the external
25 network. Correct?

1 **A. Correct.**

2 Q. And you also agreed that the fabric links
3 are connected to the fabric ports. Correct?

4 **A. Correct.**

5 Q. So the fabric link cannot be an external
6 network. Right?

7 **A. External to the -- in those answers with**
8 **regard to the distributed router of Weyman. That's**
9 **why I clarified my answer.**

10 Q. I'm having a little bit of a hard time
11 understanding your answer. So let's just take it
12 step by step.

13 So the fabric ports are not connected to
14 the external network. I think we agree on that.
15 Right?

16 **A. Are not connected to an external network**
17 **that's external to the distributed router described**
18 **in Weyman.**

19 Q. Ah, understood. I see.

20 So let me rephrase the question, then.

21 So the fabric ports are not connected to
22 the external network that is external to the
23 distributed router described in Weyman. Correct?

24 **A. Correct.**

25 Q. And fabric ports are connected to the

1 fabric link. Correct?

2 **A. Correct.**

3 Q. Therefore, the fabric link cannot be an
4 external network that is external to the
5 distributed router described in Weyman. Correct?

6 **A. Correct.**

7 Q. The fabric ports are ports that are
8 connected internally to other units in the
9 distributed router. Right?

10 **A. That -- yes.**

11 Q. So the fabric link is internal to the
12 distributed router in Figure 10. Right?

13 **A. Yes.**

14 Q. Can you turn to paragraph 22 of Weyman,
15 please.

16 I'm sorry. 122.

17 **A. Okay.**

18 Q. I'm going to read out that first sentence.
19 It says, "Figure 10 represents one embodiment of a
20 distributed multicast router according to the
21 invention and demonstrates the forwarding of a
22 particular multicast stream through a distributor
23 fabric consisting in this example of the two units
24 10 and 20 and link 30."

25 I read that correctly; right?

1 **A. Correct.**

2 Q. Figure 10 of Weyman shows that the fabric
3 link 30 carries a multicast packet stream. Right?

4 **A. Could you repeat your question? I was**
5 **looking at Figure 10.**

6 Q. Sure.

7 Figure 10 of Weyman shows the fabric link
8 30 carries a multicast packet stream. Correct?

9 **A. Yes.**

10 Q. So there is nothing in Weyman that
11 prohibits using the fabric link to transmit or
12 receive a multicast packet stream. Right?

13 **A. Correct.**

14 Q. At the bottom left corner of Figure 10,
15 there is a circle labeled "multicast source."

16 Do you see that?

17 **A. Yes.**

18 Q. The circle labeled "multicast source" is a
19 source of an IP multicast stream. Right?

20 **A. Yes.**

21 Q. The IP multicast stream carries data as
22 packets. Right?

23 **A. Correct.**

24 Q. When the unit 10 receives a multicast
25 packet stream from the multicast source, the unit

1 10 can forward the multicast packet stream to the
2 fabric port. Correct?

3 **A. Under some situations, yes.**

4 Q. In the specific example of Figure 10, as
5 shown in Figure 10, when the unit 10 receives the
6 multicast packet stream for the multicast source,
7 the unit 10 can forward the multicast packet stream
8 to the fabric port. Right?

9 **A. Yes, as I said, in some situations.**

10 Q. The unit 10 can forward the multicast
11 packet stream to unit 20 or the fabric link 30.
12 Right?

13 **A. Under some situations, correct.**

14 Q. And unit 20 receives the multicast packet
15 stream at the fabric port. Right?

16 **A. Yes.**

17 Q. Let's turn to paragraph 152 of Weyman.

18 **A. Okay.**

19 Q. It says, "In the system of Figure 12, it
20 may be supposed that router 157 and client 1 are
21 the only network devices that need to receive the
22 multicast stream for multicast group A."

23 Do you see that?

24 **A. Yes.**

25 Q. What is the term -- sorry. Strike that.

1 Is the term "multicast group" -- sorry.

2 Strike that.

3 I will repeat the question.

4 Is the term "multicast group" a term of
5 art?

6 **A. It's something that's understood by one of**
7 **ordinary skill, yes.**

8 Q. What is the meaning of the term "multicast
9 group" to a POSITA, a person of ordinary skill in
10 the art?

11 **A. It's the group that's participating in the**
12 **multicast connection.**

13 Q. And is the group participating in the
14 multicast connection receiving the same multicast
15 stream?

16 **A. So the stream can get replicated. And so**
17 **when you say "the same multicast stream," I'm a**
18 **little confused about your question.**

19 Q. Did the group -- is the group
20 participating in the multicast connection receiving
21 the same content from the multicast source?

22 **A. Yes.**

23 Q. The content from the multicast source are
24 represented as a sequence of packets. Correct?

25 **A. The content from the multicast source is**

1 **transmitted in a sequence of packets.**

2 Q. And the content from the multicast source
3 is transmitted in a sequence of multicast packets
4 because this is for multicast communication.

5 Correct?

6 ATTORNEY WINN: Objection. Form.

7 **A. Correct. They are part -- they are**
8 **packets in a multicast connection.**

9 Q. And the group that is -- that belongs to
10 the same multicast group, those devices will
11 receive the same content from the multicast source.
12 Correct?

13 **A. I mean, they're intended to receive the**
14 **same content, yes. I mean, packets can be dropped,**
15 **but they're intended to receive the same content.**

16 Q. Multicast group identifies the content
17 from the multicast source. Correct?

18 **A. Identifies the content? No, it doesn't**
19 **tell you what the content is.**

20 Q. Multicast group specifies the content of
21 the multicast source. Correct?

22 **A. No. The multicast group we're defining**
23 **doesn't involve specifying content.**

24 Q. Then what does the multicast group do?

25 **A. Connects up in a multicast connection.**

1 Q. So the multicast group identifies the
2 multicast connection associated with the group of
3 devices. Correct?

4 **A. Correct.**

5 Q. And the multicast connection corresponds
6 to the sequence of multicast packets. Correct?

7 **A. The multicast connection transmits a**
8 **sequence of packets that are in the multicast group**
9 **or connection.**

10 Q. So the multicast group identifies the
11 multicast connection that transmits a sequence of
12 multicast packets. Correct?

13 **A. Sorry. Could you repeat that?**

14 Q. Yeah.

15 So the multicast group identifies the
16 multicast connection that transmits a sequence of
17 multicast packets. Right?

18 **A. Yeah, packets that are -- the multicast**
19 **packets are packets within the multicast**
20 **connection.**

21 Q. And does IGMP use the term "multicast
22 group" in the same way that we are just describing?

23 **A. Sorry. I don't know where that's**
24 **discussed in my declaration.**

25 **Are we talking about that IGMP discusses**

1 **in the same way we've been discussing?**

2 Q. Mm-hmm.

3 **A. I don't know the answer to that. I would**
4 **have to review IGMP protocol.**

5 Q. Would you turn to paragraph 15 of your
6 declaration, Exhibit 2001.

7 **A. Yeah. Okay. I got it.**

8 Q. It says, "My findings as explained below
9 are based on my study, education, training, and
10 experience as well as items that I reviewed to
11 prepare my opinions, including the documents
12 discussed in Dr. Houh's declaration."

13 Do you see that?

14 **A. Yes, I do.**

15 Q. So you reviewed all the documents that
16 Dr. Houh cites in his declaration. Correct?

17 **A. Yes, I did.**

18 Q. And one of those documents was IGMP
19 protocol. Is that right?

20 **A. That's probably correct.**

21 Q. So you would understand what IGMP is.
22 Correct?

23 **A. I understand IGMP at a high level. In**
24 **order to answer your question, I would have to**
25 **review what we discussed in having the IGMP**

1 **protocol in front of me.**

2 Q. Understood.

3 **A. I don't have it committed to memory.**

4 Q. Yeah. That's fair.

5 Can we turn to paragraph 137 of Weyman.

6 **A. Okay.**

7 Q. It says, "In order to join the destination
8 group or the stream, the client would need to send
9 an IGMP host report."

10 Do you see that?

11 **A. Yes.**

12 Q. Is destination group referring to the
13 multicast group that would receive the multicast
14 stream?

15 **A. Yeah. So it's the destination group for
16 the multicast stream.**

17 Q. Please turn to paragraph 160 of Weyman.

18 **A. Okay.**

19 Q. It says, "The IGMP protocol enables
20 multicast clients on a sub-network to register with
21 the local routers in order to receive IP multicast
22 streams."

23 Do you see that?

24 **A. Yes.**

25 Q. So then in paragraph 161, it says, "Query

1 languages [sic] are sent by IP multicast routers to
2 determine the group membership of clients on an
3 attached sub-network." Right?

4 **A. Right.**

5 Q. The group membership refers to the
6 multicast group that will receive the multicast
7 stream. Right?

8 **A. The group memberships are the multicast**
9 **receivers of the particular streams.**

10 I guess -- could I get your question
11 again?

12 Q. Sure.

13 The group membership of clients refers to
14 the multicast group that will receive the IP
15 multicast stream. Correct?

16 **A. So I'm trying to figure out if your**
17 **question first was single multicast stream or**
18 **multiple multicast streams.**

19 Q. Let's start with single.

20 So the group --

21 **A. Okay.**

22 Q. So let me rephrase the question.

23 So a group -- sorry. Strike that.

24 A group membership of clients refers to
25 the multicast group that receives a multicast

1 stream. Correct?

2 **A. Can you say that again?**

3 Q. Sure.

4 A group multi -- sorry. Strike that.

5 A group membership of clients refers to
6 the multicast group that will receive a IP
7 multicast stream. Would you agree with that?

8 **A. Yes.**

9 Q. Let's move to Figure 11 of Weyman.

10 **A. Okay.**

11 Q. Figure 11 shows the same distributed
12 router with two units 10 and 20 and a fabric link
13 30 as Figure 10. Correct?

14 **A. Yes.**

15 Q. At the right bottom corner of Figure 11,
16 there is a circle labeled "multicast client."
17 Do you see that?

18 **A. Yes.**

19 Q. In Figure 11, the multicast client sends
20 an IGMP host report to unit 20. Right?

21 **A. Yes.**

22 Q. What is an IGMP host report?

23 **A. It's used to join the multicast stream.**

24 Q. So in Figure 11, the multicast client is
25 sending an IGMP host report to join a multicast

1 stream. Correct?

2 **A. Of -- yeah. Of the multicast source over**
3 **in S on the left side.**

4 Q. Why is it called a host report?

5 **A. I guess that's what's in the IGMP**
6 **protocol.**

7 Q. Does the term "host" have any meaning in
8 this context?

9 **A. "Host"? Not that I'm aware of.**

10 Q. So the host can be a device that's being
11 operated by a user. Correct?

12 **A. I think it could be.**

13 Q. The IGMP host report identifies the
14 multicast group that the host wants to join or
15 quit. Correct?

16 **A. Correct.**

17 Q. So by joining a multicast group, the host
18 can receive a multicast stream. Right?

19 **A. Correct.**

20 Q. When unit 20 receives an IGMP host report,
21 it forwards the IGMP host report to unit 20 --
22 sorry. Strike that. Let me rephrase.

23 The unit 20 -- strike that.

24 When unit 20 receives an IGMP host report,
25 it forwards the IGMP host report to unit 10 via a

1 fabric link. Correct?

2 **A. Correct.**

3 Q. If the fabric link is connected to another
4 unit, unit 20 would forward the IGMP report to that
5 other unit as well. Correct?

6 ATTORNEY WINN: Objection. Form.

7 **A. Yeah. Your question said if the fabric**
8 **port was connected?**

9 Q. Mm-hmm.

10 **A. And the fabric port is connected to the**
11 **fabric link.**

12 Q. Sorry. Yeah. Let me rephrase the
13 question.

14 So Figure 11 shows two units. Correct?

15 **A. Correct.**

16 Q. Suppose that there is a third unit in the
17 distributed router.

18 You're with me; right?

19 **A. Okay.**

20 Q. In that case, unit 20 will also forward
21 the IGMP host report to that other unit as well.
22 Correct?

23 ATTORNEY WINN: Objection. Form.

24 **A. It depends how the fabric ports are**
25 **connected.**

1 Q. Can you turn to paragraph 162 of Weyman.

2 A. Mm-hmm.

3 Q. Let me know when you get there.

4 A. Okay, I'm there.

5 Q. Okay.

6 It says, "Report messages can be generated
7 by the client units in order to route query
8 messages or a change in an applicant multicast
9 membership." Right?

10 A. Correct.

11 Q. "Changes in the multicast membership
12 reported may affect the multicast distribution tree
13 that the router maintains." Right?

14 A. Correct.

15 Q. Then it says, "Any changes to the
16 multicast distribution tree must be kept
17 synchronized for all the units in the fabric."
18 Right?

19 A. Correct.

20 Q. And one way of doing that is "to cause
21 merely one unit to process the IGMP report and to
22 send updates to the remainder of the units in the
23 fabric." Right?

24 A. Correct.

25 Q. But there is an alternative. It says,

1 "Alternatively, the IGMP message could be delivered
2 to every unit in the fabric for processing."

3 Do you see that?

4 **A. Yes, I do.**

5 Q. So now going back to the hypothetical that
6 I posed, where it's the same configuration as
7 Figure 11 but has three units, in that
8 configuration, unit 20 would send the IGMP report
9 to all the other units that are connected in the
10 fabric. Right?

11 ATTORNEY WINN: Objection. Form.

12 **A. It would -- they would eventually get to**
13 **all the other units in the fabric, correct.**

14 Q. So when one of the units in the
15 distributed router receives an IGMP host report,
16 the IGMP host report is shared with all the units
17 in the distributed router. Correct?

18 **A. Correct.**

19 Q. Now, sticking with the example with just
20 unit 10 and unit 20, both unit 10 and unit 20
21 process the IGMP host report from the multicast
22 client to build their own forwarding table. Right?

23 **A. Correct.**

24 Q. There is nothing in Weyman that prohibits
25 using the fabric link to transmit and receive the

1 IGMP host report. Right?

2 A. Well, Weyman makes it very clear that the
3 fabric link is a very scarce resource and sending
4 traffic over it should be minimized.

5 So when you say nothing prohibits it, it
6 does act as a multicast router, but -- and in some
7 situations, it does send it over the fabric link.
8 But Weyman makes it very clear over and over again
9 that this is the actual bottleneck, and the issue
10 with designing switches and routers in this
11 distributed way is that the fabric links are the
12 bottleneck of the system.

13 Q. Correct. But Weyman -- there's nothing in
14 Weyman that says you cannot use the fabric link to
15 transmit and receive the IGMP host report.
16 Correct?

17 ATTORNEY WINN: Objection. Form.

18 A. Correct. It just says you should be very
19 cognizant of any traffic you're sending over that
20 fabric link, because in distributed routers such as
21 the one in Weyman, these fabric links are the
22 bottlenecks of the system.

23 Q. Let's turn to paragraph 23 of Weyman.

24 A. Okay.

25 Q. And if you could read paragraph 23, that

1 would be great.

2 Let me know when you're done.

3 **A. I'm done.**

4 Q. What is the second layer of the OSI
5 network model?

6 **A. It usually refers to the data link layer.**

7 Q. And what is a data link layer?

8 **A. It's the layer that communicates typically
9 point to point. It's just above the physical
10 layer, the layer 1, in the OSI model.**

11 Q. What is a unit of data transmitted over
12 the second layer of the OSI network model?

13 **A. What is -- I'm sorry. What was your
14 question?**

15 Q. What is a unit of data transmitted over
16 the second layer of the OSI network model?

17 **A. It depends on what the data link layer is.**

18 Q. Can you give some examples of those -- of
19 the unit of data transmitted over the second layer?

20 **A. So, typically, we call those frames and
21 not packets, though sometimes people call the data
22 link layer the data going through the packet also.
23 But especially if it's Ethernet, it's a frame. If
24 it's ATM, it's a cell.**

25 So the data packet that's sent over the

1 **data link layer is determined by the particular**
2 **protocol that you're using.**

3 Q. Understood.

4 So in Ethernet, which is a layer 2 of the
5 OSI model, the unit of data transmitted over the
6 Ethernet is a frame.

7 Did I understand you right?

8 **A. As I said, typically. Sometimes people**
9 **will actually call those packets going over there.**
10 **But in my class, I teach it as being a frame.**

11 Q. If you turn to paragraph 28.

12 **A. Okay.**

13 Q. In the middle of paragraph 28, it says,
14 "By 'Vbridge' is meant herein a network entity of
15 which the primary function is the forwarding of
16 data traffic frames according to its layer 2 (media
17 access control) address."

18 I read that right. Right?

19 **A. I believe so, yes.**

20 Q. So in Weyman, the data is received by the
21 distributed router as a frame.

22 Would you agree with that?

23 **A. Yeah, I would say as an Ethernet frame in**
24 **Weyman at the layer 2.**

25 Q. When the multicast client sends an IGMP

1 host report to unit 10 and unit 20 in Figure 11,
2 the IGMP host report is encapsulated in a frame.
3 Right?

4 **A. Yes.**

5 Q. Let's turn to paragraph 150 of Weyman.

6 **A. Okay.**

7 Q. It says in the second sentence, "A
8 multicast router employs protocols such as IGMP to
9 determine whether there are any hosts in the
10 directly connected sub-network that may require a
11 multicast stream."

12 Do you see that?

13 **A. Yes.**

14 Q. So in the context of Weyman, a host can be
15 a multicast client. Right?

16 **A. Yes. In general, hosts can be multicast
17 clients, in Weyman.**

18 Q. Let's turn to paragraph 50 of Weyman.

19 **A. Okay.**

20 Q. In the first sentence, it says, "It is
21 possible for a host to be connected to a
22 multiplicity of units in a fabric by means of an
23 aggregated link, which comprises a multiplicity of
24 physical connections constituting a single logical
25 connection." Right?

1 **A. Correct.**

2 Q. Aggregated links described in paragraph 50
3 is shown in Figure 6 of Weyman?

4 **A. Yes.**

5 Q. Sticking with Figure -- paragraph 50, and
6 I'll read on a little bit. It says, "For the
7 purpose of transmitting and receiving protocol data
8 frames on an aggregated link where the protocol
9 considers the aggregated link to be a single
10 logical link, each unit in the fabric needs to be
11 coordinated so that the protocol frames are handled
12 consistently."

13 Do you see that?

14 **A. Yes, I do.**

15 Q. And then it says, "This may be achieved by
16 nominating an owner unit in each aggregated link
17 and to allow only that unit to process protocol
18 frames to the aggregated link." Right?

19 **A. Yes.**

20 Q. So when an aggregated link is connected to
21 two units, one of the two units is nominated an
22 owner link, and only that unit is allowed to
23 process the protocol frames to the aggregated link.
24 Correct?

25 **A. Sorry, I didn't understand your question.**

1 What do you mean, process the --

2 Q. I'm just reading the portion of the Weyman
3 reference.

4 A. Yeah. So Weyman goes on to say further
5 there needs to be coordination between the units
6 where the aggregated link has member ports on more
7 than one unit in the fabric in this coordination
8 between units so that the fabric traffic stream is
9 forwarded through the aggregated link and
10 consistently regardless of which unit is
11 forwarding.

12 So Weyman is teaching that when you do
13 this, you have to coordinate between the two units
14 that are receiving the aggregated link.

15 Q. Yeah. And you got to exactly where I
16 wanted to go.

17 In the sentence right after the one you
18 just read, it says, "In particular, a frame should
19 be forwarded to only one member port of the
20 aggregated link and where traffic has arrived from
21 the aggregated link it should not be forwarded to
22 another port on the same aggregated link." Right?

23 A. That it said -- yes, it should be
24 forwarded. In order -- in particular, frames
25 should be forwarded to only one member of the port.

1 **So what it says is it should be forwarded**
2 **to only one member of the port in the aggregated**
3 **link where the traffic has arrived from the**
4 **aggregated link. It should not be forwarded on the**
5 **other port.**

6 Q. Now, an aggregated link aggregates
7 multiple ports. Right?

8 **A. Yes.**

9 Q. And Weyman is teaching you that when
10 multiple ports are forming an aggregated link, a
11 frame should be forwarded to only one member port
12 of the aggregated link. Right?

13 **A. Yeah. It shouldn't be forwarded to both.**

14 Q. And when the aggregated link is connected
15 to two units, one of the two units is nominated as
16 the owner link, and the member port of the owner
17 unit is going to receive the frame. Correct?

18 **A. No.**

19 Q. What's incorrect about that?

20 **A. The statement is incorrect.**

21 **So I guess a lot is incorrect about that.**
22 **The -- it depends how the packets are distributed**
23 **over the aggregated link. So without understanding**
24 **how the packets are distributed over the aggregated**
25 **link, you can't -- you can't do what you said you**

1 **did -- you wanted to do.**

2 Q. Okay. Let me --

3 **A. That's why there has to be coordination**
4 **between the two. It's not that one person owns it**
5 **and then all the traffic passes through it.**
6 **Because you can't tell how the particular**
7 **information is going to be sent over the link, and**
8 **so you have to coordinate between the two.**

9 Q. And as part of the coordination, Weyman is
10 teaching you that a unit can be designated an owner
11 link -- owner unit. Correct?

12 **A. An owner unit for the aggregated link,**
13 **which has multiple physical links.**

14 Q. And by physical links, you mean
15 physical -- I can understand that to mean physical
16 ports. Correct?

17 **A. Correct.**

18 Q. So suppose that -- okay. Let me step
19 back, because I think we're passing -- we're
20 talking past one another at this point.

21 So the distributed router has multiple
22 units. Right?

23 **A. Correct.**

24 Q. And the aggregated link can be formed by
25 user ports that are connected to -- that are

1 associated with different units. Right?

2 **A. Matter of fact, it teaches that they --**
3 **Weyman teaches two connected to different units.**

4 Q. So suppose that the aggregated link has
5 one user port with unit 10 and one user port with
6 unit 20.

7 Are you with me?

8 **A. Yes.**

9 Q. That's the example that's given in Figure
10 6. Right?

11 **A. Correct.**

12 Q. Weyman is teaching us that for the purpose
13 of transmitting and receiving protocol data frames
14 on an aggregated link, where the protocol considers
15 the aggregated link to be a single logical link,
16 each unit in the fabric needs to be coordinated so
17 that the protocol frames are handled consistently.

18 I read that correctly. Right?

19 **A. I'm sorry. Where were you reading from?**
20 **Wasn't following.**

21 Q. Paragraph 50. The same paragraph we were
22 looking at.

23 **A. Okay.**

24 Q. Let me read it again. It's the third
25 sentence in paragraph 50.

1 **A. Okay.**

2 **Okay. Yeah. Again, it says -- the one**
3 **that begins "For example"?**

4 Q. Mm-hmm.

5 **A. Okay. So it says that the -- there needs**
6 **to be coordination so that between the two units so**
7 **that the protocol frames are handled consistently.**

8 Q. And then the follow-on sentence says this
9 may be achieved by nominating an "owner" unit for
10 each aggregated link and to allow only that unit to
11 process the protocol frames to the aggregated link.
12 Correct?

13 **A. Right.**

14 Q. So in the example of Figure 6, one of the
15 two units -- say unit 10 -- is going to be
16 designated or nominated an owner unit for the
17 aggregated link. Right?

18 **A. Correct.**

19 Q. And the protocol frames will go only to
20 that unit when it's received over the aggregated
21 link. Correct?

22 **A. No, that's incorrect.**

23 Q. What's incorrect about that?

24 **A. So, to understand how aggregated links**
25 **work, you have to spread the traffic among -- it's**

1 not an active standby link. It's spreading traffic
2 among the different links in order to create an
3 aggregated link. So you don't send the traffic to
4 just one unit.

5 Q. How is that consistent with what Weyman is
6 teaching you here?

7 A. Well, what I think you're doing is taking
8 one sentence out of Weyman out of context with the
9 rest of it, what one of ordinary skill would
10 understand. Because it goes on to say "Further" --
11 just right after that -- "Further, there needs to
12 be coordination between units." So that the
13 aggregated link has member ports on more than one
14 unit in the fabric, there is coordination so that
15 each stream -- each traffic stream is forwarded to
16 the aggregated link consistently, regardless with
17 what unit it is forwarded to.

18 So there -- you need to understand it at a
19 higher level than taking it out of one particular
20 sentence.

21 Q. Yeah. But in the sentence that follows
22 immediately thereafter, it says a frame should be
23 forwarded to only one member port of the aggregated
24 link. Correct?

25 A. Correct.

1 Q. So the frame should -- will always go to
2 one member port of the aggregated link. Right?

3 A. Correct. That doesn't mean it's the
4 owner's port. That just means, especially if
5 you're doing link aggregation protocol, that you
6 only send a frame once across the aggregated link
7 on one physical link.

8 Q. The sentence that we just read about, the
9 frames should be forwarded to only one member port,
10 is preceded by the term "in particular."

11 So that sentence is explaining the
12 sentence that came before it. Isn't that right?

13 A. Like I say, you're digging into the
14 sentence without understanding how aggregated links
15 work. But -- and maybe they didn't do a great job
16 explaining how aggregated links work in this
17 particular. But how they work is used -- and
18 especially since they discuss link aggregation
19 groups in here, a person of ordinary skill would
20 understand that when he's talking about we're
21 sending it across a link, we're talking about
22 particular flows going across a link and how we
23 spread those particular flows along the multiple
24 links. It makes no sense to have two links and
25 only send traffic to one port when I'm using two

1 **links.**

2 Q. Okay. So the sentence that we were just
3 talking about relates to the traffic. Right?

4 **A. Right. Which is the data. Right?**

5 Q. Yeah.

6 So let's focus on the protocol frame. For
7 the protocol frame, which is the -- for example,
8 the IGMP protocol frame, that will only go to the
9 unit that processed -- that that's the owner of the
10 aggregated link. Right?

11 **A. No. There's nothing that guarantees that.**

12 Q. That's literally what it says: This may
13 be achieved by nominating an "owner" link [sic] for
14 each aggregated link and to allow only that unit to
15 process the protocol frames for the aggregated
16 link. Isn't that right?

17 ATTORNEY WINN: Objection. Form.

18 **A. So, again, I think you're misunderstanding**
19 **what they're talking about here.**

20 As I read this, I think they're talking
21 about a particular flow over the aggregated link.
22 And so the traffic on a particular flow will end up
23 going to a particular port over the physical link.
24 But in no way would you ever send -- take an
25 aggregated link, which is there to increase the

1 speed and redundancy, and just get rid of one of
2 the links. It doesn't make any sense.

3 So you have to read it kind of like one of
4 ordinary skill and say, okay, what that -- if you
5 read it just in using the -- without an
6 understanding of ordinary skill, that must mean one
7 of the links is completely shut down. But that
8 doesn't make any sense. And you know that when
9 they're talking about link aggregation protocol in
10 this -- in Weyman, that they're talking about link
11 aggregation protocol as one of the ways of doing,
12 especially a controlled aggregation. I think
13 Figure 6 is done under link aggregation protocol.

14 So you would know that they're talking
15 about a flow and not all of the traffic.

16 Q. So you're saying that Weyman is incorrect?
17 Did I hear you right?

18 A. No. What I'm saying is you're incorrect
19 in your interpretation of what Weyman's saying,
20 that you have to look at one of ordinary skill at
21 what they're saying.

22 Q. How would one of ordinary skill in the art
23 understand nominating an owner unit?

24 A. They would say that is the master unit of,
25 let's say, the link aggregation protocol.

1 Q. And it says -- and Weyman specifically
2 says allow only that unit to process the protocol
3 frame. Right?

4 A. Yeah. And you're saying to process the
5 protocol frames are all of the protocol frames.
6 And I think if you're reading it in context of the
7 rest of the paragraph, they're talking about the
8 protocol frames of a traffic stream, or what we
9 typically call flow.

10 Q. Now, for one specific traffic stream, the
11 IGMP host report will always go to the owner unit.
12 Correct?

13 A. It depends how the protocol for
14 distributing the frames -- if we're looking at
15 Figure 6, we look at -- we have two different
16 techniques of distributing the protocol frames
17 across the links. One's controlled aggregation;
18 one's manual aggregation. It depends on what
19 switch 91 and 92 are doing as far as sending that
20 data. They could do something as simple as
21 round-robin, which would send it across. But the
22 link aggregation protocol does it on a per-flow
23 basis.

24 Q. What do you mean by per-flow basis?

25 A. Yeah. Again, you're going to have to be

1 one of ordinary skill.

2 So flow is usually a set of parameters, of
3 IP packet parameters which are -- they're
4 fundamental into how switches are built. But, in
5 general, it's a source IP address, a designation IP
6 address, and a protocol field. And so the flows
7 are identified in the link aggregation protocol,
8 which is discussed in Weyman, you do a hash on
9 the -- whatever you're using to define your flow.
10 It's left up to the person implementing the LAG
11 protocol. So that you randomly assign packets to a
12 particular link in the link aggregation protocol,
13 based on hashing of the flow values.

14 Q. And how does that comport with Weyman's
15 expressed disclosure that you nominate an owner
16 unit for each aggregated link?

17 A. So in the link aggregation protocol, you
18 need to have someone who is in charge of monitoring
19 the -- keeping the protocol alive between the two.
20 So you can say I'm aggregate -- electing an owner
21 to be the particular person who is running that
22 protocol. So he's running that protocol and he's
23 sending messages to keep the protocol alive across
24 both of them. But both sides of the link, the
25 aggregated link, need to be involved in the

1 protocol in order to keep it up. And that's why
2 typically we don't put LAG groups -- we're careful
3 with how we assign ports to LAG groups.

4 Q. Now, in your view, Weyman teaches that for
5 a particular flow, Weyman would designate an owner
6 unit for an aggregated link.

7 I understood you correctly; right?

8 A. No. It would -- I think they're saying
9 the owner units for each aggregated link. So he's
10 kind of the master in charge of the -- if we would
11 go to LAG protocol, he would be the one in charge
12 of it.

13 But each -- when they say each traffic
14 stream here in Weyman, that's the key for someone
15 of ordinary skill to understand it in this way,
16 that the -- the packets will be spread across that
17 link according to some type of protocol.

18 Now, that's only because it makes no sense
19 to connect up a port that doesn't do anything.
20 And, you know, reading it as someone who's not of
21 ordinary skill would say, oh, I guess that's what
22 he's teaching me, not to use an entire port. But
23 that makes no sense.

24 So one of ordinary skill would say, oh,
25 he's talking about each traffic stream here, so now

1 I understand what he's talking about. Traffic
2 stream, which most people -- or each traffic
3 stream -- he's not referring to the traffic across
4 the port. He's talking about the traffic stream
5 that's going -- that's related to a flow. And that
6 becomes a little more clear when it talks about in
7 particular, a frame should be forwarded to only one
8 member of the port of the aggregated link where the
9 traffic has arrived from the aggregated link. It
10 should not be forwarded to the other port of the
11 same aggregated link.

12 So that means the port that, let's say,
13 for lack of a better way of describing it, the
14 protocol that switch 91 uses to send the traffic to
15 the unit 10 and unit 20 is a round-robin. So
16 switch 91 sent the traffic in round-robin to 20.
17 That is where the traffic derived from in that
18 sentence. So the round-robin had sent it to 20,
19 and now it says, oh, from now on, I should send any
20 traffic that's on this particular flow or traffic
21 stream back from unit 20 to switch 91.

22 Q. What's the difference between traffic and
23 protocol frame?

24 A. Many differences. A protocol frame is how
25 all of the traffic's encapsulated to send across

1 the link, and a traffic stream is a particular
2 conversation, if you want to think of it that way,
3 between two endpoints in the network.

4 Q. So the protocol frame is the control
5 frame, and the traffic stream is the data plane.
6 Is that right?

7 A. No.

8 Q. Then I'm not understanding you correctly.
9 What's the difference between a protocol
10 frame and the traffic?

11 A. Okay. Well, let's talk about a protocol
12 frame first.

13 So a protocol frame, first of all, it
14 depends at what layer protocol you're talking about
15 in the OSI model, if we're talking about -- let's
16 not go to layer 1. Let's start at layer 2 and say,
17 hey, we're sending that data frame, and it's an
18 Ethernet frame. And then we have all the
19 standardization of the Ethernet frame that -- you
20 know, the frame check sequence, the headers and
21 things like that. The continuation fields.

22 So we have a protocol frame there, but --
23 and then we have a protocol frame for the next
24 layer, IP. Right? We have a source, a
25 destination. We have the famous IP header. Source

1 and destination IP addresses. Protocol
2 determinations. Ports. And that's the protocol
3 frame for that particular layer.

4 So when I'm sending traffic -- and this is
5 just traffic going across a link, not a traffic
6 stream. But when I'm sending traffic, I'm sending
7 traffic -- let's say we're in Figure 6 and I'm
8 switch 91 again, and I'm sending it -- again, I'm
9 sending from 91 to unit 20. I'm going to put the
10 protocol frame for Ethernet inside the data field
11 for the protocol frame for Ethernet. I'm going to
12 put the protocol frame for IP. And then you can or
13 not have higher-level protocol frames above that,
14 such as it's, you know, some type of identifier
15 with TCP or UDP.

16 So the different protocol frames sit
17 within the connection between, let's say, switch 91
18 and unit 20. Traffic stream is generally thought
19 of as the stream that connects one originating
20 source with one terminating destination.

21 Q. Ah. Understood.

22 And your view is that, for one specific
23 traffic stream, Weyman teaches nominating an owner
24 unit for the aggregated link?

25 A. No. It does -- it teaches an owner unit

1 for the aggregated link, but the traffic -- even
2 though there is a unit, there is going to be
3 traffic that goes across both links, and both those
4 links have to be coordinated in some way so that
5 the traffic is sent to the right link as it's
6 coming back.

7 Q. Well --

8 A. Which is typically based on the traffic
9 stream.

10 Q. Yeah. And what -- what is the meaning of
11 Weyman when Weyman says that allow only that unit,
12 the owner unit, to process protocol frames to the
13 aggregated link?

14 ATTORNEY WINN: Objection. Form.

15 A. The way I'm interpreting this and, you
16 know, one of ordinary skill, since they're talking
17 about link aggregation protocol, it's the master of
18 the link aggregation protocol. So he's processing
19 the protocol, and maybe it means the protocol
20 frames for the link aggregation protocol.

21 Q. And how are you interpreting Weyman when
22 Weyman says a frame should be forwarded to only one
23 member port of the aggregated link?

24 ATTORNEY WINN: Objection. Form.

25 A. Okay. So that is more support for its

1 working as described in the link aggregation
2 protocol because -- so this is a frame that's going
3 to be forwarded out of the unit, and what it's
4 saying here is we should only -- we should send it
5 back out, so that, in that example where switch 91
6 sent unit 20 a -- when it sent information to unit
7 20, that it should go back over unit 20. Not that
8 it should go back using the master, but it should
9 go back over the one that received it and not
10 another port.

11 So that kind of says that saying all the
12 traffic was going over the owner one is
13 contradicted by that sentence. So we must be
14 talking about the protocol frames of the link
15 aggregation protocol that we're using when we're
16 talking about the one unit to process protocol
17 frames to that aggregated link.

18 ATTORNEY WINN: Counsel, I just want to
19 mention that we've been going for almost like an
20 hour and a half. So whenever you get a chance,
21 maybe we can take a short break.

22 ATTORNEY CHO: Yeah. Sounds good.

23 A. Okay. How long?

24 Q. I mean, I will break when I can.

25 A. Oh. There's no pending question; right?

1 Q. Well, give me one second. I just want to
2 close out this module.

3 **A. Okay.**

4 Q. Okay. I think we can take a break. Thank
5 you.

6 **A. How long?**

7 Q. 10 minutes.

8 **A. Sounds good.**

9 THE REPORTER: Off the record at
10 12:03 p.m.

11 (Recess taken from 12:03 p.m.
12 to 12:12 p.m.)

13 THE REPORTER: Back on the record at
14 12:12 p.m.

15 BY ATTORNEY CHO:

16 Q. Welcome back.

17 I think you're on mute, Dr. Olivier.

18 **A. Okay. How's it going now?**

19 Q. Great.

20 So I don't want to dwell on this point too
21 much, but I just want to make sure I understand
22 your testimony on this issue, the very issue that
23 we were talking about right before the break.

24 So if I understand you correctly -- and
25 please correct me if I'm wrong -- when Weyman says

1 a frame should be forwarded to only one member port
2 of the aggregated link, and where the traffic has
3 arrived from an aggregated link, it should not be
4 forwarded to another port on the same aggregated
5 link.

6 I think what you're saying is if unit 10
7 in Figure 6, for example, receives traffic from
8 switch 91 at a particular member port, then the
9 aggregated link should use that same port to send
10 back any protocol frame for that aggregated link to
11 switch 91.

12 Did I understand you right?

13 **A. So you kind of broke up during that.**

14 **Can --**

15 Q. Oh, sure.

16 **A. Can you start again?**

17 Q. Let me rephrase it.

18 So if I understand you correctly, when
19 Weyman says a frame should be forwarded to only one
20 member port of the aggregated link, and where the
21 traffic has arrived from an aggregated link it
22 should not be forwarded to another port on the same
23 aggregated link, I think what you are saying is if
24 unit 10 in Figure 6, for example, receives traffic
25 from switch 91 at a particular member port of the

1 aggregated link, then the aggregated link should
2 use that same port to send back any protocol frame
3 for that aggregated link to switch 91.

4 Did I understand you right?

5 **A. No. Sorry.**

6 **Q.** Could you elaborate on that?

7 **A. Sure.**

8 So it -- it's talking about a traffic
9 stream. So -- and this is how it works in link
10 aggregation protocol. So it's -- a particular
11 traffic -- a particular -- let's say switch 91,
12 using your example. A particular traffic stream
13 was received at unit 10. Then when it has
14 traffic -- the return traffic, because the traffic
15 stream is a conversation. When it has return
16 traffic for that same conversation, it will send it
17 out that same port.

18 **Q.** And when the switch 91 has a return
19 traffic back to unit 10, would it use the same
20 port?

21 **A.** So for a particular stream under the --
22 some particular protocols in link aggregation,
23 it -- it will use that, like I said, a hash on
24 the -- the IP addresses and ports to determine
25 which link to send it out.

1 So for a particular stream, based on that
2 protocol, it will always send it out. If we're
3 talking about link aggregation protocol and it's
4 going to a particular conversation -- there could
5 be multiple conversations going to a host. So I
6 want to make sure, you know, that we include
7 that -- in that the particular traffic stream will
8 go to the same link.

9 Q. And by link, you mean the same member port
10 in unit 10. Correct?

11 A. It will be -- so the traffic -- there will
12 be a particular traffic stream that's going from
13 switch 91 to the distributed router of Weyman, and
14 in the case where the switch 91 determined based on
15 its link protocol for aggregated link, sent it to
16 link 10, it should return -- traffic on that
17 particular stream should return on the link that it
18 forwarded it to.

19 Q. And by link, you mean port in unit 10.
20 Correct?

21 A. Yes. We tend to talk in links, because
22 you can carve up a port sometimes. But, yeah. The
23 port would result in one link on a port.

24 Q. I'm going to move on.

25 So Weyman discloses that each unit has

1 user ports. Right?

2 **A. Weyman discloses that each user has user**
3 **ports. It discloses a user port.**

4 Q. That each unit has user ports. Correct?

5 **A. It -- in -- the units of Weyman can have**
6 **user ports, yes.**

7 Q. The user ports have unlimited bandwidth
8 capacity. Correct?

9 **A. They have limit -- depends on the user**
10 **ports.**

11 Q. Can a user port transmit or receive an
12 infinite number of multicast packet streams?

13 **A. No. They're bounded by the physical link**
14 **layer. If we talk about an Ethernet link, the port**
15 **itself could be a 10 -- well, let's say a**
16 **100-megabit Ethernet link. I'm showing my age if I**
17 **say 10-megabit Ethernet link.**

18 **So they would be bounded by the physical**
19 **layer.**

20 Q. Right. So the user ports have limited
21 bandwidth capacity. Right?

22 **A. The ports have a physical layer bandwidth**
23 **capacity, yes.**

24 Q. What happens if the user ports are forced
25 to carry more data than the bandwidth capacity?

1 **A. They can't. It's a physical restriction.**

2 **Q. Now, if the system tries to push more data**
3 **than the bandwidth capacity, the system will drop**
4 **packets. Right?**

5 **A. So let's take your example of the user**
6 **port connecting to the switch. If the user is**
7 **trying to send 100 megabits per second and the**
8 **port's only 10 megabits per second, what will**
9 **happen is it'll queue it up, and if it exceeds the**
10 **queues, it'll start dropping packets. Not the**
11 **switch, but the user will as he tries to send the**
12 **traffic in.**

13 **Q. And if the packets are dropped, the**
14 **quality of the multicast packet stream would also**
15 **reduce correspondingly. Right?**

16 **A. Well, yeah. As I said, if the user is**
17 **trying to send -- or let's say the source is trying**
18 **to send packets faster than the link can handle and**
19 **doesn't have -- the source of the -- the source**
20 **that is sending the traffic to the distributed**
21 **router, if it doesn't have sufficient buffers, if**
22 **it's always trying to send 100 megabits and it only**
23 **has a 10-megabit physical connection, then**
24 **eventually it will drop packets. The source, not**
25 **the switch.**

1 Q. Understood.

2 So similar to user ports that we were just
3 talking about, the aggregated links also have a
4 limited bandwidth capacity. Right?

5 A. They have a bandwidth like with -- just
6 like the user ports. They could be 10 megabits,
7 100 megabits.

8 Q. And just like the user ports, if the
9 aggregated links are pushed to carry more data than
10 their bandwidth capacity, the aggregated links
11 could drop packets too. Right?

12 A. If the -- if they're sending the traffic
13 out, they could be forced to drop packets. If
14 they're receiving it on 10-megabit links and it's
15 already -- it's already been dropped.

16 Let's look at the example of Figure 6
17 again.

18 So the -- and this is why you distribute
19 packets across multiple links, in an aggregated
20 link. But if unit 10 is trying to send traffic
21 across the link, and it's sending it across the top
22 link and it's trying to send 100 megabits of
23 traffic, it'll drop as it's trying to send the
24 traffic. If it's only a 10-megabyte link, it'll
25 eventually drop the traffic.

1 **Consequently, if switch 91 is trying to**
2 **send 100 megabits of traffic consistently over that**
3 **link and it's only a 10-megabit link, then**
4 **eventually switch 91 will start dropping traffic.**

5 **So you need to be clear on where the**
6 **source of congestion is.**

7 Q. Got it.

8 So on the source side, if the aggregated
9 link is pushed to send more data than the bandwidth
10 capacity, the aggregated links will drop packets.
11 Right?

12 **A. The source side would drop packets.**

13 Q. And if the aggregated links on the source
14 side drop packets, the quality of the multicast
15 packet stream would also correspondingly reduce.
16 Right?

17 **A. It can or cannot. There is recovery**
18 **techniques that you could use a TCP/IP to resend**
19 **packets. But it will -- if it continues, if**
20 **congestion continues, it could result in a**
21 **degradation of the user experience.**

22 Q. Okay. Let's set aside Exhibit 1005, and
23 then I will share with you Exhibit 1007. Give me
24 one moment.

25 Let me know when you see it.

1 **A. Okay. I'll refresh.**

2 **Oh, I have to log in again.**

3 **Q. Sorry.**

4 **A. Okay. 1007. I got it.**

5 **Q. Do you recognize 1007, Exhibit 1007?**

6 **A. Yes.**

7 **Q. Exhibit 1007 is a reference called Li.**

8 **Right?**

9 **A. Correct.**

10 **Q. Have you read Li?**

11 **A. Only the translated part.**

12 **Q. I suppose you don't speak Chinese?**

13 **A. No. It would be nice, but I don't. Or**

14 **read Chinese. No.**

15 **Q. Is there any part of the English**

16 **translation of Li that you did not read?**

17 **A. I read through once in its entirety. It's**

18 **kind of long. But that was a while ago.**

19 **Q. Okay.**

20 **So now I'm going to hand you Exhibit 1032.**

21 **And this is not of record yet, but I am going to**

22 **mark it as 1032. It's also in the share drive.**

23 **(Exhibit 1032 is marked for**

24 **identification.)**

25 **A. Oh, okay. I got it.**

1 Q. And I'm going to represent to you that
2 Exhibit 1032 is identical to Exhibit B of Exhibit
3 1007, except that Exhibit 1032 also has page
4 numbers at the bottom. So that it just makes
5 reference to various pages easier.

6 So just for this deposition, let's use
7 Exhibit 1032.

8 **A. Okay.**

9 Q. But I'm going to refer to Exhibit 1007 and
10 1032 as the Li reference.

11 **A. Gotcha.**

12 Q. Okay. So let's turn to Figure 1 of Li.
13 It's on PDF page 64, if that's easier.

14 **A. Yeah, I'm getting there.**

15 **Okay.**

16 Q. So Figure 1 is a structural diagram of a
17 multicast system according to Li on page 1.

18 So I hate to do this to you, but now that
19 you've looked at, I want you to take a look at
20 Figure 1 to orient you, and then we'll go to page 1
21 of Li so that we can look at exactly what the
22 disclosure of Li is. So please take the time to
23 look at page 1 and then we'll go to Li page 1.

24 **A. Okay. Page 1.**

25 **And you want to go to page 1?**

1 Q. Yes, please.

2 A. Okay.

3 Q. It's PDF page 3.

4 A. Gotcha. Okay.

5 Q. If you could read page 1, line 20 to

6 page 2, line 4, that would be helpful.

7 A. Okay.

8 Q. So in Figure 1, the video multicast

9 service system 10 sends a video traffic flow to the

10 IP-based metropolitan area network. Right?

11 A. Yes.

12 Q. And the IP-based metropolitan area network

13 sends the video traffic flow to a broadband access

14 network by IP multicast. Right?

15 A. Yes.

16 Q. In Figure 10 -- sorry.

17 In Figure 1, the access network includes

18 an access device. Right?

19 A. Correct.

20 Q. The access device in the access network is

21 coupled to the IP-based metropolitan area network.

22 Right?

23 A. Correct.

24 Q. The metropolitan network area uses an

25 internet protocol, doesn't it?

1 **A. Yes.**

2 Q. So the IP-based metropolitan area network
3 routes data as packets. True?

4 **A. Yes. The -- an IP network routes data as**
5 **packets, typically IP packets.**

6 Q. So the IP-based metropolitan area network
7 is a packet-switched network. Right?

8 **A. At some level, yes.**

9 Q. The video traffic flow from the IP-based
10 metropolitan area network is received by the access
11 device in the access network. Right?

12 **A. Yes.**

13 Q. And the video traffic flow is represented
14 as sequence of packets. Right?

15 **A. Correct.**

16 Q. And we just read together -- as we just
17 looked at, the video traffic flow is sent to the
18 access network by IP multicast. Right?

19 **A. Right.**

20 Q. So what is an IP multicast?

21 **A. It's a -- end traffic to multiple**
22 **destinations. Multicast is part of -- is part of**
23 **the -- oh.**

24 Would you mind if I shut down the video?
25 **I just got a message saying my internet's unstable.**

1 **Do you need the video, or --**

2 Q. I think it will be nice to have the video
3 on. I don't know what the solution would be.

4 A. **Okay. We'll see if it happens again.**

5 Q. Okay.

6 A. **So the IP multicast is a -- is a protocol**
7 **in IP that allows you to send packets to multiple**
8 **destinations instead of a single destination like a**
9 **unicast.**

10 Q. Understood.

11 So the packets used in an IP multicast are
12 multicast packets, then. Right?

13 A. **They're multi -- they're packets being**
14 **controlled by the multicast protocol. You'd be**
15 **hard-pressed to look at a particular packet and**
16 **tell whether it's multicast or not because you'd**
17 **have to look in the source IP address and see if**
18 **it's part of a multicast group.**

19 Q. So the video traffic flow in Figure 1 of
20 Li is carried in a sequence of packets that are
21 controlled by the multicast protocol. Right?

22 A. **The routing is controlled by the multicast**
23 **protocol, correct.**

24 Q. I see.

25 So the video traffic flow in Figure 1 is

1 carried in a sequence of packets whose routing is
2 controlled by the multicast protocol. Correct?

3 **A. Correct.**

4 Q. Turn to page 2 of the Li reference,
5 please, and let's look at line 12.

6 **A. Okay. Line 12.**

7 Q. It says, "The network structure of the
8 system for implementing multicast service by IGMP
9 protocol is illustrated in Figure 2, including a
10 terminal device 21, a modem 20, an access device
11 22, a multicast source network 23, and an
12 authorization server 24." Right?

13 **A. Right.**

14 Q. And Li then says, "While joining a
15 multicast group, which is often referred to as a
16 channel, the terminal device 21 sends an IGMP
17 report message to the access device 22 via the
18 modem 20." Right?

19 **A. "While joining a multicast group, which is
20 often referred to as a channel" -- oh.**

21 **Right.**

22 Q. So the terminal device 21 can request to
23 join a multicast group by sending an IGMP report
24 message to the access device 22. Right?

25 **A. Correct.**

1 Q. Okay. Li then goes on to say that the
2 access device sends an IGMP report message to the
3 multicast source network 23. Multicast flow is
4 therefore directed to the access device 22. Right?

5 **A. Right.**

6 Q. So what that means is, in my mind, it
7 seems to say that the access device 22 sends the
8 IGMP report message to the multicast source network
9 23, and in response to that, the access device 22
10 receives a multicast flow from the multicast source
11 network 23.

12 Did I understand that right?

13 **A. Could you repeat that one more time? I've**
14 **got to look at the figure when you say that too.**

15 Q. Yeah. Sure.

16 **A. Okay.**

17 Q. It seems to say -- yeah. So the access
18 device 22 sends the IGMP report message to the
19 multicast source network 23, and in response to
20 that, the access device 22 receives a multicast
21 flow from the multicast source network 23.

22 Did I get that right?

23 **A. Yes.**

24 Q. Li then says that, after that, the access
25 device 22 forwards the multicast flow to align

1 where the terminal device 21 is in. Right?

2 **A. After that -- right. That's what it says.**

3 Q. So if we take all of that together, the
4 terminal device 21 sends an IGMP report message
5 requesting to join a multicast group and in
6 response receives the multicast flow. Right?

7 **A. Right.**

8 Q. Let's talk about Figure 9 of Li. So I
9 want you to go there, take a look at it and soak it
10 in, and then I'll ask some clarifying questions
11 there.

12 **A. Okay.**

13 **Okay.**

14 Q. Figure 9 illustrates a network that can
15 provide IPTV services to clients. Right?

16 **A. Yes.**

17 Q. The network structure in Figure 9 includes
18 an IPTV network at the top. Right?

19 Do you see that?

20 **A. Yes.**

21 Q. The IPTV network is compliant with the
22 internet protocol. Right?

23 **A. Correct.**

24 **Well, it can operate the IP protocol.**

25 **There's a lot of IP protocols. So I wouldn't say**

1 **it's compliant with all of them, but it can operate**
2 **under IP protocols and interconnect.**

3 Q. Understood.

4 This network structure in Figure 9 also
5 includes an access device 91 as well as the set-top
6 box devices 92 and 93.

7 Do you see that?

8 **A. Actually, mine says set-top boxes 92 and**
9 **92.**

10 Q. Ah. Yes. Sorry. I misread that one.

11 So, yeah. So the network includes the
12 set-top box devices 92. Right?

13 **A. Right.**

14 Q. Now, could you please turn to page 26 of
15 Li.

16 **A. Of Li?**

17 Q. Same document. Just page 26.

18 **A. Okay.**

19 Q. At line 19, it says the STV device 92
20 sends a multicast joining message 20 when it powers
21 on. Right?

22 **A. Right.**

23 Q. One example of the multicast joining
24 message 20 will be an IGMP report message. Right?

25 **A. Yes.**

1 Q. Okay. So Li then goes on to say that the
2 STB device 92 sends a multicast quitting message of
3 a current channel.

4 Do you see that?

5 **A. Yes.**

6 Q. One example of a multicast quitting
7 message is an IGMP report message. Right?

8 **A. Right.**

9 Q. The -- sorry. Strike that.

10 If you look at Figure 9 and the
11 description of Figure 9 on page 26, line 13, it
12 says an access device 91 of a multicast service is
13 a digital subscriber line access multiplexer of
14 distributed multicast router line.

15 Do you see that?

16 **A. Yes.**

17 Q. What is a DSL, or a digital subscriber
18 line?

19 **A. It's a protocol that allows you to send**
20 **high -- relatively high bandwidth data over a**
21 **twisted pair.**

22 Q. In the OSI model that we talked about, the
23 DSL corresponds to a physical layer. Right?

24 **A. Correct.**

25 Q. So the DSL corresponds to layer 1 of the

1 OSI model. True?

2 A. At a high level, it does, yes. There's a
3 lot in the DSL standards, but especially you -- you
4 have to be able to encapsulate the phone at the
5 same time as the data, so that gets a little
6 tricky. But it -- its most prominent layer is a
7 physical layer.

8 Q. Got it.

9 Now, Li says the access device is a DSLAM.
10 What is a DSLAM?

11 A. A DSLAM -- and, actually, I design
12 DSLAMs -- so it's a set of modems.

13 If you look at Figure 9, you see 91. So
14 it's a set of modems, and each modem on one side of
15 the DSLAM is connected to modem 94 over a twisted
16 pair. The twisted pair runs from wherever the
17 DSLAM is located. We used to put them in central
18 offices, and so they would be what we would call
19 the twisted pair from the central office to the
20 home. And to get higher bandwidth with like BDSL,
21 we moved them further out into the network, like at
22 the curb in a DLC, a digital loop carrier, or
23 something like that.

24 Q. Got it.

25 You said one side of the DSLAM is

1 connected to the twisted pair. The other side of
2 the DSLAM in Figure 9 is connected to an IP
3 network. Right?

4 **A. Well, yeah. So one side is connected to**
5 **the twisted pair or modem, and then there's a modem**
6 **on the other side that's at the house, and the**
7 **other side has a connection that's going into the**
8 **IPTV network.**

9 Q. The DSLAM can have multiple ports on the
10 twisted pair side of the modem -- of the DSLAM.
11 Correct?

12 **A. So you can have multiple modems in a**
13 **DSLAM. But the twisted pair only goes to one**
14 **particular location, like someone's house.**

15 Q. Ah. Understood.
16 So the DSLAM can include multiple modems.
17 Correct?

18 **A. Correct.**

19 Q. And each modem is connected to one twisted
20 pair. Is that right?

21 **A. Correct.**

22 Q. And each modem corresponds to a port.
23 Correct?

24 **A. I guess what do you mean by "port" in this**
25 **context?**

1 Q. A port where there is a connection -- a
2 port that provides the connection, physical
3 connection between the modem and the device that's
4 on the other side of the modem.

5 **A. So you mean the port's the twisted pair?**

6 Q. Li describes an xDSL service port. Right?

7 **A. Right.**

8 Q. That's the port that I'm referring to.

9 So my question is a DSLAM can have
10 multiple modems, and each modem will have a service
11 port. Right?

12 **A. Yes. So there's a service port that is**
13 **the twisted pair that goes back to the modem, to**
14 **the xDSL modem.**

15 Q. I'm just trying to read your answer.

16 So I think you did say that each modem has
17 a service port. Did I get that right?

18 ATTORNEY WINN: Objection. Form.

19 **A. Each modem, I guess, is a service port.**

20 Q. Understood.

21 So a DSLAM has multiple modems, each of
22 which is a service port. Correct?

23 **A. It's multiple modems which connect up to**
24 **twisted pair that -- you can think of that modem**
25 **plus the twisted pair is a service port for the**

1 **user.**

2 Q. Understood.

3 Have you heard of a term called "DSL
4 bonding"?

5 **A. Yes.**

6 Q. What is DSL bonding?

7 **A. I've heard of it. I don't -- I don't
8 recall it off the top of my head.**

9 Q. That's fair.

10 So you -- you don't know whether DSL
11 bond -- strike that.

12 So you're not familiar with DSL bonding
13 and you didn't apply that understanding in your
14 declaration. Right?

15 ATTORNEY WINN: Objection. Form.

16 **A. Well, my declaration was in response to
17 Dr. Houh's declaration, and I don't recall seeing
18 DSL bonding in his declaration. So I didn't go out
19 of my way to study all the different nuances of
20 DSL.**

21 Q. Understood.

22 So you're not familiar with DSL bonding
23 where DSL service ports are logically combined to
24 provide a single logical connection. Correct?

25 ATTORNEY WINN: Objection. Form.

1 **A. I am not familiar as I sit here currently.**
2 **I've heard the term, but I'm not familiar with it.**

3 Q. Let's talk about the Li's access device a
4 little bit more.

5 Please turn to page 30, line 12.

6 **A. Okay.**

7 Q. And it will actually be helpful to take a
8 look at Figure 12 as well.

9 So would you mind just taking a look at
10 Figure 12, and then we can go back to page 30.

11 **A. Okay.**

12 **Okay. I'm on page 30.**

13 Q. Great.

14 Figure 12 that you just looked at had a
15 channel joining processing unit. Correct?

16 **A. Correct.**

17 Q. And the channel joining processing unit
18 includes a first control unit and a second control
19 unit. Right?

20 And this is on line -- this is at line 17
21 of page 30.

22 **A. Okay.**

23 Q. So the channel joining processing unit
24 includes a first control unit and a second control
25 unit. Correct?

1 **A. Correct.**

2 Q. If you go to line 25 of page 30, Li says,
3 "In practice, each service port on the access
4 device is configured with a maximum number of
5 access multicast channels allowable, which can be
6 set dependent on bandwidth of the service port or
7 as required by management."

8 Do you see that?

9 **A. Yes.**

10 Q. So Li discloses limiting the number of
11 channels of a port so the bandwidth of the port is
12 not overloaded. Right?

13 **A. Correct.**

14 Q. The operation of limiting the number of
15 channels is performed by the channel joining
16 processing unit. Right?

17 **A. Yes.**

18 Q. And the operation of limiting the number
19 of channels can be implemented as software
20 operating on a processor. Right?

21 **A. Correct.**

22 Q. Let's put the Li reference aside and then
23 I will share with you another document. And it's
24 Exhibit 1010.

25 **A. Okay.**

1 **Okay.**

2 Q. Okay. So have you seen this reference
3 before?

4 **A. Yes.**

5 Q. Exhibit 1010 is a reference by Jain.
6 Correct?

7 **A. Correct.**

8 Q. And you've read Jain. Correct?

9 **A. Yes.**

10 Q. And is there any part of Jain that you did
11 not read?

12 **A. Not that I recall as I sit here.**

13 Q. Let's turn to Figure 1 of Jain.

14 **A. Okay.**

15 Q. Figure 1 shows a communications network
16 with remote devices A and B and network nodes A and
17 B. Right?

18 **A. Sorry.**

19 **Okay. Can I hear your question again?**

20 Q. Sure.

21 So Figure 1 shows a communications network
22 with remote devices A and B and network nodes A and
23 B. Right?

24 **A. Right.**

25 Q. If you turn to paragraph 18 of Li --

1 sorry -- of Jain.

2 **A. Okay.**

3 Q. It says, "As alluded to before, network
4 nodes 102A and 102B may each have a number of link
5 ports, some of which may be for interfacing with
6 remote devices while others may be for interfacing
7 with networks 106A and 106B, respectively."

8 I read that correctly; right?

9 **A. Correct.**

10 Q. So link -- the link ports in a network
11 node interfaces with remote devices and external
12 networks. Right?

13 **A. Remote devices and networks, yes.**

14 Q. Let's turn to paragraph 19. It says,
15 "When network node 102A is down for some reason,
16 e.g., a catastrophic switch software and/or
17 hardware failure, reset, power down, rebooting,
18 etc., its link port interfaces are deactivated or
19 de-energized, including the device-side and
20 network-side interfaces." Correct?

21 **A. Correct.**

22 Q. So when the network node is down, the link
23 ports are deactivated. Right?

24 **A. So when the network node experiences some
25 sort of catastrophic switch or hardware failure,**

1 **reset, power down, or rebooting, the link ports are**
2 **deactivated or de-energized.**

3 Q. Okay. And then in the third sentence of
4 paragraph 19, it says, "When network node 102A is
5 powered up again (i.e., power-on or system reset
6 condition), it engages in a controlled boot-up
7 process thereafter."

8 I read that correctly; right?

9 **A. Yes.**

10 Q. Okay. Let's now turn to paragraph 20.

11 Paragraph 20 says, "Figure 2 is a
12 flowchart of a scheme for controlling boot-up
13 process of an Ethernet node in accordance with one
14 embodiment." Right?

15 **A. Right.**

16 Q. And one of the steps in the controlling
17 boot-up process is effectuating a "Link Down"
18 condition. Right?

19 **A. Yes.**

20 Q. Issuing the "Link Down" condition on the
21 link port deactivates the link port. Right?

22 **A. So can I hear your question again?**

23 Q. Sure.

24 Issuing the "Link Down" condition on the
25 link port deactivates the link port. Right?

1 ATTORNEY WINN: Objection. Form.

2 Q. And this is not a trick question, by the
3 way. If you look at step 206 of Figure 2.

4 A. Okay.

5 I'm just trying to understand your
6 question in the context of this paragraph.

7 So . . .

8 Q. Sure.

9 A. The link -- so could I hear it again?

10 Q. Yeah.

11 So issuing the "Link Down" condition on
12 the link port deactivates the link port?

13 A. Okay.

14 ATTORNEY WINN: Objection. Form.

15 A. I'm sorry. I thought I answered your
16 question. Do you have another one?

17 Q. Oh, I see. I'm sorry.

18 So the answer was "yes"?

19 A. It was "okay." I think it was said
20 "okay."

21 Q. Right.

22 But would you agree with that? So issuing
23 the "Link Down" condition on the link port
24 deactivates the link port?

25 ATTORNEY WINN: Objection. Form.

1 I just want to say on the record it says
2 "ports," not "port."

3 **A. So it disables the link port.**

4 Q. Okay.

5 So Jain teaches deactivating the link
6 ports of a network node during a controlled boot-up
7 process. Right?

8 **A. It does teach disabling the ports during**
9 **the boot-up process.**

10 Q. Okay. And by issuing the "Link Down"
11 position, Jain prevents unintended network traffic
12 with other remote devices and network nodes.
13 Right?

14 **A. Correct.**

15 Q. And the "Link Down" condition can be
16 issued for a link port using software. Right?

17 **A. Well, in Jain they talk about doing it in**
18 **hardware. But that hardware could be controlled by**
19 **software.**

20 Q. Okay. Let's set that aside.

21 I'm going to share with you another
22 document. Oh, it's already shared with you.

23 So let's look at your declaration, Exhibit
24 2001.

25 **A. Okay.**

1 Q. Please turn to paragraph 19 of your
2 declaration, please.

3 **A. Okay.**

4 Q. So there, as the first step of claim
5 analysis, you said one must analyze the term of
6 patent claims to understand what meaning one of
7 ordinary skill in the art would give the terms.
8 Right?

9 **A. Correct.**

10 Q. Please turn to paragraph 27.

11 **A. Okay.**

12 Q. You understand that a claim term is given
13 the meaning that the term would have to a POSITA at
14 the time of the invention, which generally is the
15 ordinary and customary meaning of the term. Right?

16 **A. Correct.**

17 Q. In your declaration, you have not proposed
18 a construction of any of the terms. Correct?

19 **A. Correct.**

20 Q. So in your analysis of the claims in the
21 declaration, you applied the, quote, ordinary and
22 customary meaning of the terms. Correct?

23 **A. In light of the specification, yes.**

24 Q. Please turn to paragraph 59 of your
25 declaration.

1 **A. Okay.**

2 Q. For Claim 1, your opinion is that the
3 combination of Weyman and Li does not show
4 limitation 1k. Right?

5 **A. Correct.**

6 Q. Now, if you scroll down through
7 paragraph 60 to 65, those paragraphs all pertain to
8 limitation 1k. Correct?

9 **A. Yes.**

10 Q. So you don't disagree with petitioner's
11 expert, Dr. Houh, that the combination of Weyman
12 and Li discloses all limitations of Claim 1 other
13 than limitation 1k under the plain and ordinary
14 meaning. Right?

15 **A. I didn't opine on any other limitation of**
16 **Claim 1.**

17 Q. Did you look at Dr. Houh's analysis of
18 other limitations in Claim 1?

19 **A. I did.**

20 Q. But you didn't opine on other limitations
21 of Claim 1. Correct?

22 **A. Correct.**

23 Q. Can you turn to paragraph 45 of your
24 declaration.

25 **A. Okay.**

1 Q. There, you say, "Given that Weyman and Li
2 are directed to two different types of products
3 using two different types of media in two different
4 types of networks, a POSITA would not have been
5 motivated to combine Weyman and Li." Right?

6 **A. Correct.**

7 Q. What do you mean by "directed to" in this
8 context?

9 **A. Directed to. So the teachings of Weyman
10 is directed to a different type of product using a
11 different type of media in a different type of
12 network, and the teachings of Li are directed to a
13 different type of product than Weyman, using a
14 different type of media than Weyman, in different
15 types of networks than in Weyman.**

16 Q. Right. And what do you mean by "directed
17 to"?

18 **A. Exactly what I just said: that the
19 teachings of them are directed to two different
20 types of products using two different types of
21 media in two different types of networks.**

22 Q. I'm just trying to understand how you're
23 using the words "directed to."

24 So are you saying that Weyman -- the
25 teachings of Weyman cannot be applied to anything

1 other than what is described there, or are you
2 attributing a different meaning to the words
3 "directed to"?

4 ATTORNEY WINN: Objection. Form.

5 A. So what I'm saying is they are directed to
6 two different types of products using two different
7 types of media in different types of networks. So
8 they're not directed towards the same product, the
9 same types of physical medias, or even the same
10 types of networks.

11 So you wouldn't be -- a POSITA would not
12 be trying to combine something from one world to
13 something in another world.

14 Q. Is it always true that a POSITA would not
15 be motivated to combine two references when the --
16 when the two references are directed to two
17 different types of products using two different
18 types of media in two different types of networks?

19 A. It -- it kind of depends on the particular
20 limitations you're talking about, or the patent
21 limitations that are being addressed. But -- for
22 instance, if you are an Ethernet product, you would
23 not look at a DSL product to try to determine how
24 to improve that Ethernet product. That's two
25 different types of media. You would not look to

1 two different types of networks, a phone network,
2 to improve a telephone -- a television network.
3 Just like you wouldn't look at a core network to
4 try to improve an access network. They have two
5 different goals within them.

6 Q. But my question was a little bit
7 different. I was asking whether it is always true
8 that there would be no motivation to combine when
9 the references are directed to two different types
10 of products using two different types of media in
11 two different types of networks.

12 A. Would it always be true? I -- it -- like
13 I said, it depends on what you're talking about.
14 If it was something that -- if there were two
15 different types of products using two different
16 types of media in two difference types of network
17 but they were doing the same thing, such as a OEM
18 interface, then you could look to one to have
19 solutions to the other. But if it's based on the
20 media type, you wouldn't look to that -- look to a
21 different media type to try to solve problems of a
22 different media type.

23 Q. Got it.

24 A. So "always" is a strong word. It depends
25 on what you're talking about.

1 Q. So going back to Li, then, Li was
2 describing an xDSL port, and I think we agreed that
3 DSL is directed to the physical layer in the OSI
4 model.

5 **A. Correct.**

6 Q. DSL has to be used with other protocols
7 for layers 2 and 3. Correct?

8 **A. At least for layer 3s. Layer 2 might be**
9 **defined in the DSL protocol.**

10 Q. A system that implements DSL would also
11 implement protocols for layer 2 and layer 3.
12 Correct?

13 **A. Right. It might define layer 2.**

14 Q. Can you turn to paragraph 72, please.

15 Oh, strike that. I'll forgo that
16 question. Put that aside.

17 I'm going to share with you another
18 document.

19 Before I go there, do you want to take a
20 break?

21 **A. Sure.**

22 Q. How about 10 minutes?

23 **A. A couple to -- okay. Yeah. 10 minutes.**

24 **That's fine.**

25 Q. Yeah. I don't think I'm going to go for

1 much longer, so I think 10 minutes. If we can wrap
2 it up before lunch break, that would be great.

3 **A. Okay. Great.**

4 ATTORNEY CHO: Thank you.

5 THE REPORTER: Off the record at
6 1:11 p.m.

7 (Recess taken from 1:11 p.m.
8 to 1:21 p.m.)

9 THE REPORTER: Back on the record at
10 1:21 p.m.

11 BY ATTORNEY CHO:

12 Q. Great. Welcome back.

13 I just uploaded Exhibit 1025 to the
14 folder. So if you could take a look at it, that
15 would be great.

16 **A. Okay.**

17 Q. So have you seen this reference?

18 And I can represent to you that this is a
19 document that Dr. Houh cites in his declaration.

20 **A. Let's see. What's the name of this?**

21 **Chen.**

22 **So I didn't review it in detail.**

23 Q. But you've laid eyes on it?

24 **A. Yeah. I don't -- where did it go? Sorry.**

25 **I lost it for a second.**

1 **Okay. Yeah. I got it.**

2 **Yeah, I didn't study it in detail.**

3 Q. Could you please turn to column 7 in lines
4 15 through 51. And if you wouldn't mind taking a
5 read of those lines, I would appreciate it.

6 **A. Which ones?**

7 Q. Column 7, lines 15 through 51.

8 **A. Okay.**

9 ATTORNEY WINN: While he's reading that, I
10 just want to state on the record that I don't
11 believe Dr. Olivier provided an opinion on this
12 reference in Exhibit 1025.

13 So to the extent there are any questions
14 relating to a reference that he didn't express
15 an opinion on, it's outside the scope of this
16 cross-examination. So I'll just state a
17 standing objection to the questions that are
18 relating to this that it's outside the scope of
19 cross-examination.

20 ATTORNEY CHO: And since you've put it on
21 the record, I just want to put on the record
22 that Dr. Olivier testified in paragraph 15 of
23 his declaration that he's reviewed all the
24 references that Dr. Houh stated in his
25 declaration. So this is definitely within the

1 scope of the deposition.

2 **A. Okay. I read 15 through 50.**

3 Q. The description in column 7 at lines 15
4 through 51 is directed to routing a packet for a
5 multicast. Right?

6 **A. Yes.**

7 Q. The description in column 7, lines 15
8 through 51, would not apply to IGMP messaging for
9 setting up a multicast stream. Right?

10 **A. So this is talking about forwarding a**
11 **packet to a destination address for a multicast.**
12 **It is related to how the multicast destinations are**
13 **set up, but this is how the actual forwarding takes**
14 **place in this particular part you're looking at,**
15 **how the forwarding takes place through the**
16 **different tables in the -- this is Chen? -- in**
17 **Chen.**

18 Q. Now, this section, column 7, lines 15
19 through 51 of Chen, is directed to routing a
20 multicast packet as opposed to routing IGMP
21 messages to set up the multicast stream. Right?

22 **A. As opposed to receiving IGMP messages to**
23 **add entities to the -- to the tables.**

24 Q. Got it.

25 ATTORNEY WINN: So I do want to clarify my

1 objection.

2 So I still stand by my objection, and I
3 also object on the grounds that you know these
4 are all leading questions and it's inappropriate
5 that -- you know, because this is outside the
6 scope of his direct examination. But I'll just
7 make a standing objection so I don't have to
8 keep saying, "Objection; form."

9 ATTORNEY CHO: Yeah. Noted.

10 And just for the record this is a
11 cross-examination and not a direct examination.
12 So, you know, all the leading objections are
13 just inappropriate, in my mind.

14 But you can take it up to the board if
15 you'd like.

16 ATTORNEY WINN: Yeah, I still maintain my
17 standing objection that, you know, this is
18 outside the scope of his direct testimony.

19 ATTORNEY CHO: You mean the
20 cross-examination, not the direct testimony.

21 ATTORNEY WINN: Yes. This is
22 cross-examination on his direct testimony. He
23 didn't testify about this exhibit. So you're
24 doing cross-examination on something he didn't
25 testify about.

1 BY ATTORNEY CHO:

2 Q. So the IGMP join message will be -- strike
3 that.

4 In IGMP -- one way to set up an IGMP --
5 strike that.

6 You can set aside Exhibit 1025.

7 **A. Okay.**

8 Q. So in order to have a multicast client
9 join a multicast traffic, the multicast client will
10 send an IGMP join message. Right?

11 **A. That's one way to do it. There's other --**
12 **other protocols too.**

13 Q. And in order to quit a multicast traffic,
14 a multicast client will send an IGMP quit message
15 to the multicast source. Right?

16 **A. That's one way of doing it.**

17 Q. Understood.

18 No further questions.

19 Well, one last question: Did you speak
20 with Mr. Winn during any of the breaks?

21 **A. No, I did not.**

22 ATTORNEY CHO: Okay. No further
23 questions. Thank you for your time.

24 THE WITNESS: Thank you.

25 ATTORNEY WINN: I don't have any questions

1 on redirect.

2 ATTORNEY CHO: Thank you very much for
3 your time, Dr. Olivier.

4 THE WITNESS: Thank you.

5 ATTORNEY CHO: We can go off the record.

6 THE REPORTER: Off the record at 1:32 p.m.
7 (Witness excused and deposition concluded
8 at 1:32 p.m. EDT.)

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 J U R A T

2

3 I, James L. Olivier, PhD, do hereby
4 certify that I have read the foregoing transcript
5 of my testimony, and it is an accurate record of
6 said testimony (except for the following
7 corrections listed below):

8 Page Line Correction

9

10

11

12

13

14

15

16

17

18 _____
James L. Olivier, PhD

19

20 Sworn to and subscribed before me this _____
21 day of _____, 2025.

22

23

24 _____
Notary Public/Justice of the Peace

25 My commission expires:

1 CERTIFICATE OF REPORTER

2

3 I, Deanna J. Dean, Registered Diplomate
4 Reporter, Certified Realtime Reporter, and New
5 Hampshire licensed court reporter, the officer
6 before whom the proceedings were taken, do hereby
7 certify that the foregoing transcript is a true and
8 accurate record of these proceedings; that said
9 proceedings were taken in Stenotype note by me on
10 Wednesday, April 9, 2025 , commencing at 10:43 a.m.
11 (EDT) and ending at 1:32 p.m. EDT.

12 I further certify that present on behalf of
13 Party Cisco Systems Inc. was Taeg Sang (Tim) Cho of
14 Desmarais LLP and on behalf of Party Portsmouth
15 Network Corp. was James Winn of Steptoe & Johnson
16 LLP.

17 I further certify that I am not related to, nor
18 associated with any of the parties or their
19 attorneys, nor do I have any disqualifying
20 interest, personal or financial, in the actions
21 within.

22 Dated this 14th day of April, 2025, at Hillsborough
23 County in the State of New Hampshire.

24

25



A	42:6,9,14,20	Ah 11:12 22:19	96:8	86:14,25
a.m 1:16 2:4	42:21,22	56:21 75:10	appreciate	91:4 94:4,11
5:9 101:10	43:2,4,6,10	78:15	95:5	95:9,20
able 77:4	43:12,14,23	align 73:25	April 1:15 2:3	96:25 97:9
Absolutely	43:24 44:12	alive 52:19,23	5:8 101:10	97:16,19,21
7:15	44:24 45:4	allow 41:17	101:22	98:1,22,25
access 39:17	45:14,15	46:10 49:14	area 69:10,12	99:2,5
69:13,17,18	46:10,11,17	51:2 57:11	69:21,24	attorney-clie...
69:20,20	46:20,24	allowable 82:5	70:2,6,10	13:18
70:10,11,18	47:3,13,16	allowed 41:22	arrived 42:20	attorneys 3:4
72:10,17,24	47:23 48:2,6	allows 71:7	43:3 54:9	3:12 13:22
73:2,4,7,9,17	48:14,16	76:19	60:3,21	14:19,21,22
73:20,24	49:10,14,15	alluded 84:3	art 17:24 26:5	101:19
75:5 76:12	49:21,25	alternative	26:10 50:22	attributing
76:13 77:9	52:16,25	35:25	88:7	91:2
81:3 82:3,5	53:6,9 54:8,9	Alternatively	aside 66:22	authorization
92:4	54:11 56:24	36:1	82:22 87:20	72:12
accurate 7:17	57:1,13,23	analog 17:19	93:16 98:6	Avenue 3:5
100:5 101:8	58:17 60:2,3	17:19	asking 17:21	aware 33:9
achieved	60:4,9,10,20	analysis 88:5	92:7	
41:15 46:9	60:21,23	88:20 89:17	assign 52:11	B
49:13	61:1,1,3	analyze 88:5	53:3	B 4:9,12 68:2
act 37:6	62:15 65:3,9	and/or 84:16	associated	83:16,17,22
actions 101:20	65:10,19	answer 8:19	28:2 45:1	83:23
active 47:1	66:8,10,13	8:20 13:20	101:18	back 36:5
actual 37:9	aggregates	13:23 15:15	ATM 38:24	44:19 54:21
96:13	43:6	22:9,11 29:3	attached 31:3	57:6 58:5,7,8
add 96:23	aggregation	29:24 79:15	Attorney 4:5	58:9 59:13
address 39:17	48:5,18 50:9	86:18	5:17,19 6:1,2	59:16 60:10
52:5,6 71:17	50:11,12,13	answered	6:7,15,19,22	61:2,19
96:11	50:25 51:17	86:15	13:17 15:14	79:13 81:10
addressed	51:18,22	answering 8:1	17:8,13 18:1	93:1 94:9,12
91:21	52:7,12,17	answers 22:7	18:12,18,21	bandwidth
addresses	57:17,18,20	Appeal 1:3 5:6	19:8,12,20	63:7,21,22
56:1 61:24	58:1,15	appearance	19:25 21:4,5	63:25 64:3
admitted 6:17	61:10,22	6:9	21:6,7,8,9,11	65:4,5,10
affect 35:12	62:3	appeared 1:21	21:13,15	66:9 76:20
age 63:16	ago 12:15,20	appears 12:3	27:6 34:6,23	77:20 82:6
aggregate	12:22 67:18	applicant 35:8	36:11 37:17	82:11
52:20	agree 5:23	application	49:17 57:14	based 29:9
aggregated	22:14 32:7	9:24	57:24 58:18	52:13 57:8
40:23 41:2,8	39:22 86:22	applied 88:21	58:22 59:15	62:1,14
41:9,16,18	agreed 21:23	90:25	79:18 80:15	92:19
41:20,23	22:2 93:2	apply 80:13	80:25 86:1	basics 10:13

basis 21:5,6 51:23,24 BDSL 77:20 beginning 5:15 begins 5:2 46:3 behalf 5:12 101:12,14 believe 15:3 39:19 95:11 belongs 27:9 better 9:16 54:13 bit 22:10 41:6 81:4 92:6 board 1:3 5:6 97:14 Boerne 7:5 bond 80:11 bonding 80:4 80:6,12,18 80:22 boot-up 85:6 85:12,17 87:6,9 bottleneck 37:9,12 bottlenecks 37:22 bottom 20:11 24:14 32:15 68:4 bounded 63:13,18 box 75:6,12 boxes 75:8 break 8:4 58:21,24 59:4,23 93:20 94:2 breaks 8:2,9 8:15 98:20 brief 12:19	bringing 13:3 broadband 69:13 broke 60:13 brought 13:6 browser 11:9 browsing 11:22 buffers 64:21 build 36:22 built 52:4 C C 3:1 5:1 call 38:20,21 39:9 51:9 77:18 called 6:4 16:5 33:4 67:7 80:3 capacity 63:8 63:21,23,25 64:3 65:4,10 66:10 careful 53:2 carried 71:20 72:1 carrier 77:22 carries 24:3,8 24:21 carry 63:25 65:9 carve 62:22 case 5:7 6:9 34:20 62:14 catastrophic 84:16,25 cause 11:19 35:20 caution 13:17 cell 9:6 17:19 38:24 central 77:17 77:19	CERTIFICATE 101:1 Certified 2:10 4:12 101:4 certify 100:4 101:7,12,17 challenging 10:20 chance 58:20 change 35:8 changes 35:11 35:15 channel 72:16 72:20 76:3 81:15,17,23 82:15 channels 82:5 82:11,15,19 charge 52:18 53:10,11 check 55:20 Chen 94:21 96:16,17,19 Chicago 3:14 Chinese 67:12 67:14 Cho 3:8 4:5 5:17,17 6:1,7 6:19,22 21:5 21:7,9,13,15 58:22 59:15 94:4,11 95:20 97:9 97:19 98:1 98:22 99:2,5 101:13 circle 24:15,18 32:16 Cisco 1:5 5:4 5:18 13:1,2,2 13:6 101:13 Cisco's 13:10 13:11 cites 29:16	94:19 claim 12:18 88:4,12 89:2 89:12,16,18 89:21 claims 88:6,20 clarified 22:9 clarify 96:25 clarifying 74:10 class 39:10 clean 7:24 clear 19:2 20:3 37:2,8 54:6 66:5 client 25:20 30:8 32:16 32:19,24 35:7 36:22 39:25 40:15 98:8,9,14 clients 18:15 30:20 31:2 31:13,24 32:5 40:17 74:15 close 59:2 cognizant 37:19 column 95:3,7 96:3,7,18 combination 89:3,11 combine 90:5 91:12,15 92:8 combined 80:23 coming 57:6 commencing 101:10 commission 100:25 committed	30:3 communicate 19:17,21 communicat... 18:2 38:8 communicat... 9:9 communicat... 9:3 17:14 27:4 communicat... 13:19 17:12 17:16,23 83:15,21 completely 50:7 compliant 74:21 75:1 comport 52:14 comprises 40:23 computer 9:4 9:23 10:4 concluded 99:7 condition 85:6 85:18,20,24 86:11,23 87:15 conducted 1:20 conducting 7:9 configuration 36:6,8 configured 82:4 confirm 9:22 12:1 confused 26:18 congestion 66:6,20 connect 53:19
--	---	---	--	---

79:23 connected 18:14,19,23 19:1,3,10,22 19:23 20:21 20:22 21:1 21:16,19,24 22:3,13,16 22:21,25 23:8 34:3,8 34:10,25 36:9 40:10 40:21 41:20 43:14 44:25 45:3 77:15 78:1,2,4,19 connecting 64:6 connection 26:12,14,20 27:8,25 28:2 28:5,7,9,11 28:16,20 40:25 56:17 64:23 78:7 79:1,2,3 80:24 connections 40:24 connects 27:25 56:19 Consequently 66:1 considers 41:9 45:14 consistent 47:5 consistently 41:12 42:10 45:17 46:7 47:16 66:2 consisting 23:23 constituting	40:24 construction 12:18 88:18 content 26:21 26:23,25 27:2,11,14 27:15,16,18 27:19,20,23 context 33:8 40:14 47:8 51:6 78:25 86:6 90:8 continuation 55:21 continues 66:19,20 contradicted 58:13 control 20:19 39:17 55:4 81:18,18,24 81:24 controlled 50:12 51:17 71:14,21,22 72:2 85:6 87:6,18 controlling 85:12,16 conversation 55:2 61:15 61:16 62:4 conversations 62:5 coordinate 42:13 44:8 coordinated 41:11 45:16 57:4 coordination 42:5,7 44:3,9 46:6 47:12 47:14 copy 16:15	core 92:3 corner 24:14 32:15 Corp 1:8 5:5 101:15 correct 6:18 6:19 10:17 10:20,21 12:17 13:1,4 13:7,8,10 14:22 16:6,7 16:22 17:4,5 17:7,12 18:5 18:9,16,17 19:4,5,9,11 19:15,16 20:1 21:2,3 21:17,18,25 22:1,3,4,23 22:24 23:1,2 23:5,6 24:1,8 24:13,23 25:2,13 26:24 27:5,7 27:12,17,21 28:3,4,6,12 29:16,20,22 31:15 32:1 32:13 33:1 33:11,15,16 33:19 34:1,2 34:5,14,15 34:22 35:10 35:14,19,24 36:13,17,18 36:23 37:13 37:16,18 41:1,24 43:17 44:11 44:16,17,23 45:11 46:12 46:18,21 47:24,25 48:3 51:12	59:25 62:10 62:20 63:4,8 67:9 69:19 69:23 70:15 71:23 72:2,3 72:25 74:23 76:24 78:11 78:17,18,21 78:23 79:22 80:24 81:15 81:16,25 82:1,13,21 83:6,7,8 84:9 84:20,21 87:14 88:9 88:16,18,19 88:22 89:5,8 89:21,22 90:6 93:5,7 93:12 Correction 100:8 corrections 100:7 correctly 23:25 45:18 53:7 55:8 59:24 60:18 84:8 85:8 correspondi... 64:15 66:15 corresponds 28:5 76:23 76:25 78:22 counsel 5:14 8:11 58:18 County 101:23 couple 7:22 12:20 93:23 coupled 69:21 court 2:11 5:11 12:19 101:5 create 47:2	cross- 21:9 cross-exami... 95:16,19 97:11,20,22 97:24 CRR 1:25 curb 77:22 current 76:3 currently 6:10 7:6 81:1 customary 88:15,22 D D 4:1 5:1 data 20:19 24:21 38:6,7 38:11,15,17 38:19,21,22 38:25 39:1,5 39:16,20 41:7 45:13 49:4 51:20 55:5,17 56:10 63:25 64:2 65:9 66:9 70:3,4 76:20 77:5 date 5:8 Dated 101:22 day 100:21 101:22 de-energized 84:19 85:2 deactivated 84:18,23 85:2 deactivates 85:21,25 86:12,24 deactivating 87:5 Dean 1:25 2:9 5:12 101:3
--	---	---	---	---

Deanna 1:25 2:9 5:12 101:3 declaration 10:15 12:2,5 12:12,14 13:5,25,25 14:2,20,25 15:1,13 28:24 29:6 29:12,16 80:14,16,17 80:18 87:23 88:2,17,21 88:25 89:24 94:19 95:23 95:25 declarations 12:24 13:9 define 52:9 93:13 defined 93:9 defining 27:22 definitely 95:25 degradation 66:21 delivered 36:1 demonstrates 23:21 dep 14:7 dependent 82:6 depends 34:24 38:17 43:22 51:13,18 55:14 63:9 91:19 92:13 92:24 deposed 6:5 deposition 1:18 2:7 5:3 5:10,16 7:7 7:10,21 8:3,8	9:8,10,24 10:9,10 11:1 13:16 14:4 14:12 15:6 68:6 96:1 99:7 derived 54:17 described 21:22 22:17 22:23 23:5 41:2 58:1 91:1 describes 79:6 describing 28:22 54:13 93:2 description 4:11 20:13 20:17 76:11 96:3,7 design 77:11 designate 53:5 designated 44:10 46:16 designation 52:5 designing 37:10 desk 11:7 desktop 11:5 Desmarais 3:3 101:14 destination 30:7,12,15 55:25 56:1 56:20 71:8 96:11 destinations 70:22 71:8 96:12 detail 94:22 95:2 determinatio... 56:2	determine 31:2 40:9 61:24 91:23 determined 39:1 62:14 device 20:20 33:10 69:18 69:20 70:11 72:10,10,16 72:17,22,24 73:2,4,7,9,18 73:20,25 74:1,4 75:5 75:19 76:2 76:12 77:9 79:3 81:3 82:4 device-side 84:19 devices 9:3 18:20,24,25 19:1,4 25:21 27:10 28:3 75:6,12 83:16,22 84:6,11,13 87:12 diagram 68:16 differ 13:13 difference 54:22 55:9 92:16 differences 54:24 different 11:14 18:2 45:1,3 47:2 51:15 56:16 80:19 90:2,3,3,10 90:11,11,13 90:14,14,19 90:20,21 91:2,6,6,7,17 91:17,18,25	92:1,5,7,9,10 92:11,15,15 92:21,22 96:16 digging 48:13 digital 76:13 76:17 77:22 Diplomate 2:9 101:3 direct 97:6,11 97:18,20,22 directed 73:4 90:2,7,9,10 90:12,16,19 90:23 91:3,5 91:8,16 92:9 93:3 96:4,19 directly 40:10 directory 11:15,17 disables 87:3 disabling 87:8 disagree 89:10 discloses 62:25 63:2,3 82:10 89:12 disclosure 52:15 68:22 discuss 8:10 8:14 48:18 discussed 8:16 15:8 28:24 29:12 29:25 52:8 discusses 28:25 discussing 29:1 discussion 15:11 discussions 13:22 disqualifying 101:19	distribute 65:18 distributed 16:22,23 17:3,6,10,11 17:22 18:4,7 18:22 20:4,5 21:21 22:8 22:17,23 23:5,9,12,20 32:11 34:17 36:15,17 37:11,20 39:21 43:22 43:24 44:21 62:13 64:20 76:14 distributing 51:14,16 distribution 35:12,16 distributor 23:22 District 12:19 DLC 77:22 document 12:8 16:3 75:17 82:23 87:22 93:18 94:19 documents 9:17 11:22 13:24 29:11 29:15,18 doing 35:20 47:7 48:5 50:11 51:19 87:17 92:17 97:24 98:16 Dr 6:23 13:25 29:12,16 59:17 80:17 89:11,17 94:19 95:11
--	--	--	---	---

95:22,24 99:3 drive 10:25 67:22 drop 64:3,24 65:11,13,23 65:25 66:10 66:12,14 dropped 27:14 64:13 65:15 dropping 64:10 66:4 DSL 76:17,23 76:25 77:3 80:3,6,10,12 80:18,20,22 80:23 91:23 93:3,6,9,10 DSLAM 77:9 77:10,11,15 77:17,25 78:2,9,10,13 78:16 79:9 79:21 DSLAMs 77:12 duly 6:5 dwell 59:20	embodiment 17:3,9 23:19 85:14 employs 40:8 enables 30:19 encapsulate 77:4 encapsulated 40:2 54:25 endpoints 55:3 engages 85:6 English 67:15 entire 53:22 entirety 67:17 entities 96:23 entitled 8:16 entity 39:14 especially 38:23 48:4 48:18 50:12 77:3 ESQ 3:8,16 Ethernet 38:23 39:4,6,23 55:18,19 56:10,11 63:14,16,17 85:13 91:22 91:24 eventually 36:12 64:24 65:25 66:4 Ex 4:12,12 exactly 42:15 68:21 90:18 examination 4:3 6:4,21 21:9 97:6,11 example 23:23 25:4 36:19 45:9 46:3,14 49:7 58:5 60:7,24	61:12 64:5 65:16 75:23 76:6 examples 38:18 exceeds 64:9 excused 99:7 exhibit 4:12 10:2,25 11:2 15:20 16:5 29:6 66:22 66:23 67:5,7 67:20,23 68:2,2,2,3,7 68:9 82:24 83:5 87:23 94:13 95:12 97:23 98:6 exhibits 9:25 experience 29:10 66:21 experiences 84:24 expert 13:10 13:11 89:11 expires 100:25 explained 29:8 explaining 48:11,16 explanation 20:18 express 95:14 expressed 52:15 extent 13:20 95:13 external 19:24 20:4,23 21:2 21:17,20,21 21:24 22:5,7 22:14,16,17 22:22,22 23:4,4 84:11 externally	18:19 19:3 eyes 94:23	17:11,23 18:4 19:14 23:12,19 24:2,5,7,14 25:4,5,19 31:16 32:9 32:11,13,15 32:19,24 34:14 36:7 40:1 41:3,5 45:9 46:14 50:13 51:15 56:7 60:7,24 65:16 68:12 68:16,20 69:8,16,17 71:19,25 72:9 73:14 74:8,14,17 75:4 76:10 76:11 77:13 78:2 81:8,10 81:14 83:13 83:15,21 85:11 86:3 file 9:24 10:5,5 11:10 15:22 files 11:10,14 filing 6:10 financial 101:20 findings 29:8 fine 93:24 finish 7:25 first 6:4 23:18 31:17 40:20 55:12,13 81:18,24 88:4 fix 10:10 11:23 Floor 3:5 flow 49:21,22 50:15 51:9 52:2,9,13
E			F	
E 3:1,1 4:1,9 5:1,1 e.g 84:16 easier 68:5,13 EDT 1:16 2:4 5:9 99:8 101:11,11 education 29:9 effectuating 85:17 eight 14:5 either 15:15 elaborate 61:6 electing 52:20			fabric 18:8 19:6,11,14 19:18,18,21 19:22,23 20:2,21,22 21:1,16,19 21:19,24 22:2,3,5,13 22:21,25 23:1,3,7,11 23:23 24:2,7 24:11 25:2,8 25:11,15 32:12 34:1,3 34:7,10,11 34:24 35:17 35:23 36:2 36:10,13,25 37:3,7,11,14 37:20,21 40:22 41:10 42:7,8 45:16 47:14 fact 45:2 failure 84:17 84:25 fair 8:21 30:4 80:9 familiar 7:20 80:12,22 81:1,2 famous 55:25 far 51:19 faster 64:18 field 52:6 56:10 fields 55:21 figure 15:24 16:13,17,19 16:21 17:2,6	

53:5 54:5,20 69:9,13 70:9 70:13,17 71:19,25 73:3,10,21 73:25 74:6	43:1,4,11,13 47:15,17,23 48:9 54:7,10 57:22 58:3 60:1,4,19,22 62:18	functionality 16:24 fundamental 52:4 further 42:4 47:10,11 77:21 98:18 98:22 101:12 101:17 future 5:24	46:15 48:22 49:23 51:25 54:5 56:5,9 56:11 57:2 58:2,12,19 59:18 62:4,5 62:12,24 67:20,21 68:1,9 78:7 87:21 93:1 93:17,25	53:21 78:24 79:19
flowchart 85:12 flows 48:22,23 52:6 focus 9:8 49:6 folder 10:5 11:1 94:14 follow-on 46:8 following 20:12,17 45:20 100:6 follows 6:6 47:21 forced 63:24 65:13 foregoing 100:4 101:7 forgo 93:15 form 17:8,13 18:1,12,18 18:21 19:8 19:12,20,25 21:4 27:6 34:6,23 36:11 37:17 49:17 57:14 57:24 79:18 80:15,25 86:1,14,25 91:4 97:8 formed 44:24 forming 43:10 forward 25:1,7 25:10 34:4 34:20 forwarded 42:9,19,21 42:24,25	forwarding 23:21 36:22 39:15 42:11 96:10,13,15 forwards 33:21,25 73:25 frame 38:23 39:6,10,21 39:23 40:2 42:18 43:11 43:17 47:22 48:1,6 49:6,7 49:8 51:3 54:7,23,24 55:4,5,10,12 55:13,17,18 55:19,20,22 55:23 56:3 56:10,11,12 57:22 58:2 60:1,10,19 61:2 frames 38:20 39:16 41:8 41:11,18,23 42:24 45:13 45:17 46:7 46:11,19 48:9 49:15 51:5,5,8,14 51:16 56:13 56:16 57:12 57:20 58:14 58:17 front 30:1 full 20:16 function 39:15	functionality 16:24 fundamental 52:4 further 42:4 47:10,11 77:21 98:18 98:22 101:12 101:17 future 5:24	46:15 48:22 49:23 51:25 54:5 56:5,9 56:11 57:2 58:2,12,19 59:18 62:4,5 62:12,24 67:20,21 68:1,9 78:7 87:21 93:1 93:17,25 good 6:23,24 8:6 16:1 58:22 59:8 Gotcha 20:9 68:11 69:4 great 11:6 38:1 48:15 59:19 81:13 94:2,3 94:12,15 ground 7:21 grounds 97:3 group 25:22 26:1,4,9,11 26:13,19,19 27:9,10,16 27:20,22,24 28:1,2,8,10 28:15,22 30:8,12,13 30:15 31:2,5 31:6,8,13,14 31:20,23,24 31:25 32:4,5 32:6 33:14 33:17 71:18 72:15,19,23 74:5 groups 48:19 53:2,3 guarantees 49:11 guess 31:10 33:5 43:21	H H 4:9 hac 5:20 6:12 6:17 half 58:20 Hampshire 2:12 101:5 101:23 hand 67:20 handle 64:18 handled 41:11 45:17 46:7 happen 11:20 64:9 happens 63:24 71:4 hard 22:10 hard-pressed 71:15 hardware 84:17,25 87:18,18 hash 52:8 61:23 hashing 52:13 hate 68:18 head 80:8 header 55:25 headers 55:20 hear 14:9 50:17 83:19 85:22 86:9 heard 80:3,7 81:2 held 2:8 5:10 helpful 69:6 81:7 Henderson 5:13 10:2 hey 55:17 high 29:23

76:20,20 77:2 high-speed 17:20 higher 47:19 77:20 higher-level 56:13 Hillsborough 101:22 home 8:24,25 77:20 host 30:9 32:20,22,25 33:4,7,9,10 33:13,14,17 33:20,21,24 33:25 34:21 36:15,16,21 37:1,15 40:1 40:2,14,21 51:11 62:5 hosts 40:9,16 Houh 29:16 89:11 94:19 95:24 Houh's 13:25 29:12 80:17 89:17 hour 58:20 hours 14:3 house 78:6,14 How's 59:18 hypothetical 36:5	identifier 56:14 identifies 27:16,18 28:1,10,15 33:13 identify 14:25 IGMP 28:21,25 29:4,18,21 29:23,25 30:9,19 32:20,22,25 33:5,13,20 33:21,24,25 34:4,21 35:21 36:1,8 36:15,16,21 37:1,15 39:25 40:2,8 49:8 51:11 72:8,16,23 73:2,8,18 74:4 75:24 76:7 96:8,20 96:22 98:2,4 98:4,10,14 IL 3:14 illustrated 72:9 illustrates 74:14 immediately 11:11 47:22 implement 93:11 implemented 82:19 implementing 52:10 72:8 implements 93:10 important 7:22 improve 91:24 92:2,4	inappropriate 97:4,13 include 18:10 19:6 62:6 78:16 includes 18:5 18:8 69:17 74:17 75:5 75:11 81:18 81:24 including 13:1 29:11 72:9 84:19 incorrect 43:19,20,21 46:22,23 50:16,18 increase 49:25 infinite 63:12 information 44:7 58:6 inside 56:10 instance 91:22 instruct 15:14 instructed 8:19 intended 27:13,15 interconnect 75:2 interest 101:20 interface 92:18 interfaces 84:11,18,20 interfacing 84:5,6 internal 23:11 internally 23:8 internet 69:25 74:22 internet's 70:25	interpretation 50:19 interpreting 57:15,21 introduce 5:14 invention 23:21 88:14 involve 27:23 involved 52:25 IP 24:19,21 30:21 31:1 31:14 32:6 52:3,5,5 55:24,25 56:1,12 61:24 69:14 70:4,5,18,20 71:6,7,11,17 74:24,25 75:2 78:2 IP-based 69:10,12,21 70:2,6,9 IPR 8:8 12:12 12:16 14:18 IPR2024-005... 1:11 5:7 10:17,19 IPRs 12:25 13:2,3,6 IPTV 74:15,18 74:21 78:8 issue 10:8 11:9,21 37:9 59:22,22 issued 87:16 issues 10:10 15:22 issuing 85:20 85:24 86:11 86:22 87:10 it'll 64:9,10 65:23,24 items 29:10	J J 1:25 2:9 100:1 101:3 Jain 83:5,8,10 83:13 84:1 87:5,11,17 James 1:18 2:7 3:16 4:4 5:3,19 6:3 7:3 14:13 100:3,18 101:15 job 48:15 Johnson 3:11 101:15 join 30:7 32:23 32:25 33:14 72:23 74:5 98:2,9,10 joining 33:17 72:14,19 75:20,23 81:15,17,23 82:15 jwinn@stept... 3:17
I i.e 20:21 85:5 idea 12:13 identical 68:2 identification 67:24 identified 15:1 52:7				K keep 52:23 53:1 97:8 keeping 52:19 kept 35:16 key 53:14 kill 10:5 kind 11:8 50:3 53:10 58:11 60:13 67:18 91:19 know 7:19 8:4 8:16 10:9 11:22 15:23 21:14 28:23 29:3 35:3 38:2 50:8,14

53:20 55:20 56:14 57:16 62:6 66:25 71:3 80:10 97:3,5,12,17	32:9 37:23 40:5,18 49:6 50:25 54:12 55:11,15,16 56:7,17 61:11 63:15 64:5,17 65:16 66:22 68:6,12 72:5 74:8 81:3 82:22 83:13 84:14 85:10 87:20,23 94:20	82:14,18 line 69:5,6 72:5,6 75:19 76:11,13,14 76:18 81:5 81:20,20 82:2 100:8 lines 95:3,5,7 96:3,7,18 link 18:8 19:11 19:14,18,22 21:19 22:5 23:1,3,11,24 24:3,7,11 25:11 32:12 34:1,3,11 36:25 37:3,7 37:14,20 38:6,7,17,22 39:1 40:23 41:8,9,10,16 41:18,20,22 41:23 42:6,9 42:14,20,21 42:22 43:3,4 43:6,10,12 43:14,16,23 43:25 44:7 44:11,12,24 45:4,14,15 45:15 46:10 46:11,17,21 47:1,3,13,16 47:24 48:2,5 48:6,7,18,21 48:22 49:10 49:13,14,16 49:21,23,25 50:9,10,13 50:25 51:22 52:7,12,12 52:16,17,24 52:25 53:6,9 53:17 54:8,9	54:11 55:1 56:5,24 57:1 57:5,13,17 57:18,20,23 58:1,14,17 60:2,3,5,9,10 60:20,21,23 61:1,1,3,9,22 61:25 62:3,8 62:9,15,15 62:16,17,19 62:23 63:13 63:14,16,17 64:18 65:20 65:21,22,24 66:3,3,9 84:4 84:10,10,18 84:22 85:1 85:17,20,21 85:21,24,25 85:25 86:9 86:11,12,12 86:23,23,24 87:3,5,10,15 87:16 links 22:2 37:11,21 41:2 44:13 44:14 46:24 47:2 48:14 48:16,24,24 49:1 50:2,7 51:17 57:3,4 62:21 65:3,9 65:10,14,19 66:10,13 listed 100:7 literally 49:12 little 22:10 26:18 41:6 54:6 77:5 81:4 92:6 live 7:4,5 LLP 3:3,11	101:14,16 local 30:21 located 77:17 location 78:14 log 67:2 logical 40:24 41:10 45:15 80:24 logically 80:23 long 58:23 59:6 67:18 longer 94:1 look 10:25 16:14,17,19 16:25 50:20 51:15 65:16 68:19,21,23 71:15,17 72:5 73:14 74:9 76:10 77:13 81:8,9 86:3 87:23 89:17 91:23 91:25 92:3 92:18,20,20 94:14 looked 68:19 70:17 81:14 looking 24:5 45:22 51:14 96:14 loop 77:22 lost 94:25 lot 43:21 74:25 77:3 lunch 94:2
L L 1:18 2:7 4:4 5:3 6:3 100:3 100:18 labeled 19:14 24:15,18 32:16 lack 54:13 LAG 52:10 53:2,3,11 laid 94:23 languages 31:1 law 6:5 Lawrence 7:3 layer 38:4,6,7 38:8,10,10 38:12,16,17 38:19,22 39:1,4,16,24 55:14,16,16 55:24 56:3 63:14,19,22 76:23,25 77:6,7 93:3,8 93:8,11,11 93:13 layers 93:7 leading 21:8 21:10 97:4 97:12 left 24:14 33:3 52:10 Legal 5:13 10:2 let's 10:13 16:19 22:11 25:17 31:19	level 29:23 47:19 70:8 77:2 Li 4:14 67:7,10 67:16 68:10 68:12,17,21 68:22,23 71:20 72:4 72:14 73:1 73:24 74:8 75:15,16 76:1 77:9 79:6 82:2,10 82:22 83:25 89:3,12 90:1 90:5,12 93:1 93:1 Li's 81:3 licensed 2:11 5:11 101:5 light 88:23 limit 63:9 limitation 89:4 89:8,13,15 limitations 89:12,18,20 91:20,21 limited 63:20 65:4 limiting 82:10			M maintain 21:11 97:16 maintains 35:13 making 6:25 management

82:7 mandatory 6:11 manual 51:18 mark 67:22 marked 67:23 master 50:24 53:10 57:17 58:8 matter 5:4 45:2 maximum 82:4 mean 12:9 17:14,16,18 17:18 20:5 21:11 27:13 27:14 42:1 44:14,15 48:3 50:6 51:24 58:24 62:9,19 78:24 79:5 90:7,16 97:19 meaning 26:8 33:7 57:10 88:6,13,15 88:22 89:14 91:2 means 8:9 40:22 48:4 54:12 57:19 73:6 meant 39:14 media 39:16 90:3,11,14 90:21 91:7 91:18,25 92:10,16,20 92:21,22 medias 91:9 meet 14:6,8,11 megabits 64:7 64:8,22 65:6	65:7,22 66:2 member 42:6 42:19,25 43:2,11,16 47:13,23 48:2,9 54:8 57:23 60:1,8 60:20,25 62:9 membership 31:2,5,13,24 32:5 35:9,11 memberships 31:8 memory 30:3 mention 58:19 merely 35:21 message 36:1 70:25 72:17 72:24 73:2,8 73:18 74:4 75:20,24,24 76:2,7,7 98:2 98:10,14 messages 9:13 35:6,8 52:23 96:21 96:22 messaging 96:8 met 14:13 20:19 metropolitan 69:10,12,21 69:24 70:2,6 70:10 middle 39:13 mind 70:24 73:6 81:9 95:4 97:13 mine 75:8 minimized 37:4 minutes 59:7	93:22,23 94:1 misread 75:10 misundersta... 49:18 Mm-hmm 29:2 34:9 35:2 46:4 model 38:5,10 38:12,16 39:5 55:15 76:22 77:1 93:4 modem 72:10 72:18 77:14 77:15 78:5,5 78:10,19,22 79:3,4,10,13 79:14,16,19 79:24 modems 77:12 77:14 78:12 78:16 79:10 79:21,23 module 59:2 moment 66:24 monitoring 52:18 Monroe 3:13 months 12:15 morning 6:23 6:24 motion 5:21 6:12 motivated 90:5 91:15 motivation 92:8 move 10:13 32:9 62:24 moved 77:21 multi 32:4 71:13 multicast	16:22,24 17:3,6,10 18:4,7,15,15 18:22 20:4 23:20,22 24:3,8,12,15 24:18,19,21 24:24,25 25:1,6,6,7,10 25:14,22,22 26:1,4,8,12 26:14,14,17 26:20,21,23 26:25 27:2,3 27:4,8,10,11 27:16,17,20 27:21,22,24 27:25 28:1,2 28:5,6,7,8,10 28:11,12,15 28:16,17,18 28:19,21 30:13,13,16 30:20,21 31:1,6,6,8,14 31:15,17,18 31:25,25 32:6,7,16,19 32:23,24,25 33:2,14,17 33:18 35:8 35:11,12,16 36:21 37:6 39:25 40:8 40:11,15,16 63:12 64:14 66:14 68:17 69:8,14 70:18,20,22 71:6,11,12 71:14,16,18 71:21,22 72:2,8,11,15 72:19,23	73:3,3,8,10 73:10,19,20 73:21,25 74:5,6 75:20 75:23 76:2,6 76:12,14 82:5 96:5,9 96:11,12,20 96:21 98:8,9 98:9,13,14 98:15 multiple 12:25 18:15 31:18 43:7,10 44:13,21 48:23 62:5 65:19 70:21 71:7 78:9,12 78:16 79:10 79:21,23 multiplexer 76:13 multiplicity 40:22,23 mute 59:17
N				
N 3:1 4:1 5:1				
name 5:17,19				
7:1,3 12:10				
94:20				
need 25:21				
30:8 47:18				
52:18,25				
66:5 71:1				
needs 41:10				
42:5 45:16				
46:5 47:11				
network 1:8				
5:5 17:12,14				
17:16,23				
18:20 19:4				
19:24 20:23				
21:2,17,20				

22:14,16,22 23:4 25:21 38:5,12,16 39:14 55:3 69:10,12,14 69:17,20,21 69:24 70:2,4 70:6,7,10,11 70:18 72:7 72:11 73:3,8 73:11,19,21 74:14,17,18 74:21 75:4 75:11 77:21 78:3,8 83:15 83:16,21,22 84:3,10,15 84:22,24 85:4 87:6,11 87:12 90:12 92:1,2,3,4,16 101:15 network-side 84:20 networks 84:7 84:12,13 90:4,15,21 91:7,10,18 92:1,11 New 2:11 3:6 101:4,23 nice 67:13 71:2 node 84:11,15 84:22,24 85:4,13 87:6 nodes 83:16 83:22 84:4 87:12 nominate 52:15 nominated 41:21 43:15 46:16	nominating 41:16 46:9 49:13 50:23 56:23 Notary 100:24 note 101:9 Noted 97:9 notes 9:20 notices 6:11 noticing 5:16 nuances 80:19 number 4:11 63:12 82:4 82:10,14,18 84:4 numbers 4:14 68:4 NY 3:6 O O 5:1 oath 7:11,13 object 6:1 8:18 18:1 97:3 objection 5:23 6:2,17 17:8 17:13 18:12 18:18,21 19:8,12,20 19:25 21:4 21:12 27:6 34:6,23 36:11 37:17 49:17 57:14 57:24 79:18 80:15,25 86:1,14,25 91:4 95:17 97:1,2,7,8,17 objections 97:12 OEM 92:17 office 1:1 8:23 8:24,25 9:4	77:19 officer 101:5 offices 77:18 offline 15:23 oh 16:15 53:21 53:24 54:19 58:25 60:15 67:2,25 70:23 72:20 86:17 87:22 93:15 okay 8:16,17 9:15 10:6,7 10:12,13 11:24,25 12:4,11 15:21,25 16:1,2,20 17:1 23:17 25:18 29:7 30:6,18 31:21 32:10 34:19 35:4,5 37:24 39:12 40:6,19 44:2 44:18 45:23 46:1,2,5 49:2 50:4 55:11 57:25 58:23 59:3,4,18 66:22 67:1,4 67:19,25 68:8,12,15 68:24 69:2,4 69:7 71:4,5 72:6 73:1,16 74:12,13 75:18 76:1 81:6,11,12 81:22 82:25 83:1,2,14,19 84:2 85:3,10 86:4,13,19 86:20 87:4	87:10,20,25 88:3,11 89:1 89:25 93:23 94:3,16 95:1 95:8 96:2 98:7,22 Olivier 1:18 2:7 4:4 5:3 6:3,23 7:3 59:17 95:11 95:22 99:3 100:3,18 once 48:6 67:17 one's 51:17,18 ones 7:22 95:6 open 10:1,3 11:4,7 opened 11:10 11:11 operate 17:23 74:24 75:1 operated 33:11 operates 17:12 operating 82:20 operation 82:14,18 opine 89:15,20 opined 13:10 opinion 89:2 95:11,15 opinions 13:12 29:11 opposed 96:20,22 order 29:24 30:7,21 35:7 42:24 47:2 53:1 98:8,13 ordinary 17:24 26:7,9 47:9	48:19 50:4,6 50:20,22 52:1 53:15 53:21,24 57:16 88:7 88:15,21 89:13 orient 68:20 originating 56:19 OSI 38:4,10,12 38:16 39:5 55:15 76:22 77:1 93:3 outside 95:15 95:18 97:5 97:18 overloaded 82:12 owner 1:9 3:12 5:5,20 10:16 15:4,12 41:16,22 43:16,16 44:10,11,12 46:9,16 49:9 49:13 50:23 51:11 52:15 52:20 53:5,9 56:23,25 57:12 58:12 owner's 48:4 owns 44:4 P P 3:1,1 5:1 p.m 59:10,11 59:12,14 94:6,7,8,10 99:6,8 101:11 packet 17:20 24:3,8,12,25 25:1,6,7,11
---	---	---	--	--

25:14 38:22 38:25 52:3 63:12 64:14 66:15 71:15 96:4,11,20 packet-swit... 70:7 packets 17:15 24:22 26:24 27:1,3,8,14 28:6,8,12,17 28:18,19,19 38:21 39:9 43:22,24 52:11 53:16 64:4,10,13 64:18,24 65:11,13,19 66:10,12,14 66:19 70:3,5 70:5,14 71:7 71:11,12,13 71:20 72:1 page 4:3,11,14 7:23 12:4,5 68:3,13,17 68:20,23,23 68:24,25 69:3,5,6 72:4 75:14,17 76:11 81:5 81:10,12,21 82:2 100:8 pages 68:5 pair 76:21 77:16,16,19 78:1,5,10,13 78:20 79:5 79:13,24,25 paragraph 16:14,18,25 20:6,7,11 23:14 25:17 29:5 30:5,17	30:25 35:1 37:23,25 39:11,13 40:5,18 41:2 41:5 45:21 45:21,25 51:7 83:25 84:14 85:4 85:10,11 86:6 88:1,10 88:24 89:7 89:23 93:14 95:22 paragraphs 89:7 parameters 52:2,3 Park 3:5 part 16:10 27:7 44:9 67:11 67:15 70:22 70:22 71:18 83:10 96:14 participants 1:21 participating 26:11,13,20 particular 23:22 31:9 39:1 42:18 42:24 44:6 47:19 48:10 48:17,22,23 49:21,22,23 52:12,21 53:5 54:7,20 55:1 56:3 60:8,25 61:10,11,12 61:21,22 62:1,4,7,12 62:17 71:15 78:14 91:19 96:14	parties 5:23 101:18 party 5:16 101:13,14 passes 44:5 passing 44:19 patent 1:1,3,9 1:12 3:12 5:5 5:6,7,20 10:16,20,22 10:23 15:4 15:12 88:6 91:20 patents 14:1 PDF 12:5 68:13 69:3 Peace 100:24 pending 5:21 8:5 58:25 people 38:21 39:8 54:2 per-flow 51:22 51:24 performed 82:15 performing 16:24 person 17:24 26:9 44:4 48:19 52:10 52:21 personal 101:20 pertain 89:7 petitioner 1:6 3:4 5:4,18 6:14 petitioner's 89:10 PhD 1:18 2:8 3:8 4:4 5:3 6:3 100:3,18 phone 9:6 17:19 77:4	92:1 physical 38:9 40:24 44:13 44:14,15,15 48:7 49:23 63:13,18,22 64:1,23 76:23 77:7 79:2 91:9 93:3 place 96:14,15 plain 89:13 plane 20:19,20 55:5 please 5:14 7:1,24 8:4 9:7 10:9 11:3 11:22 16:13 16:25 20:8 23:15 30:17 59:25 68:22 69:1 72:5 75:14 81:5 88:1,2,10,24 93:14 95:3 plus 79:25 POA 6:11 point 38:9,9 44:20 59:20 port 19:7,21 25:2,8,15 34:8,10 42:19,22,25 43:2,5,11,16 45:5,5 47:23 48:2,4,9,25 49:23 53:19 53:22 54:4,8 54:10,12 57:23 58:10 60:1,4,8,9,20 60:22,25 61:2,17,20 62:9,19,22	62:23,23 63:3,11,14 64:6 78:22 78:24 79:1,2 79:6,8,11,12 79:17,19,22 79:25 82:3,6 82:11,11 84:18 85:21 85:21,25,25 86:12,12,23 86:24 87:2,3 87:16 93:2 port's 64:8 79:5 portion 42:2 ports 18:11,14 18:19 19:3 19:18,23 20:21,21 21:1,16,20 21:24 22:3 22:13,21,25 23:7,7 34:24 42:6 43:7,10 44:16,25 47:13 53:3 56:2 61:24 63:1,3,4,6,7 63:10,20,22 63:24 65:2,6 65:8 78:9 80:23 84:5 84:10,23 85:1 87:2,6,8 Portsmouth 1:8 5:5 10:16 12:25 13:6 14:21 101:14 Portsmouth's 8:11 posed 36:6 POSITA 26:9 88:13 90:4
---	---	--	--	--

91:11,14 position 87:11 possible 40:21 power 84:17 85:1 power-on 85:5 powered 85:5 powers 75:20 practice 20:19 82:3 preceded 48:10 preparation 14:12,24 prepare 13:15 14:3,6 29:11 preparing 14:20 15:5 15:13 present 101:12 presenting 5:12 prevents 87:11 primary 39:15 printed 9:17 privileged 13:19 pro 5:20 6:11 6:17 probably 29:20 problems 92:21 proceed 6:7 6:14,20 proceeding 1:20 8:9 10:19 14:18 proceedings 101:6,8,9 process 35:21 36:21 41:17	41:23 42:1 46:11 49:15 51:2,4 57:12 58:16 85:7 85:13,17 87:7,9 processed 49:9 processing 36:2 57:18 81:15,17,23 82:16 processor 82:20 product 90:10 90:13 91:8 91:22,23,24 products 90:2 90:20 91:6 91:17 92:10 92:15 program 9:23 prohibits 24:11 36:24 37:5 prominent 77:6 proposed 88:17 protocol 29:4 29:19 30:1 30:19 33:6 39:2 41:7,8 41:11,17,23 45:13,14,17 46:7,11,19 48:5 49:6,7,8 49:15 50:9 50:11,13,25 51:2,5,5,8,13 51:16,22 52:6,7,11,12 52:17,19,22 52:22,23	53:1,11,17 54:14,23,24 55:4,9,11,13 55:14,22,23 56:1,2,10,11 56:12,13,16 57:12,17,18 57:19,19,20 58:2,14,15 58:16 60:10 61:2,10 62:2 62:3,15 69:25 71:6 71:14,21,23 72:2,9 74:22 74:24 76:19 93:9 protocols 40:8 61:22 74:25 75:2 93:6,11 98:12 provide 7:16 74:15 80:24 provided 11:1 95:11 provides 79:2 Public/Justice 100:24 pull 11:3,5 purpose 41:7 45:12 push 64:2 pushed 65:9 66:9 put 6:8 9:7,12 11:14,15,16 15:11 53:2 56:9,12 77:17 82:22 93:16 95:20 95:21	66:14 query 30:25 35:7 question 7:25 8:5,20 13:4 13:20,23 17:21,22 21:8,13 22:20 24:4 26:3,18 29:24 31:10 31:17,22 34:7,13 38:14 41:25 58:25 79:9 83:19 85:22 86:2,6,16 92:6 93:16 98:19 questions 7:18 8:18 74:10 95:13 95:17 97:4 98:18,23,25 queue 64:9 queues 64:10 quit 33:15 98:13,14 quitting 76:2,6 quote 88:21	45:24 48:8 49:20 50:3,5 67:10,14,16 67:17 69:5 70:16 79:15 83:8,11 84:8 85:8 95:5 96:2 100:4 reading 42:2 45:19 51:6 53:20 95:9 Realtime 2:10 101:4 reason 7:16 84:15 reasons 13:12 rebooting 84:17 85:1 recall 80:8,17 83:12 receive 24:12 25:21 27:11 27:13,15 30:13,21 31:6,14 32:6 33:18 36:25 37:15 43:17 63:11 received 39:20 46:20 58:9 61:13 70:10 receivers 31:9 receives 24:24 25:5,14 31:25 33:20 33:24 36:15 60:7,24 73:10,20 74:6 receiving 26:14,20 41:7 42:14 45:13 65:14 96:22
---	---	--	--	--

Recess 59:11 94:7	101:3	2:10,11 5:2	62:16,17	57:5 58:25
recognize 16:3 67:5	related 54:5 96:12 101:17	5:12,22 59:9	reveal 13:18 15:10	59:23 60:12
recollection 12:21	relates 49:3	59:13 94:5,9	revealing 13:21	61:4 63:1,20
record 6:8,16 7:2 19:2 59:9	relating 95:14 95:18	99:6 101:1,4	review 15:2,4 15:12 29:4	63:21 64:4
59:13 67:21	relatively 76:20	101:4,5	29:25 94:22	64:15 65:4
87:1 94:5,9	remainder 35:22	represent 5:15 5:18,20 68:1	reviewed 13:24,24	65:11 66:11
95:10,21,21	remember 12:15 15:16	94:18	15:8 29:10	66:16 67:8
97:10 99:5,6	remote 1:18 2:7 5:2 7:9	representati... 6:13	29:15 95:23	69:10,14,18
100:5 101:8	83:16,22	represented 6:10 26:24	revised 6:11	69:22 70:7
recovery 66:17	84:6,11,13	70:13	rid 50:1	70:11,14,18
redirect 99:1	87:12	represents 17:2 23:19	right 7:11 8:12	70:19 71:12
reduce 64:15 66:15	remotely 1:21 5:10,25	request 72:22	10:23 12:6	71:21 72:12
redundancy 50:1	repeat 24:4 26:3 28:13	requesting 74:5	12:19 18:8	72:13,18,21
refer 10:22 68:9	73:13	require 40:10	18:11,20	72:24 73:4,5
reference 16:5 42:3 67:7	rephrase 13:4 22:20 31:22	required 82:7	19:7,19,24	73:12,22
68:5,10 72:4	33:22 34:12	requirements 20:18	21:20 22:6	74:1,2,6,7,15
82:22 83:2,5	60:17	requires 7:13	22:15 23:9	74:18,22
94:17 95:12	replicated 26:16	resend 66:18	23:12,25	75:12,13,21
95:14	report 30:9 32:20,22,25	reserves 6:14	24:3,12,19	75:22,24
references 91:15,16	33:4,13,20	reset 84:17 85:1,5	24:22 25:8	76:7,8,23
92:9 95:24	33:21,24,25	resource 37:3	25:12,15	78:3,20 79:6
referred 14:1 72:15,20	34:4,21 35:6	respectively 84:7	28:17 29:19	79:7,11,17
referring 30:12 54:3 79:8	35:21 36:8	response 7:17 10:16 15:4	31:3,4,7	80:14 81:19
refers 31:5,13 31:24 32:5	36:15,16,21	15:12 73:9	32:15,20	82:12,16,20
38:6	37:1,15 40:1	73:19 74:6	33:18 34:18	83:17,23,24
refresh 67:1	40:2 51:11	80:16	35:9,13,18	84:8,12,23
regard 22:8	72:17,23	rest 47:9 51:7	35:23 36:10	85:8,14,15
regardless 42:10 47:16	73:2,8,18	restriction 64:1	36:22 37:1	85:18,21,25
regards 14:18	74:4 75:24	result 62:23 66:20	39:7,18,18	86:21 87:7
register 30:20	76:7	retained 12:11 12:16	40:3,15,25	87:13,16
Registered 2:9	reported 1:24 35:12	return 61:14 61:15,18	41:18 42:17	88:8,15 89:4
	reporter 2:10		42:22 43:7	89:14 90:5
			43:12 44:22	90:16 93:13
			45:1,10,18	96:5,9,21
			46:13,17	98:10,15
			47:11 48:2	rights 6:14
			48:12 49:3,4	rough 12:21
			49:4,10,16	round-robin 51:21 54:15
			50:17 51:3	54:16,18
			53:7 55:6,24	route 35:7
				router 16:22 16:23 17:3,7
				17:10,11,20

17:22 18:4,7 18:22 20:4,5 21:22 22:8 22:17,23 23:5,9,12,20 25:20 32:12 34:17 35:13 36:15,17 37:6 39:21 40:8 44:21 62:13 64:21 76:14 routers 30:21 31:1 37:10 37:20 routes 70:3,4 routing 71:22 72:1 96:4,19 96:20 rules 7:21 run 10:8 running 10:4 52:21,22 runs 77:16	40:20 41:6 41:15 42:18 43:1 46:2,5,8 47:22 49:12 51:1,2 54:19 57:11,22 58:11 59:25 60:19 72:7 72:14 73:24 74:2 75:8,19 76:12 77:9 82:2 84:3,14 85:4,11 87:1 scarce 37:3 scheme 85:12 scope 95:15 95:18 96:1 97:6,18 scroll 89:6 second 38:4 38:12,16,19 40:7 59:1 64:7,8 81:18 81:24 94:25 section 96:18 see 9:12 11:2 11:9,20 12:5 20:14,24 22:19 24:16 25:23 29:13 30:10,23 32:17 36:3 40:12 41:13 66:25 71:4 71:17,24 74:19 75:7 76:4,15 77:13 82:8 86:17 94:20 seeing 80:17 seen 83:2 94:17 send 30:8 35:22 36:8	37:7 47:3 48:6,25 49:24 51:21 54:14,19,25 58:4 60:9 61:2,16,25 62:2 64:7,11 64:17,18,22 65:20,22,23 66:2,9 71:7 76:19 98:10 98:14 sending 17:15 32:25 37:3 37:19 48:21 51:19 52:23 55:17 56:4,6 56:6,8,9 64:20 65:12 65:21 72:23 sends 32:19 39:25 69:9 69:13 72:16 73:2,7,18 74:4 75:20 76:2 sense 48:24 50:2,8 53:18 53:23 sent 12:24 31:1 38:25 44:7 54:16 54:18 57:5 58:6,6 62:15 70:17 sentence 20:12,16 23:18 40:7 40:20 42:17 45:25 46:8 47:8,20,21 48:8,11,12 48:14 49:2 54:18 58:13	85:3 sequence 26:24 27:1,3 28:6,8,11,16 55:20 70:14 71:20 72:1 server 72:12 service 69:9 72:8 76:12 79:6,10,12 79:17,19,22 79:25 80:23 82:3,6 services 5:13 10:2 11:2 74:15 set 52:2 66:22 77:12,14 82:6 87:20 96:13,21 98:4,6 set-top 75:5,8 75:12 setting 96:9 share 10:25 15:20,23 66:23 67:22 82:23 87:21 93:17 shared 36:16 87:22 short 58:21 show 89:3 showing 63:16 shown 25:5 41:3 shows 16:21 16:23 17:6,9 24:2,7 32:11 34:14 83:15 83:21 shut 50:7 70:24 sic 31:1 49:13	side 33:3 66:8 66:12,14 77:14,25 78:1,4,6,7,10 79:4 sides 52:24 sign 12:8 signature 12:6 signed 12:9 similar 65:2 simple 51:20 single 31:17 31:19 40:24 41:9 45:15 71:8 80:24 sit 56:16 81:1 83:12 situations 25:3,9,13 37:7 skill 17:24 26:7,9 47:9 48:19 50:4,6 50:20,22 52:1 53:15 53:21,24 57:16 88:7 soak 74:9 software 82:19 84:16 87:16 87:19 solution 71:3 solutions 92:19 solve 92:21 someone's 78:14 sorry 14:8,10 20:3 23:16 25:25 26:1 28:13,23 31:23 32:4 33:22 34:12 38:13 41:25
--	---	--	--	---

45:19 61:5	standardizat...	33:1,18	8:10,14	101:13
67:3 69:16	55:19	40:11 42:8	13:21 15:10	T
75:10 76:9	standards	47:15,15	sufficient	T 4:9 100:1
83:18 84:1	77:3	51:8,10	64:21	table 36:22
86:15,17	standby 47:1	53:14,25	support 10:15	tables 96:16
94:24	standing	54:2,3,4,21	12:25 13:6	96:23
sort 84:25	95:17 97:7	55:1,5 56:6	57:25	Taeg 3:8 5:17
Sounds 58:22	97:17	56:18,19,23	suppose 34:16	101:13
59:8	start 7:25	57:9 61:9,12	44:18 45:4	take 8:2,3,4
source 18:15	31:19 55:16	61:15,21	67:12	11:23 16:25
24:15,18,19	60:16 64:10	62:1,7,12,17	supposed	22:11 49:24
24:25 25:6	66:4	64:14 66:15	21:10 25:20	58:21 59:4
26:21,23,25	starts 20:12	96:9,21	sure 7:20 9:9	64:5 68:19
27:2,11,17	state 2:11 5:15	streams 30:22	15:9 18:2	68:22 74:3,9
27:21 33:2	6:15 7:1	31:9,18	24:6 31:12	81:7 93:19
52:5 55:24	95:10,16	63:12	32:3 59:21	94:14 97:14
55:25 56:20	101:23	Street 3:13	60:15 61:7	taken 5:3
64:17,19,19	stated 95:24	strike 14:16	62:6 73:15	59:11 94:7
64:24 66:6,8	statement	15:19 25:25	83:20 85:23	101:6,9
66:12,13	43:20	26:2 31:23	86:8 93:21	takes 96:13,15
71:17 72:11	STATES 1:1	32:4 33:22	swearing 5:24	talk 55:11
73:3,8,10,19	STB 76:2	33:23 76:9	switch 51:19	62:21 63:14
73:21 98:15	STENOGRA...	80:11 93:15	54:14,16,21	74:8 81:3
speak 14:16	1:24	98:2,5	56:8,17 58:5	87:17
14:17 67:12	Stenotype	strong 92:24	60:8,11,25	talked 76:22
98:19	101:9	structural	61:3,11,18	talking 28:25
specific 25:4	step 22:12,12	68:16	62:13,14	44:20 48:20
51:10 56:22	44:18 86:3	structure 72:7	64:6,11,25	48:21 49:3
specifically	88:4	74:17 75:4	66:1,4 84:16	49:19,20
51:1	steps 85:16	study 29:9	84:25	50:9,10,14
specification	Steptoe 3:11	80:19 95:2	switches	51:7 53:25
88:23	101:15	STV 75:19	37:10 52:4	54:1,4 55:14
specifies	sticking 36:19	sub-network	sworn 6:5	55:15 57:16
27:20	41:5	30:20 31:3	100:20	58:14,16
specifying	stop 10:9	40:10	synchronized	59:23 61:8
27:23	stream 23:22	submitted	35:17	62:3 65:3
speed 50:1	24:3,8,12,19	10:15 12:2	system 9:25	91:20 92:13
spend 14:3	24:21,25	12:14,18	25:19 37:12	92:25 96:10
spoke 14:19	25:1,6,7,11	13:5	37:22 64:2,3	talks 54:6
spread 46:25	25:15,22	subscribed	68:17 69:9	tcho@desm...
48:23 53:16	26:15,16,17	100:20	72:8 85:5	3:9
spreading	30:8,14,16	subscriber	93:10	TCP 56:15
47:1	31:7,15,17	76:13,17	systems 1:5	TCP/IP 66:18
stand 97:2	32:1,7,23	substance	5:4 18:3	

teach 39:10 87:8 teaches 45:2,3 53:4 56:23 56:25 87:5 teaching 42:12 43:9 44:10 45:12 47:6 53:22 teachings 90:9 90:12,19,25 techniques 51:16 66:18 telephone 92:2 television 92:2 tell 7:14 27:19 44:6 71:16 tend 62:21 term 18:23 25:25 26:1,4 26:4,8 28:21 33:7 48:10 80:3 81:2 88:5,12,13 88:15 terminal 72:10 72:16,22 74:1,4 terminating 56:20 terms 88:7,18 88:22 testified 6:6 95:22 testify 97:23 97:25 testimony 7:17 8:10,15 59:22 97:18 97:20,22 100:5,6 Texas 7:5 text 9:13	Thank 59:4 94:4 98:23 98:24 99:2,4 Thanks 6:25 thing 92:17 things 9:13 17:18 55:21 think 6:16 10:3 11:4 12:20 13:11 22:14 33:12 44:19 47:7 49:18 49:20 50:12 51:6 53:8 55:2 59:4,17 60:6,23 71:2 79:16,24 86:19 93:2 93:25 94:1 third 34:16 45:24 85:3 thought 13:2 56:18 86:15 three 10:1 12:15 36:7 Tim 3:8 101:13 time 5:9,22 6:25 8:3 11:23 22:10 68:22 73:13 77:5 88:14 98:23 99:3 today 6:25 7:10,18 8:23 9:1,20 13:16 Today's 5:8 top 11:16 65:21 74:18 80:8 touch 7:21 TRADEMARK 1:1 traffic 37:4,19 39:16 42:8	42:20 43:3 44:5 46:25 47:1,3,15 48:25 49:3 49:22 50:15 51:8,10 53:13,25 54:1,2,3,4,9 54:14,16,17 54:20,20,22 55:1,5,10 56:4,5,5,6,7 56:18,23 57:1,3,5,8 58:12 60:2,7 60:21,24 61:8,11,12 61:14,14,14 61:16,19 62:7,11,12 62:16 64:12 64:20 65:12 65:20,23,24 65:25 66:2,4 69:9,13 70:9 70:13,17,21 71:19,25 87:11 98:9 98:13 traffic's 54:25 training 29:9 transcript 7:24 100:4 101:7 translated 67:11 translation 4:13 67:16 transmit 24:11 36:25 37:15 63:11 transmits 28:7 28:11,16 transmitted 27:1,3 38:11	38:15,19 39:5 transmitting 41:7 45:13 tree 11:17 35:12,16 trial 1:3 5:6 7:14 trick 86:2 tricky 77:6 tries 64:2,11 true 70:3 77:1 91:14 92:7 92:12 101:7 truth 7:14 truthful 7:17 try 8:1,2 11:13 15:24 91:23 92:4,21 trying 31:16 64:7,17,17 64:22 65:20 65:22,23 66:1 79:15 86:5 90:22 91:12 turn 9:14 12:4 16:13 20:6 23:14 25:17 29:5 30:5,17 35:1 37:23 39:11 40:5 40:18 68:12 72:4 75:14 81:5 83:13 83:25 84:14 85:10 88:1 88:10,24 89:23 93:14 95:3 twice 10:3 twisted 76:21 77:15,16,19 78:1,5,10,13	78:19 79:5 79:13,24,25 two 9:8 11:14 15:25 18:5 23:23 32:12 34:14 41:21 41:21 42:13 43:15,15 44:4,8 45:3 46:6,15 48:24,25 51:15 52:19 55:3 90:2,3,3 90:19,20,21 91:6,6,15,16 91:16,17,18 91:24 92:1,4 92:9,10,11 92:14,15,16 type 53:17 56:14 90:10 90:11,11,13 90:14 92:20 92:21,22 types 90:2,3,4 90:15,20,20 90:21 91:6,7 91:7,9,10,17 91:18,18,25 92:1,9,10,11 92:15,16,16 typically 38:8 38:20 39:8 51:9 53:2 57:8 70:5 typing 12:9 U U 100:1 U.S 5:7 UDP 56:15 understand 7:10,13 8:12 10:23 17:25
--	--	---	--	--

29:21,23	42:10 43:17	60:9 61:2,19	59:20,21	21:22 22:8
39:7 41:25	44:10,11,12	61:23 66:18	62:6 68:19	22:18,23
44:15 46:24	45:5,6,16	68:6	68:25 74:9	23:5,14 24:2
47:10,18	46:9,10,15	user 18:10,14	87:1 93:19	24:7,10
48:20 50:23	46:16,20	18:19 19:3	95:10,21	25:17 30:5
53:15 54:1	47:4,14,17	33:11 44:25	96:25	30:17 32:9
59:21,24	49:9,14	45:5,5 63:1,2	wanted 15:11	35:1 36:24
60:12,18	50:23,24	63:2,3,4,6,7	42:16 44:1	37:2,8,13,14
61:4 73:12	51:2,11	63:9,11,20	wants 33:14	37:21,23
86:5 88:6,12	52:16 53:6	63:24 64:5,6	Wasn't 45:20	39:20,24
90:22	54:15,15,21	64:11,16	way 15:16	40:5,14,17
understandi...	56:9,18,24	65:2,6,8	28:22 29:1	40:18 41:3
22:11 43:23	56:25 57:2	66:21 80:1	35:20 37:11	42:2,4,12
48:14 50:6	57:11,12	uses 54:14	49:24 53:15	43:9 44:9
55:8 80:13	58:3,6,6,7,16	69:24	54:13 55:2	45:3,12 47:5
understood	60:6,24	usually 38:6	57:4,15	47:8 50:10
13:14 15:18	61:13,19	52:2	80:19 86:3	50:16 51:1
22:19 26:6	62:10,19,25	V	98:4,11,16	52:8 53:4,5
30:2 39:3	63:4 65:20	v 1:7	ways 50:11	53:14 56:23
53:7 56:21	81:15,17,18	values 52:13	we'll 6:13,20	57:11,11,21
65:1 71:10	81:19,23,24	various 17:18	8:2,4 10:9	57:22 59:25
75:3 78:15	81:25 82:16	68:5	11:13,19,23	60:19 62:13
79:20 80:2	UNITED 1:1	Vbridge' 39:14	68:20,23	62:25 63:2,5
80:21 98:17	units 18:5	versus 5:5	71:4	89:3,11 90:1
unicast 71:9	20:20,22	video 69:8,9	we're 27:22	90:5,9,13,14
unintended	23:8,23	69:13 70:9	44:19,19	90:15,24,25
87:11	32:12 34:14	70:13,17,24	48:20,21	Weyman's
unit 18:10,10	35:7,17,22	71:1,2,19,25	51:14 53:2	50:19 52:14
19:6,6,10,10	36:7,9,13,14	videoconfer...	55:15,17	window 10:2
19:17,17	36:16 40:22	2:8	56:7 58:15	windows 10:1
24:24,25	41:21,21	videoconfer...	58:15 62:2	Winn 3:16 5:19
25:5,7,10,11	42:5,8,13	5:11	we've 29:1	5:19 6:2,8,15
25:14 32:20	43:15,15	view 53:4	58:19	8:11,15,18
33:20,21,23	44:22 45:1,3	56:22	Wednesday	13:17 14:13
33:24,25	46:6,15	W	1:15 2:3	14:18 15:14
34:4,4,5,16	47:12 53:9	wait 7:24	101:10	17:8,13 18:1
34:20,21	63:5	waive 5:23	weird 11:8	18:12,18,21
35:21 36:2,8	unlimited 63:7	want 6:8,15	Welcome	19:8,12,20
36:20,20,20	unstable 70:25	7:21 8:3	59:16 94:12	19:25 21:4,6
36:20 38:11	updates 35:22	12:14 13:17	West 3:13	21:8,11 27:6
38:15,19	uploaded	15:9 16:17	Weyman 16:5	34:6,23
39:5 40:1,1	94:13	21:14 55:2	16:8,10,13	36:11 37:17
41:10,16,17	use 28:21	58:18 59:1	16:14,16,21	49:17 57:14
41:22 42:7	37:14 53:22		16:24 20:5,6	57:24 58:18

79:18 80:15 80:25 86:1 86:14,25 91:4 95:9 96:25 97:16 97:21 98:20 98:25 101:15 witness 5:24 6:4 13:18 98:24 99:4,7 WO 4:13 word 92:24 words 90:23 91:2 work 11:13 46:25 48:15 48:16,17 working 58:1 works 61:9 world 91:12,13 wouldn't 15:8 74:25 91:11 92:3,20 95:4 wrap 94:1 wrong 13:10 13:12 59:25	68:14 73:15 73:17 75:11 78:4 86:10 93:23,25 94:24 95:1,2 97:9,16 years 12:20,22 York 3:6	45:5 46:15 54:15 59:7 60:6,24 61:13,19 62:10,16,19 63:15 64:8 65:6,20 69:9 69:16 93:22 93:23 94:1 10-megabit 63:17 64:23 65:14 66:3 10-megabyte 65:24 10:43 1:16 2:4 5:9 101:10 100 64:7,22 65:7,22 66:2 100-megabit 63:16 1005 15:20 16:5 66:22 1007 4:12 66:23 67:4,5 67:5,7 68:3,9 1010 82:24 83:5 10169 3:6 1025 94:13 95:12 98:6 102A 84:4,15 85:4 102B 84:4 1032 4:12 67:20,22,23 68:2,3,7,10 106A 84:7 106B 84:7 11 32:9,11,15 32:19,24 34:14 36:7 40:1 12 25:19 72:5 72:6 81:5,8	81:10,14 12:03 59:10,11 12:12 59:12,14 122 16:14,25 23:16 125 20:7 13 76:11 137 30:5 14th 101:22 15 29:5 95:4,7 95:22 96:2,3 96:7,18 150 40:5 152 25:17 157 25:20 160 30:17 161 30:25 162 35:1 17 81:20 18 83:25 19 75:19 84:14 85:4 88:1 1k 89:4,8,13	75:20,24 85:10,11 2001 10:2 11:2 12:1,1 29:6 87:24 2007140702 4:13 2025 1:15 2:3 5:8 100:21 101:10,22 206 86:3 21 72:10,16,22 74:1,4 212 3:7 22 23:14 72:11 72:17,24 73:4,7,9,18 73:20,25 227 3:13 23 37:23,25 72:11 73:3,9 73:11,19,21 230 3:5 24 72:12 25 20:6,7,8,9 82:2 26 75:14,17 76:11 26th 3:5 27 88:10 28 39:11,13
X X 4:1,9 xDSL 79:6,14 93:2	Z Zoom 1:20 2:8 5:11 9:24 10:1	0 1 1 25:20 38:10 55:16 68:12 68:16,17,20 68:20,23,23 68:24,25 69:5,8,17 71:19,25 76:25 83:13 83:15,21 89:2,12,16 89:18,21 1:11 94:6,7 1:21 94:8,10 1:32 99:6,8 101:11 10 16:13,17,19 16:21 17:2,6 17:11,23 18:5,5,10 19:6,10,15 19:17 23:12 23:19,24 24:2,5,7,14 24:24 25:1,4 25:5,5,7,10 32:12,13 33:25 36:20 36:20 40:1	2 2 39:4,16,24 55:16 69:6 72:4,9 85:11 86:3 93:7,8 93:11,13 20 18:5,10 19:6,10,17 23:24 25:11 25:14 32:12 32:20 33:20 33:21,23,24 34:4,20 36:8 36:20,20 40:1 45:6 54:15,16,18 54:21 56:9 56:18 58:6,7 58:7 69:5 72:10,18	3 3 69:3 93:7,11 30 19:14 23:24 24:3,8 25:11 32:13 81:5 81:10,12,21 82:2 312 3:15 394 10:22 3s 93:8
Y yeah 11:19,21 14:11 15:9 15:25 17:9 28:14,18 29:7 30:4,15 33:2 34:7,12 39:23 42:4 42:15 43:13 46:2 47:21 49:5 51:4,25 57:10 58:22 62:22 64:16				4 4 69:6

40 12:4	61:11,18			
45 89:23	62:13,14			
5	66:1,4 75:5			
	76:12 77:13			
50 40:18 41:2	92 51:19 75:6			
41:5 45:21	75:8,9,12,19			
45:25 96:2	76:2			
51 95:4,7 96:4	93 75:6			
96:8,19	94 77:15			
577-1285 3:15				
59 88:24				
6				
6 4:5 41:3				
45:10 46:14				
50:13 51:15				
56:7 60:7,24				
65:16				
60 89:7				
60606 3:14				
64 68:13				
65 89:7				
67 4:12				
7				
7 95:3,7 96:3,7				
96:18				
72 93:14				
8				
8,014,394 1:12				
5:7 10:20				
808-1060 3:7				
9				
9 1:15 2:3 5:8				
74:8,14,17				
75:4 76:10				
76:11 77:13				
78:2 101:10				
91 51:19 54:14				
54:16,21				
56:8,9,17				
58:5 60:8,11				
60:25 61:3				