

EXHIBIT 2003

Deposition Transcript

Case Number: IPR2024-00497 U.S. Patent No. 10,630,505

Date: March 13, 2025

In the matter of:

CISCO SYSTEMS, INC. v UMBRA TECHNOLOGIES LTD.

DR. A.L. NARASIMHA REDDY

**CERTIFIED
COPY**

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.

Petitioner,

v.

UMBRA TECHNOLOGIES LTD.

Patent Owner.

Case No. ~~IPR~~2024-00497

U.S. Patent No. 10,630,505

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The virtual deposition of Dr. A.L.
NARASIMHA REDDY was held via Remote Counsel/Zoom
connection on Thursday, March 13, 2025, commencing
at 11:19 a.m. Eastern time, before Ahuva
Goldberger, Notary Public.

REPORTED BY: Ahuva Goldberger

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UMBRA TECHNOLOGIES LTD.
Patent Owner Exhibit 2003

1 APPEARANCES: Page 2 2 3 ON BEHALF OF THE PETITIONER: 4 PATRICK D. MCPHERSON, ESQUIRE 5 PATRICK MULDOON, ESQUIRE 6 JOSEPH ENGLISH, ESQUIRE 7 Duane Morris, LLP 8 901 New York Avenue N.W., Suite 700 East 9 Washington, DC 20001 10 Telephone: 202-776-5214 11 E-mail: PDMcPherson@duanemorris.com 12 13 ON BEHALF OF THE PATENT OWNER: 14 JAMES M. LENNON, ESQUIRE 15 JOEL GLAZER, ESQUIRE 16 Devlin Law Firm, LLC 17 1526 Gilpin Avenue 18 Wilmington, Delaware 19806 19 Telephone: 302-449-9010 20 E-mail: Jlennon@devlinlawfirm.com 21 22 23 24 25	1 INDEX Page 3 2 Virtual Deposition of Dr. A.L. NARASIMHA REDDY 3 March 13, 2025 4 5 Examination By: Page 6 Mr. Lennon 4 7 8 Exhibit No. Marked 9 Exhibit 1 Petition 6 10 Exhibit 22 Cisco's Reply 7 11 Exhibit 1001 505 Patent 8 12 Exhibit 1004 Hankin Reference 9 13 Exhibit 1012 Supplemental Declaration 9 14 15 16 17 18 19 20 21 22 23 24 25
1 - - - - - Page 4 2 THE COURT REPORTER: Good morning. The 3 attorneys appearing in this deposition acknowledge 4 that I am not physically present in the deposition 5 room, that I will be reporting on this deposition 6 remotely, and that I will administer the oath to 7 the witness remotely. 8 The parties and their counsel further 9 agree that while I am a licensed notary, the 10 witness may be in a state where I am not licensed. 11 The parties stipulate that this deposition may be 12 taken before me. 13 If any party does have an objection to 14 this manner of reporting or anything stated above, 15 please state your objection now. 16 (No response.) 17 THE COURT REPORTER: Hearing no 18 objections, we can proceed. 19 Whereupon, 20 A.L. NARASIMHA REDDY, 21 called as a witness, having been first duly sworn 22 to tell the truth, the whole truth, and nothing 23 but the truth, was examined and testified as 24 follows: 25 EXAMINATION BY MR. LENNON:	1 Q. Dr. Reddy, my name is Jim Lennon. I'm Page 5 2 representing the patent owner in this matter, 3 IPR2024-00497, that is UMBRA Technologies, Ltd. 4 And I have joining with me my colleague 5 Joel Glazer from the law firm Devlin Law Firm, 6 LLC. 7 I'll let your counsel introduce 8 themselves now. 9 MR. MCPHERSON: Hi. This is Patrick 10 McPherson from Duane Morris. I'll be representing 11 Dr. Reddy in this proceeding. We represent Cisco, 12 the petitioner in this proceeding, and on the line 13 I have Patrick Muldoon and Joe English, both from 14 Duane Morris. 15 BY MR. LENNON: 16 Q. So, Dr. Reddy, this is the second time 17 you've been deposed with respect to Cisco IPR's 18 filed against UMBRA Technologies. Is that 19 consistent with your recollection? 20 A. Yes. I think there was one earlier in 21 DC, yes. 22 Q. Yeah. I'm going to dispense with a lot 23 of the formalities in a deposition with respect to 24 like, you know, asking you all the background 25 questions and things like that. I don't think we

1 need to get too far into the background. 2 And I think for ease of documents -- 3 we'll have to refer to some documents, I'm just 4 going to introduce a series of exhibits right now. 5 I'm using, for everyone's benefit, to keep track 6 of what I'm doing, I'm using some numbering that 7 will be consistent with the docket numbering that 8 is in this particular IPR. 9 This is IPR2024-497, and so I'll just 10 start with what I'm going to mark as Exhibit 11 Number 1 and introduce the exhibit. That's the 12 petition in this case. Every IPR starts with a 13 petition. I don't think we're going to need to 14 refer to the petition, but just in case I'm just 15 going to mark it as Exhibit 1. 16 (Deposition Exhibit 1 was marked for 17 purposes of identification.) 18 BY MR. LENNON: 19 Q. I'm going to mark -- again, the 20 numbering isn't going to flow, you know, so I'm 21 not going to use Exhibit 2 here. I'm going to use 22 what I'm going to call Exhibit 22, and the reason 23 I'm calling it Exhibit 22 is because it's paper 24 22; just like the petition is paper number 1 on 25 the docket, this paper 22 is Cisco's reply and	1 your supplemental declaration that you submitted 2 was in connection with that paper, 22, in reply. 3 (Deposition Exhibit 22 was marked for 4 purposes of identification.) 5 BY MR. LENNON: 6 Q. Are you familiar with the reply that the 7 supplemental declaration was filed -- 8 A. I don't see the things that you put up 9 there, so I can't tell you. 10 Q. Okay. Let me do this. So I've marked 11 them, but for convenience I'm just going to share 12 my screen here and share -- all right. 13 Can you see what is -- so this is what I 14 just marked as Exhibit 22, see, it says 15 petitioner's reply to patent owner's response. 16 And in this document there are some references to 17 your declaration, which I think I searched for -- 18 so you have a supplemental declaration. It's been 19 marked as Exhibit 1012, and that was submitted in 20 connection with this reply. So are you like 21 generally familiar with this reply? 22 A. Yes. 23 Q. Okay. So next I'm going to mark -- let 24 me see how I do this again. Bear with me. 25 (Deposition Exhibit 1001 was marked for
1 purposes of identification.) 2 MR. LENNON: This one is important. 3 This is exhibit -- what I'm going to call Exhibit 4 101. This -- I think I need to renumber Exhibit 5 Number 2 as Exhibit 2. 6 All right. So I have a tool. I'm 7 uploading all this stuff and marking it. Maybe 8 for the court reporter's benefit we can just use 9 the share screen. 10 BY MR. LENNON: 11 Q. So what I've just marked as Exhibit 1001 12 is the 505 Patent. Do you have a copy of the 505 13 Patent handy right now? It's not a big deal if 14 you don't, but if you have either a paper copy or 15 electronic paper, you're welcome to use that if 16 you ever need to find something faster than what 17 I'm able to share with you on the screen. 18 A. Yes, I do have a PDF. 19 Q. Okay. Good. So what I'm showing on the 20 screen right now is the 505 Patent. That's what 21 I've marked as Exhibit 1001, and that's, you know, 22 what it's referred to in this proceeding, as 23 Exhibit 1 [sic]. 24 And finally, I'm going to introduce an 25 exhibit and mark it as 1004, and that's the Hankin	1 reference. You know what I'm talking about when I 2 refer to the Hankin reference, right? Dr. Reddy, 3 when I refer to the Hankin reference, do you know 4 what I'm talking about? 5 A. Yes. 6 (Deposition Exhibit 1004 was marked for 7 purposes of identification.) 8 MR. LENNON: Okay. I just marked that 9 as Exhibit 1004, and that's US Patent Number 10 10,177,957, just for the record. 11 BY MR. LENNON: 12 Q. Okay. So I'm going to be referring to 13 them as the 505 Patent and the Hankins Patent, but 14 we can pull them up and go through them as we walk 15 through this deposition now that we've gotten them 16 marked. 17 And if you want to refer to them at any 18 point or go back and look at either of those 19 references or to your declaration -- I think I 20 forgot to mark your declaration. I'm going to 21 mark as Exhibit 1012 your supplemental 22 declaration. 23 (Deposition Exhibit 1012 was marked for 24 purposes of identification.) 25 BY MR. LENNON:

Page 10

1 Q. All right. So I'm now showing you what
2 I just marked as Exhibit 1012, which is your
3 supplemental declaration that you signed on
4 February 18, 2025. I know I'm scrolling through
5 it quickly, but do you recognize the document I'm
6 showing on the screen as your supplemental
7 declaration for --
8 A. Yes, yes.
9 Q. Yeah. Great. Let's just get right into
10 it. I'll go back to sharing my screen now, and
11 I'm just going to take you right to paragraph 5.
12 Substance of your declaration I think starts at
13 paragraph 5. You're welcome to look at a paper
14 copy if you want.
15 And I want to start with looking at the
16 second sentence of paragraph 5 of your
17 supplemental declaration, Exhibit 1012. This,
18 I've highlighted on the screen, this is what
19 reads: Figure 33 illustrates GVN end-to-end
20 tunnel with a parenthetical around -- with an (s)
21 at the end of tunnels/tunnel from LAN to EPD
22 (green) to SRV_AP (red) to EPD (blue) to LAN.
23 Okay. You see what I'm referring to
24 there, right?
25 A. Yes.

Page 12

1 illustrates the GVN tunnel from LAN to EPD to
2 SRV-AP to EPD to LAN. It doesn't say anything
3 about multiple layers through tunnels.
4 Q. Okay. And in your understanding of how
5 Figure 33 depicts a tunnel, can you explain to me
6 in words what elements in Figure 33 you look at to
7 identify what a tunnel is?
8 A. Okay. So the patent itself is concerned
9 about wanting a quality of service that's required
10 for, let's say, communication in this example from
11 LAN1 to LAN2. And their problem seems to be that
12 if you just ask the internet to rub packets you
13 don't have control on the quality you're going to
14 get, and what they're trying to do is to construct
15 pods that have the quality of service that's
16 desirable to connect these things.
17 So what they're doing is to connect
18 tunnels in this example, in this figure, from
19 EPD-1 to AP-1, and AP-1 to EPD-2, to provide the
20 desired quality of service so that LAN1 and LAN2,
21 while when they're connected, they can get the
22 quality of service that's desired.
23 Q. Okay. Thank you.
24 So I'm really just asking you to look at
25 the black and white drawing that I'm showing right

Page 11

1 Q. Now, you've also included an annotation.
2 This is your annotation of Figure 33, right?
3 A. Yes, that's in my supplemental. Yes.
4 Q. Right. And that's just part of
5 paragraph 5.
6 So in what you've just referenced and
7 the sentence that I just read and what you're
8 showing here as your annotation of Figure 33, are
9 there multiple tunnel layers depicted in Figure
10 33?
11 MR. MCPHERSON: Objection to the
12 question.
13 BY MR. LENNON:
14 Q. Can you see like different layers of
15 tunnelling in Figure 33?
16 MR. MCPHERSON: Object to the form of
17 the question.
18 A. So let me go back and look at the patent
19 itself, where I got this from.
20 BY MR. LENNON:
21 Q. Okay.
22 A. Okay. What was the question?
23 Q. Do you see multiple layers of tunnels in
24 Figure 33?
25 A. No. The patent says basically Figure 33

Page 13

1 now in Figure 33 in the 505 Patent. And I want
2 you to tell me what black parts of the black and
3 white you're looking at when you are identifying,
4 for example, one of the tunnels. I think you
5 mentioned a tunnel that's running from EPD-1 to
6 AP-1, for example. Let's start there.
7 What black lines can you direct me to to
8 show that first tunnel?
9 A. What is the question you're asking?
10 Q. I want you to tell me in words what do
11 you think -- because, you know, let me give you an
12 example.
13 Underneath EPD-1 you see a black line
14 that's sort of at an angle, right?
15 A. Hang on one second. Let me get to the
16 picture first online. Okay. So now tell me
17 again, yeah.
18 Q. Okay. So in Figure 33 --
19 A. Right.
20 Q. -- you see where it says EPD-1?
21 A. Right.
22 Q. And underneath the dash in EPD-1, do you
23 see a line that looks like it's sort of sloping
24 down at an angle? Do you see that?
25 A. Yes.

Page 14

1 Q. Okay. That sloped line, that arrives at
2 a line that seems to be running horizontally,
3 right?
4 A. Say that again -- yes -- are you saying
5 there's a line going from EPD-1 to AP-1?
6 Q. I want you to describe that line to me,
7 or if you can't, I can describe it -- I can
8 attempt to describe it for you and see if we can
9 agree on how to describe -- how to identify that
10 as a line. Right?
11 A. So I would be speculating here because I
12 have no idea because these lines are not described
13 in the patent, and I don't want to take that risk
14 of what the inventors wanted to convey here.
15 Q. Okay.
16 A. All it described in the patent is that
17 there's a tunnel between EPD-1 and AP-1.
18 Q. So you can't tell what the lines
19 indicate? You don't have an understanding as to
20 what the lines indicate in --
21 A. I don't want to speculate what they were
22 trying to convey here in these lines. All I can
23 do is read through the specification and
24 understand what they were trying to teach me.
25 Q. I want you to use -- what you think they

Page 16

1 Q. And you see that at the top of the
2 dotted rectangle, there's a sloped line?
3 A. Yes.
4 Q. And at the bottom of the dotted dashed
5 rectangle, there is another sloped line?
6 A. Yes.
7 Q. Okay. So the line that is at the top,
8 it appears to run from the dashed rectangle around
9 EPD-1, all the way over to the dashed rectangle
10 for AP-1, right?
11 A. Yes.
12 Q. And at AP-1, it slopes upward, right?
13 A. Yes.
14 Q. And then at the bottom of the rectangle
15 around EPD-1, again there's another slope line.
16 This line appears to be sloping upward towards and
17 continues all the way over to the rectangle around
18 AP-1, correct?
19 A. EPD-2, you mean?
20 Q. No, at EPD-1 at the bottom of the
21 rectangle, do you see another line at the bottom
22 of the rectangle which slopes at either end?
23 A. Which one are you referring to? Say
24 that again. EPD-1?
25 Q. Okay. So you see the dashed rectangle

Page 15

1 were trying to teach you to tell me where -- where
2 in this figure does this indicate the EPD-1 -- the
3 tunnel that you said runs from EPD-1 to AP-1?
4 Which line represents that tunnel? Which
5 collection of lines represents that tunnel?
6 A. So, I mean, there's a line going from
7 EPD-1 to AP-1.
8 Q. At the -- right. There's one at the
9 top, right?
10 A. And there's one at the bottom, as well.
11 Q. Right. Okay. And that line sort of
12 slopes in the opposite direction from the line at
13 the top?
14 A. So I see that in the figure, yes.
15 Q. Okay. And so there's a sloped line
16 inside the dotted rectangle around EPD-1. Both at
17 the top and the bottom, there are sloped lines.
18 One slopes sort of in one direction. The other
19 slopes in a different direction. Do you see that?
20 A. I'm not sure what you're referring to.
21 I can't see. Which one are you referring to
22 there?
23 Q. So you see the dotted rectangular box
24 for EPD-1, right?
25 A. Right, right.

Page 17

1 around EPD-1?
2 A. Yes.
3 Q. Now I want you to look at the bottom of
4 that dashed rectangle.
5 A. Yes.
6 Q. Do you see a line at the bottom of that
7 rectangle?
8 A. Yes.
9 Q. A solid line. And that solid line seems
10 to run from the dashed lines around EPD-1 and over
11 to the dashed lines around AP-1?
12 A. Yes.
13 Q. Okay. So do those -- that -- now I've
14 just described two different lines, one that is
15 sloping inside the box of EPD-1 at the top, and
16 one that's sloping inside EPD-1 rectangle at the
17 bottom.
18 A. Yes.
19 Q. Those lines, do those -- in your
20 understanding, do those indicate a tunnel?
21 A. I have no idea. All I can do is go back
22 and read what the description says.
23 Q. Okay.
24 A. And they don't talk about what these
25 lines are representing anywhere.

Page 18 1 Q. So you -- 2 A. I don't want to put words in an 3 inventor's mouth. 4 Q. I'm not asking you to. 5 You can't tell where the tunnel is in 6 Figure 33, right? 7 A. Well, I can look through the description 8 and I already told you there are two tunnels here, 9 tunnel EPD-1 to AP-1 and AP-1 to EPD-2. 10 Q. I don't want to argue with you. I'm 11 just talking about Figure 33, and I want you to 12 tell me from looking at Figure 33 if you can tell 13 where a tunnel begins and where a tunnel ends. 14 MR. MCPHERSON: Object to the form of 15 the question. 16 A. I cannot do that without reading through 17 the description. 18 BY MR. LENNON: 19 Q. Okay. So let's look at the description 20 and tell me if that aids in your understanding of 21 the lines that we were just looking at in 22 understanding whether or not any of those are 23 tunnels. 24 So I'm going to go down to column 33 of 25 the 505 Patent and we'll start at line 8. And I'm	Page 19 1 -- I believe I'm sharing it on my screen right 2 now. 3 A. Column 33, you said? 4 Q. Yeah. So column 33, starting at line 8, 5 do you see where it says: Figure 33 illustrates? 6 A. Yes. 7 Q. Okay. So it's describing here -- well, 8 let me just read it: Figure 33 illustrates GVN 9 tunnel from LAN to EPD to SRV_AP to EPD to LAN. 10 And then it goes on to say: This 11 variation illustrates an end-to-end GVN tunnel(s) 12 between edges of two LANs via one SRV_AP. The 13 difference between this variation and FIG 32 is 14 that the tunnel extends over the entirety of the 15 transit from the internet from EH3 through EH15. 16 A second EPD-2 is illustrated. 17 All right. In looking at that or the 18 next paragraph, and feel free to read the next 19 paragraph or even the one after that, all the way 20 up to Figure 34, do any of those descriptions help 21 you understand which are the tunnels in Figure 33 22 that are described here? 23 A. Yeah. I think it describes where things 24 are coming from where it says here SRV_AP, EPD-1, 25 and so on.
Page 20 1 Q. Right. And so my question is: Looking 2 at Figure 33 again, in light of what that 3 description from the patent, can you tell if -- 4 whether any of these lines are depicting a tunnel? 5 A. No, I can't. 6 Q. So you don't know what these lines 7 represent? 8 A. Lines are descriptive, and I'm going to 9 look through the description to see what they're 10 trying to tell me. 11 Q. Okay. But you can't -- so from the 12 description, you haven't been able to discern what 13 the lines mean in Figure 33? 14 A. All I can do is to go back and look at 15 that Figure 33 description and where you pointed 16 out to. 17 Q. Okay. Figure 33 at line 15, it says: 18 There's one tunnel between EPD-1 and AP-1. 19 You, I think, mentioned this earlier. 20 And says: This is joined to a second 21 tunnel between AP-1 and EPD-2. 22 Do you see that? 23 A. Yes. 24 Q. And looking back at Figure 33 -- I'm 25 going to put that on the screen here for you	Page 21 1 convenience -- can you tell me if any of these 2 lines represent those two tunnels that were just 3 referenced in what we read? 4 A. It says on the description that there is 5 a tunnel between EPD-1 and AP-1, AP-1 to AP-2. 6 Q. And what I'm asking you is which of the 7 lines on this indicate to you the tunnel between 8 EPD-1 and AP-1? 9 A. Hang on one second. Let me look through 10 here. 11 So it says here -- (Reading to self.) 12 Okay. What is the question? 13 Q. Which of the lines on Figure 33 reflect 14 the tunnel between EPD-1 and AP-1? 15 A. Well, I think it's from EH3 to EH9. 16 That's basically what the bottom line is showing, 17 EH3 to EH9. 18 Q. And what of the -- I mean, you wouldn't 19 say that the line between EH3 and EH9 is intending 20 to illustrate a tunnel, right? 21 A. That's showing all the hops in the 22 tunnel between EH3 and EH9. 23 Q. That's showing the hops. So I want to 24 know what -- can you identify any part of Figure 3 25 that is intended to illustrate the tunnel between

Page 22

1 EPD-1 and AP-1?

2 **A. Well, I guess I can speculate, but I**

3 **don't see any description of this, but it would be**

4 **those lines that you described earlier.**

5 Q. Okay. So if you had to speculate, it

6 would be these lines where there are slope lines

7 inside the rectangular boxes for EPD-1, extending

8 over to the rectangular box to AP-1? That's what

9 I was talking about earlier, right?

10 **A. Yeah.**

11 Q. Okay. So that would mean that the line

12 at the top and the bottom of those rectangular

13 dashed boxes represent one tunnel, right?

14 **A. We could speculate that would be --**

15 **that's what the inventors wanted to show.**

16 Q. Okay. And then if you move over, and

17 you look at the rectangular box for AP-1, can you

18 see now another sloped line that extends to EPD-2?

19 **A. Yes.**

20 Q. Okay. And so again, at the top of the

21 rectangular boxes and at the bottom of the

22 rectangular boxes, you see sloped lines at both

23 the top and the bottom again, right?

24 **A. Yes.**

25 Q. And that -- if you had to speculate,

Page 24

1 Q. Okay. So -- and that's based on the

2 description that you read, right?

3 **A. Yes.**

4 Q. And then there is an additional pair of

5 lines that run through those rectangular boxes,

6 and the slopes of those lines that run through all

7 three rectangular boxes, they slope outside of the

8 rectangular boxes. Do you see that set of lines

9 that I'm talking about?

10 **A. Yes.**

11 Q. They sandwich boxes, rectangles, that

12 are labeled NH-1, NH-2, NH-3, right?

13 **A. Yes.**

14 Q. Do you have any thought as to what that

15 indicates or what that illustrates?

16 **A. I think that's the description that's**

17 **given in that thing we just read. It seems like**

18 **that's the GVN tunnel, that's the bigger of the**

19 **two tunnels.**

20 Q. Okay. That -- so it looks like that's

21 illustrating the GVN tunnel?

22 **A. So that's my speculation again.**

23 Q. Okay. And when you said it refers to a

24 GVN tunnel, let's go back and see at paragraph --

25 **A. So I think it's from line 8, it says**

Page 23

1 would you agree that that would be a second

2 tunnel?

3 **A. Yes.**

4 Q. Okay. So it appears that this figure is

5 using sloped lines connected to a horizontal line

6 to indicate tunnels?

7 MR. MCPHERSON: Object to the form of

8 the question.

9 **A. No, I don't -- I mean, I'm just**

10 **speculating here. We are speculating here. It**

11 **doesn't say anything in the description that's**

12 **what it is showing.**

13 Q. Okay. But you said if you had to

14 speculate here, that seems like a fair

15 characterization of what the first tunnel is and

16 what the second tunnel is?

17 MR. MCPHERSON: Let me object.

18 **A. Sorry. I'll slow down and let you**

19 **object. Yeah.**

20 **All I'm going to say -- sorry. Are you**

21 **done?**

22 **Okay. All I'm going to say is we could**

23 **speculate that they are trying to show two**

24 **separate tunnels.**

25 BY MR. LENNON:

Page 25

1 **figure to illustrate GVN tunnel from LAN EPD-2 and**

2 **SRE to EPD to LAN.**

3 Q. Okay. And then the next -- so looking

4 at line 10 now, it says: This variation

5 illustrates an end-to-end GVN tunnel.

6 Do you see that?

7 **A. Yes.**

8 Q. So do you think it's fair to say that

9 what we just -- what you just referred to as the

10 GVN tunnel could be characterized as an end-to-end

11 GVN tunnel?

12 **A. I think what -- I don't know what the**

13 **question here is. I'm not sure what you're**

14 **asking.**

15 Q. Yeah. So you just mentioned that if you

16 had to speculate, the tunnel we were just

17 referring to that extended across all three dashed

18 rectangles might be the GVN tunnel that's being

19 referred to here?

20 **A. I think what they're trying to do is to**

21 **construct the tunnel by putting together multiple**

22 **tunnels together between these things that they**

23 **are showing in the figure, which is the EPD-1 to**

24 **AP-1 to EPD-2.**

25 Q. Right. And I'm just trying to

Page 26

1 understand what you understand the figure to
2 represent. And you think that the -- there's an
3 interior set of lines that sandwiches NH1, NH2,
4 and NH3. Those lines extend all the way through
5 the three dashed rectangles, and I believe you
6 said that -- that if you had to speculate, it
7 appears to correlate to the GVN tunnel that's
8 described here at line 8 of -- lines 7 and 8 --
9 **A. So I'm not sure if there's a question**
10 **there.**
11 Q. Yeah. So I'm just trying to make sure,
12 first of all, that we're on the same page because
13 I want to say, well, when you say GVN tunnel,
14 you're -- that's the same thing that's also
15 referred to here as end-to-end GVN tunnel?
16 **A. What are you referring to?**
17 Q. At line 10, so this variation
18 illustrates an end-to-end GVN tunnel?
19 **A. Yes.**
20 Q. And that -- we're not talking about a
21 different tunnel now. We're still talking about
22 the same GVN tunnel.
23 MR. MCPHERSON: Object to the form of
24 the question.
25 **A. So we're talking about the description**

Page 28

1 Q. Okay. That's all.
2 So let's go back and look at Figure 33
3 again -- actually, it would be easier to look at
4 this. So let's look at your declaration, your
5 annotation here. Okay. So we're looking at the
6 top of page 2, which just before paragraph 6 in
7 your declaration. You have an annotation of this.
8 And here you have colored in the dashed rectangle
9 around EPD-1 with gray. Do you see that?
10 **A. Yes.**
11 Q. Okay. Now, for purposes of this
12 discussion, I'm going to refer to what you, you
13 know, said you could speculate would be a tunnel
14 between EPD-1 and AP-1. I'm going to refer to
15 that as an intermediate tunnel, just for
16 nomenclature purposes, okay? So I'm asking do you
17 understand what I'm talking about when I say --
18 **A. Why don't we talk about it as tunnel 1?**
19 Q. Okay. Let's call that tunnel 1.
20 So let's call the tunnel that runs from
21 AP-1 to EPD-2 as tunnel 2.
22 **A. Okay.**
23 Q. So do you see where NH1 is in the little
24 box in this figure?
25 **A. Yes.**

Page 27

1 **here, end-to-end GVN tunnel?**
2 BY MR. LENNON:
3 Q. Yeah. That's still identifying the same
4 thing that you identified earlier as the GVN
5 tunnel?
6 **A. So I wouldn't identify it. I've been**
7 **speculating all of this with the book. I want to**
8 **be clear, this is not something that's described**
9 **in the description. You and I can spend hours**
10 **here what the inventors -- and speculate. I don't**
11 **know what it has relevance to the report I have**
12 **written.**
13 Q. Yeah. And you just said -- you gave it
14 a name. You said GVN tunnel. We were talking
15 about that --
16 **A. I said I am speculating that they're**
17 **trying to show a GVN tunnel.**
18 Q. Okay. And so whatever led you to call
19 it a GVN tunnel, this line 10 now refers to an
20 end-to-end GVN tunnel, right?
21 **A. So my understanding is that this**
22 **end-to-end GVN tunnel is put together by combining**
23 **two tunnels, and that figure is trying to show**
24 **those. And that's the speculation I've said so**
25 **far.**

Page 29

1 Q. And what hop does NH1 appear to reside
2 at?
3 **A. Let me look through the patent. Let's**
4 **see what it says.**
5 **Okay. So it says here line -- column**
6 **headed 3, line 16 onwards, there are three neutral**
7 **hops within the tunnel of the GVN represented by**
8 **NH1, NH2, and NH3.**
9 Q. Okay. So now for identification
10 purposes, we've identified just so you and I can
11 get our bearings straight, what is tunnel 1
12 between EPD-1 and AP-1, tunnel 2 between AP-1 and
13 EPD-2, and now let's -- I'm going to refer to the
14 tunnel inside, in between, in the middle of this
15 figure as the GVN tunnel. So it looks like EPD-1
16 resides inside the GVN tunnel, right?
17 **A. I'm not sure what you're referring to.**
18 **EPD-1 is one endpoint of tunnel 1, and that's also**
19 **the endpoint of one of the GVN tunnel.**
20 Q. Right. And in this figure, the location
21 of the ends of the tunnel lines are not at the
22 same locations, right?
23 **A. Which? I am not sure what you're**
24 **referring to.**
25 Q. So the tunnel 1 lines, they don't extend

Page 30 1 past NH1, to the left, past to the left? 2 A. Okay. 3 Q. But the GVN tunnel lines, they do extend 4 past NH1 to the left. 5 A. Well, if you refer to the one -- the 6 line and the little bit large GVN tunnel, yes. 7 Q. Right. So inside that green box, it 8 looks like you see the end of tunnel 1, but you 9 don't see the end of the GVN tunnel? 10 MR. MCPHERSON: Object to the form of 11 the question. 12 A. I'm not sure what the question is. 13 BY MR. LENNON: 14 Q. Yeah. The green box does not seem to -- 15 A. Again, we're going to be speculating 16 about these lines. I'm not sure where you're 17 headed with this. 18 Q. Yeah. It doesn't look like EPD-1, the 19 tunnel 1, has the same endpoint location as the 20 GVN tunnel. 21 A. No. It says clearly here it's at the 22 bottom, and we just read the description earlier, 23 that the tunnel extends from EH3 to EH15. And 24 EH3, if you look at it, is right in the middle of 25 the green box.	Page 31 1 Q. Right, but -- so let's look at what 2 Figure 33 description says again. 3 A. So, in fact, here, right, it says here 4 on line 10, 11, what's the difference between this 5 variation and Figure 32 is that the tunnel extends 6 over the entirety of the transit to the internet 7 from EH3 through EH15. 8 Q. Right. So this is in comparison to 9 figure 32. So here it's saying the tunnel. Now 10 it's talking about a singular phrase -- the tunnel 11 -- here, at line 11? 12 A. Right. 13 Q. It extends over the entirety of the 14 transit from EH3 to EH5, right? 15 A. EH15. 16 Q. EH15. From EH3 to EH15. 17 It's not saying what the expanse of 18 tunnel 1 is, right? Because, obviously, tunnel 19 1 -- 20 A. That's clearly saying what the tunnel is 21 there. It's from EH3 to EH15. 22 Q. Yeah. There's -- if you and I were just 23 identifying referring to different tunnels inside 24 Figure 30- -- 25 A. No. That's not clear. The tunnel here
Page 32 1 is referring to the combined tunnel that the line 2 above it, end-to-end tunnel. 3 Q. Right. So when you create an end-to-end 4 tunnel, you clearly have to change its location 5 because tunnel 1 -- 6 A. No -- sorry. I don't know -- I'm not 7 sure what you're trying to get to here. 8 This description is clear where the 9 tunnel is going from. It's EH3 to EH15. 10 Q. Okay. Does tunnel 1 extend from EH3 to 11 EH15? 12 A. That's what it says. Tunnel 1 goes 13 through -- no. Tunnel 1 goes from EH3 to -- let 14 me read through here. Let me look at the figure 15 here and then it will become clear. 16 It's going from EH3 to EH9. 17 Q. Okay. And then tunnel 2? 18 A. Goes from EH9 to EH15. 19 Q. Okay. So when this says from EH3 to 20 EH15, it's not referring to tunnel 1, right? 21 A. No. It's referring to the -- under a 22 marked underneath as in my supplemental GVN 23 end-to-end tunnel, EH3 to EH15. 24 Q. Yeah. So you have drawn an end-to-end 25 tunnel with the purple at the bottom of your	Page 33 1 annotation in your supplemental declaration? 2 A. That's right. 3 Q. GVN end-to-end tunnel. And that 4 correlates to the end of intermediate tunnel 1 and 5 end in tunnel 2, correct? 6 A. That corresponds to what's described in 7 the patent. 8 Q. Right. What is shown as the -- what we 9 were referring to as the GVN tunnel, that extends 10 through all three of those rectangle -- 11 A. I don't want you to keep putting words 12 in my mouth. I have not said anything about GVN 13 tunnel. I said I can speculate. So stop using 14 those words that -- 15 Q. I need a way to refer to -- 16 A. You can speculate as much as you want. 17 I don't want you to keep going back to those 18 lines. I'm going to get mad. You're getting me 19 mad. 20 Q. Dr. Reddy, listen. I'm going to refer 21 to it as the speculative tunnel. 22 A. No. I don't even want you to say that 23 because the description is clear the tunnel is 24 from EH3 to EH15. 25 Q. Okay.

Page 34

1 MR. MCPHERSON: Dr. Reddy, I want you to
2 slow down when you're speaking, and I want you to
3 give the opportunity to Mr. Lennon to finish his
4 question before you talk. Let him ask his
5 question, give me the opportunity to object, and
6 then you can answer.
7 But let's slow this down so the court
8 reporter can get everything. Thank you.
9 BY MR. LENNON:
10 Q. So, Dr. Reddy, I just want to talk about
11 the lines that are shown in Figure 33, and I need
12 a way for us to agree on how to refer to the lines
13 that are on Figure 33.
14 A. I've already explained to you. That's
15 an error and that is not going to lead us to
16 anywhere without any description from the patent.
17 And the patent is clearly talking about the tunnel
18 is going from EH3 to EH15. We can spend hours why
19 they drew those lines the way they drew them.
20 Q. And then --
21 A. -- rule this out.
22 Q. And then according to you, Figure 33
23 does not indicate, in and of itself, Figure 33
24 does not tell you where the GVN tunnel is located?
25 MR. MCPHERSON: Objection to the form of

Page 36

1 description other than says neutral hop is a third
2 layer of GVN.
3 Q. Turn to paragraph 6 of your declaration.
4 A. Okay.
5 Q. The first sentence reads: There is --
6 and I think you're quoting here from the 505
7 Patent.
8 Paragraph 6 reads: There is one tunnel
9 between EPD-1 and AP-1, intermediate tunnel 1.
10 And to quote: Joined to a second tunnel
11 between EPD-1 and EPD-2, intermediate tunnel 2,
12 which together form the GVN tunnel that extends
13 over the entirety of the transit from one endpoint
14 to the other.
15 Okay. So here you're citing to, again,
16 column 33, lines 7 to 19, and I want to see where
17 in this set of lines from 7 to 19 on 33 it says
18 together form.
19 A. What is the question?
20 Q. I don't see -- so I don't see -- this
21 isn't -- you're not -- when you're paraphrasing,
22 right, this part about together -- which together
23 form GVN tunnel which extends over the entirety of
24 the transit. Right? I don't see --
25 A. Okay. So maybe there isn't the word

Page 35

1 the question.
2 A. I've already shown you where the tunnel
3 is in the figure that was in my supplemental
4 declaration.
5 BY MR. LENNON:
6 Q. You have added a set of purple lines,
7 right?
8 A. Yes.
9 Q. The purple line that you've added is
10 shorter than the two sloped lines that extend
11 through and past the rectangular boxes?
12 A. So it's consistent with the description
13 we just read through, the GVN tunnel is going from
14 EH3 to EH15.
15 Q. Right, but that doesn't mean that EH3 --
16 which, above EH3, there's an NH1, right? Would
17 you agree that NH1 appears to be referring to
18 neutral hop 1?
19 A. That's what the description says,
20 neutral hop 1 of GVN layer, yes.
21 Q. And can you tell whether neutral hop 1
22 is inside of the GVN tunnel or not?
23 A. I can look it up, the description, and
24 see what it says.
25 Describes NH1. I don't see any

Page 37

1 here together. Is that what you're saying?
2 Q. Yeah.
3 A. Okay. Let me read through here to see
4 what -- Figure 33 listed GVN tunnel.
5 Yes, I don't see the word together.
6 That's being paraphrased.
7 Q. Looking at Figure 33, what device on the
8 left side of this figure forms the edge of the
9 LAN?
10 A. What is the question?
11 Q. Can you identify a device in Figure 33
12 that would form the edge of LAN1?
13 A. Edge of LAN1?
14 Q. Yeah.
15 A. Gateway device 1, GWD1.
16 Q. Okay. And what would be the edge of
17 LAN2?
18 A. That would be the gateway device GWD2.
19 Q. Is it your understanding that the GVN
20 tunnel being illustrated in Figure 33 runs from
21 between the LANs from GWD1 to GWD2?
22 A. My understanding is it runs from between
23 EH3 and EH15.
24 Q. If there's a client device within LAN1
25 that's connecting to GWD1, would you have an

Page 38

1 understanding of what that client device would
2 see, what IP address it would see, for the packet
3 it's transmitting across that tunnel?
4 MR. MCPHERSON: Object to the form of
5 the question.
6 **A. I'm not sure what you're trying to say.**
7 **So you're trying to say device in LAN1 talking to**
8 **device in LAN2?**
9 BY MR. LENNON:
10 Q. Yeah. What would it see in terms of the
11 IP address, or what IP address would it sort of be
12 designating in terms of what it is a part of a
13 package that it's sending through GWD1?
14 MR. MCPHERSON: Object to the form of
15 the question.
16 **A. The packets have two addresses; source**
17 **address and destination address. I'm not sure**
18 **what you're referring to.**
19 BY MR. LENNON:
20 Q. What would the destination address be
21 from a package sourced at LAN1?
22 MR. MCPHERSON: Object to the form of
23 the question.
24 **A. It would be the IP address of LAN2**
25 **device that it's trying to talk to.**

Page 40

1 end-to-end tunnel anywhere in that description,
2 right, or that -- Figure 23, you know, summary
3 description of the figure.
4 **A. Let me read through the description of**
5 **what it says.**
6 Q. I'm talking about the description in
7 column 5.
8 **A. I'm reading what this column is, column**
9 **23, in the description of where it talks about**
10 **Figure 23.**
11 Q. Yeah, it's column 5.
12 **A. Column 5. You want me to look at? Is**
13 **that what you said?**
14 Q. Yeah. I mean, it really -- look at both
15 column 5 and -- so start there, and then we'll
16 look at column 23.
17 **A. Okay. Column 5. Let me get there.**
18 **Okay.**
19 (Reading to self.)
20 Q. Okay. And it doesn't use the phrase
21 end-to-end here, right?
22 **A. Not in here, no.**
23 Q. Okay. And now we're at -- I'm -- just
24 on my screen, I'm sharing with you column 23, line
25 55, I think begins the description of Figure 23.

Page 39

1 BY MR. LENNON:
2 Q. Okay. All right. Let's look back at
3 your declaration in paragraph 6. It's Exhibit 10,
4 1012. So here in this second sentence, you refer
5 both to Figure 33 and Figure 23. I'm just going
6 to read it quickly: 505 Patent expressly states
7 that Figure 33 illustrates end-to-end GVN tunnel
8 between edges of LANs being one server AP which is
9 consistent with figure 23's disclosure that
10 multiple intermediate tunnels exist between an
11 endpoint and an intermediate access point server
12 that could be selected to form multiple end-to-end
13 tunnels.
14 Okay. Are you with me at least in terms
15 of where we are in paragraph 6?
16 **A. Yes.**
17 Q. So I want to know where you get this
18 notion that Figure 23 discloses that multiple
19 end-to-end tunnels exist between endpoint and
20 intermediate access point server that can be
21 selected. Like, let's maybe start with turning to
22 Exhibit 101, the 505. Let's look at the
23 discussion of Figure 23.
24 First, the description of Figure 23, as
25 I'm showing on the screen here, it doesn't say

Page 41

1 And that extends I think, all the way down to
2 column 24, line 51. And I want you to tell me
3 whether you're aware of any reference to the
4 phrase end-to-end in that description?
5 **A. Let me read through here.**
6 **Okay. So what is the question?**
7 Q. Yeah, I want to know whether you
8 identified any description of 23 that uses the
9 phrase end-to-end.
10 **A. This is describing all the**
11 **infrastructure that's part of this global virtual**
12 **network, so usually this is talking about it's**
13 **using this infrastructure to build end-to-end**
14 **tunnels that we'll talk about later.**
15 Q. So I just want to know whether the
16 phrase end-to-end is used in connection with
17 Figure 23.
18 **A. Not here, right, but this is**
19 **infrastructure that's being referred to later on**
20 **of how the whole thing is working.**
21 Q. Okay. So is there another place where
22 Figure 23 is described?
23 **A. You're talking about Figure 23 or --**
24 Q. Figure 23. I want to know specifically
25 for Figure 23 whether there's any description of

Page 42

1 Figure 23 where the phrase end-to-end is used.
2 **A. Usually, no, so we just looked at the**
3 **Figure 23 description, and that's describing**
4 **infrastructure that's used to build a GVN.**
5 Q. And I'm doing a search, and I don't see,
6 outside of what's on columns 23 to 24, I don't see
7 any other columns of the 505 Patent, other than
8 column 5, general description, of Figure 23, that
9 talk about Figure 23.
10 MR. MCPHERSON: Object to the form of
11 the question.
12 **A. Is there a question?**
13 BY MR. LENNON:
14 Q. Do you see any other description other
15 than column -- at column 5, column 23, and column
16 24, any other description of Figure 23?
17 **A. No, but Figure 23 is showing**
18 **infrastructure for building a GVN, and that's what**
19 **this is talking about later on, about how they're**
20 **going to build the end-to-end tunnels and GVN.**
21 Q. Okay. So when you say Figure 23 is
22 talking about -- is that what you said, Figure 23
23 is talking about?
24 **A. About the infrastructure of GVN.**
25 Q. And again, what you're referring to, is

Page 44

1 MR. MCPHERSON: Object to the form of
2 the question.
3 **A. Possibly. They are instrumental in**
4 **creating the tunnels that are described here.**
5 BY MR. LENNON:
6 Q. Okay. And of the tunnels described
7 here, is the phrase end-to-end used anywhere in
8 columns 23 or 24?
9 **A. Not in these columns, no.**
10 Q. And in Figure 23 itself?
11 **A. Sorry. What is the question?**
12 Q. I'm going to take us up to Figure 23.
13 Just look at that figure real quick.
14 So are there specific illustrations
15 within figure 3 that you understand to illustrate
16 specifically an end-to-end tunnel?
17 **A. I think it is showing the entirety of**
18 **what's in here, is showing a host, and a LAN, and**
19 **it's showing another host, and another LAN,**
20 **connected to gateways through all of the GVN**
21 **infrastructure. And so you could potentially draw**
22 **lines here from one host to another host through**
23 **the GVN network to show end-to-end tunnels.**
24 Q. Okay. Are they necessarily end-to-end
25 tunnels or do they not necessarily have to be

Page 43

1 that what is listed here on columns 23 and 24?
2 **A. Yes.**
3 Q. Okay. And is there a part of this
4 description that is in your mind it's specifically
5 describing an end-to-end tunnel?
6 **A. I think it's describing all the elements**
7 **that are needed to build the things. For example,**
8 **it's talking about access point servers, and it's**
9 **talking about central server, and it's talking**
10 **about all the devices here that goes on to**
11 **describe other things, back channel administrator**
12 **server and so on and so forth.**
13 Q. Are those only -- are those devices only
14 used for creating an end-to-end tunnel?
15 **A. Those are all part of the global**
16 **network, and that's the whole thing here.**
17 Q. Did they have any utility other than to
18 create an end-to-end tunnel?
19 MR. MCPHERSON: Object to the form of
20 the question.
21 **A. Sorry. What was the question?**
22 BY MR. LENNON:
23 Q. These devices that you just mentioned,
24 do they have any -- do they serve any purpose
25 other than to create an end-to-end tunnel?

Page 45

1 end-to-end tunnels?
2 **A. The point of this, the claims of talking**
3 **about the end-to-end tunnels, they don't have to**
4 **be end-to-end tunnels.**
5 Q. Okay. Is it fair to say that Figure 23
6 shows the topology upon which end-to-end tunnels
7 could be built but does not show or describe
8 specifically an end-to-end tunnel?
9 **A. And I think that's what we are trying to**
10 **show here. Let me see if I have it.**
11 Yeah. So, for example, later on in my
12 supplemental, I have kind of imposed drawing a
13 picture that kind of shows the potential
14 possibility of those tunnels.
15 Q. Okay. So here you're referring to the
16 annotated drawings you have on page 5, which is
17 paragraph 12 of your declaration?
18 **A. That's right.**
19 Q. Okay. Do you know what steps would need
20 to be taken in order to create an end-to-end
21 tunnel from what is shown in Figure 23?
22 **A. Sorry. What is the question?**
23 Q. What additional steps would need to be
24 taken to create an end-to-end tunnel from what you
25 can see here?

Page 46 1 A. I can read through the description and 2 can -- 3 MR. MCPHERSON: Object to the form of 4 the question. 5 THE DEPONENT: I can see what it says in 6 the patent somewhere. I'm sure it's there, 7 mentioned. 8 It's described in figures 32 to 35 and 9 the related description in the rest of the -- 10 BY MR. LENNON: 11 Q. Okay. But not in connection with Figure 12 33, the description in columns 23 to -- 13 A. That's correct. 14 Q. I want to compare Figure 23 at a high 15 level to Figure 33 you just mentioned there. 16 So first I'm just going to show you 17 Figure 23 here, and now let's look at Figure 33. 18 Would it be fair to characterize Figure 23 as like 19 an overview or an aerial view, whereas Figure 33 20 is like a side view or cross-sectional view of 21 what's happening with the configuration? 22 A. Well, I don't know what you mean by 23 those words. So to me, the 23 is providing the 24 infrastructure, and the 33 is -- I don't know what 25 is the right way to say this, but it's showing all	Page 47 1 the hops from one LAN to the other LAN. 2 Q. Right. From a different sort of 3 viewpoint, is it fair to say, than Figure 23? 4 A. Yeah, there were definitely different 5 perspectives. Yes. 6 Q. Okay. All right. So Figure 33 is 7 described -- I think you just mentioned this -- at 8 column 33. We've just been looking at some of the 9 lines of column 33. And I'm just going to direct 10 you to the description for each of Figure 33 and 11 34 and 35. There's a mention of end-to-end GVN 12 tunnels in the description for each of those. For 13 Figure 33, it's at column 33, line 10; for figure 14 24, it's at column 33, line 27; and for figure 25, 15 it's at column 33, line 38. 16 Are you aware of any other parts of the 17 505 Patent where the tunnels are specifically 18 described as a, quote, end-to-end tunnel? 19 A. I don't know. I would have to look 20 through the patent to answer that question. You 21 want me to look through the patent, or -- 22 Q. Yeah. I mean, you can do the search. I 23 did the search, as well. It looks like maybe with 24 respect to figure 39, there's a reference to 25 end-to-end within internal tunnel at column 36,
Page 48 1 line 53. 2 A. 36, you said? Sorry. Column 36? 3 Q. Yeah. Column 36, line 53. 4 A. 53. 5 Q. There it says: The GVN can be one 6 network type end-to-end within the internal 7 tunnel. 8 A. Column 36? I don't see it. Column 36, 9 you said? 10 Q. Yeah. 11 A. Column 36, line 53? 12 Q. Yeah. 13 A. That says a different -- that's not 14 referring to end-to-end tunnel. It's talking 15 about GVN network itself. 16 Q. And then I'm just looking for references 17 to end-to-end within the patent. There's another 18 reference to end-to-end at column 39, line 20. 19 What is that looking at column 39, line 20? What 20 does that reference to end-to-end indicate to you? 21 Is that an end-to-end tunnel reference? 22 A. Let me see what it says. 23 It's not referring to a tunnel, either. 24 Q. And then at column 39, line 30, is that 25 reference at column 39, line 30 reference to an	Page 49 1 end-to-end tunnel? 2 A. Let me read through and see what it says 3 here. 4 It's talking about protocol layer. It's 5 saying you can transfer an IP6, so from one end to 6 the other end. 7 Q. I'm not sure if you completed your 8 answer or if -- 9 A. You're transmitting IP6 traffic in an 10 IP4 tunnel, so this is referring to the fact that 11 IP6 traffic can go from one end to the other end. 12 Q. Okay. So maybe that's a reference to an 13 end-to-end tunnel? 14 A. Let's me see what it says here. 15 I have to go back and look at what the 16 date is and the description here is. 17 What is this, describing figure 45? 18 What is it? 19 Okay. So what is the question? 20 Q. Yeah. So I was asking you whether this 21 reference at column 39, line 30, end-to-end, 22 whether you could tell if that was referencing an 23 end-to-end tunnel? 24 A. It is referring to a tunnel that exists 25 between the two LANs, and IPv6 traffic is going

Page 50

1 from one host, to one end, to the other end on the
2 other side to IPv6.
3 Q. Okay. Is it fair to say that what it's
4 describing here may be referring to an end-to-end
5 tunnel?
6 A. We could potentially see this as IP6
7 traffic being tunneled to an IP4 tunnel -- I'm
8 sorry, IP6 traffic being tunneled to an IP4
9 tunnel, yes.
10 Q. And then I think the final reference to
11 end-to-end tunnel, the phrase end-to-end in the
12 patent, is at column -- until the claims -- is at
13 column 41, line 49. Here it says: There are many
14 other options for routing via end-to-end tunnels,
15 tunnels to egress point on the open internet,
16 tunnels via multiple SRV_AP cumulations, and other
17 options.
18 You see that at column 41?
19 A. Yes, okay.
20 Q. So that also appears to be a reference
21 to end-to-end tunnels?
22 A. Yes.
23 Q. Okay. So then I'm just showing you --
24 I'm doing a search, just sharing my screen, doing
25 a search for end-to-end, using hyphens with end,

Page 52

1 what you mean by form?
2 A. Where are you reading here? I'm trying
3 to find the word form.
4 Q. Yeah. Paragraph 6 in the first
5 sentence, you say: Which together form the GVN --
6 in the first sentence.
7 And then again you say it at the end of
8 the second sentence, you say: Can be selected to
9 form multiple end-to-end tunnels.
10 A. So the figures are showing that the way
11 that these tunnels are being put together to form
12 the end-to-end tunnel.
13 Q. Yeah. Can you explain in any further
14 detail what it means to form a tunnel?
15 A. So you terminate one terminal and then
16 you restart the other tunnel. That would be one
17 way to do things.
18 Q. What do you mean, when you say
19 terminate, do you mean from the --
20 A. So I'm talking about here, not
21 generally. I don't know why. I'd have to go back
22 and see what's described in the patent. That's
23 why you can glue together two tunnels to form a
24 longer tunnel, and that's what I'm talking about
25 here, which is that I can take tunnel 1 between

Page 51

1 hyphen, to, hyphen, end. And I think we've just
2 stepped through all the references to end-to-end,
3 and it looks like the only figures to reference --
4 specifically reference an end-to-end tunnel are at
5 Figures 33, 34, 35, and then possibly at Figure
6 45, just looking at I think was -- actually IPB6,
7 IPB4 discussion because I don't think there's a
8 specific figure that's being described in column
9 41, line 49, but at column 39, line 30, this
10 appears to be referring to something illustrated
11 in Figure 45, which you looked at when you were
12 reading this section.
13 So I guess what my question to you is:
14 Are you aware of any figures in the patent that
15 are expressly described as a, quote, end-to-end,
16 unquote, tunnel other than Figures 33, 34, 35, and
17 45?
18 A. Not that I'm aware of at this point.
19 Q. Okay. Back at your declaration again.
20 We were at paragraph 6. Paragraph 6 in two
21 instances, you used the word form to indicate the
22 format -- selecting of intermediate tunnels to
23 form end-to-end tunnels. And with this paragraph
24 in mind, your reference to the word form here as
25 you used it, what do you -- can you explain to me

Page 53

1 two end points and tunnel 2 that starts at the
2 endpoint of the first tunnel and effectively
3 extend the tunnel 1 and tunnel 2 together to form
4 a longer tunnel.
5 Q. How do you glue together two tunnels?
6 A. The endpoint, for example, in this
7 figure here, what we call -- let me look it up.
8 Just to describe this in general terms first. So
9 let's -- here. We talk about here AP-1 access
10 point 1. AP-1 would be gluing the two tunnels
11 together.
12 Q. Okay. Does a packet behave any
13 differently if it traverses two intermediate
14 tunnels that are put together in series versus a
15 packet that would traverse a tunnel after it has
16 been, as you say, glued together?
17 MR. MCPHERSON: Object to the form of
18 the question.
19 A. Say that again. What's the question?
20 BY MR. LENNON:
21 Q. Yeah. So you can select two tunnels
22 that have been laid out in a series. Like, for
23 example, your annotation of Figure 33, you have an
24 intermediate tunnel 1 and an intermediate tunnel
25 2, right?

Page 54

1 **A. Right.**
2 Q. So if they have not been selected to
3 form an end-to-end tunnel, I want you to explain
4 to me how would a packet traverse that tunnel as
5 compared to once the two tunnels have been
6 selected to form an end-to-end tunnel? What is
7 the difference between how a packet behaves
8 traversing those two scenarios?
9 MR. MCPHERSON: Object to the form of
10 the question.
11 **A. Okay. So I'm not sure I understood your**
12 **question.**
13 **So if I understood your question**
14 **correctly, so let's say or just take an example**
15 **that you send a packet from LAN1 to AP-1, and**
16 **you're actually trying to go to LAN2. If you**
17 **don't have the second tunnel glued together to the**
18 **first one, if you want to send the packet to LAN2**
19 **to a different part that's basically through the**
20 **internet and as the patent discuss, it may not**
21 **provide enough quality of service. So what you're**
22 **going to want to do is to say, no, I don't want**
23 **you to take the default path from AP-1 to LAN2. I**
24 **want you to take the specific path because the**
25 **quality of service is better here. And we're**

Page 56

1 packet goes through the tunnel, and you go to
2 AP-1, and at AP-1, you may just decide I'm going
3 to use it and stand it up to get to a LAN2.
4 Q. And I want to understand. What is the
5 LAN1 packet? What is its destination in that
6 scenario when they're not glued together? Is its
7 destination AP-1?
8 **A. No. Destination would be still LAN2.**
9 **So LAN 1 is sending packet to LAN2.**
10 Q. But we haven't formed an end-to-end
11 tunnel yet.
12 **A. So let me -- sorry. Say that again.**
13 Q. Before you've glued the two tunnels
14 together --
15 **A. Right.**
16 Q. -- the packet that's coming from AP --
17 from LAN1 that's going through the first
18 intermediate tunnel, in that scenario, the
19 nonglued or nonformed scenario, the destination
20 for that packet would be AP-1. Is that right?
21 **A. No. So the way tunnels work is you have**
22 **a packet that was at LAN1 and want to go to LAN2,**
23 **and this is what's been in the patent and**
24 **discovered that if you used to just do the normal**
25 **routing, LAN1 packet may go through normal**

Page 55

1 going to construct the specific part to get to
2 LAN2. And that's what at least the patent is
3 describing, which is basically trying to glue
4 together the parts so that it provides the quality
5 of service from LAN1 to LAN2.
6 Q. Okay. And so the packet that's coming
7 out of LAN1, will it have the information for the
8 specific route to AP-1 and then the specific route
9 from AP-1 to EPD-2 in this example from Figure 33?
10 **A. No. A packet from LAN1 just says I'm**
11 **going to LAN2.**
12 Q. Okay. So what happens when you select
13 end-to-end tunnels -- let me rephrase.
14 So are you saying when you select two
15 intermediate tunnels to form an end-to-end tunnel,
16 now you have just glued them together? Is that
17 what you were saying when you said formed and
18 glued is the same thing?
19 **A. Right. That would be okay. Yes. Yeah.**
20 Q. Okay. So what if they haven't been
21 glued together?
22 **A. Yeah. Let me explain that. If they're**
23 **not glued together in this example, so LAN1's**
24 **packet, will go bow through the first tunnel. And**
25 **let's assume you only have one tunnel, and the**

Page 57

1 internet standard routing and go through a bunch
2 of ISPs, and this is actually explained well in
3 Figure 9 on the patent, and then you don't have
4 control on the path the packet takes, and you may
5 not get the quality of service for this connection
6 between LAN1 and LAN2.
7 And so expressly this patent is trying
8 to do is to say I want to take control of the way
9 these packets transit from LAN1 to LAN2 to provide
10 a quality of service that's desired, so what I'm
11 going to do is take this packet that's going from
12 LAN1 to LAN2, and construct these tunnels that
13 provide the quality of service.
14 In this example, we're talking about
15 going from LAN1 to AP-1, through one tunnel, from
16 AP-1, to second tunnel, to LAN2.
17 Q. So in order to traverse the first
18 tunnel, what is the -- is the destination, in
19 order to come through the first tunnel and then
20 exit that first tunnel, does the destination have
21 to be the endpoint of that first tunnel?
22 **A. Depends on how the skill is implemented.**
23 **There are lots of different ways of implementing**
24 **this. So if you use, for example, something**
25 **called MPLS, you would just put a MPLS label, and**

Page 58 1 that basically gets your packet to AP-1, and then 2 from AP-1 you get another -- put another different 3 label, and that label gets switched across all of 4 these intermediate points, and it will get your 5 packet to the LAN2. 6 Or you could do something called overlay 7 routing, which in cases do something different. 8 There are multiple ways of doing this. 9 Q. In the MPLS example that you just 10 described, would that be an end-to-end tunnel 11 between two LANs? 12 A. So I'm not sure. So you're talking 13 about the packets between APD1 and AP-1, or what? 14 I'm not sure. 15 Q. I'm saying if you have a first tunnel 16 that goes from EPD-1 to AP1, right, and this is 17 just identified as a first tunnel, it's not been 18 glued or joined together to anything else, before 19 you glue or join it together, does the destination 20 specified for that packet look any different than 21 after you joined the tunnels together, formed or 22 glued them together to form an end-to-end tunnel? 23 MR. MCPHERSON: Object to the form of 24 the question. 25 A. Okay. So again, just depends on the Page 59 1 implementation, so -- because I could choose. 2 There are multiple ways of handling this. So I 3 could choose a particular port number that 4 basically says I'm going to go to this port 5 number, and that port number basically tells you 6 what kind of tunnel that I want to handle, so 7 there's lots of ways of implementing it. This is 8 very implementation specific. 9 MR. MCPHERSON: Jim, when you get to a 10 convenient point, could we take a quick 11 five-minute break? 12 MR. LENNON: Sure. Actually, we can 13 take a break now. 14 (A short break was taken.) 15 BY MR. LENNON: 16 Q. All right. Thank you, Dr. Reddy. 17 Let's turn to paragraph 10 of your 18 declaration. Here, in paragraph 10, you have a 19 quote from the 505 Patent at column 34 from lines 20 1 to 7. Do you see that quote in paragraph 10? 21 A. Yes. 22 Q. Okay. So I'm just going to read the 23 first sentence here of that quote: While figures 24 33, 34, and 35 all illustrate the joining of 25 tunnels at AP hops, this is viewed as a single	Page 60 1 tunnel by client devices within LAN1 and LAN2. 2 Can you explain your understanding of 3 what is said here from the 505 Patent viewed as a 4 single tunnel? 5 A. Well, it says so here, that it is 6 joining tunnels to form a single tunnel. 7 Q. Right. It says viewed as -- 8 A. Right. 9 Q. -- a single tunnel. What is your 10 understanding of what that means? 11 A. That the clients are going to see that 12 as a single tunnel. 13 Q. Okay. As opposed to what? 14 A. As opposed to I don't know. So it's 15 from LAN1 to LAN2 to look like a single tunnel. 16 Q. Okay. And if they were not joined, how 17 would the client then view them? 18 A. They'd only be going from LAN1 to LAN2, 19 so it will go only from LAN1 to AP-1, or depending 20 on the picture, different APs. 21 Q. In paragraph 12 of your declaration, you 22 state: Further, as demonstrated in Figure 23, the 23 whole purpose of the invention as claimed is that 24 the control server selects one of the plurality of 25 the end-to-end tunnels. Page 61 1 And then the sentence continues on. Do 2 you see what I'm talking about, paragraph 12? 3 A. Yes. 4 Q. Are you quoting from a description of 5 Figure 23 there? 6 A. Let me -- probably not, so let me see 7 what it refers to here. 8 So what is the question? I think it's 9 referring to the plain language there. 10 Q. Okay. So why do you say the whole 11 purpose of the invention as demonstrated in Figure 12 23, if Figure 23 doesn't actually expressly recite 13 in its -- in the figure itself or in the 14 description of the figure the end-to-end tunnel? 15 A. As I explained earlier, Figure 23 is 16 showing infrastructure of the whole network from a 17 client LAN to another client LAN on what is a 18 global virtual network infrastructure looks like 19 and is showing all the elements that are involved 20 in building an end-to-end tunnel. 21 Q. Okay. 22 A. So that's the description that I'm 23 trying to get to here. 24 Q. Okay. But when you say as demonstrated 25 in Figure 23, Figure 23 doesn't actually
--	--

Page 62 1 demonstrate the selection of a plurality of 2 end-to-end tunnels, right? 3 MR. MCPHERSON: Object to the form of 4 the question. 5 A. Sorry. I have shown here to, you know, 6 the way the annotation here, how that is 7 happening. 8 Q. Okay. And how have you shown that that 9 -- how that has happened? 10 A. That there are multiple pods through 11 EPD. Well, let's see -- 100 to EPD 23, and the 12 controls are very soothing on many of those pods. 13 Q. Okay. So you were just annotating here, 14 but are you relying on a specific description 15 anywhere from Figure 3 that describes a selection 16 of an end-to-end tunnel? 17 A. Figure 3, you mean, or Figure 30? 18 Q. 23. Because your annotation is Figure 19 23. 20 A. Right. We already went through this 21 before. Figure 23 said the description may not 22 have explicitly stated end-to-end tunnels, but 23 Figure 23 is showing what the infrastructure of 24 GVN is. 25 Q. Are you familiar with the concept of	Page 63 1 link aggregation? 2 A. Yes. 3 Q. What is that? 4 A. Basically it says he can take multiple 5 links and make it look like a single link. 6 Q. And can link aggregation be used to 7 describe the joining of tunnels? 8 MR. MCPHERSON: Object to the form of 9 the question. 10 A. Could you say that question again? 11 BY MR. LENNON: 12 Q. Can link aggregation be used to describe 13 the formation of tunnels? 14 A. Okay. Let me think about this a bit. 15 So it's possible. You could possibly create a 16 tunnel through a link aggregation. 17 Q. All right. If you could look at column 18 24, the 505 Patent. It's Exhibit 101 at line 38, 19 you'll see the word aggregated. Let me know when 20 you're there. 21 A. Column 24 you said? 22 Q. Column 24, yeah, line 38 says -- you 23 used the word aggregated. 24 A. Okay. 25 Q. Now, this is in the context of a
Page 64 1 paragraph that sites multiple tunnels between two 2 devices such as 23. So I'm starting here reading 3 at line 34, column 24. 4 It says: Multiple tunnels between two 5 devices such as 23KP00, and then so on, recites a 6 series of tunnels, can either offer a single 7 communication by sending traffic out one tunnel, 8 or two or more tunnels can be aggregated together, 9 or two or more bound tunnels can carry traffic as 10 if they are one tunnel. 11 Do you see that? 12 A. Yes. 13 Q. Is that describing what we were just 14 talking about as link aggregation or is that 15 something different? 16 A. This doesn't have to be. A link 17 aggregation can happen at a different level, so 18 what this is describing, something that's building 19 tunnels through aggregation of tunnels. 20 So I could go back and refer to 23, but 21 I don't know which figure this is referring to, 22 but yeah, it could be done at different layers. 23 Q. Look at your paragraph 14 of your 24 declaration, Exhibit 1012. Do you have a quote 25 from the 505 Patent column 20, line 17 to 20?	Page 65 1 A. Okay. 2 Q. The quote is endpoint devices EPD 17-100 3 through 17-110 will connect with one or more 4 multiple SRV-AP servers though one or more 5 multiple concurrent tunnels. 6 Do you see that? 7 A. Mm-hmm. 8 Q. Can tunnels be multiple and concurrent 9 and still not be arranged end to end? 10 A. Say that again. Sorry? 11 Q. Is it possible for tunnels to be 12 multiple and concurrent and yet not be arranged 13 end-to-end? 14 A. I don't know what you're referring to, 15 but let me read through here before I answer your 16 question. 17 Okay. Figure 17. Okay. So what is the 18 question? 19 Q. So for figure 17 described here, Derek, 20 you read the quote at column 20, lines 17 to 20, 21 where the endpoint devices will connect through 22 one or more multiple AP servers through one or 23 more multiple concurrent tunnels. So my question 24 is can tunnels be multiple and concurrent and not 25 be arranged end-to-end?

Page 66 1 A. So multiple just means they are, you 2 know, more than one tunnel. Concurrent means they 3 exist at the same time. And they could be -- in 4 this example, they're connecting region A to 5 region B in this picture that's showing in figure 6 17, but region A is large, region B is large, and 7 they're connecting different endpoints, and that's 8 basically what's they're showing as multiple 9 concurrent tunnels, that could be connecting one 10 endpoint in region A to another endpoint at the 11 same time. 12 I could be connecting different 13 endpoints from region A to region B, but it's 14 still they're providing tunnels between region A 15 and region B. And it is possible this tunnel 16 between region A and region B could be formed 17 based on the description of the patent through 18 multiple tunnels glued together. 19 Q. Let's look at paragraph 16 of your 20 declaration. Here you identify an embodiment 21 shown in figure 39 and say that it clearly states 22 that internal tunnel: 39 P 20 is simply the 23 aggregation of both other tunnels joined at 24 SRV_AP 39-200. Do you see that? 25 A. Okay.	Page 67 1 Q. They're citing to the 505 Patent column 2 36, lines 41 to 48. So I'll just pull that up on 3 the screen for you. Highlight the citation. 4 So if you could just read to yourself 5 lines 41 to 48 and column 36 because I want to 6 just make sure you have this fresh in your mind as 7 you answer this question. 8 A. Okay. So let me get there first. Okay. 9 Q. So here the phrase can also be in that 10 portion. 11 A. I see it. 12 Q. So here it's referring to there can also 13 be another tunnel, internal tunnel 39-P20 that 14 runs through both of the other tunnels, right? 15 A. Mm-hmm. 16 Q. Does that indicate that you could have 17 two successive tunnels and not necessarily have 18 what is described here as internal tunnel 19 INTT139-P20? 20 A. I'm not sure I understand the question 21 because -- 22 Q. It looks like by using the phrase can 23 also, it's suggesting that another tunnel that is 24 an internal tunnel is something that is not 25 automatic when you have AVP tunnel, the tunnel TUN
Page 68 1 39P10 and 39P12? 2 A. So I think what this is describing is 3 that there are two tunnels between EPD 3900 on the 4 tunnel 39 P10. And then 39200 -- sorry. Let me 5 go back to the figure to say this accurately. 6 Okay. So what this is describing is 7 that there are two tunnels between 3,900 and 8 39,200. On the second tunnel between 39,200 and 9 39,102, which could be joined to form a tunnel 10 together, and there could be a second tunnel if 11 you wanted to form that could also do the same 12 thing. 13 Q. What is that second tunnel? You're 14 referring to 39-22, are you referring to what is 15 called the internal tunnel? 16 A. So that's the one that says here in this 17 figure 39P20. 18 Q. Okay. So you could have tunnels 39P10 19 and 39P12 without necessarily having tunnel 39P20? 20 A. Absolutely. 21 Q. And in order to have 39P20, what 22 happens? What's the difference from the 23 perspective of a packet that's traversing 39P10 24 and then 39P12 when there -- there is no internal 25 tunnel versus when there is?	Page 69 1 A. Depends on what the internal tunnel is 2 doing, depends on how this implementation is made. 3 So, for example, if you go with just 4 quality of service, and you're gluing together, 5 there's no need for internal tunnel, but you know 6 you want to do internal tunnels for different 7 reasons, so depending on application. 8 Q. So what is an example of what would 9 happen differently when you choose to have 39P10 10 and 39P12? 11 A. I think we talked about this earlier. 12 If they're not glued together, the packet from 13 LAN1 will go to, in this example, if there is a 14 39,200, through the tunnel 39P10, and if there is 15 a 39,200, you're not sending that packet through 16 tunnel 39P12 to LAN 39010, because there may be a 17 shorter path there because the internet says 18 there's another way to send the packet. 19 But if you want the quality of service 20 that the patent is trying to get to, and it deals 21 that this is the tunnel it wants to use this, then 22 it will glue those tunnels together, so that the 23 service AP39200 knows to send the packet through 24 39P12 tunnel to LAN 39010. 25 Q. And is the destination -- when those

Page 70

1 tunnels are glued together, is the destination
2 AP39200 for a packet coming into tunnel 39P10?
3 **A. The destination for the thing would be**
4 **for LAN30 -- for the packet originating in**
5 **LAN39000. Will have a source destination of**
6 **something that belongs to LAN 39000. In this**
7 **example, the destination will belong to 39010, and**
8 **depending on how you implement this, you could do**
9 **this in several different ways, the destination**
10 **could change, the destination could remain the**
11 **same, depending on the implementation of the**
12 **tunnels.**
13 Q. Okay. And would that be -- would the
14 destination be any different depending on whether
15 or not you have glued the tunnels together or not?
16 **A. That again, depends on implementation.**
17 **So depends on implementation.**
18 Q. How can you tell when tunnels are glued
19 together?
20 **A. You can definitely look at the**
21 **configuration in this figure series. It would be**
22 **39200, know whether the tunnels are glued together**
23 **or not.**
24 Q. Well, let's say the method of the tunnel
25 protocol calls for encapsulation as a packet

Page 72

1 **glued together, the way it's glued together,**
2 **again, it won't be any different from what I just**
3 **described.**
4 Q. So there won't be any de-encapsulation
5 -- or there will be decapsulation at AP39200?
6 **A. So what is the question?**
7 Q. I'm asking whether or not in the
8 scenario that the packet is traveling through the
9 internal tunnel that's identified here --
10 **A. Right.**
11 Q. -- whether or not it will be
12 deencapsulated at SRV AP39-200.
13 **A. Let me read through what it says about**
14 **internal tunnel. What column was it described**
15 **here?**
16 Q. 36, line -- line 45.
17 **A. Okay. So let me get there.**
18 **Okay. So what is the question again?**
19 Q. In the scenario where a packet is
20 entering that internal tunnel 39P20, is that
21 packet deencapsulated at 39200?
22 **A. If there is an internal tunnel that's**
23 **built into after gluing things together, they may**
24 **not have to be, depending on, again, the**
25 **implementations.**

Page 71

1 enters a tunnel. Will a packet be deencapsulated,
2 for example, if that was the method applied to a
3 packet that's entering at EPD 39100 entering
4 tunnel 3910, if the tunnels are not joined
5 together, will it be deencapsulated at server
6 AP39200?
7 **A. It again, depends on implementation.**
8 **There are protocols that will allow you to share**
9 **keys across and make them possible, and then**
10 **there's a different implementations where I could**
11 **use different keys, and in which case, I would**
12 **have to deencapsulate and reencapsulate with the**
13 **different keys. So it depends on, again, the**
14 **implementation.**
15 Q. Okay. And how about in the scenario
16 where the packet is running through the internal
17 tunnel 39P20? Would that packet be decapsulated
18 at AP39200?
19 **A. So in the case where you have multiple**
20 **tunnels, is the question?**
21 Q. No. Internal tunnel 39P20. It's
22 referred to as another tunnel, internal tunnel
23 39P20.
24 **A. Okay. So let me read through what it**
25 **says here about internal tunnel 39P20. If it is**

Page 73

1 Q. Is that one of the benefits of having an
2 internal tunnel?
3 **A. There could be lots of benefits why you**
4 **may want to have internal tunnels.**
5 MR. LENNON: Can we just take another
6 quick break here until maybe 30 minutes after the
7 hour?
8 MR. MCPHERSON: Sounds good.
9 MR. LENNON: All right. Thanks, guys.
10 (A short break was taken.)
11 BY MR. LENNON:
12 Q. Doctor, I appreciate your time. I don't
13 have any further questions.
14 MR. LENNON: I don't know, Patrick, if
15 you have any followup?
16 MR. MCPHERSON: No, I don't have any
17 redirect.
18 MR. LENNON: Okay. So for the court
19 reporter, we'd like a rough. I want to let you
20 know our -- we have a briefing deadline of April
21 4th, so this transcript will be relevant to that
22 deadline. We don't need expedited unless for some
23 reason you don't anticipate being able to get this
24 done, you know, well in advance of April 4th.
25 THE COURT REPORTER: That's fine. Is

Page 74

1 the rough okay by tomorrow?
2 MR. LENNON: Yeah. That's fine.
3 THE COURT REPORTER: Great.
4 And, Mr. McPherson, what about for you?
5 MR. MCPHERSON: We can just -- normal
6 delivery to us.
7 THE COURT REPORTER: Okay. And I just
8 wanted to ask about reading and signing. Is the
9 witness going to read and sign?
10 MR. MCPHERSON: Yes.
11 THE COURT REPORTER: Okay.
12 MR. LENNON: Thanks, everybody, for your
13 time.
14 (Deposition concluded at 1:31 p.m.)
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Page 76

1 ERRATA SHEET
2 CASE: Cisco Systems, Inc. v. Umbra Technologies,
3 Ltd.
4 WITNESS: Dr. A.L. Narasimha Reddy
5 DATE: March 13, 2025
6 PAGE/LINE SHOULD READ REASON FOR CHANGE
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Page 75

1 CERTIFICATE OF DEPONENT
2
3 I hereby certify that I have read and
4 examined the foregoing transcript, and the same is
5 a true and accurate record of the testimony given
6 by me.
7
8 Any additions or corrections that I feel
9 are necessary will be made on the Errata Sheet.
10
11
12
13
14 Dr. A.L. NARASIMHA REDDY
15
16
17
18 DATE
19
20 (If needed, make additional copies of the Errata
21 Sheet on the next page or use a blank piece of
22 paper.)
23
24
25

Page 77

1 State of Maryland
2 City of Baltimore, to wit:
3 I, Ahuva Goldberger, a Notary Public of
4 the State of Maryland, City of Baltimore, do
5 hereby certify that the within-named witness
6 personally appeared before me at the time and
7 place herein set out, and after having been duly
8 sworn by me, according to law, was examined by
9 counsel.
10 I further certify that the examination
11 was recorded stenographically by me and this
12 transcript is a true record of the proceedings.
13 I further certify that I am not of
14 counsel to any of the parties, nor in any way
15 interested in the outcome of this action.
16 As witness my hand and notarial seal this
17 13th day of March, 2025.
18
19
20 
21
22 Ahuva Goldberger
23 Notary Public
24 My Commission Expires:
25 May 21, 2027

Exhibits	18 10:4	34 19:20 47:11 51:5,16 59:19,24 64:3	64:25 67:1
Exhibit 1 3:9 6:10,11,15, 16 8:23	19 36:16,17	35 46:8 47:11 51:5,16 59:24	51 41:2
Exhibit 22 3:10 6:22,23 7:3,14	1:31 74:14	36 47:25 48:2,3,8,11 67:2, 5 72:16	53 48:1,3,4,11
Exhibit 1001 3:11 7:25 8:11,21	2	38 47:15 63:18,22	55 40:25
Exhibit 1004 3:12 9:6,9	2 6:21 8:5 28:6,21 29:12 32:17 33:5 36:11 53:1,3,25	39 47:24 48:18,19,24,25 49:21 51:9 66:21,22 68:4	6 28:6 36:3,8 39:3,15 51:20 52:4
Exhibit 1012 3:13 7:19 9:21,23 10:2,17 64:24	20 48:18,19 64:25 65:20 66:22	39,102 68:9	7
(	2025 10:4 DR. A.L. NARASIMHA REDDY MARCH 13, 2025	39,200 68:8 69:14,15 JOB NO. 1520094	7 26:8 36:16,17 59:20
(s) 10:20	22 6:22,23,24,25 7:2,3,14	39-200 66:24	8
1	23 39:5,18,23,24 40:2,9, 10,16,24,25 41:8,17,22,23, 24,25 42:1,3,6,8,9,15,16, 17,21,22 43:1 44:8,10,12 45:5,21 46:12,14,17,18,23 47:3 60:22 61:5,12,15,25 62:11,18,19,21,23 64:2,20	39-22 68:14	8 18:25 19:4 24:25 26:8
	23's 39:9	39-P20 67:13	9
	23KP00 64:5	3900 68:3	9 57:3
	24 41:2 42:6,16 43:1 44:8 47:14 63:18,21,22 64:3	39000 70:6	A
	25 47:14	39010 69:16,24 70:7	
	27 47:14	3910 71:4	
	3	39100 71:3	
	3 21:24 29:6 44:15 62:15, 17	39200 68:4 70:22 72:21	
	3,900 68:7	39P10 68:1,18,23 69:9,14 70:2	
	30 48:24,25 49:21 51:9 62:17 73:6	39P12 68:1,19,24 69:10, 16,24	
	30- 31:24	39P20 68:17,19,21 71:17, 21,23,25 72:20	
	32 19:13 31:5,9 46:8	4	
	33 10:19 11:2,8,10,15,24, 25 12:5,6 13:1,18 18:6,11, 12,24 19:3,4,5,8,21 20:2, 13,15,17,24 21:13 28:2 31:2 34:11,13,22,23 36:16, 17 37:4,7,11,20 39:5,7 46:12,15,17,19,24 47:6,8, 9,10,13,14,15 51:5,16 53:23 55:9 59:24	41 50:13,18 51:9 67:2,5	
		45 49:17 51:6,11,17 72:16	
		48 67:2,5	
		49 50:13 51:9	
		4th 73:21,24	
		5	
		5 10:11,13,16 11:5 40:7,11, 12,15,17 42:8,15 45:16	
		505 8:12,20 9:13 13:1 18:25 36:6 39:6,22 42:7 47:17 59:19 60:3 63:18	

aggregation 63:1,6,12,
16 64:14,17,19 66:23

agree 4:9 14:9 23:1 34:12
35:17

aids 18:20

angle 13:14,24

annotated 45:16

annotating 62:13

annotation 11:1,2,8
28:5,7 33:1 53:23 62:6,18

anticipate 73:23

AP 39:8 56:16 59:25 65:22

AP-1 12:19 13:6 14:5,17
15:3,7 16:10,12,18 17:11
18:9 20:18,21 21:5,8,14
22:1,8,17 25:24 28:14,21
29:12 36:9 53:9,10 54:15,
23 55:8,9 56:2,7,20 57:15,
16 58:1,2,13 60:19

AP-2 21:5

AP1 58:16

AP39-200 72:12

AP39200 69:23 70:2
71:6,18 72:5

APD1 58:13

appearing 4:3

appears 16:8,16 23:4
26:7 35:17 50:20 51:10

application 69:7

applied 71:2

April 73:20,24

APS 60:20

argue 18:10

arranged 65:9,12,25

arrives 14:1

assume 55:25

attempt 14:8

attorneys 4:3

automatic 67:25

AVP 67:25

aware 41:3 47:16 51:14,
18

B

back 9:18 10:10 11:18
17:21 20:14,24 24:24 28:2
33:17 39:2 43:11 49:15
51:19 52:21 64:20 68:5

background 5:24 6:1

based 24:1 66:17

basically 11:25 21:16
54:19 55:3 58:1 59:4,5
63:4 66:8

Bear 7:24

bearings 29:11

begins 18:13 40:25

behave 53:12

behaves 54:7

belong 70:7

belongs 70:6

benefit 6:5 8:8

benefits 73:1,3

big 8:13

bigger 24:18

bit 30:6 63:14

black 12:25 13:2,7,13

blue 10:22

book 27:7

bottom 15:10,17 16:4,
14,20,21 17:3,6,17 21:16
22:12,21,23 30:22 32:25

bound 64:9

bow 55:24

box 15:23 17:15 22:8,17
28:24 30:7,14,25

boxes 22:7,13,21,22
24:5,7,8,11 35:11

break 59:11,13,14 73:6,
10

briefing 73:20

build 41:13 42:4,20 43:7

building 42:18 61:20
64:18

built 45:7 72:23

bunch 57:1

C

call 6:22 8:3 27:18 28:19,
20 53:7

called 4:21 57:25 58:6
68:15

calling 6:23

calls 70:25

carry 64:9

case 6:12,14 71:11,19

cases 58:7

central 43:9

change 32:4 70:10

channel 43:11

characterization
23:15

characterize 46:18

characterized 25:10

choose 59:1,3 69:9

Cisco 5:11,17

Cisco's 6:25

citation 67:3

citing 36:15 67:1

claimed 60:23

claims 45:2 50:12

clear 27:8 31:25 32:8,15
33:23

client 37:24 38:1 60:1,17
61:17

clients 60:11

colleague 5:4

collection 15:5

colored 28:8

column 18:24 19:3,4
29:5 36:16 40:7,8,11,12,
15,16,17,24 41:2 42:8,15
47:8,9,13,14,15,25 48:2,3,
8,11,18,19,24,25 49:21
50:12,13,18 51:8,9 59:19
63:17,21,22 64:3,25 65:20
67:1,5 72:14

columns 42:6,7 43:1
44:8,9 46:12

combined 32:1

combining 27:22

communication
12:10 64:7

compare 46:14

compared 54:5

comparison 31:8

completed 49:7

concept 62:25

concerned 12:8

concluded 74:14

concurrent 65:5,8,12,
23,24 66:2,9

configuration 46:21
70:21

connect 12:16,17 65:3,
21

connected 12:21 23:5
44:20

connecting 37:25 66:4,
7,9,12

connection 7:2,20
41:16 46:11 57:5

consistent 5:19 6:7
35:12 39:9

construct 12:14 25:21
55:1 57:12

context 63:25

continues 16:17 61:1

control 12:13 57:4,8
60:24

controls 62:12

convenience 7:11 21:1

convenient 59:10

convey 14:14,22

copy 8:12,14 10:14

correct 16:18 33:5 46:13

correctly 54:14

correlate 26:7

correlates 33:4

corresponds 33:6

counsel 4:8 5:7

court 4:2,17 8:8 34:7
73:18,25 74:3,7,11

create 32:3 43:18,25
45:20,24 63:15

creating 43:14 44:4

cross-sectional
46:20

cumulations 50:16

D

dash 13:22

dashed 16:4,8,9,25 17:4,
10,11 22:13 25:17 26:5
28:8

date 49:16

DC 5:21

de-encapsulation
72:4

deadline 73:20,22

deal 8:13

deals 69:20

decapsulated 71:17

decapsulation 72:5

decide 56:2

declaration 7:1,7,17,18
9:19,20,22 10:3,7,12,17
28:4,7 33:1 35:4 36:3 39:3
45:17 51:19 59:18 60:21
64:24 66:20

deencapsulate 71:12

deencapsulated
71:1,5 72:12,21

default 54:23

delivery 74:6

demonstrate 62:1

demonstrated 60:22
61:11,24

depending 60:19 69:7
70:8,11,14 72:24

depends 57:22 58:25
69:1,2 70:16,17 71:7,13

depicted 11:9

depicting 20:4

depicts 12:5

DEPONENT 46:5

deposed 5:17

deposition 4:3,4,5,11
5:23 6:16 7:3,25 9:6,15,23
74:14

Derek 65:19

describe 14:6,7,8,9
43:11 45:7 53:8 63:7,12

describes 19:23 35:25
62:15

describing 19:7 41:10
42:3 43:5,6 49:17 50:4
55:3 64:13,18 68:2,6

description 17:22 18:7,
17,19 20:3,9,12,15 21:4
22:3 23:11 24:2,16 26:25
27:9 30:22 31:2 32:8 33:23
34:16 35:12,19,23 36:1
39:24 40:1,3,4,6,9,25 41:4,
8,25 42:3,8,14,16 43:4
46:1,9,12 47:10,12 49:16
61:4,14,22 62:14,21 66:17

descriptions 19:20

descriptive 20:8

designating 38:12

desirable 12:16

desired 12:20,22 57:10

destination 38:17,20
56:5,7,8,19 57:18,20 58:19
69:25 70:1,3,5,7,9,10,14

detail 52:14

device 37:7,11,15,18,24
38:1,7,8,25

devices 43:10,13,23
60:1 64:2,5 65:2,21

Devlin 5:5

difference 19:13 31:4
54:7 68:22

differently 53:13 69:9

direct 13:7 47:9

direction 15:12,18,19

discern 20:12

discloses 39:18

disclosure 39:9

discovered 56:24

discuss 54:20

discussion 28:12 39:23
51:7

dispense 5:22

docket 6:7,25

Doctor 73:12

document 7:16 10:5

documents 6:2,3

dotted 15:16,23 16:2,4

draw 44:21

drawing 12:25 45:12

drawings 45:16

drawn 32:24

drew 34:19

Duane 5:10,14

duly 4:21

E

earlier 5:20 20:19 22:4,9
27:4 30:22 61:15 69:11

ease 6:2

easier 28:3

edge 37:8,12,13,16

edges 19:12 39:8

effectively 53:2

egress 50:15

EH15 19:15 30:23 31:7,
15,16,21 32:9,11,18,20,23
33:24 34:18 35:14 37:23

EH3 19:15 21:15,17,19,22
30:23,24 31:7,14,16,21
32:9,10,13,16,19,23 33:24
34:18 35:14,15,16 37:23

EH5 31:14

EH9 21:15,17,19,22
32:16,18

electronic 8:15

elements 12:6 43:6
61:19

embodiment 66:20

encapsulation 70:25

end 10:21 16:22 30:8,9
33:4,5 49:5,6,11 50:1,25
51:1 52:7 53:1 65:9

end-to-end 10:19 19:11
25:5,10 26:15,18 27:1,20,
22 32:2,3,23,24 33:3 39:7,
12,19 40:1,21 41:4,9,13,16
42:1,20 43:5,14,18,25
44:7,16,23,24 45:1,3,4,6,8,
20,24 47:11,18,25 48:6,14,
17,18,20,21 49:1,13,21,23
50:4,11,14,21,25 51:2,4,
15,23 52:9,12 54:3,6
55:13,15 56:10 58:10,22
60:25 61:14,20 62:2,16,22
65:13,25

endpoint 29:18,19
30:19 36:13 39:11,19 53:2,
6 57:21 65:2,21 66:10

endpoints 66:7,13

ends 18:13 29:21

English 5:13

entering 71:3 72:20

enters 71:1

entirety 19:14 31:6,13
36:13,23 44:17

EPD 10:21,22 12:1,2 19:9
25:2 62:11 65:2 68:3 71:3

EPD-1 12:19 13:5,13,20, 22 14:5,17 15:2,3,7,16,24 16:9,15,20,24 17:1,10,15, 16 18:9 19:24 20:18 21:5, 8,14 22:1,7 25:23 28:9,14 29:12,15,18 30:18 36:9,11 58:16	fair 23:14 25:8 45:5 46:18 47:3 50:3	63:8 68:9,11	GWD1 37:15,21,25 38:13
EPD-2 12:19 16:19 18:9 19:16 20:21 22:18 25:1,24 28:21 29:13 36:11 55:9	familiar 7:6,21 62:25	formalities 5:23	GWD2 37:18,21
error 34:15	faster 8:16	format- 51:22	
everyone's 6:5	February 10:4	formation 63:13	H
EXAMINATION 4:25	feel 19:18	formed 55:17 56:10 58:21 66:16	
examined 4:23	FIG 19:13	forms 37:8	handle 59:6
exhibit 6:10,11,15,16,21, 22,23 7:3,14,19,25 8:3,4,5, 11,21,23,25 9:6,9,21,23 10:2,17 39:3,22 63:18 64:24	figure 10:19 11:2,8,9,15, 24,25 12:5,6,18 13:1,18 15:2,14 18:6,11,12 19:5,8, 20,21 20:2,13,15,17,24 21:13,24 23:4 25:1,23 26:1 27:23 28:2,24 29:15,20 31:2,5,9,24 32:14 34:11, 13,22,23 35:3 37:4,7,8,11, 20 39:5,7,9,18,23,24 40:2, 3,10,25 41:17,22,23,24,25 42:1,3,8,9,16,17,21,22 44:10,12,13,15 45:5,21 46:11,14,15,17,18,19 47:3, 6,10,13,14,24 49:17 51:5, 8,11 53:7,23 55:9 57:3 60:22 61:5,11,12,13,14,15, 25 62:15,17,18,21,23 64:21 65:17,19 66:5,21 68:5,17 70:21	free 19:18	handling 59:2
exhibits 6:4	figures 46:8 51:3,5,14,16 52:10 59:23	fresh 67:6	handy 8:13
exist 39:10,19 66:3	filed 5:18 7:7		Hang 13:15 21:9
exists 49:24	final 50:10	G	Hankin 8:25 9:2,3
exit 57:20	finally 8:24		Hankins 9:13
expanse 31:17	find 8:16 52:3	gateway 37:15,18	happen 64:17 69:9
expedited 73:22	fine 73:25 74:2	gateways 44:20	happened 62:9
explain 12:5 51:25 52:13 54:3 55:22 60:2	finish 34:3	gave 27:13	happening 46:21 62:7
explained 34:14 57:2 61:15	firm 5:5	general 42:8 53:8	headed 29:6 30:17
explicitly 62:22	five-minute 59:11	generally 7:21 52:21	Hearing 4:17
expressly 39:6 51:15 57:7 61:12	flow 6:20	give 13:11 34:3,5	high 46:14
extend 26:4 29:25 30:3 32:10 35:10 53:3	followup 73:15	Glazer 5:5	Highlight 67:3
extended 25:17	forgot 9:20	global 41:11 43:15 61:18	highlighted 10:18
extending 22:7	form 11:16 18:14 23:7 26:23 30:10 34:25 36:12, 18,23 37:12 38:4,14,22 39:12 42:10 43:19 44:1 46:3 51:21,23,24 52:1,3,5, 9,11,14,23 53:3,17 54:3,6, 9 55:15 58:22,23 60:6 62:3	glue 52:23 53:5 55:3 58:19 69:22	hop 29:1 35:18,20,21 36:1
extends 19:14 22:18 30:23 31:5,13 33:9 36:12, 23 41:1		glued 53:16 54:17 55:16, 18,21,23 56:6,13 58:18,22 66:18 69:12 70:1,15,18,22 72:1	hops 21:21,23 29:7 47:1 59:25
		gluing 53:10 69:4 72:23	horizontal 23:5
F		good 4:2 8:19 73:8	horizontally 14:2
		gray 28:9	host 44:18,19,22 50:1
fact 31:3 49:10		Great 10:9 74:3	hour 73:7
		green 10:22 30:7,14,25	hours 27:9 34:18
		guess 22:2 51:13	hyphen 51:1
		guys 73:9	hyphens 50:25
		GVN 10:19 12:1 19:8,11 24:18,21,24 25:1,5,10,11, 18 26:7,13,15,18,22 27:1, 4,14,17,19,20,22 29:7,15, 16,19 30:3,6,9,20 32:22 33:3,9,12 34:24 35:13,20, 22 36:2,12,23 37:4,19 39:7 42:4,18,20,24 44:20,23 47:11 48:5,15 52:5 62:24	
			I
			idea 14:12 17:21
			identification 6:17 7:4 8:1 9:7,24 29:9
			identified 27:4 29:10 41:8 58:17 72:9
			identify 12:7 14:9 21:24 27:6 37:11 66:20

identifying 13:3 27:3 31:23	31:6 50:15 54:20 57:1 69:17		
illustrate 21:20,25 25:1 44:15 59:24	introduce 5:7 6:4,11 8:24	L	13 22:4,6,22 23:5 24:5,6,8 26:3,4,8 29:21,25 30:3,16 33:18 34:11,12,19 35:6,10 36:16,17 44:22 47:9 59:19 65:20 67:2,5
illustrated 19:16 37:20 51:10	INTT139-P20 67:19	label 57:25 58:3	link 63:1,5,6,12,16 64:14, 16
illustrates 10:19 12:1 19:5,8,11 24:15 25:5 26:18 39:7	invention 60:23 61:11	labeled 24:12	links 63:5
illustrating 24:21	inventor's 18:3	laid 53:22	listed 37:4 43:1
illustrations 44:14	inventors 14:14 22:15 27:10	LAN 10:21,22 12:1,2 19:9 25:1,2 37:9 44:18,19 47:1 56:9 61:17 69:16,24 70:6	listen 33:20
implement 70:8	involved 61:19	LAN1 12:11,20 37:12,13, 24 38:7,21 54:15 55:5,7,10 56:5,17,22,25 57:6,9,12,15 60:1,15,18,19 69:13	LLC 5:6
implementation 59:1, 8 69:2 70:11,16,17 71:7,14	IP 38:2,11,24 MARCH 13, 2025	LAN1's 55:23	located 34:24
implementations 71:10 72:25	IP4 49:10 50:7,8	LAN2 12:11,20 37:17 38:8,24 54:16,18,23 55:2, 5,11 56:3,8,9,22 57:6,9,12, 16 58:5 60:1,15,18	location 29:20 30:19 32:4
implemented 57:22	IP6 49:5,9,11 50:6,8	LAN30 70:4	locations 29:22
implementing 57:23 59:7	IPB4 51:7	LAN39000 70:5	longer 52:24 53:4
important 8:2	IPB6 51:6	language 61:9	looked 42:2 51:11
imposed 45:12	IPR 6:8,12	LANS 19:12 37:21 39:8 49:25 58:11	lot 5:22
included 11:1	IPR's 5:17	large 30:6 66:6	lots 57:23 59:7 73:3
information 55:7	IPR2024-00497 5:3	law 5:5	
infrastructure 41:11, 13,19 42:4,18,24 44:21 46:24 61:16,18 62:23	IPR2024-497 6:9	layer 35:20 36:2 49:4	M
inside 15:16 17:15,16 22:7 29:14,16 30:7 31:23 35:22	IPV6 49:25 50:2	layers 11:9,14,23 12:3 64:22	mad 33:18,19
instances 51:21	ISPS 57:2	lead 34:15	made 69:2
instrumental 44:3	J	led 27:18	make 26:11 63:5 67:6 71:9
intended 21:25	Jim 5:1 59:9	left 30:1,4 37:8	manner 4:14
intending 21:19	Joe 5:13	Lennon 4:25 5:1,15 6:18 7:5 8:2,10 9:8,11,25 11:13, 20 18:18 23:25 27:2 30:13 34:3,9 35:5 38:9,19 39:1 42:13 43:22 44:5 46:10 53:20 59:12,15 63:11 73:5, 9,11,14,18 74:2,12	mark 6:10,15,19 7:23 8:25 9:20,21
interior 26:3	Joel 5:5	level 46:15 64:17	marked 6:16 7:3,10,14, 19,25 8:11,21 9:6,8,16,23 10:2 32:22
intermediate 28:15 33:4 36:9,11 39:10,11,20 51:22 53:13,24 55:15 56:18 58:4	join 58:19	licensed 4:9,10	marking 8:7
internal 47:25 48:6 66:22 67:13,18,24 68:15, 24 69:1,5,6 71:16,21,22,25 72:9,14,20,22 73:2,4	joined 20:20 36:10 58:18,21 60:16 66:23 68:9 71:4	light 20:2	matter 5:2
internet 12:12 19:15	joining 5:4 59:24 60:6 63:7	lines 13:7 14:12,18,20,22 15:5,17 17:10,11,14,19,25 18:21 20:4,6,8,13 21:2,7,	Mcperson 5:9,10 11:11,16 18:14 23:7,17 26:23 30:10 34:1,25 38:4, 14,22 42:10 43:19 44:1 46:3 53:17 54:9 58:23 59:9 62:3 63:8 73:8,16 74:4,5, 10
	K		means 52:14 60:10 66:1, 2

mention 47:11

mentioned 13:5 20:19
25:15 43:23 46:7,15 47:7

method 70:24 71:2

middle 29:14 30:24

mind 43:4 51:24 67:6

minutes 73:6

Mm-hmm 65:7 67:15

morning 4:2

Morris 5:10,14

mouth 18:3 33:12

move 22:16

MPLS 57:25 58:9

Muldoon 5:13

multiple 11:9,23 12:3
25:21 39:10,12,18 50:16
52:9 58:8 59:2 62:10 63:4
64:1,4 65:4,5,8,12,22,23,
24 66:1,8,18 71:19

N

NARASIMHA 4:20

necessarily 44:24,25
67:17 68:19

needed 43:7

network 41:12 43:16
44:23 48:6,15 61:16,18

neutral 29:6 35:18,20,21
36:1

NH-1 24:12

NH-2 24:12

NH-3 24:12

NH1 26:3 28:23 29:1,8
30:1,4 35:16,17,25

NH2 26:3 29:8

NH3 26:4 29:8

nomenclature 28:16

nonformed 56:19

nonglued 56:19

normal 56:24,25 74:5

notary 4:9

notion 39:18

number 6:11,24 8:5 9:9
59:3,5

numbering 6:6,7,20

O

oath 4:6

object 11:16 18:14 23:7,
17,19 26:23 30:10 34:5
38:4,14,22 42:10 43:19
44:1 46:3 53:17 54:9 58:23
62:3 63:8

objection 4:13,15 11:11
34:25

objections 4:18

offer 64:6

online 13:16

onwards 29:6

open 50:15

opportunity 34:3,5

opposed 60:13,14

opposite 15:12

options 50:14,17

order 45:20 57:17,19
68:21

originating 70:4

overlay 58:6

overview 46:19

owner 5:2

owner's 7:15

P

p.m. 74:14

P10 68:4

package 38:13,21

packet 38:2 53:12,15
54:4,7,15,18 55:6,10,24

56:1,5,9,16,20,22,25 57:4,
11 58:1,5,20 68:23 69:12,
15,18,23 70:2,4,25 71:1,3,
16,17 72:8,19,21

packets 12:12 38:16
57:9 58:13

pair 24:4

paper 6:23,24,25 7:2
8:14,15 10:13

paragraph 10:11,13,16
11:5 19:18,19 24:24 28:6
36:3,8 39:3,15 45:17
51:20,23 52:4 59:17,18,20
60:21 61:2 64:1,23 66:19

paraphrased 37:6

paraphrasing 36:21

parenthetical 10:20

part 11:4 21:24 36:22
38:12 41:11 43:3,15 54:19
55:1

parties 4:8,11

parts 13:2 47:16 55:4

party 4:13

past 30:1,4 35:11

patent 5:2 7:15 8:12,13,
20 9:9,13 11:18,25 12:8
13:1 14:13,16 18:25 20:3
29:3 33:7 34:16,17 36:7
39:6 42:7 46:6 47:17,20,21
48:17 50:12 51:14 52:22
54:20 55:2 56:23 57:3,7
59:19 60:3 63:18 64:25
66:17 67:1 69:20

path 54:23,24 57:4 69:17

Patrick 5:9,13 73:14

PDF 8:18

perspective 68:23

perspectives 47:5

petition 6:12,13,14,24

petitioner 5:12

petitioner's 7:15

phrase 31:10 40:20 41:4,
9,16 42:1 44:7 50:11 67:9,
22

physically 4:4

picture 13:16 45:13
60:20 66:5

place 41:21

plain 61:9

plurality 60:24 62:1

pods 12:15 62:10,12

point 9:18 39:11,20 43:8
45:2 50:15 51:18 53:10
59:10

pointed 20:15

points 53:1 58:4

port 59:3,4,5

portion 67:10

possibility 45:14

possibly 44:3 51:5
63:15

potential 45:13

potentially 44:21 50:6

present 4:4

problem 12:11

proceed 4:18

proceeding 5:11,12
8:22

protocol 49:4 70:25

protocols 71:8

provide 12:19 54:21
57:9,13

providing 46:23 66:14

pull 9:14 67:2

purple 32:25 35:6,9

purpose 43:24 60:23
61:11

purposes 6:17 7:4 8:1
9:7,24 28:11,16 29:10

put 7:8 18:2 20:25 27:22
52:11 53:14 57:25 58:2

putting 25:21 33:11

Q	rectangle 15:16 16:2,5,8,9,14,17,21,22,25 17:4,7,16 28:8 33:10	renumber 8:4	scenarios 54:8
quality 12:9,13,15,20,22 54:21,25 55:4 57:5,10,13 69:4,19	rectangles 24:11 25:18 26:5	rephrase 55:13	screen 7:12 8:9,17,20 10:6,10,18 19:1 20:25 39:25 40:24 50:24 67:3
question 11:12,17,22 13:9 18:15 20:1 21:12 23:8 25:13 26:9,24 30:11,12 34:4,5 35:1 36:19 37:10 38:5,15,23 41:6 42:11,12 43:20,21 44:2,11 45:22 46:4 47:20 49:19 51:13 53:18,19 54:10,12,13 58:24 61:8 62:4 63:9,10 65:16,18,23 67:7,20 71:20 72:6,18	rectangular 15:23 22:7,8,12,17,21,22 24:5,7,8 35:11	reply 6:25 7:2,6,15,20,21	scrolling 10:4
questions 5:25 73:13	red 10:22	report 27:11	search 42:5 47:22,23 50:24,25
quick 44:13 59:10 73:6	Reddy 4:20 5:1,11,16 9:2 33:20 34:1,10 59:16	reporter 4:2,17 34:8 73:19,25 74:3,7,11	searched 7:17
quickly 10:5 39:6	redirect 73:17	reporter's 8:8	section 51:12
quote 36:10 47:18 51:15 59:19,20,23 64:24 65:2,20	reencapsulate 71:12	reporting 4:5,14	select 53:21 55:12,14
quoting 36:6 61:4	refer 6:3,14 9:2,3,17 28:12,14 29:13 30:5 33:15,20 34:12 39:4 64:20	represent 5:11 20:7 21:2 22:13 26:2	selected 39:12,21 52:8 54:2,6
R	referenced 11:6 21:3	represented 29:7	selecting 51:22
read 11:7 14:23 17:22 19:8,18 21:3 24:2,17 30:22 32:14 35:13 37:3 39:6 40:4 41:5 46:1 49:2 59:22 65:15,20 67:4 71:24 72:13 74:9	references 7:16 9:19 48:16 51:2	representing 5:2,10 17:25	selection 62:1,15
reading 18:16 21:11 40:8,19 51:12 52:2 64:2 74:8	referencing 49:22	represents 15:4,5	selects 60:24
reads 10:19 36:5,8	referred 8:22 25:9,19 26:15 41:19 71:22	required 12:9	send 54:15,18 69:18,23
real 44:13	referring 9:12 10:23 15:20,21 16:23 25:17 26:16 29:17,24 31:23 32:1,20,21 33:9 35:17 38:18 42:25 45:15 48:14,23 49:10,24 50:4 51:10 61:9 64:21 65:14 67:12 68:14	reside 29:1	sending 38:13 56:9 64:7 69:15
reason 6:22 73:23	refers 24:23 27:19 61:7	resides 29:16	sentence 10:16 11:7 36:5 39:4 52:5,6,8 59:23 61:1
reasons 69:7	reflect 21:13	respect 5:17,23 47:24	separate 23:24
recite 61:12	region 66:4,5,6,10,13,14,15,16	response 4:16 7:15	series 6:4 53:14,22 64:6 70:21
recites 64:5	related 46:9	rest 46:9	serve 43:24
recognize 10:5	relevance 27:11	restart 52:16	server 39:8,11,20 43:9,12 60:24 71:5
recollection 5:19	relevant 73:21	risk 14:13	servers 43:8 65:4,22
record 9:10	relying 62:14	room 4:5	service 12:9,15,20,22 54:21,25 55:5 57:5,10,13 69:4,19,23
	remain 70:10	rough 73:19 74:1	set 24:8 26:3 35:6 36:17
	remotely 4:6,7	route 55:8	share 7:11,12 8:9,17 71:8
		routing 50:14 56:25 57:1 58:7	sharing 10:10 19:1 40:24 50:24
		rub 12:12	short 59:14 73:10
		rule 34:21	shorter 35:10 69:17
		run 16:8 17:10 24:5,6	show 13:8 22:15 23:23 27:17,23 44:23 45:7,10 46:16
		running 13:5 14:2 71:16	showing 8:19 10:1,6 11:8 12:25 21:16,21,23
		runs 15:3 28:20 37:20,22 67:14	
		S	
		sandwich 24:11	
		sandwiches 26:3	
		scenario 56:6,18,19 71:15 72:8,19	

23:12 25:23 39:25 42:17
44:17,18,19 46:25 50:23
52:10 61:16,19 62:23 66:5,
8

shown 33:8 34:11 35:2
45:21 62:5,8 66:21

shows 45:6,13

sic 8:23

side 37:8 46:20 50:2

sign 74:9

signed 10:3

signing 74:8

simply 66:22

single 59:25 60:4,6,9,12,
15 63:5 64:6

singular 31:10

sites 64:1

skill 57:22

slope 16:15 22:6 24:7

sloped 14:1 15:15,17
16:2,5 22:18,22 23:5 35:10

slopes 15:12,18,19
16:12,22 24:6

sloping 13:23 16:16
17:15,16

slow 23:18 34:2,7

solid 17:9

soothing 62:12

sort 13:14,23 15:11,18
38:11 47:2

Sounds 73:8

source 38:16 70:5

sourced 38:21

speaking 34:2

specific 44:14 51:8
54:24 55:1,8 59:8 62:14

specifically 41:24 43:4
44:16 45:8 47:17 51:4

specification 14:23

speculate 14:21 22:2,5,
14,25 23:14,23 25:16 26:6

27:10 28:13 33:13,16

speculating 14:11
23:10 27:7,16 30:15

speculation 24:22
27:24

speculative 33:21

spend 27:9 34:18

SRE 25:2

SRV 72:12

SRV-AP 12:2 65:4

SRV-AP 10:22 19:9,12,
24 50:16 66:24

stand 56:3

standard 57:1

start 6:10 10:15 13:6
18:25 39:21 40:15

starting 19:4 64:2

starts 6:12 10:12 53:1

state 4:10,15 60:22

stated 4:14 62:22

states 39:6 66:21

stepped 51:2

steps 45:19,23

stipulate 4:11

stop 33:13

straight 29:11

stuff 8:7

submitted 7:1,19

Substance 10:12

successive 67:17

suggesting 67:23

summary 40:2

supplemental 7:1,7,18
9:21 10:3,6,17 11:3 32:22
33:1 35:3 45:12

switched 58:3

sworn 4:21

T

takes 57:4

talk 17:24 28:18 34:4,10
38:25 41:14 42:9 53:9

talked 69:11

talking 9:1,4 18:11 22:9
24:9 26:20,21,25 27:14
28:17 31:10 34:17 38:7
40:6 41:12,23 42:19,22,23
43:8,9 45:2 48:14 49:4
52:20,24 57:14 58:12 61:2
64:14

talks 40:9

teach 14:24 15:1

Technologies 5:3,18

tells 59:5

terminal 52:15

terminate 52:15,19

terms 38:10,12 39:14
53:8

testified 4:23

thing 24:17 26:14 27:4
41:20 43:16 55:18 68:12
70:3

things 5:25 7:8 12:16
19:23 25:22 43:7,11 52:17
72:23

thought 24:14

time 5:16 66:3,11 73:12
74:13

told 18:8

tomorrow 74:1

tool 8:6

top 15:9,13,17 16:1,7
17:15 22:12,20,23 28:6

topology 45:6

track 6:5

traffic 49:9,11,25 50:7,8
64:7,9

transcript 73:21

transfer 49:5

transit 19:15 31:6,14
36:13,24 57:9

transmitting 38:3 49:9

traveling 72:8

traverse 53:15 54:4
57:17

traverses 53:13

traversing 54:8 68:23

truth 4:22,23

TUN 67:25

tunnel 10:20 11:9 12:1,5,
7 13:5,8 14:17 15:3,4,5
17:20 18:5,9,13 19:9,14
20:4,18,21 21:5,7,14,20,
22,25 22:13 23:2,15,16
24:18,21,24 25:1,5,10,11,
16,18,21 26:7,13,15,18,21,
22 27:1,5,14,17,19,20,22
28:13,15,18,19,20,21 29:7,
11,12,14,15,16,18,19,21,
25 30:3,6,8,9,19,20,23
31:5,9,10,18,20,25 32:1,2,
4,5,9,10,12,13,17,20,23,25
33:3,4,5,9,13,21,23 34:17,
24 35:2,13,22 36:8,9,10,
11,12,23 37:4,20 38:3 39:7
40:1 43:5,14,18,25 44:16
45:8,21,24 47:18,25 48:7,
14,21,23 49:1,10,13,23,24
50:5,7,9,11 51:4,16 52:12,
14,16,24,25 53:1,2,3,4,15,
24 54:3,4,6,17 55:15,24,25
56:1,11,18 57:15,16,18,19,
20,21 58:10,15,17,22 59:6
60:1,4,6,9,12,15 61:14,20
62:16 63:16 64:7,10 66:2,
15,22 67:13,18,23,24,25
68:4,8,9,10,13,15,19,25
69:1,5,14,16,21,24 70:2,24
71:1,4,17,21,22,25 72:9,
14,20,22 73:2

tunnel(s) 19:11

tunneled 50:7,8

tunnelling 11:15

tunnels 11:23 12:3,18
13:4 18:8,23 19:21 21:2
23:6,24 24:19 25:22 27:23
31:23 39:10,13,19 41:14

42:20 44:4,6,23,25 45:1,3,
4,6,14 47:12,17 50:14,15,
16,21 51:22,23 52:9,11,23
53:5,10,14,21 54:5 55:13,
15 56:13,21 57:12 58:21
59:25 60:6,25 62:2,22
63:7,13 64:1,4,6,8,9,19
65:5,8,11,23,24 66:9,14,
18,23 67:14,17 68:3,7,18
69:6,22 70:1,12,15,18,22
71:4,20 73:4

tunnels/tunnel 10:21

turn 36:3 59:17

turning 39:21

type 48:6

U

UMBRA 5:3,18

underneath 13:13,22
32:22

understand 14:24
19:21 26:1 28:17 44:15
56:4 67:20

understanding 12:4
14:19 17:20 18:20,22
27:21 37:19,22 38:1 60:2,
10

understood 54:11,13

unquote 51:16

uploading 8:7

upward 16:12,16

utility 43:17

V

variation 19:11,13 25:4
26:17 31:5

versus 53:14 68:25

view 46:19,20 60:17

viewed 59:25 60:3,7

viewpoint 47:3

virtual 41:11 61:18

W

walk 9:14

wanted 14:14 22:15
68:11 74:8

wanting 12:9

ways 57:23 58:8 59:2,7
70:9

white 12:25 13:3

word 36:25 37:5 51:21,24
52:3 63:19,23

words 12:6 13:10 18:2
33:11,14 46:23

work 56:21

working 41:20

written 27:12

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