

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,

Petitioner,

vs.

Case IPR2023-00447

U.S. Patent No. 9,118,602

CORRIGENT CORPORATION,

Patent Owner.

REMOTE ZOOM DEPOSITION OF
GEORGE N. ROUSKAS, PH.D.

DATE: February 1, 2024

TIME: 9:00 a.m. CT

PLACE: Videoconference

REPORTED BY: NANCY G. GISCH, RMR, CRR, CLR, CRC

(Via videoconference)

Page 2 1 The videoconference deposition via 2 Zoom of GEORGE N. ROUSKAS, PH.D., taken on 3 February 1, 2024, commencing at approximately 4 9:00 a.m. CT, before Nancy G. Gisch, Registered 5 Merit Reporter, Certified Realtime Reporter, 6 Certified LiveNote Reporter, Certified Realtime 7 Captioner, a notary public in and for the State 8 of Wisconsin. 9 10 A P P E A R A N C E S 11 (All appearances via videoconference) 12 13 On Behalf of the Petitioner: 14 JEFFREY BLAKE, ESQ. 15 jblake@merchantgould.com 16 Merchant & Gould PC 17 191 Peachtree Street Northeast 18 Suite 3800 19 Atlanta, Georgia 30303 20 404-954-5040 21 jblake@merchantgould.com 22 23 24 (Appearances continued on next page.) 25	Page 4 1 I N D E X 2 WITNESS: GEORGE N. ROUSKAS, PH.D. PAGE 3 4 EXAMINATION BY MR. BLAKE..... 5 5 6 EXHIBITS MARKED AND REFERRED TO: 7 EXHIBIT 1..... 7 8 Notice of Deposition of 9 George N. Rouskas, Ph.D. 10 EXHIBIT 2..... 8 11 Declaration of George N. Rouskas, Ph.D. 12 Cisco v. Corrigent - IPR2023-00447 13 Patent Owner Corrigent Exhibit 2007-0001 14 through 15 Patent Owner Corrigent Exhibit 2007-0138 16 EXHIBIT 3..... 20 17 Patent No.: US 7,466,697 B1 18 EXHIBIT 4..... 77 19 Request For Comments: 3031 20 21 22 (Original exhibits attached to original 23 transcript; copies to counsel.) 24 25
Page 3 1 On Behalf of the Patent Owner: 2 BENJAMIN HOLT, ESQ. 3 bholt@steptoe.com 4 KATHERINE CAPPAERT, ESQ. 5 kcappaert@steptoe.com 6 Steptoe 7 1330 Connecticut Avenue Northwest 8 Washington, DC 20036 9 312-577-1260 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Page 5 1 P R O C E E D I N G S 2 COURT REPORTER: Will all counsel 3 please stipulate to the swearing in of the 4 witness remotely. 5 MR. BLAKE: Agreed. 6 MR. HOLT: Yes, agreed. 7 GEORGE N. ROUSKAS, PH.D., 8 duly sworn, was examined and testified as follows: 9 (Discussion held off the record.) 10 MR. BLAKE: Do we need to do 11 introduction of counsel? 12 COURT REPORTER: If you would like. 13 MR. BLAKE: Okay. Well, my name is 14 Jeff Blake. I'm from the law firm of Merchant & 15 Gould. And I'm here on behalf of Petitioner 16 Cisco Systems, Inc. 17 MR. HOLT: This is Benjamin Holt of 18 Steptoe LLP, on behalf of Patent Holder Corrigent 19 Corporation. 20 Also joined today by colleague Kate 21 Cappaert, also of Steptoe. 22 EXAMINATION 23 BY MR. BLAKE: 24 Q. Good morning, Dr. Rouskas. 25 My name is --

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Page 6 1 A. Hi. 2 Q. -- Jeff Blake. And I'll be the attorney 3 asking you questions this morning. 4 A. Good morning. 5 Q. Have you been deposed before? 6 A. I have. 7 Q. How many times? 8 A. Between 12 and 15 times. 9 Q. So you're familiar with the process, but 10 just to go over a few of the ground rules this 11 morning. 12 I will ask you some questions and then 13 give you an opportunity to answer those 14 questions. 15 And I'll ask, since we're on video, that 16 if you give me an opportunity to complete my 17 question -- and I will try to give you a 18 opportunity to complete your answer, so we don't 19 speak over the top of each other. 20 Is that fair? 21 A. Absolutely. 22 Q. And when I ask you a -- a question this 23 morning, I will assume that you understand the 24 question unless you ask me to clarify. 25 Is that fair?	Page 8 1 proceeding relating to United States Patent 2 No. 9,118,602? 3 A. Yes. 4 Q. Okay. And are you prepared to provide 5 your testimony relating to the '602 patent IPR? 6 A. I am. 7 Q. Okay. Is it okay, for purposes of the 8 deposition, when I say '602 patent, that you -- 9 you understand I mean US Patent No. 9,118,602? 10 A. Yes. 11 Q. Okay. Is there any reason today that you 12 cannot provide truthful and accurate testimony 13 relating to the '602 patent? 14 A. No. 15 Q. Okay. I want to introduce another 16 exhibit. 17 (Deposition Exhibit No. 2 introduced.) 18 Q. (By Mr. Blake, continuing) Let me know 19 when you see it on your screen. 20 A. Yes, I have it on my screen. 21 Q. Exhibit No. 2 is entitled "Declaration of 22 George N. Rouskas, Ph.D." And it has been 23 submitted in IPR 2023-00447. 24 So it's a fairly long document, but I'd 25 ask you to take a moment and let me know if you
Page 7 1 A. Yes. 2 Q. Okay. And we'll go this morning for 3 approximately an hour at a time and then take a 4 break in your deposition. 5 But if at any time you need a break at 6 the -- in the deposition, feel free to ask me for 7 it. 8 I will just ask that before we break at 9 any point and go off the record, that you answer 10 any pending questions. 11 Is that fair? 12 A. Yes. 13 Q. Okay. I want to start by introducing an 14 exhibit in the Exhibit Share program. And ask 15 you to let me know when you have that exhibit on 16 your screen. 17 (Deposition Exhibit No. 1 introduced.) 18 A. (Continuing) I -- yes, I have that. 19 Q. Exhibit 1 to the deposition is entitled 20 "Notice of Deposition of George N. Rouskas, Ph.D." 21 Have you seen this document before? 22 A. This particular one, no. 23 Q. Okay. Do you understand that you are 24 appearing here today to provide testimony on 25 behalf of Corrigent Corporation in an IPR	Page 9 1 recognize this document. 2 A. Yeah, I'm looking at the table of contents 3 and some -- yes, this is my declaration in this 4 IPR. 5 Q. And was this declaration prepared by you? 6 A. So it -- I -- I -- the opinions in the 7 declarations are my opinions. I collaborated 8 with counsel to, you know, prepare the 9 declaration. 10 Q. Who prepared the first draft of the 11 declaration? 12 A. So the way that worked is that counsel 13 provided me with the material for this case that 14 included the '602 patents, prior arts, the 15 petition change -- 16 COURT REPORTER: Pardon me. Pardon 17 me. Pardon me. Pardon me. Pardon me. Pardon 18 me. Pardon me. 19 THE WITNESS: I'm sorry? 20 COURT REPORTER: Sometimes when I 21 can't understand, I'll interrupt and ask for a 22 repeat. 23 You said, "the '602" -- 24 THE WITNESS: Okay. 25 COURT REPORTER: -- "patent, prior

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Page 10 1 arts, the petition." 2 And I couldn't catch what came after 3 "petition." 4 A. (Continuing) And so I -- I reviewed the 5 petition and the -- you know, the material that 6 was provided to me. And I prepared a set of 7 arguments. And so we discussed with counsel. 8 And after that it was a -- an iterative 9 process, you know, to -- to put together the 10 declaration. 11 Q. Do you have any changes to the declaration 12 that you would like to make? 13 A. At this time, no. 14 Q. Do you have any additional opinions that 15 you would seek to offer at this time, beyond 16 what's in your declaration? 17 A. Not -- I mean, not that I can think of at 18 this point. 19 Q. In Exhibit 2, if we scroll down to around 20 page 101, there's an Appendix A. 21 If you'll let me know when you get there. 22 A. Yes. I'm here. 23 Q. Can you tell me what is located in 24 Appendix A to your declaration. 25 A. Yes. That's a long version of my CV.	Page 12 1 Q. When you got your Ph.D. from Georgia Tech, 2 did you go into work in an academic setting? 3 A. Yes. I received my Ph.D. in June. And I 4 joined North Carolina State University as a 5 assistant professor in July of '94. 6 Q. Since July of 1994 have you been 7 continuously employed by North Carolina State 8 University as a professor? 9 A. Yes, with one exception that is noted on 10 that first page of my CV, between August 2000 and 11 May 2001, when I was on sabbatical from NC State. 12 Q. Okay. And when you were on sabbatical 13 from NC State, between August 2000 and May 2001, 14 you worked as a network architect at Vitesse 15 Semiconductor. 16 Is that correct? 17 A. That is correct. 18 Q. What type of work were you doing at 19 Vitesse Semiconductor? 20 A. So Vitesse Semiconductor at that time had 21 acquired a local start-up, which was developing 22 a -- what was then a state of the -- the arts 23 2.5 gigabit-per-second network processor for ATM 24 networks. 25 Q. Okay.
Page 11 1 Q. Okay. And does -- is this CV, to your 2 knowledge, accurate at the time that you attached 3 it to your declaration? 4 A. Yes. 5 Q. Looking at the first page of your CV, in 6 Appendix A of Exhibit 2. I see that you obtained 7 a BS from the National Institute -- National 8 Technical University of Athens, in computer 9 engineering in 1989. 10 Is that correct? 11 A. That is correct. 12 Q. And then you received an MS from Georgia 13 Tech in 1991, in computer science. 14 Is that correct? 15 A. Yes. 16 Q. And you received a Ph.D. in 1994 from the 17 George Institute of Technology in Computer 18 Science. 19 Is that correct? 20 A. Yes. 21 Q. Since that time have you had any 22 additional formal education relating to computer 23 engineering or computer science? 24 A. Formal education? 25 No.	Page 13 1 A. And so my responsibility was to work on 2 the architecture of the, you know, network 3 processor as it related to quality of service. 4 Q. Okay. I want to come back to your work at 5 Vitesse Semiconductor in just a moment. 6 But other than Vitesse Semiconductor, have 7 you had held any additional jobs where you worked 8 in industry, as opposed to an academic setting? 9 A. No. 10 Q. Okay. Prior to this IPR proceeding, had 11 you heard the term "link aggregation group"? 12 A. Yes. 13 Q. Is it commonly known by the acronym LAG? 14 A. It is. 15 Q. Okay. What do you understand a link 16 aggregation group, or LAG, to mean? 17 MR. HOLT: Objection; form. 18 A. (Continuing) A link aggregation group is 19 technology that allows a number of physical links 20 between nodes to be treated as a single logical 21 entity. 22 Q. When you were doing your work at Vitesse 23 Semiconductor, on the architecture of network 24 processors, were you making use of LAG 25 technology?

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Page 14 1 A. Not at this time. You know, my work as 2 part of Vitesse Semiconductor was the switch 3 architecture inside the switch. So I was not 4 involved with, you know, the physical parts or -- 5 or the links that connected the switch to the 6 network. Was -- my work was inside the switch. 7 Q. At any point in time in your career have 8 you worked on the implementation of LAG 9 technology in a computer product? 10 A. I have not. 11 Q. Have you at any point in time written any 12 scholarly literature on the implementation of LAG 13 technology? 14 A. I -- no. 15 Q. At any point in time in your career have 16 you given presentations at a conference on the 17 implementation of LAG technology? 18 A. The implementation itself, no. 19 Q. Have you given any conference talks 20 that -- where the subject matter was LAG 21 technology? 22 A. I have given a -- a -- presentations as 23 part of my research where, you know, a 24 visualization of optical networks that includes, 25 you know, the -- the type of concepts that are --	Page 16 1 COURT REPORTER: Pardon me. Pardon 2 me. Pardon me. Pardon me. 3 THE WITNESS: Okay. 4 COURT REPORTER: Having a little 5 trouble. 6 "So if you look at some of the papers that 7 have to do with, you know, hierarchical -- 8 hierarchical"...? 9 And then please repeat. 10 THE WITNESS: Hierarchical traffic 11 grooming. 12 COURT REPORTER: Thank you. 13 A. (Continuing) These aren't the ones. So 14 let me -- let me point -- no. Search for that. 15 So, for instance, Number 67. So under the 16 "Journal Articles," Number 67, on page 9. 17 Number 52 on page 10. 18 Number 48, also on page 10. 19 These are the major ones. There's other 20 papers that have to do with traffic grooming -- 21 that are some of them, but I think these are the 22 ones that are most relevant. 23 Q. Other than this theoretical work on using 24 aggregating and optical network technology, have 25 you done any additional scholarly research on
Page 15 1 are related to LAG; in other words, multiple 2 links connecting, let's say, ROADM -- 3 COURT REPORTER: Pardon me. Pardon 4 me. Pardon me. Pardon me. 5 "Related to lag; in other words, multiple 6 links connecting, let's say"...? 7 And please repeat. 8 A. (Continuing) R -- ROADM, R-O-A-D-M. And 9 these are -- this is a reconfigurum -- 10 reconfigurable optical add-drop multiplexers. 11 Q. And do these reconfigurable multiplexers 12 implement LAG technology? 13 A. So in -- my work was more of a theoretical 14 nature in terms of how you can use these types of 15 aggregated links to, you know -- to improve the 16 performance of the network. It was not about the 17 specifics of the implementation. 18 Q. Do you have any papers that are in your CV 19 that discuss this theoretical work? 20 A. Yes. I can -- 21 Q. Can you identify them. 22 A. Yes. 23 So if you look at some of the papers that 24 have to do with, you know, hierarchical traffic 25 grooming. These relate to --	Page 17 1 link aggregation? 2 A. So link aggregation, at least, you know, 3 as it is commonly used, which is mostly in the 4 context of -- of, typically, internet link 5 aggregation -- at least in that context. 6 This is a well-known standard that -- it 7 was published more than 20 years ago. I can't 8 remember the exact date, but was certainly more 9 than 20 years ago. 10 And so there's not much scholarly work to 11 be done there. You know, the -- the standard is 12 well known. I think there's multiple 13 implementations of that. 14 So to -- you know, to tell you the truth, 15 I don't know that anyone has done much scholarly 16 work on -- on, you know, implementing that. This 17 is more like a -- a generic issue, but yeah. 18 Q. So it was well known and widely used 19 technology. Is that fair to say? 20 A. Yeah. 21 MR. HOLT: Objection; form. 22 Q. (By Mr. Blake, continuing) If we could 23 look down in your CV, toward the very end. 24 And -- 25 A. Uh-huh.

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Page 18 1 Q. -- in your CV, Appendix A of Exhibit 2. 2 It would be page 32, the technical expert 3 experience section of your declara- -- of your 4 CV. 5 Do you see that? 6 A. Yes. 7 Q. I'd like to talk about some of the IPR 8 proceedings in which you have been involved; 9 specifically, if we would start with Epic versus 10 IngenioShare, which would be the second entry. 11 Do you see that? 12 A. I -- I do. 13 Q. Okay. Can you tell me what the technology 14 was that's involved in that set of IPRs? 15 MR. HOLT: Objection to form. 16 A. (Continuing) Yeah, as -- as -- as 17 described here, it's basically a portal-based 18 communication system. 19 Q. Did you offer any opinions in these IPRs 20 that relate to the link aggregation groups? 21 A. No. 22 Q. Any opinions that relate to MPLS 23 technology that you offered in these IPRs? 24 A. No. 25 Q. Going next to the Microsoft/Apple versus	Page 20 1 me. 2 What was the third one? 3 THE WITNESS: I'm sorry? 4 COURT REPORTER: What was the third 5 one? 6 "Three families of patterns in secure 7 messaging VPN and"...? 8 THE WITNESS: Secure mobility 9 protocols. 10 COURT REPORTER: Thank you. 11 Q. (By Mr. Blake, continuing) Were there any 12 opinions that you offered in these IPRs relating 13 to MPLS technology? 14 A. No. 15 Q. Any opinions relating to the use of linked 16 aggregation that you provided in these IPRs? 17 A. No. 18 Q. Dr. Rouskas, I've marked as Exhibit 3 to 19 your declaration a copy of United States Patent 20 No. 7,466,697. 21 Ask you to take a look at it and tell me 22 if you realize -- recognize it. 23 (Deposition Exhibit No. 3 introduced.) 24 A. (Continuing) Yes, I -- I recognize it. 25 Q. Is this a copy of the patent that's been
Page 19 1 Zipit IPRs that are shown on page 32 of your CV, 2 which is Appendix A in Exhibit 2. 3 Could you tell me, what was the technology 4 involved in these Microsoft versus Zipit IPRs. 5 MR. HOLT: Object to form. 6 A. (Continuing) That was the technology 7 related to instant messaging communications. 8 Q. Okay. Any opinions that you offered in 9 these IPRs relating to MPLS technology? 10 A. No. 11 Q. I think I know about the Verizon/Huawei 12 ones. 13 The IPRs at the bottom of page 32, top of 14 page 33, in the Apple versus MPH Technologies. 15 What was the subject matter there? 16 A. There were a few different IPRs so -- that 17 involved three different families of patents. 18 One family, I think, was related to 19 secure -- or two families were related to secure 20 messaging. 21 So I -- I think I say two families. I 22 think there were three families of patterns in 23 secure messaging VPN and secure mobility 24 protocols. So, you know, this was the -- 25 COURT REPORTER: Pardon me. Pardon	Page 21 1 referred to by the parties and yourself in your 2 declaration as the Raz reference? 3 A. It is. 4 Q. Is it okay, for purposes of this 5 deposition, if I refer to the '697 patent that's 6 Exhibit 3 as Raz? 7 A. Yes, that will be fine. 8 Q. Okay. In the Raz reference, I'd like to 9 go to column 1 of the patent. 10 A. I am there. 11 Q. And I'd like to look at the portion of 12 column 1 of Raz that's in lines 40 to 51, if 13 you'll take a moment to review those. 14 A. 40 to 51, you said? 15 Q. Correct. 16 A. Okay. 17 Q. Column 1, lines 40 to 51. 18 A. Yes. 19 Q. Starting in column 1, line 40 of Raz. 20 There's a sentence that reads, "There is 21 an ever-increasing demand by users for more and 22 more bandwidth." 23 You see that sentence? 24 A. Yes. 25 Q. As of the time of the Raz patent, do you

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Page 22 1 agree that that sentence was true? 2 A. I believe so, yes. 3 Q. Okay. And you agree that there was an 4 ever-increasing demand for more and more 5 bandwidth by users as of 2002? 6 A. I believe so. 7 Q. Okay. The next sentence of Raz reads, "In 8 an attempt to meet this demand, carriers and 9 network operators are installing larger capacity 10 links capable of handling large and larger 11 amounts of traffic." 12 Do you see that? 13 A. I do. 14 Q. Do you agree that as of 2002 carriers were 15 always looking for more ways to meet increasing 16 demand? 17 A. So in 2002 -- that's an interesting point 18 here, because 2002, as -- as you may know, it was 19 after the burst of the internet bubble. It was 20 just after that. 21 And so, you know, it appears that this 22 must have been written a bit earlier from that. 23 So I think at the -- at that point, you 24 know, many capacity links had already been 25 installed already.	Page 24 1 bandwidth? 2 MR. HOLT: Objection; form. 3 A. (Continuing) So I would not say that this 4 statement is -- is true. 5 Typically, what happens is that if you 6 want to increase, you know -- to -- to -- to 7 serve -- you know, more and more traffic, what 8 you want to do is increase the capacity of the 9 fiber links. 10 And so, you know, for instance, you know, 11 if you look at, you know, the evolution of 12 ethernet standards or -- or optical transport 13 network standards, you can see that, you know, we 14 moved from, you know, 10-megabit links to a 15 hundred megabit to 1 gigabit, 10 gigabits, 16 40 gigabits, a hundred gigabits. 17 Now there's a race to go to a -- terabit 18 space if you have not -- I mean, I think in the 19 lab they are probably already there. 20 The, you know, link aggregation is -- you 21 know, can help. But the problem with link 22 aggregation is that you will have to have the -- 23 the capa- -- the capability for the switches to 24 transmit or receive on -- on multiple links. And 25 multiple, you know, lower-speed links.
Page 23 1 And, in fact, what happened is the prices 2 of -- of, you know, high-capacity fiber links had 3 decreased by such a huge amount that I believe 4 Google went in and, you know, created their own 5 network out of nothing, paying pennies to the 6 dollars. 7 So in 2002 I don't believe that this was 8 true because of the bubble that had happened, you 9 know, the -- the few years earlier than that. 10 Q. Prior to 2002 had networks -- or excuse 11 me -- carriers been looking for ways to increase 12 bandwidth to meet increasing demand? 13 A. Yeah. 14 So certainly in the late '90s, you know, I 15 was -- you know, I lived through that era. 16 And so certainly the late '90s, you know, 17 carriers installed huge capacity of optical fiber 18 at that point. 19 By 2002 that had, you know -- that was not 20 continuing at that time. It was basically, kind 21 of, a down market for -- for these technologies. 22 Q. If -- if -- in 2002, if a person were 23 looking to increase bandwidth in order to meet 24 demand, would the use of a LAG between links have 25 been one of the ways to increase usable	Page 25 1 COURT REPORTER: Pardon me. 2 Multiple -- what was that? 3 THE WITNESS: Lower-speed links. 4 COURT REPORTER: Lower speed? 5 Thank you. 6 THE WITNESS: Yes. 7 A. (Continuing) So, in my mind, it would be 8 of lower priority to use LAGs in situations where 9 that is possible. 10 And, you know, the first priority would be 11 to just increase the -- the speed links -- I'm so 12 sorry -- the -- the link speeds. 13 Q. Okay. So the first priority, you say, 14 would have been to increase link speeds if you 15 wanted to handle increased bandwidth between 16 links. 17 In 2002 what was the capacity of optical 18 fiber for link speed? 19 MR. HOLT: Objection; form. 20 A. (Continuing) So the -- I don't know 21 exactly when the transition happened between 2.5 22 and 10 gigabits per second, but it was probably, 23 you know, the -- the link speed at that time 24 was -- was at, you know, at that level. 25 Q. And you would acknowledge that at that

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Page 26 1 point in time, there was a physical limit to the 2 gigabit speed of optical fiber. 3 Correct? 4 MR. HOLT: Objection to form. 5 A. (Continuing) I'm -- I'm not sure I 6 understand what you mean. 7 Q. Yeah. Well, there was a -- a maximum -- 8 whether it's 2.5 gigabits or 10 gigabits per 9 second, there was a maximum speed that could be 10 achieved using optical networks at that time. 11 Correct? 12 MR. HOLT: Objection; form. 13 A. (Continuing) Well, so there's -- I -- I -- 14 it -- it -- so it's not -- I -- I don't know that 15 there's a limit. Okay. Because as modulation 16 techniques improve, the capac- -- or the -- the 17 speed rates can -- can go up. 18 I think -- so yes. 19 I mean, I don't know that there was a -- a 20 limit at the time in -- in that sense. You know, 21 there's always the research into new and better 22 modulation techniques that -- that can -- that -- 23 that improve the -- the -- the speeds, the rates. 24 Q. But you would acknowledge that as of 2002, 25 there was a -- a capacity of link speed that had	Page 28 1 bandwidth between label switch routers? 2 MR. HOLT: Objection; form. 3 A. (Continuing) A -- again, you know, if you 4 already, let's say, had the 10Gig link, then it 5 will not make sense to replace that with a LAG 6 of, let's say, four 2.5Gig links. 7 If you -- if you had routers that had four 8 2.5Gig ports, it was technically possible to 9 aggregate those into a LAG. 10 Q. If I wanted to achieve higher than 11 10 gigabits per second in 2002, could I have used 12 a -- a LAG technology to achieve a capacity of 13 higher than 10 gigabits per second at that time? 14 A. It -- at that time it would be possible 15 to, let's say, aggregate 10 -- sorry -- four 16 10Gig links to create a 40Gig link. 17 Q. If we look back to Exhibit 3, the Raz 18 reference. 19 A. Uh-huh. 20 Q. And look at line -- column 1, line 44. 21 A. Okay. 22 Q. That includes a sentence that actually 23 starts on line 43, that reads, "A problem 24 arise-" -- "arises, however, when the aggregate 25 link speeds exceed the capacity of the internal
Page 27 1 been implemented in devices as of that time, 2 whether it's 2.5 gigabits per second or 3 10 giga -- gigabits per second -- 4 COURT REPORTER: Pardon me. Pardon 5 me. Jeff? Jeff? Pardon me. 6 I need you to slow down a little bit. 7 "Link speed that had been implemented had 8 been implemented in devices as of" -- 9 MR. BLAKE: In devices as of that 10 time. 11 MR. HOLT: Objection; form. 12 A. (Continuing) So, as -- as I said, in terms 13 of what was, perhaps, commercially available at 14 the time, as I said, it was somewhere between, 15 you know, either 2.5 or 10 gigabits, but I -- I 16 don't know the exact. 17 But right, yes. So either 2.5 or 18 10 gigabits were, kind of, the commercially 19 available speeds at the time. 20 Q. And I understand your opinion that it 21 would have been a lower priority, but to use LAG 22 to increase the usable bandwidth between, say, 23 label switch routers in 2002. 24 But was it technically possible in 2002 to 25 implement a LAG in order to increase the usable	Page 29 1 circuits used to process the inbound and outbound 2 packet streams." 3 Do you see that sentence? 4 A. Yes. 5 Q. In that sentence, what do you understand 6 the phrase "aggregate link speeds" to mean? 7 A. So if you combine this with the -- the 8 previous sentence that you read -- okay? -- which 9 says that carriers and network operators are 10 installing larger-capacity links capable of 11 handling larger and larger amounts of traffic, 12 this second sentence basically just refers to the 13 capacity to these large-capacity links. 14 So when you have a large-capacity link, 15 that's -- it's a -- speeds -- aggregate speed. 16 And by "aggregate," in this case, what I 17 understand is the, you know -- when you load 18 the -- the speeds to -- to capacity. So the link 19 speed is higher than the capability of the 20 internal processors to process the traffic. 21 And so, you know, to your question about 22 aggregates, you know, in this case, you know, you 23 may have a 10-gigabits link, but you only fill it 24 to 40 percent. Or you may fill it up to 25 100 percent.

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Page 30 1 Right? 2 And so, you know, my understanding of -- 3 of this is that when it says "aggregate link 4 speeds," it refers to the speed of a -- of a 5 single large-capacity link. 6 Q. Well, first of all, are we talking 7 about -- we're -- when it says "link speeds," we 8 understand you're talk -- it's talking about a 9 link between two devices, such as between two 10 routers. 11 Is that fair to say? 12 A. That is correct, yes. 13 Q. And does the use of the adjective 14 "aggregate" before the term "link speeds" connote 15 to a person who is skilled in the art that you 16 might be talking about a link aggregation group 17 between the two routers? 18 A. So my reading of Raz, as a whole -- right? 19 So because I -- the term "aggregates" can 20 have multiple meanings and different meanings in 21 different circumstances and networks in our use. 22 So if, you know, I -- I've read Raz -- 23 I've reviewed Raz, you know, very carefully over 24 multiple hours. 25 And, you know, to a person skilled in the	Page 32 1 Why introduce the adjective "aggregate"? 2 MR. HOLT: Objection; form. 3 A. (Continuing) So, you know, when... 4 It -- so it -- when he says "aggregate 5 link speeds" -- okay. 6 So, you know, first of all, when he talks 7 about link speeds, in general, it doesn't 8 necessarily mean that, you know, there are 9 multiple links there. 10 Right? 11 It talks about the link speeds in the 12 general is -- so, I mean, again, you know, he -- 13 he's using the term "aggregate" there. And -- 14 and I'll -- you know, I agree that that's -- word 15 appears. 16 It's just that, you know, my opinion is 17 that, you know, "link aggregation group" has a 18 very specific meaning. 19 And just because, you know, there's a 20 term -- there's a sentence that includes the 21 words "aggregate" and "link," does not mean that 22 that refers to a link aggregation group. 23 So it's -- it just does not make sense, to 24 someone skilled in the art, to just use 25 "aggregate link speeds" as, you know, a reference
Page 31 1 arts who reads Raz, there is absolutely no 2 indication that when Raz uses the term 3 "aggregates," it -- it refers to a link 4 aggregation group. 5 And, for instance, here there is no 6 mention of link aggregation group. 7 If you look at the table that Raz has with 8 the acronyms, "LAG" does not appear there. 9 So it -- you know, if -- when I'm reading 10 this, within the context of Raz, and within the 11 context of the sentences before and after that 12 particular one, there is absolutely no indication 13 that when Raz talks about aggregate link 14 speeds -- actually refers to a LAG. 15 And there's a -- an -- you know, all the 16 embodiments of -- of Raz, when they talk about 17 the 10GigE interface, they -- they refer to, you 18 know, the single interface that is 10Gig. 19 So I don't see how Raz would use the term 20 "aggregate" in this sentence to mean a LAG. 21 Q. Well, if it didn't mean a LAG, why 22 didn't Raz -- why wouldn't Raz just use the 23 phrase "link speed"? 24 If it -- if you think it talks about just 25 a single link, why not just use "link speed"?	Page 33 1 to a link aggregation group. 2 You know, my point would be that if Raz 3 wanted to say "link aggregation groups," then he 4 could have said that, because, certainly, he 5 talks about, you know -- he has a reference to a 6 link aggregation group later. And he's talking 7 about Layer 2 LAGs that he proposes to use as 8 part of one embodiment. 9 So, certainly, Raz was well aware of a 10 LAG. And whenever he wanted to say or refer to a 11 LAG, he explicitly referred to a LAG. 12 So, I mean, that can go to that particular 13 embodiment so that we see -- so -- okay. So if 14 you go to -- to column 9 -- right? -- starting at 15 line 9 of column 9. 16 It says, "For example, some commercially 17 available Layer 2 switches can determine the 18 destination port for a packet destined to a LAG." 19 And then he gives, you know, the 20 definition of, "LAG (Link Aggregation Group)." 21 So when he -- and -- and, by the way, he 22 is using that within the switch. So now he's 23 taking a LAG switch and he's repurposing it to 24 use it for his embodiment inside the switch. 25 So my point, then, is that if Raz was

Page 34 1 aware of LAG and he knew how to repurpose a LAG 2 switch to use inside the -- its -- his invention, 3 then if he wanted to refer to a link aggregation 4 group in column 1, line 44, then he would have 5 done so. 6 Q. Okay. If we could -- so let me first ask 7 about column -- your -- this embodiment you're 8 citing in column 9, which I believe is lines 9 9 through about 15. 10 Is that correct? 11 A. Yes. 12 Q. And there you would agree that Raz uses 13 "link aggregation group" in the manner that is 14 normally understood by a person of ordinary skill 15 in the art. 16 Is that fair? 17 A. Yeah. So in this, you know -- in this 18 passage, Raz uses the term "LAG" in a way that is 19 normally understood in the -- the arts. 20 But if you see the very first line of that 21 passage, he's talking about Layer 2 LAGs. 22 And -- and so it's -- just want to make 23 that distinction, that there's a difference 24 between a Layer 3 LAG and a Layer 2 LAG. And Raz 25 specifically talks about Layer 2 LAGs here.	Page 36 1 The aggregation there is not in that the 2 packets that traveled those links are aggregated. 3 Okay? 4 It's that the links are aggregated so that 5 someone, you know, looking at the network thinks 6 of the links that -- the set of links as a 7 logical -- a single logical entity. It's not a 8 physical -- physical single entity, but it's 9 logically a single entity. 10 So the aggregation there goes to that 11 logical concept of treating that collection of 12 links or physical links as a logical -- a single 13 logical entity. 14 Now, that's the first distinction. 15 The second distinction here is, of course, 16 that LAG -- I mean -- sorry -- Raz talks about 17 how to do subports. 18 And a subport is not a link. It's a 19 processor, you know, of the -- Raz defines a 20 subport as a processor, not a link. 21 And, actually, there's a third 22 distinction, which is the important one, I guess, 23 because the links are -- are, you know, physical 24 links between switches. It's a -- a -- combined 25 into a single high-speed packet stream and
Page 35 1 Q. Okay. If we could go back to the abstract 2 on the first page of Exhibit 3, which is Raz. 3 I'd like to ask a question there. 4 A. Uh-huh. 5 Q. About halfway down the abstract there's a 6 sentence that reads, "The output of all the 7 subports is aggregated and combined into a single 8 high-speed packet stream and transmitted over the 9 link." 10 Do you see that sentence? 11 A. I do. 12 Q. So here Raz is use -- using "aggregated" 13 to mean that there are outputs from multiple 14 subports that are added together. 15 Is that correct? 16 A. So, again -- and I have addressed this in 17 my declarations -- that the -- the -- Raz uses 18 the term "aggregated" here to mean "multiplexed." 19 It's -- so there -- there -- so there are 20 two -- two important things here. 21 One is that, again, the word "aggregated" 22 in the term "LAG" has a very specific meaning. 23 And the aggregation there -- so that's the 24 difference here. 25 Right?	Page 37 1 transmitted over the link. 2 So the link itself is the high-speed link; 3 that 10Gig link. And that's a single physical 4 high-speed link. It's not a LAG in the -- you 5 know, the common use of the term. 6 Q. But -- but you didn't answer my question, 7 which is, when the term "aggregated" is used in 8 the abstract of Raz, it's referring to taking all 9 of the outputs of the subports separately and 10 then combining them together. 11 Is that correct? 12 A. Right. 13 I -- I -- I think I answered your 14 question. I said that, you know, he's using the 15 term "aggregated," and then, you know combined. 16 So it's -- it's not aggregated as a LAG. 17 It's -- it's aggregation, the sense of -- in the 18 sense of combining. 19 And the better term for this is 20 multiplexing. 21 So taking, you know, the -- the output of 22 all the subports, which are processors, and 23 multiplexes them into a single physical link. 24 Q. Does Raz ever use -- one second. 25 Does Raz use -- other than the abstract in

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Page 38 1 column 1, where we've looked at two uses of the 2 word aggregate, and column 9, where you've looked 3 at link aggregation groups, does Raz otherwise 4 use the term "aggregate" or "aggregating"? 5 A. I -- I -- I can't remember. I mean, I 6 would have to search the -- the patent to do 7 that. 8 Do you want me to do that? 9 Q. No. Let's go to column 6. 10 A. Okay. Uh-huh. 11 Q. And look at lines 36 to 38. 12 A. Okay. 13 Q. And that there reads, "The output of all 14 the subports is aggregated and combined into a 15 single high-speed packet stream and transmitted 16 over the link." 17 Do you see that? 18 A. I see that, yes. 19 Q. Okay. And here is it your opinion that 20 the term "aggregated" is again being used as a 21 proxy for saying that the outputs of the subports 22 are multiplexed together? 23 A. So this sentence is, if not identical, 24 very similar to the one in this abstract. 25 And yes, this -- this, also, you know --	Page 40 1 packet streams to achieve a 10G -- 10G packet 2 stream. 3 Is that fair? 4 MR. HOLT: Objection; form. 5 A. (Continuing) So I don't know how this is 6 done exactly, but -- but I think Raz says that 7 there's a 10G interface that is composed of ten 8 individual 1G packet streams. 9 So this -- yeah, that's -- that's the 10 aggregate speed; you know, the 1Gig times ten 11 would give you the 10Gig. 12 Q. If we go to column 8 of Raz, I'd like to 13 look at lines 25 to 26. 14 A. 25 to 26. 15 Yes. 16 Q. There's a sentence there that reads, "Each 17 of the one GE links make up the subports of the 18 aggregate 10GE link." 19 Do you see that? 20 A. I -- I do. 21 Q. What do you understand "aggregate" to mean 22 in that context? 23 A. Okay. So, again, reading Raz as a 24 whole -- right? -- you can see here that this 25 is -- you know, he's very loose in terms of how
Page 39 1 in fact, it -- you know, it almost exclusively 2 says that they are combined, so -- into a single 3 high-speed packet stream. 4 So yes, it's -- it -- you know, the term 5 "aggregated" here is used to mean a multiplex. 6 Q. Okay. If we go to line 7 -- column 7, 7 lines 8 through 11. 8 A. Yes. 9 Q. It reads -- there are two sentences in 10 this paragraph that read, "The ten subports are 11 provided wherein each is adapted to handle a 1G 12 packet stream. The overall aggregate speed, 13 however, is 10G." 14 Do you see that? 15 A. I see that, yes. 16 Q. What do you understand "aggregate speed" 17 to mean in that situation? 18 A. So if you look at the sentence just above 19 it, it says, they -- you know, "To aid in 20 understanding the invention, the example LSR 21 shown comprises a 10Gig interface that is 22 composed of ten individual 1G packet streams." 23 So the -- the aggregate speed here really 24 refers to the -- the 10Gig interface of the LSR. 25 Q. So it refers to the combination of the 1G	Page 41 1 he uses the various terms that he uses. 2 So there's -- this is a very -- you know, 3 this sentence is a very good example. Okay. 4 So it -- he starts by saying, "Each of the 5 one GE links make up the subports." 6 Okay. 7 Now, as I say in my declaration, there are 8 no links inside a switch piece. And subports are 9 clearly, in Raz's embodiments, inside a switch. 10 So he's using the term "link" here very 11 loosely to refer to subports. 12 And it just happens that, you know, 13 there's 1Gig links and then there's subports that 14 have capacity to process the -- you know, the -- 15 the packet that arrive on gig -- a gig -- 16 gigabits links. 17 And so he is very loosely -- refers to the 18 subports as links. But there are no links inside 19 the switch. And so, you know, the -- there is no 20 link aggregation here. 21 The link aggregation is for, you know, 22 between switches. I mean, that's the whole 23 concept. 24 And, in fact, you know, the -- the '602 25 patent and the 30-some prior art reference give

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Page 42 1 very good definitions of what link aggregation 2 is. 3 So the problem here, then, is that again, 4 he's using -- Raz is using the term "link" to 5 refer to a subport, when a subport is not a link. 6 And he's probably making that for ease of 7 understanding. Okay. I have a 10GigE link. And 8 then I divide into ten and I get ten 1Gig links. 9 But these are not links. These are subports. 10 And so, again, you know, the term 11 "aggregate" here just refers to the fact that you 12 have "links" inside the switch, which is a 13 misnomer. 14 And then these -- total speeds is 10GigE. 15 It's not that they are arranged somehow in 16 the logical entity, which is a LAG. 17 So "aggregate" here, I think, means total. 18 And the link -- referring to subport as a 19 link is -- is a complete misnomer. Probably is 20 doing it for convenience. 21 So -- so to answer your question, 22 "aggregate" here probably means total. 23 Not "probably." That's what a person 24 skilled in the art would understand; that it 25 means total.	Page 44 1 Q. So it's your opinion that Raz states this 2 incorrectly? 3 A. I'm not saying that he's stating this 4 incorrectly, in the sense that Raz is very clear. 5 He gives a -- a definition of a subport as a 6 processor at least twice in the -- in the patent. 7 So it is very clear to someone -- to a 8 person skilled in the arts that the subport is a 9 processor, is not a link. 10 Now, having understood that, then Raz, 11 rather than -- you know, he's probably just 12 using, you know, terms that have to do with the 13 links, you know, between switches, as -- as kind 14 of a subport -- you know, to -- to say, let's 15 say, that subport has a 1Gig -- is a 1GigE link, 16 because it clearly is not. 17 So I think that, you know, reading Raz as 18 a whole, and having a good understanding of what 19 a LAG is, you know, and understanding of the LAG 20 definition, I -- clearly Raz does not intend here 21 to say that the subport is part of a LAG. It is 22 not. 23 A LAG does not exist one -- within the 24 switch. That are no links inside the switch. 25 Subports are processors. They are not
Page 43 1 Q. And is the total of the capacities of the 2 individual subports? 3 A. Okay. Again, this is not technically 4 correct. 5 A subport has a processing capacity. And 6 when we refer to, you know, the switch capacity, 7 for instance, we talked about how many million 8 packets per second they can process. 9 Okay. 10 I think, again, this is kind of the -- you 11 know, Raz making very loose use of the terms. 12 And what -- what he's saying is, Oh, I'm 13 going to direct -- I'm going to take the -- 14 the -- you know, the traffic stream that comes in 15 at the -- the single physical link of 10GigE. 16 I'm going to divide into ten. I'm going to call 17 each of these a link; which is not a link because 18 there is no link inside the switch. 19 I'm going to assign each of these tens to 20 a subport. And now, because one-tenth of ten is 21 one, then I'm going to say that the capacity of 22 the subport is 1Gig. 23 But gigabit per second is -- is not a way 24 to -- you know, to measure the capacity of a -- 25 of a processor inside the switch.	Page 45 1 links. 2 And so, you know, I -- I think anyone 3 skilled in the arts who reads Raz and has a good 4 knowledge of what a LAG is and where it is used, 5 and has carefully read the definition of a 6 subport, can -- will -- will give you the same -- 7 will have the same understanding that I'm 8 explaining here. 9 Q. If we go down to column 8, lines 43 to 45. 10 A. 43 to 45. 11 Okay. 12 Q. Actually, starting on line 41. There's a 13 sentence that reads, "The ten subports are 14 provided wherein each is adapted to handle a 1G 15 packet stream. The overall aggregate speeds, 16 however, is 10G." 17 Do you see that? 18 A. I do. 19 Q. What do you understand "aggregate" to mean 20 in that context? 21 A. Actually, you know, this particular -- 22 that -- you know, this particular passage, you 23 know, confirms what I said before. 24 Right? 25 Because it says that "The ten subports are

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Page 46 1 provided wherein each is adapted to handle." 2 So, clearly, what -- what he's saying is 3 that the subport is a -- is a processor and 4 handles -- does not transmit -- handles a 1Gig 5 packet stream. 6 Right? 7 So, again, that goes back to what I said 8 before, is, I have a single physical link that 9 runs a 10GigE. I divide that by ten. And I give 10 one-tenth of that to each of the subports. And 11 so the total speed is 10Gig. 12 Q. So, again, "aggregate" is referring to the 13 total of the individual ten 1Gig -- that are 14 being handled by the subports? 15 A. Right. And that's because -- 16 MR. HOLT: Objection to form. 17 A. (Continuing) Right. 18 And because, you can see here, 19 "aggregates" is an adjective for "speed." 20 Right? 21 And so the aggregate here talks about the 22 speed. It doesn't refer to the link aggregation, 23 you know, standard or the concept as is well 24 known. 25 It just here says the overall aggregate	Page 48 1 line interface for transmission over said 2 communications link." 3 And so there's a single link that is 4 handled by a -- a -- a line interface, which is 5 also high-speed. 6 And so you take all the packets and you 7 multiplex them to form this high-speed stream 8 that is transmitted on the single link to the 9 next LSR down the line. 10 Q. Okay. Now, then, I'd like to go back to 11 column 1 of Raz, back to lines 43 through 45. 12 A. Uh-huh. 13 Q. Let me know when you're there. 14 A. Yes. 15 Q. Okay. Again, I want to go back to this 16 reference to the term "aggregate link speeds" 17 that's in column 1, lines 43 to 45 of Raz, 18 because now we've looked at seven different 19 instances in which Raz uses "aggregate." And you 20 described it as either multiplexing or totaling 21 numerous -- numerous things into one. 22 Is it your testimony that in all those 23 other instances "aggregate" means either to 24 multiplex or total, but in column 1, when it says 25 "aggregate link speeds," that refers to the link
Page 47 1 speed. The total speed. 2 Q. If we go down to column 16. 3 A. 16. Okay. 4 Q. Line 45 through 47, which is part of 5 Claim 33. 6 A. Uh-huh, 45 to 47. 7 Q. There's part of a limitation that reads, 8 in -- in Claim 33, where it reads, "Each outbound 9 packet assigned to a subport in accordance with 10 the label associated therewith, to aggregate said 11 outbound packets into a high-speed packet 12 stream." 13 Do you see that portion of the limitation? 14 A. I do. 15 Q. What do you understand the term 16 "aggregate" to mean in -- in that context? 17 A. Give me a second to read that limitation. 18 Right. So, again, you know, the -- the -- 19 the -- the verb "aggregate" here really means 20 multiplex. 21 And so I -- you know, the -- the -- the 22 rest of the documentation actually reconfirms 23 this, because it says, "to aggregate said 24 outbound packets into a high-speed packet stream, 25 to forward said high-speed packet stream to said	Page 49 1 speed of only one link? 2 MR. HOLT: Objection; form. 3 A. (Continuing) I -- it is still my testimony 4 that "aggregate link speeds" here does not refer 5 to a -- a link aggregation group the way that it 6 is commonly understood in -- in the -- in the 7 art. 8 Now -- so -- so, for instance, we can say 9 that, you know -- sometimes we can say, oh, the 10 link speeds are higher than what my processor can 11 do. 12 So, you know, just -- you know, it's -- 13 it's a -- it's just -- you know, we could just 14 easily have said that, you know, the -- the -- 15 the speed of the link is higher; and sometimes we 16 use plural -- plural. 17 The aggregate link speeds here, you 18 know -- I can't really say what Raz had in 19 mind -- if he had something very specific in mind 20 when he said that, but, you know, the -- the use 21 of that term is not consistent with the link 22 aggregation group. 23 Even if, you know, "aggregation" means -- 24 you know, "aggregate" here means total, you know, 25 the -- you know, that's still not consistent with

Page 50 1 the link aggregation -- with the link aggregation 2 group. 3 And, you know, another way to think about 4 it is that when you have a link aggregation 5 group, you know, the problem that Raz is trying 6 to solve does not exist, because each -- each 7 line is already separated or terminated 8 differently. Each link's terminated differently 9 than other links. 10 Right? 11 So there's a difference -- interface. 12 And so there's no aggregation in that 13 sense of the link, you know, of the -- you know, 14 there's no aggregation of the link speeds in that 15 sense, because each link is -- is terminated 16 separately. 17 So it is a soft answer. I -- I see the 18 word "aggregate." I see, you know, the plural 19 "speeds" there. 20 It is my opinion that there's -- this just 21 single instance, you know, where Raz -- I think 22 it's a single instance. But this is not 23 consistent with the term "link aggregation group" 24 as it is commonly understood with the art. 25 Q. Looking at the term "aggregate link	Page 52 1 physical link that runs 10GigE. And then you 2 divide that output so it can be handled by the 3 subports or processors inside the switch. 4 So, you know -- and can -- and this is an 5 example -- okay? -- of the previous sentence 6 that -- that you are having me look at. 7 And so it looks to me that when, you 8 know -- written this -- when Raz says "aggregate 9 link speeds," it -- as an example, gives a 10GigE 10 input packet stream, that's -- aggregate link 11 speeds refer to the -- the 10GigE input link. 12 And, actually, now that I'm thinking about 13 it, since, you know, after reading the rest of 14 it, when he's saying "aggregate link speeds," I 15 think what he means is he's again using the term 16 "link speeds" very loosely to refer to the 17 subports inside the switch. 18 And so, since each subports can handle a 19 1Gig stream, then the aggregate -- right? -- is, 20 you know, what they cannot handle individually. 21 So that's -- I think that's not -- so, you 22 know, in that light, I think he's using it 23 consistently with, you know -- his -- you know, 24 the other instances of aggregate. 25 But when he refers to "link speeds" here,
Page 51 1 speeds" in column 1 of Raz, is the adjective 2 "aggregate" used in the same way that the term 3 "aggregate" is used in the other parts of Raz 4 that we just finished reviewing? 5 A. I'm sorry. Could you repeat the question. 6 Q. Sure. 7 In column 1 of Raz is the term "aggregate" 8 being used consistently with how "aggregate" was 9 used in the other parts of Raz? 10 MR. HOLT: Objection; form. 11 A. (Continuing) Again, it's not clear what 12 "aggregates" means here. 13 Right? 14 Because the next sentence says, "consider 15 a 10GE input packet stream." 16 Okay? 17 And it then continues. 18 "Single-chip network processors fast 19 enough to process the input packet stream may not 20 be available and/or are cost prohibitive to use. 21 One solution, therefore, is to split the input 22 packet stream into smaller bandwidth links that 23 can be processed by existing processors." 24 So this part is very consistent to, you 25 know, the -- the Raz invention. You get a single	Page 53 1 just like in the other examples that, you know -- 2 that -- that we went through, a link here is not 3 a -- a -- a -- a physical link between switches. 4 He means the processors inside the switch. And 5 then you aggregate them and you get the 10Gig 6 input link. So I think that's how it works. 7 It's not the -- it's not that "aggregate" 8 is not used consistently. It's that he is using 9 "link speeds" consistently with his other uses to 10 mean subport speeds or subport capacity. 11 Q. If we go up in Raz, to -- 12 THE WITNESS: So may -- so we've been 13 going for about an hour and 15 minutes. So could 14 we take a break, please? 15 MR. BLAKE: Sure, that will be fine. 16 Why don't we take a break. 17 Let's come back -- normally like to keep 18 these breaks short, but let's come back at 11:45. 19 (Recess from 10:28 a.m. to 10:46 a.m.) 20 MR. BLAKE: All right. Are you ready 21 to proceed? 22 THE WITNESS: Yes. 23 MR. BLAKE: All right. I'm ready to 24 go back on the record whenever everyone else is. 25 MR. HOLT: All set.

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Page 54 1 Q. (By Mr. Blake, continuing) Dr. Rouskas, 2 I'd like to resume your testimony by again 3 looking at the Raz reference, which is Exhibit 4 No. 3. 5 A. Okay. 6 Q. And I'd like to go up to look at the 7 figures for a moment. And start by looking at 8 what is Figure No. 3 to Raz. 9 A. Okay. 10 Q. Figure No. 3 addresses three LSRs which 11 are denominated LSR A, LSR B, and LSR C. 12 Is that correct? 13 A. That is correct. 14 Q. Okay. And, as I understand it, it is your 15 testimony that if you look at link 60, between 16 LSR A and LSR B, that Raz discloses that a 17 multiplexed signal is transmitted along that link 18 from LSR A to LSR B. 19 Is that correct? 20 A. Could you point me where in my declaration 21 I say that? 22 Q. Sure. 23 Let's go to -- all right. Let me try to 24 find it. 25 A. Uh-huh.	Page 56 1 Q. That's not what I asked. 2 I asked, looking at this link between 3 LSR A and LSR B. I'm not asking whether you 4 would use a LAG. I'm asking, is it technically 5 possible to implement a LAG between LSR A and 6 LSR B in order to transmit data? 7 A. You mean in general, in the abstract. 8 Q. Yeah. In the abstract, is it possible to 9 do so? 10 MR. HOLT: Objection; form. 11 A. (Continuing) Okay. So outside the context 12 of Raz, if there are two LSRs -- let's say A and 13 B. And assuming that each LSR has, you know, 14 multiple physical interfaces. Then it is 15 certainly feasible to implement a LAG between the 16 two LSRs, generally speaking. 17 Q. Okay. Was it -- would a POSA have known, 18 in 2002, that you could have implemented a LAG 19 between the LSRs, as they're shown here in 20 Figure 3 of Raz? 21 MR. HOLT: Objection; form. 22 A. (Continuing) Again, as shown here in Raz, 23 a -- a person of skills in the art -- a person of 24 skills in the art would understand that it -- it 25 would not make sense.
Page 55 1 Q. So, in particular, I'll point you -- you 2 can look at paragraph 62 of your declaration. 3 A. All right. Let me just review that. 4 Q. Sure. 5 A. Yes. So I -- to answer your question, I 6 do see the declaration that Raz multiplexes the 7 subport outputs into a single stream for 8 transmission across a single network link. 9 Q. Okay. So if we look at Raz Figure 3 -- 10 A. Uh-huh, yes. 11 Q. -- is it your testimony or your opinion in 12 that the link 60 between LSR A and LSR B would 13 pass a multiplexed signal from LSR A to LSR B? 14 A. Right. 15 So saying the declarations -- LSR A has 16 the subports, 56, labeled zero through nine. And 17 the -- the output of those subports are -- is 18 multiplexed into the, you know, transmission 19 link 60. 20 Q. Okay. As a person of skill in the art, 21 would it be possible, as a technical matter, to 22 implement a LAG to transmit data between LSR A 23 and LSR B? 24 A. In the context of Raz? 25 No.	Page 57 1 And -- and, in fact, Raz -- render Raz's 2 invention inoperable, if you were do that. 3 So if you are looking at this particular 4 picture or -- or -- or a person of skill in the 5 art is looking at this particular picture in a 6 diagram in the context of Raz, they could 7 understand that implementing a LAG between LSR A 8 and LSR B -- it is not possible, because, you 9 know -- first of all, would not be possible 10 because Raz -- this particular diagram shows only 11 one link between A and -- LSR A and LSR B. So 12 that would be the first thing. 13 And, second, it would make -- if you were 14 to do that, it would make the Raz invention 15 inoperable. 16 Q. Why would -- why would a POSA think that 17 just because there's one line shown as a link 60, 18 that one line would mean you do not have an LSR? 19 Is there something -- some reference or 20 standard that tells me that when I see one line, 21 that cannot be a LAG? 22 MR. HOLT: Objection; form. 23 A. (Continuing) Again, we are looking at this 24 particular Figure 3 in the context of Raz. So, 25 you know, the -- this figure is -- is -- is not

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Page 58 1 in the abstract. It's -- it's within -- it's 2 part of Raz. 3 And so when Raz wanted to show multiple 4 links coming in or out of a -- of an LSR, he knew 5 how to do that. 6 So, for instance, if we go to Figure 6, 7 it -- you know, you can see there that there's 8 two links that are going in and out of that 9 network device. There's two links 102 and two 10 links 104. 11 Now -- so -- so that's one thing. 12 Now, let me... 13 And if you, in fact -- Raz says so itself, 14 you know. If you go to column 7, line 30... 15 One second. 16 Yeah, sorry. The line 40. Okay. 17 It says, it -- you know, when a -- 39 to 18 42. 19 "When a packet for the provisioned LSP is 20 received over a link connected -- 21 COURT REPORTER: Pardon me. Pardon 22 me. Pardon me. Pardon me. 23 Please slow down. Say that again, but a 24 bit more slowly. 25 A. (Continuing) So column 7, lines 39 to 42.	Page 60 1 A. Again, you know, the -- your -- your 2 question is general. Are we -- you know, if we 3 are talking about the context of Raz, as the 4 diagram is shown here, the answer is no. 5 If you just give me two abstract routers, 6 A and B, you know, irrespective of this diagram, 7 you know, I think I answered that question 8 before. 9 And I said, you know, if I have 2 LSRs, 10 A and B, they have multiple physical ports to 11 receive data, then in that situation -- and 12 knowing nothing else, just that two of the -- one 13 of the -- 14 COURT REPORTER: I'm sorry. Pardon 15 me. Pardon me. I need you to slow down again. 16 Repeat after you -- 17 A. (Continuing) Yeah. 18 So if, in the abstract, a person skilled 19 in the arts is given two LSRs, A and B, each LSR 20 has a -- multiple physical ports, then, knowing 21 nothing else at the time of, you know -- at -- at 22 that time, around 2001, 2002, a person skilled in 23 the arts would know that it was possible to 24 implement a LAG between these two LSRs. 25 But looking at the specific diagram of
Page 59 1 "When a packet for the provisioned LSP is 2 received over a link connected to LSR A, it is 3 forwarded to subport 3 and subsequently out over 4 the 10G link to LSR B." 5 Right? 6 So there's -- you know, you talk about the 7 10G link, so that's singular. 8 And -- and a bit later down, line -- line 9 50. It also talks about, you know, 10Gig PHY. 10 So that's the -- a physical layer module that is 11 receiving that. 12 So that's a ten 1Gig PHYs. It's not ten 13 1Gig PHYs or eight 1- -- you know, 1.25Gig PHYs. 14 It's a single 10Gig PHY that connects the router. 15 So, you know, in the context of Raz, a 16 person skilled in the arts looking at this 17 diagram on Figure 3, they would understand that 18 there's a single physical link 60 between LSR A 19 and LSR B. 20 Q. I understand your position that this link 21 60 is a single link. 22 But my question was, would a person of 23 ordinary skill in the art have known in 2002 that 24 you could have implemented a LAG between LSR A 25 and LSR B instead of the single link 60?	Page 61 1 Raz, a -- and -- and, you know, given the 2 teachings of Raz, then a person skilled in the 3 arts would know that link 60 could not be a LAG. 4 It had to be a -- a physical -- a single physical 5 link running at 10Gigs in this particular case. 6 Q. When you say it could not be a LAG, why -- 7 why would you say it could not be that? 8 Is it because it doesn't disclose a LAG or 9 there's some technical reason why, in Raz, you 10 couldn't implement a LAG for line 60? 11 A. Are you -- 12 MR. HOLT: Objection to form. 13 A. (Continuing) I -- I think I -- I answered 14 that question. And I'll just repeat that. 15 The answer is both. You know, it -- as I 16 said in -- in column 7, you know, when describing 17 this particular diagram, Raz expressly -- it 18 refers to that as a 10Gig link and having a 19 10Gig PHY. 20 So Raz teaches that this is a single link. 21 It's -- it's not multiple links. 22 If you had multiple links, it would have 23 been multiple PHYs at the lower speed. 24 That's one. 25 But, also, the whole point of Raz -- and

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Page 62 1 the reason, you know, he -- he got an -- a patent 2 for this method is exactly because his problem is 3 that you have high-speed links that cannot be 4 processed by the processes inside the switch. 5 And so it -- you know, to a person skilled 6 in the arts, it would not make -- not only it 7 would not make sense, but it would make Raz 8 inoperable, in the first place, to -- to replace 9 link 60 with a LAG. 10 Q. How would it make it inoperable? 11 A. Because the whole point of Raz is -- okay. 12 So let's... 13 Okay. So let's look again at column 7, 14 lines 39 to 45. Okay? 15 So there it says, "When a packet for the 16 provisioned LSP is received over a link connected 17 to LSR A, it is forwarded to subport 3 and 18 subsequently out over the 10Gig link to LSR B 19 with a previously assigned label indicating 20 subport 3." 21 Okay. 22 "The port-forwarding module in LSR B 23 examines the label in the received packet and in 24 response thereto forwards the packet to subport 3 25 for packet processing."	Page 64 1 Right? 2 But if you had the LAG instead -- so, 3 again, let's remove the 10Gig -- gigabit-per- 4 second PHY that you have here. And you have ten 5 1Gig PHYs. 6 Right? 7 One PHY for each 1-gigabits link coming in 8 to. 9 Then if the packets that -- comes in -- 10 so, first of all, then you do not need a label to 11 tell you where a packet has go to, what subport, 12 because you could easily assign the subports to 13 the inputs PHYs, since, you know -- looking at 14 Raz, you have a subport that can handle a 15 1-gigabit-per-second stream. And you have a 16 1-gigabit-per-second stream. As soon as the 17 packet comes in, you pass it to the subport. You 18 don't need a label to tell you what subport to do 19 that. 20 In order to have the label, and -- which 21 is the whole essence of the Raz invention here, 22 is because you have a multiplex stream that comes 23 with 10 gigabits. And now you have to carefully 24 divide it into parts, ten parts, and give each 25 part a subport.
Page 63 1 Okay. 2 So the reason you have these for the 3 forward module -- and -- and we can go up to -- 4 well, let's see -- Figure 1. Okay. 5 So if you look at Figure 1, you have a 6 10-gigabit-per-second PHY and then you have a 7 port-forwarding module there. 8 And that's the same, you know, embodiment 9 that is described in Figure 3. 10 So if -- so -- so the problem that -- you 11 know, Raz is trying to solve here is that you 12 have a -- a high-speed packet stream running at 13 10 gigabit per second. 14 And now you have to divide it into ten 15 different parts to be handled by different 16 subports. And so you need that port-forwarding 17 module to do this division, to -- to -- to divide 18 the incoming packet stream. 19 If you had a LAG, it was well known that 20 the -- you know, you -- it's -- you know, it's 21 a -- each of these -- and -- and then -- sorry. 22 And then going back to that. So the 23 port-forward module would need, you know, to 24 assign labels to perform that division of the 25 packet stream.	Page 65 1 But if you don't have this -- this 2 multiplexed, but it's -- you're coming in with 3 ten physical links, that problem does not exist 4 anymore. 5 And, therefore, Raz is -- you know, it -- 6 it is not -- I mean, you don't have a -- you 7 don't need a port-forward module. You do not 8 need, you know, the assignment of labels. And -- 9 and so on and so forth. 10 It's already done for you by the fact that 11 the stream is coming into -- already in 1-gigabit 12 increments. 13 Right? 14 So Raz becomes unworkable, unnecessary, 15 and redundant -- you know, whatever adjective you 16 want to use. You -- you know, there is no point 17 of looking at Raz in this case. 18 Q. Figure 3 of Raz, if you look at it, shows 19 that a packet stream is forwarded to subport zero 20 in LSR A. 21 Is that correct? 22 A. Is -- is -- I'm sorry. Could you please 23 repeat that question. 24 Q. Sure. 25 Figure 3, if you look at LSR A, the packet

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Page 66 1 stream is processed through subport zero. 2 Is that right? 3 A. Subport zero of LSR A, yes, correct. 4 Q. And it is received at LSR B at subport 5 zero. Is that correct? 6 A. That is correct. 7 Q. And Raz discloses that LSR B makes the 8 decision that the packets will be processed 9 through subport zero and transmitted from LSR A, 10 out subport zero, and then received at subport 11 zero in LSR B. 12 Correct? 13 A. Right. 14 So LSR B makes the decision that it wants 15 to receive packets with the label indicating that 16 they have to be processed by subport zero. 17 Q. And LSR B could have made the decision it 18 wants to receive packets with a label indicating 19 the packets will be received on subport 1. 20 Is that correct? 21 A. Since it is LSR B who makes the decision, 22 they could decide any of the ten ports that are 23 shown there. 24 Q. That would include subport 1. Correct? 25 A. It would include subport 1, yes.	Page 68 1 transmitting -- LSR B is transmitting out of 2 port 1, but that's only because LSR C told it to 3 do so. 4 Q. Okay. And LSR C could have said it wants 5 to receive packets on any of the subports at 6 LSR C. 7 Correct? 8 A. That is correct. 9 Q. It could have received -- chosen to 10 receive packets on subport zero. 11 Is that correct? 12 A. LSR C could have chosen to -- to receive 13 packets from subport zero. 14 Q. Okay. Let's go, in Raz, to column 7. 15 A. I'm there. 16 Q. I'd like to look at lines 17 through 29 in 17 column 7 of Raz. 18 A. Okay. Okay. 19 Q. Okay. Starting on 17, in column 7 of Raz. 20 The first sentence reads, "In accordance 21 with the invention, the assignment of traffic to 22 1G subports is based on LSPs." 23 Do you see that sentence? 24 A. I do. 25 Q. Do you agree with it?
Page 67 1 Q. And, similarly, packets are transmitted 2 from subport -- from LSR B to LSR C by 3 transmitting them out subport 1 in LSR B and they 4 are received at subport 1 in LSR C. 5 Correct? 6 A. That is correct. 7 However, the decision to -- to have LSR B 8 transmit packets out of subport 1 is made by 9 LSR C, not LSR B. 10 So it's -- it's, you know, the same thing 11 that -- that we talked about, you know, LSR A and 12 LSR B. It is LSR C that makes the decision for 13 LSR B to receive -- you know, to -- to -- to 14 transmit packets out of port 1. 15 So just to be clear here, in the example 16 that you just mentioned, LSR B receives the 17 packets from part -- port -- or subport 1. Okay? 18 But it's LSR B's decision to do so. 19 Now, also, LSR B sends packets out of 20 subport 1, but that is not LSR B's decision. 21 That is LSR C's decision. 22 So if LSR C had decided to tell LSR B, 23 send me the packets at -- you know, out of 24 port 9, LSR B would have done so. 25 So two different things. So yes, they are	Page 69 1 A. I do. 2 Q. Okay. The next sentence reads, "Thus, the 3 MPLS label is used in order to assign an incoming 4 packet to one of the subports." 5 Do you see that sentence? 6 A. I do. 7 Q. Do you agree with it? 8 A. I do. 9 Q. And if I go down a couple of sentences in 10 that same paragraph, it said, "In the next link 11 on the path, however, the subport may be 12 different." 13 Do you see that? 14 A. "The subport may be" -- yes, I see that. 15 Q. And the sentence after that reads, "This 16 is because the next link may have other 17 connections in addition to the 10G link and, 18 therefore, it may be the case that a different 19 subport is the only subport (or the subport best 20 suited) that can accept the LSP with the required 21 bandwidth." 22 Do you see that sentence? 23 A. I do. 24 Q. So this is saying that different LSRs may 25 select different subports, depending on what

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Page 70 1 other connections take place in the LSR on what 2 bandwidth is available. 3 Is that correct? 4 MR. HOLT: Objection; form. 5 A. (Continuing) Yes, that is correct. 6 Q. In Raz is it possible that multiple links 7 on the path may use the same subport as the 8 previous link in the path in order to transmit 9 the data? 10 MR. HOLT: Objection; form. 11 A. (Continuing) It is a -- it is possible 12 that different links use the same subport, but, 13 again, as this -- as -- as this passage says, "it 14 is the downstream (i.e., receiving) node that 15 determines the subport it wants to receive the 16 LSP on." 17 So although the ports are the same, 18 different LSRs make that decision. It's the 19 downstream LSR that always makes the decision. 20 Q. So the downstream LSR may decide that it 21 has open bandwidth on the same subport as the -- 22 being used by the previous LSR and, therefore, 23 receive packets on the same subport as what was 24 used by the previous LSR. 25 Correct?	Page 72 1 A. Right. 2 So, you know, let me first say that I do 3 not believe I have offered any opinions in my 4 declaration regarding the protection tunnel. 5 But I, you know, having reviewed this 6 part, you know, what Raz is describing here is 7 a -- a standards way of protecting tunnels, you 8 know, when a -- a link along the path fails. 9 So I guess -- I mean, I -- probably best 10 way to, kind of, describe it, if we go back to 11 Figures -- 3, that -- that shows, you know, a -- 12 several LSR. It shows three LSRs: A, B and C; 13 and two links -- 10-gigabit links between them: 14 links 60 and 68. 15 So let's say that link 68 fails. Okay? 16 In order to make sure that the traffic 17 that is carried over that link is not lost, 18 typically what happens, you know, in networks is 19 that the network provider will provision what is 20 called a protection channel, or a pro -- a -- a 21 protection channel. 22 So you -- you could think of the -- link 23 68 as the working link. And there is a standby 24 protection link out of LSR B to -- perhaps some 25 fourth LSR D that is not shown in this picture.
Page 71 1 A. That -- that is correct. 2 Q. In Raz -- I'd like to go to column 10. 3 A. Okay. 4 Q. And specifically look at lines 12 through 5 56, in the section entitled, "Link Protection 6 Tunnel Provisioning." 7 A. Okay. 8 Q. Have you reviewed this section of Raz? 9 A. I have. 10 Q. What embodiment is it disclosing? 11 MR. HOLT: Objection to form. 12 A. (Continuing) Are you asking about the -- 13 the particular figure in Raz? 14 Q. I'm asking how the -- the protection 15 tunnel is implemented in this embodiment. 16 A. Okay. So if you give me a couple of 17 minutes to review this part, I'll -- I'll be able 18 to answer your question. 19 Q. Okay. 20 A. Okay. So could you repeat the question 21 again. 22 Q. Sure. 23 In your words, as a POSA, could you 24 describe for me how the protection tunnel is 25 implemented in this embodiment of Raz.	Page 73 1 And so when the -- if -- if the link 68 2 fails between LSRs B and C, then the LSR B will 3 reroute the traffic to this new link, to LSR D, 4 that bypasses this failure. 5 And so the traffic can continue towards 6 this destination despite the fact that it's a -- 7 a -- it's -- a link in the working path has 8 failed. 9 So that's the embodiment, basically, that 10 Raz describes. 11 Q. And Raz discloses the use, in this 12 protection tunnel, of a subport ID. 13 Do you see that? 14 A. Yes. Subports ID, uh-huh. 15 Q. Is the subport ID, as disclosed in this 16 embodiment of Raz, used to ensure that the 17 packets will be processed on the same subport in 18 all of the LSRs when implementing the protection 19 tunnel? 20 MR. HOLT: Objection; form. 21 A. (Continuing) Right. 22 So within -- what Raz discloses here is 23 that if one were to just reroute the traffic 24 around the link, a -- around the failed link, 25 there would be a problem that arises with how

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Page 74 1 this is processed at the -- at -- at the nodes 2 where this protection route now takes the 3 traffic. 4 And this is -- can -- is complicated in 5 the sense that, you know, these other nodes 6 already, you know, have to handle traffic that -- 7 that's coming from other links. 8 And so, according to, you know -- 9 according to Raz, you cannot use the standards 10 label distribution that downstream demands, which 11 is the downstream nodes are -- decides what label 12 to -- to -- to use and then sends it to the 13 upstream node. 14 Instead, as you can see here, column 10, 15 line, I think, 33, it says, "One way to configure 16 protection tunnels is to use a central entity, 17 such as a network management system (NMS) using a 18 mechanism whereby the LSR in each hop of the LSP 19 is instructed that the label is required for a 20 protection tunnel." 21 Okay. 22 And so this is a different way that you 23 use to provision the protection LSPs. And so, 24 you know, how this is used is determined by the 25 NMS, the network management system.	Page 76 1 subport ID to LSR D, does LSR D then communicate 2 that subport ID to an upstream node? 3 MR. HOLT: Objection; form. 4 A. (Continuing) Okay. So I -- I would like 5 to study more of the details here, but... 6 No. The downstream LSRs do not make such 7 decisions. 8 So this is clear, actually, you know, from 9 the passage that starts in column 41. 10 It says, "In the first hop of the 11 protection tunnel, the LSR that sends the packets 12 is the one that originally was to send it to the 13 link that has failed, thus it knows exactly to 14 which subport the packet is supposed to be sent." 15 Okay? 16 "In the other LSRs through which the 17 protection tunnel passes, the packet is forwarded 18 to the subport of the destination 10G port that 19 has the same subport ID as the one shipped on." 20 So it's not the downstream LSRs that make 21 the decision in -- in this particular case. 22 As I said, this is a -- a -- a very 23 different label distribution process. It is not 24 the standard downstream demand distribution 25 that -- that -- that is -- that is used where the
Page 75 1 And, for simplicity, it's just allowed -- 2 you know, I think -- I think it's for simplicity, 3 but, you know, I -- I -- as I said, I haven't 4 offered an opinion for this one. So, you know, I 5 would probably need more time to review it. 6 But, you know, it uses the same subport ID 7 along the LSP, but it is not determined that -- 8 subport LSP is not determined by the downstream 9 route. It is determined by the network 10 management system. 11 Q. Well, the network management system would 12 send the subport ID to an LSR D in your example. 13 Correct? 14 MR. HOLT: Objection to form. 15 A. (Continuing) Yes. The N- -- the network 16 management system will send it to D. It would 17 send it to any other -- LSR B and so on. 18 So it is not D who makes the assignment or 19 makes the selection or decides what port to -- 20 sorry -- what subport ID to use. 21 It is the network management system that 22 makes the decision, makes that selection, and 23 then passes that subport ID to all the routers 24 that are involved in the protection path. 25 Q. If the network management system sends the	Page 77 1 downstream node informs the upstream nodes. 2 This is -- this is all sent by the, you 3 know -- it's communicated by the network 4 management system. And so the downstream nodes 5 do not make any decision. 6 I -- I mean, to -- I mean, they don't make 7 any decision to -- to inform the upstream nodes 8 of a particular label. 9 Q. Just a second. 10 I'm going to introduce another exhibit. 11 This is Exhibit 4. It is a document entitled 12 "Request For Comments: 3031." And has the 13 subsequent title "Multiprotocol Label Switching 14 Architecture." 15 It was submitted in the IPR as 16 Exhibit 1008. 17 Ask you to take a look at it. 18 (Deposition Exhibit No. 4 introduced.) 19 A. (Continuing) Yes, I -- I have opened it. 20 Q. Okay. Have you seen this document before? 21 A. I have -- you know, I am certainly 22 familiar with the document. 23 This -- you know, I've been familiar with 24 MPLS since the late '90s, when this architecture 25 was being standardized.

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Page 78 1 I have not reviewed this as part of this, 2 you know, deposition, though. 3 Q. Okay. You did not review it in 4 preparation for your deposition? 5 A. No. 6 Q. Okay. Are you familiar with the requests 7 for comment? 8 A. I am. 9 Q. What are they? 10 A. So, again, this is kind of a misnomer, but 11 basically this is a -- a standard document for 12 the internet community. And so, you know, the 13 TCP/IP protocols -- and -- and there's many of 14 them -- you know, the specifications have been 15 published as -- as an RFC. 16 Q. Okay. 17 COURT REPORTER: As a -- what was 18 that? 19 Q. (By Mr. Blake, continuing) In this 20 exhibit -- 21 COURT REPORTER: The end of that -- 22 you said, "the specifications have been published 23 as"..."? 24 Please repeat. 25 THE WITNESS: R -- RFC, request for	Page 80 1 explained, you know, in the -- by routing in the 2 next paragraph, where it says that "Hop by hop 3 routing allows each node to independently choose 4 the next hub for each FEC. This is the usual 5 node" -- "mode today in existing IEP networks." 6 So that -- that's exactly what hop-by-hop 7 routing is. 8 Q. Okay. Would hop-by-hop routing have been 9 known to a POSA to be part of the MPLS 10 architecture as of 2002? 11 MR. HOLT: Objection; scope. 12 A. (Continuing) Right. I mean, this is 13 as -- as that passage says, this is the user mode 14 today in existing networks. That's how internal 15 IP net- -- networks are -- determined routing. 16 So yes, the -- a -- a -- a person skilled 17 in the arts in 2001, 2002 would be familiar with 18 hop-by-hop routing. 19 Q. Okay. And would a person of skill in the 20 art in 2001, 2002 have been a -- been familiar 21 with explicit routing in the MPLS architecture? 22 MR. HOLT: Objection; scope. 23 A. (Continuing) I believe so, yes. 24 Q. And what was explicit routing? 25 MR. HOLT: Objection; scope.
Page 79 1 comments. 2 COURT REPORTER: Thank you. 3 Q. (By Mr. Blake, continuing) So if we 4 go -- I'd like to go, in this Exhibit 4, to 5 page 23. 6 A. Okay. 7 Q. And look under Section 3.21, Route 8 Selection. 9 Do you see that? 10 A. I do. 11 Q. And the first paragraph reads, "Route 12 selection refers to the method used for selecting 13 the LSP for a particular FEC. The proposed MPLS 14 protocol architecture supports two options for 15 route selection: (1) hop by hop routing, and 16 (2) explicit routing." 17 Do you see all that? 18 A. I do. 19 Q. Okay. Are you familiar with the terms 20 "hop-by-hop routing" and "explicit routing"? 21 A. I am. 22 Q. Okay. What is hop-by-hop routing? 23 A. I think it's -- 24 MR. HOLT: Objection to form. 25 A. (Continuing) Yeah. I think it's actually	Page 81 1 A. (Continuing) Again, you know, the -- the 2 document in the next paragraph will -- describes 3 explicit routing. 4 It says, "In an explicitly routed LSP, 5 each LSR does not independently choose -- 6 COURT REPORTER: Pardon me. Pardon 7 me. 8 A. (Continuing) -- the next hop; rather -- 9 okay, sorry. 10 COURT REPORTER: I'm having a little 11 trouble -- 12 A. (Continuing) I will -- let me -- let me 13 read that again, then. 14 It says, "In an explicitly routed LSP, 15 each LSR does not independently choose the next 16 hop" -- "hop; rather, a single LSR, generally the 17 LSP ingress or the LSP egress, specifies several 18 (or all) of the LSRs in the LSP." 19 So that's a definition of a -- an 20 explicitly routed LSP. 21 MR. BLAKE: Okay. I have no further 22 questions. 23 MR. HOLT: Let's go off the record. 24 (Recess from 11:38 a.m. to 11:51 a.m.) 25 MR. HOLT: Okay. Let's go on the

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Page 82 1 record. 2 So patent owner does not have any 3 questions on redirect. 4 We ask that the witness review and sign. 5 (Discussion held off the record.) 6 COURT REPORTER: And before you go, 7 Jeff, would you like a transcript made? 8 MR. BLAKE: I would like a 9 transcript. And I'd like it expedited, please. 10 COURT REPORTER: Okay. 11 MR. HOLT: No expedited. Just normal 12 timing is okay for patent owner. 13 (Deposition concluded at 11:52 a.m.) 14 15 16 17 18 19 20 21 22 23 24 25	Page 84 1 Veritext Legal Solutions 2 1100 Superior Ave 3 Suite 1820 4 Cleveland, Ohio 44114 5 Phone: 216-523-1313 6 February 8, 2024 7 To: Benjamin Holt, Esq. 8 Case Name: Cisco Systems, Inc. v. Corrigent Corporation 9 Veritext Reference Number: 6443553 10 Witness: George N. Rouskas, Ph.D. 11 Deposition Date: 2/1/2024 12 Dear Sir/Madam: 13 Enclosed please find a deposition transcript. Please have the witness 14 review the transcript and note any changes or corrections on the 15 included errata sheet, indicating the page, line number, change, and 16 the reason for the change. Have the witness' signature notarized and 17 forward the completed page(s) back to us at the Production address 18 shown 19 above, or email to production-midwest@veritext.com. 20 If the errata is not returned within thirty days of your receipt of 21 this letter, the reading and signing will be deemed waived. 22 Sincerely, 23 Production Department 24 25 NO NOTARY REQUIRED IN CA
Page 83 1 REPORTER'S CERTIFICATE 2 STATE OF WISCONSIN 3 4 I hereby certify that I reported the 5 videoconference deposition of GEORGE N. ROUSKAS, 6 PH.D., who appeared remotely before me on 7 February 1, 2024, and that by stipulation and 8 agreement of counsel to swear in the witness 9 remotely, the witness was by me first duly sworn 10 to tell the whole truth; 11 12 That the testimony was transcribed by me 13 to the best of my ability and is a true record of 14 the testimony of the witness; that the right to 15 read and sign was reserved. 16 That the cost of the original has been 17 charged to the party who noticed the deposition, 18 and that all parties who ordered copies have been 19 charged at the same rate for such copies; 20 21 That I am not a relative or employee or 22 attorney or counsel of any of the parties, or 23 relative or employee of such attorney or counsel; 24 25 That I am not financially interested in the action and have no contract with the parties, attorneys, or persons with an interest in the action that affects or has a substantial tendency to affect my impartiality. WITNESS MY HAND AND SEAL THIS 7th of February, 2024. <i>Nancy A. Lisch</i> Nancy A. Lisch, Notary, CLS, CLU, CRC Notary Public, State of Wisconsin My commission expires on 11/13/24	Page 85 1 DEPOSITION REVIEW 2 CERTIFICATION OF WITNESS 3 4 ASSIGNMENT REFERENCE NO: 6443553 5 CASE NAME: Cisco Systems, Inc. v. Corrigent Corporation 6 DATE OF DEPOSITION: 2/1/2024 7 WITNESS' NAME: George N. Rouskas, Ph.D. 8 In accordance with the Rules of Civil 9 Procedure, I have read the entire transcript of 10 my testimony or it has been read to me. 11 I have made no changes to the testimony 12 as transcribed by the court reporter. 13 14 Date George N. Rouskas, Ph.D. 15 Sworn to and subscribed before me, a 16 Notary Public in and for the State and County, 17 the referenced witness did personally appear 18 and acknowledge that: 19 20 They have read the transcript; 21 They signed the foregoing Sworn 22 Statement; and 23 Their execution of this Statement is of 24 their free act and deed. 25 I have affixed my name and official seal this ____ day of _____, 20____. Notary Public Commission Expiration Date

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Page 86 1 DEPOSITION REVIEW CERTIFICATION OF WITNESS 2 3 ASSIGNMENT REFERENCE NO: 6443553 CASE NAME: Cisco Systems, Inc. v. Corrigent Corporation DATE OF DEPOSITION: 2/1/2024 WITNESS' NAME: George N. Rouskas, Ph.D. 4 In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me. I have listed my changes on the attached Errata Sheet, listing page and line numbers as well as the reason(s) for the change(s). I request that these changes be entered as part of the record of my testimony. 10 I have executed the Errata Sheet, as well as this Certificate, and request and authorize that both be appended to the transcript of my testimony and be incorporated therein. 13 _____ Date George N. Rouskas, Ph.D. 14 Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that: They have read the transcript; They have listed all of their corrections in the appended Errata Sheet; They signed the foregoing Sworn Statement; and Their execution of this Statement is of their free act and deed. I have affixed my name and official seal this _____ day of _____, 20____. 23 _____ Notary Public 24 _____ Commission Expiration Date	
Page 87 1 ERRATA SHEET VERITEXT LEGAL SOLUTIONS MIDWEST ASSIGNMENT NO: 6443553 3 PAGE/LINE(S) / CHANGE /REASON 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____ 11 _____ 12 _____ 13 _____ 14 _____ 15 _____ 16 _____ 17 _____ 18 _____ 19 _____ 20 _____ Date George N. Rouskas, Ph.D. 21 SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ 22 DAY OF _____, 20____. 23 _____ Notary Public 24 _____ Commission Expiration Date	

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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ERRATA SHEET

WITNESS NAME: George N. Rouskas, Ph.D.

DEPOSITION: February 1, 2024 in IPR2023-00447

PAGE & LINE	CHANGE	REASON
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Page 12, line 4	“a” to “an”	transcription error
Page 12, line 22	“arts” to “art”	transcription error
Page 16, line 13	“aren’t” to “are”	transcription error
Page 17, line 4	“internet” to “Ethernet”	transcription error
Page 30, line 19	“aggregates” to “aggregate”	transcription error
Page 31, line 3	“aggregates” to “aggregate”	transcription error
Page 34, line 19	“arts” to “art”	transcription error
Page 39, line 5	“a multiplex” to “multiplexed”	transcription error
Page 41, line 8	Delete “piece”	transcription error
Page 41, line 15	“packet” to “packets”	transcription error
Page 41, line 25	“30-some” to “Ferguson”	transcription error
Page 43, line 7	“talked” to “talk”	transcription error
Page 43, line 19	“tens” to “tenths”	transcription error
Page 44, line 8	“arts” to “art”	transcription error
Page 44, line 24	“That” to “There”	transcription error
Page 45, line 3	“arts” to “art”	transcription error
Page 46, line 19	“aggregates” to “aggregate”	transcription error
Page 50, line 11	“difference” to “different”	transcription error
Page 50, line 17	“it is a soft” to “in a short”	transcription error
Page 51, line 12	“aggregates” to “aggregate”	transcription error
Page 55, line 15	“saying the declarations” to “as I say in the declaration”	transcription error
Page 56, line 23	“skills” to “skill”	transcription error
Page 56, line 24	“skills” to “skill”	transcription error
Page 59, line 16	“arts” to “art”	transcription error
Page 60, line 19	“arts” to “art”	transcription error
Page 60, line 23	“arts” to “art”	transcription error
Page 61, line 3	“arts” to “art”	transcription error
Page 62, line 4	“processes” to “processors”	transcription error
Page 62, line 6	“arts” to “art”	transcription error
Page 63, line 3	“forward” to “forwarding”	transcription error
Page 63, line 23	“forward” to “forwarding”	transcription error
Page 64, line 22	“multiplex” to “multiplexed”	transcription error
Page 65, line 7	“forward” to “forwarding”	transcription error
Page 72, line 7	“standards” to “standard”	transcription error
Page 72, line 11	“Figures” to “Figure”	transcription error

Page 72, line 20	“channel” to “tunnel”	transcription error
Page 72, line 21	“channel” to “tunnel”	transcription error
Page 74, line 9	“standards” to “standard”	transcription error
Page 74, line 10	“downstream demands” to “is downstream on demand”	transcription error
Page 74, line 11	“nodes are” to “node”	transcription error
Page 75, line 9	“route” to “router”	transcription error
Page 76, line 24	“demand” to “on demand”	transcription error
Page 80, line 4	“hub” to “hop”	transcription error
Page 80, line 5	“IEP” to “IP”	transcription error
Page 80, line 13	“user” to “usual”	transcription error
Page 80, line 15	“determined” to “determine”	transcription error

 X Subject to the above changes, I certify that the transcript is true and correct.

 No changes have been made. I certify that the transcript is true and correct.



Signature

2/12/2024

Date