



Planet Depos®
We Make It *Happen™*

Transcript of Paul Min, Ph.D.

Date: May 30, 2025

Case: Arista Networks, Inc. -v- Orckit Corporation (PTAB)

Planet Depos

Phone: 888.433.3767 | **Email:** transcripts@planetdepos.com

www.planetdepos.com

Michigan #8598 | Nevada #089F | New Mexico #566

WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

1 UNITED STATES PATENT TRIAL AND TRADEMARK OFFICE

2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 IPR2024-01239

4 Attorney Docket No. 083475.0110

5
6 ARISTA NETWORKS, INC.,

7 PETITIONER,

8 vs.

9 ORCKIT CORPORATION,

10 Patent Owner.

11
12 VIDEO CONFERENCE DEPOSITION OF

13 PAUL MIN, PH.D.

14 Conducted Remotely

15 Friday, May 30, 2025

16 10:02 a.m. CDT

17
18
19
20 Reported by: Elisabeth A. Lorenz: RMR, CRR

21 Job No. 585566

22

1 VIDEO CONFERENCE DEPOSITION of PAUL
2 MIN, PH.D., conducted remotely via Zoom:
3
4
5
6
7
8
9

10 Pursuant to notice, before Elisabeth A.
11 Lorenz, Registered Merit Reporter and Certified
12 Realtime Reporter.
13
14
15
16
17
18
19
20
21
22

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

A P P E A R A N C E S
(All appearing remotely)

ON BEHALF OF THE PETITIONER:

JESSICA FENDER

Kobre Kim

800 Third Avenue

New York, New York 10022

212.488.1200

jessica.fender@kobrekim.com

ON BEHALF OF THE PETITIONER:

TAVARRIA ZEIGLER

Kobre Kim

150 California Street

19th Floor

San Francisco, California 94111

415.582.4785

tavarria.zeigler@kobrekim.com

A P P E A R A N C E S

(Continued)

ON BEHALF OF THE PATENT OWNER:

CLARKE STAVINOHAN

Baker Botts

2001 Ross Avenue

#900

Dallas, Texas 75201

214.953.6484

clarke.stavinoha@bakerbotts.com

ON BEHALF OF THE PATENT OWNER:

ELIOT WILLIAMS

Baker Botts

700 K Street, N.W.

Washington, D.C. 20001-5692

202.639.7700

eliot.williams@bakerbotts.com

VIDEOGRAPHER:

Kieran Morrison, Zoom Tech

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

A P P E A R A N C E S

(Continued)

ALSO PRESENT:

Mitch Yang, Carmichael IP

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

C O N T E N T S		
INDEX OF EXAMINATIONS		
		Page
WITNESS: PAUL MIN, PH.D.		
Examination By Ms. Fender		9
M A R K E D E X H I B I T S		
Exhibit	Description	Page
Ex.1001	USP 10,652,111	13
Ex.1002	Declaration	29
Ex.1005	USP 10,097,452	55
Ex.1006	USP 9,264,301	56
Ex.1007	USP 9,813,447	58
Ex.1007	USP 9,813,447	190
Ex.2008	Mir Declaration	45

1 *STENOGRAPHER'S NOTE: All quotations from exhibits
2 are reflected in the manner in which they were read
3 into the record and do not necessarily indicate an
4 exact quote from the document.
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

P R O C E E D I N G S

THE VIDEOGRAPHER: Thank you to everyone for attending this proceeding remotely, which we anticipate will run smoothly.

Please remember to speak slowly and do your best not to talk over one another. Please be aware that we are recording this proceeding for backup purposes. Any off-the-record discussion should be had away from the computer. Please remember to mute your mic for those conversations. Please have your video enabled to help the reporter identify who is speaking. If you are unable to connect with video and are connecting via phone, please identify yourself each time before speaking.

We will provide a complimentary, unedited recording of this deposition with the purchase of a transcript.

I apologize in advance for any technical-related interruptions. Thank you.

* * *

PAUL MIN, PH.D.

was called as a witness, and after having been first
duly sworn, testified as follows:

E X A M I N A T I O N

BY MS. FENDER:

Q I think that's my cue.

Good morning, Dr. Min. My name is
Jessica Fender. As I mentioned, I'm from Kobre Kim.
How are you this morning?

A I'm well. Thank you.

How are you?

Q I'm doing well.

Can you go ahead and for the record please
state and spell your full name?

A Yes. My name is Paul Min, P-A-U-L, M-I-N.

Q And, sir, you've been deposed before; is
that right?

A Yes.

Q So I'll be relatively quick about this, but
I'm going to go through and set out the procedure
that we'll be using today.

1 So first you were just sworn in.

2 You realize that that means your testimony
3 today is under oath, meaning it's under penalty of
4 perjury, correct?

5 A Yes.

6 Q And are there any issues, sir, that you
7 think would affect your ability to understand my
8 questions or to give full and complete, truthful
9 answers?

10 A No.

11 Q And I don't mean to pry, but are you taking
12 any medications, are there any substances that might
13 affect your ability to understand my questions and
14 to give full and complete answers?

15 A No.

16 Q No hearing impairments, no visual
17 impairments, any memory issues, anything like that?

18 A I don't think so.

19 Q Fair.

20 So because we're doing this remotely and to
21 be full disclosure, to be fair, this is my first
22 time doing a Zoom deposition. So I'll try to be

1 patient with you and not talk over you; and if you
2 could do the same for me, sir, which you're already
3 doing, I'd really appreciate it. But we'll just go
4 slow and steady for the court reporter.

5 Okay?

6 A Yes.

7 Q It sounds like we have some video recording
8 as well. But if you could take care to avoid using
9 your hands or gestures and instead make sure that
10 you speak so that the court reporter can capture
11 answers, that would be great. And if for some
12 reason you forget, I'll try to remind you.

13 Okay?

14 A Okay.

15 Q Now, here today if your lawyer makes an
16 objection, which it's his right to do, you know that
17 you still need to go ahead and answer my questions
18 unless he specifically instructs you not to,
19 correct?

20 A Yes.

21 Q And you realize that at some point today if
22 there's anything that you've said that you feel that

1 you need to change, you have the option to do that,
2 so you can always come back and say, you know,
3 Ms. Fender, I misspoke earlier; I need to correct
4 something I said.

5 Okay?

6 A Okay.

7 Q We'll, I'm sure, have some breaks today
8 since I think we'll be here for a little bit. And
9 so I will let you know that because you are
10 currently being questioned by me, at this point you
11 can't speak to your counsel about anything that I'm
12 asking you about. You can't sort of go over your
13 testimony until we're all done.

14 Okay?

15 A Okay.

16 Q Then let's get started.

17 All right. Dr. Min, so you've been retained
18 in this case by Arista; is that right?

19 A Yes.

20 Q The focus of your report and testimony here
21 today is U.S. Patent Number 10,652,111, which I'm
22 going to refer to today as the '111 patent.

1 Is that right?

2 A Yes, that's correct.

3 MS. FENDER: Just to make sure we're
4 all talking about the same thing, Ms. Zeigler, if
5 you'd go ahead and pull up for Dr. Min what's been
6 marked as Exhibit 1001. That's the '111 patent.

7 (Marked Exhibit 1001.)

8 BY MS. FENDER:

9 Q Sir, do you see that?

10 A Yes. Before we proceed further, I have
11 actually a hard copy printed, which is a marked -- I
12 printed for the purpose of deposition today. With
13 me is the '111 patent and three main prior art
14 references, Lefebvre, Chua, and Rash, and finally my
15 expert report or so a marked printed.

16 May I use this during the proceeding for
17 convenience purpose? Sometimes it's easier to use
18 hard copies.

19 Q I completely agree, Dr. Min. And, in fact,
20 I have the same thing. So as long as you make a
21 representation under oath on the record that there
22 are no markings other than perhaps your own notes,

1 but no markings on these documents and that you'll
2 just use these for reference to help us move more
3 quickly, I am completely fine with that.

4 Do you make that representation?

5 A I do.

6 Q Perfect.

7 We'll still go ahead and show some things on
8 the screen so that everyone can be on the same page
9 literally and figuratively.

10 But I think for your sake, if it's easier to
11 look in your hard copy, that's absolutely fine.

12 Okay?

13 A Okay.

14 Q So for ease of reference again, I'm going to
15 be referring to this patent as the '111 patent
16 throughout. And, sir, we're going to keep the same
17 reference numbers, the same exhibit numbers for most
18 of the exhibits as you did in your declaration. So
19 in your declaration, this is the Exhibit 1001.

20 Okay?

21 A Okay.

22 Q So this is the patent that's the subject

1 matter of your report; is that right?

2 A That is correct.

3 Q And who first reached out to you in
4 connection with serving as an expert witness in this
5 case?

6 MR. STAVINOHA: I'm going to caution
7 the witness not to reveal the substance of any
8 discussions with counsel.

9 THE WITNESS: I think when I was
10 retained, I was at the time working on behalf of
11 Arista in a separate matter.

12 BY MS. FENDER:

13 Q Okay.

14 A And I think the reference was made from the
15 attorney in the other case to the attorney in this
16 case. So it was only the attorney from Baker Botts
17 who reached out to me.

18 Q And what was the subject matter of the prior
19 retaining agreement that you had with Arista? So on
20 the case that led to this referral, what were you
21 testifying about?

22 A It was about switching technology, so it is

1 similar in that regard but somewhat different.

2 Q And for this case, you were first retained
3 by Arista back in about 2022; is that right?

4 A That sounds about right.

5 Q Other than the other matter that you just
6 mentioned, have you worked for Arista as an expert
7 witness in any other patent matters?

8 A I mean, the cases that I worked on are all
9 in my CV. You know, I may have, but it hasn't been
10 any time recent, not over the past five years, say.

11 Q In the past five years, just the two matters
12 that you've mentioned?

13 A I believe so.

14 Q And your current rate is \$500 per hour plus
15 expenses; is that right?

16 A That's correct.

17 Q Since 2022, about how many hours do you
18 think you've spent in total on this particular
19 matter with Arista?

20 A I don't have -- I don't really have a good
21 idea. It's two IPRs and leading to this deposition,
22 so I really do not know.

1 Q I'd like to ask you, sir, to make your best
2 estimate.

3 So you've been an expert witness it looks
4 like somewhere over 79 times; is that right?

5 A I have not really done the counting, but
6 it's over 50 for sure. But I don't know if it's 79.

7 Q Well, I can represent that I counted, and
8 I'm happy to have you take a look at it.

9 But it's certainly over 50 times?

10 A Yes.

11 Q And so based on your experience and your
12 sort of general practice, if you don't remember
13 specifically with respect to this case, about how
14 many hours would you expect that you have spent
15 preparing for a case like this?

16 A So including --

17 MR. STAVINOHA: Objection, form.

18 THE WITNESS: Including the prep for
19 the deposition, somewhere from 100 to 150 hours.

20 BY MS. FENDER:

21 Q Okay.

22 A That would be my best guess.

1 Q And other than the two matters that you
2 mentioned, I think you've made this clear, but you
3 don't have any other relationship with Arista other
4 than acting as an expert witness on this current
5 matter and the matter that led to the referral; is
6 that right?

7 A Currently that is the case. I don't have
8 any other relationship with Arista.

9 Q Have you ever worked for Arista?

10 A No.

11 Q Has Arista ever tried to license one of your
12 patents?

13 A So I ran business for about 12 years
14 starting from '97 til about 2008. It was a
15 switching company. There may have been negotiation
16 with regard to selling out chips, but I would not
17 characterize that as a licensing approach and
18 certainly not directly related to any of my patents.

19 Q Let's talk a little bit about your personal
20 experience, Dr. Min.

21 Have you personally been involved in
22 designing network switches?

1 A Many times.

2 Q What about routers?

3 A Many times.

4 Q What about hardware generally then?

5 A Well, the switches and routers include
6 hardware, something that I've been doing for
7 decades, so I've been doing this for a long time.

8 Q What about with respect to software-defined
9 networks? So I'm going to refer to those for all of
10 our sakes as SDNs throughout.

11 Have you been involved in designing or using
12 software-defined networks?

13 A Yes.

14 Q What about deep packet inspection or DPI?

15 A That is true, there as well.

16 Q And what about network security, Dr. Min?

17 A Yes.

18 Q So you first started serving as an expert in
19 about 2007; is that right?

20 A That sounds about right.

21 Q Sometimes you do work as an expert on behalf
22 of the patent owners, right?

1 A I've done that sometimes, yes.

2 Q And sometimes you're acting on behalf of the
3 companies who have been accused of infringing a
4 patent; is that right?

5 A Yes, that's right.

6 Q And in your work as an expert, you've
7 offered opinions that patents at issue were invalid?

8 A In some cases, yes, that's correct.

9 Q And sometimes you testified or opined that
10 the invention disclosed is not novel, correct?

11 A Invention disclosed not novel, are you --
12 I'm not really sure.

13 Is there a legal standard requiring the
14 novelty? I'm really not sure of the question.

15 Q You're not familiar with the standard of
16 novelty when it comes to patents?

17 A I mean, I know I've done some analysis with
18 respect to novelty in some cases, but that's really
19 not -- no legal terminology is used to characterize
20 novelty as any of the, like, say, for example,
21 invalidity or validity aspect.

22 I mean, I said in my report, I'm sure, some

1 technologies disclosed in the patent was not novel
2 in some cases, but I don't know if I said that in,
3 like, legal conclusion, like, obviousness, for
4 example.

5 MS. FENDER: Ms. Zeigler, can you go
6 ahead and take down the '111 patent for right now so
7 I can see Dr. Min a little better. Thank you.

8 BY MS. FENDER:

9 Q So to be clear, then, Dr. Min, you have
10 opined, of course, in some cases that an invention
11 was obvious, correct?

12 A Yes, that's correct.

13 Q And when you used that term in the past and
14 in respect to your report today, you're using that
15 as you understand the legal term obviousness as it
16 relates to patent law; is that right?

17 A Yes --

18 MR. STAVINOHA: Objection, form.

19 THE WITNESS: Once again, I'm not a
20 lawyer, obviousness as counsel for Arista has
21 informed me, and I understand the standard for that
22 obviousness testing to apply to the patent claims.

1 So that obviousness term the way you're using, that
2 is what I will use during this deposition.

3 BY MS. FENDER:

4 Q The definition of obviousness that was given
5 to you by counsel?

6 A Yes.

7 Q And so you're a named inventor yourself,
8 right?

9 A Yes, that's correct.

10 Q 11 patents it looks like?

11 A That's correct.

12 Q Do you know if any of those patents were
13 ever the subject of litigation?

14 A Not that I'm aware. I don't think so.

15 Q You've testified as an expert against a lot
16 of different companies and in a lot of different
17 technologies; is that fair to say?

18 A As you represented to me, I testified 79
19 times, so I have testified against many different
20 entities with respect to my prior testimony --

21 Q Let me correct the record there, Dr. Min.
22 If I said that, I misspoke.

1 You have at least 79 matters in which you've
2 been retained as an expert. I don't know whether
3 you've testified 79 times.

4 A Okay.

5 Q But you've testified quite a bit; fair to
6 say?

7 A That is correct.

8 Q And some of these areas of technology I'm
9 going to walk through with you.

10 But your testimony or your expert reports
11 have included areas such as dual-mode
12 communications, correct?

13 A Yes.

14 Q Automatic switching systems?

15 A Yes.

16 Q Semiconductor manufacturing?

17 A Yes.

18 Q Whatever this means, nonvolatile
19 semiconductor memories?

20 A Yes.

21 Q Flash memory?

22 A Yes.

1 Q Storage-area networks?

2 A Yes.

3 Q Petroleum-processing software?

4 A It was really the software that was the
5 subject matter, not the petroleum. But petroleum
6 happened to be the application area.

7 Q But that is an area in which you opined as
8 an expert.

9 Yes?

10 A For software copyrights, but the software
11 happened to be the petroleum industry.

12 Q And you've done work as an expert on
13 vehicular systems?

14 A Yes.

15 Q Cable TV advertisements?

16 A Yes.

17 Q Vehicular electronics?

18 A Yes.

19 Q Electronic payment systems?

20 A Yes.

21 Q Optical transport networks?

22 A Yes.

1 Q Lighting systems?

2 A It was more circuitry, once again, like that
3 happened to be in a lighting system, but it was --
4 really subject matter was a circuitry.

5 Q And fair to say that that's just a sample of
6 some of the different areas in which you've acted as
7 an expert.

8 Yes?

9 A Yes, that's right.

10 Q And so you've been retained by Baker Botts
11 on behalf of Arista to talk in this case about
12 network switching; is that right?

13 A That's right.

14 Q I'd like to understand from you, Dr. Min,
15 some of the work that you've done. You've talked to
16 me about your background in SDN and in DPI.

17 A Yes.

18 Q So talk to me about some of the work that
19 you've done as an academic, as a researcher on
20 software-defined networks.

21 A Okay. So the software-defined network was
22 something that came about in early 2000 timeframe.

1 And there -- you know, bear in mind that in 1990s,
2 the prevailing technology in switching was
3 Asynchronous Transfer Mode, ATM, which I worked on
4 for several years.

5 And then by the time of that decade in the
6 late '90s, it became pretty clear that ATM was too
7 complex. More importantly, telephone companies that
8 owned the telephone networks in the United States at
9 the time, they were moving away from circuit switch
10 and going into more packet switch core and also
11 cellular technology.

12 So with the advent of this computer
13 technology that was coming about, the
14 software-defined network was proposed. And at least
15 in some cases, some companies -- some service
16 providers were, like, advocating to use, so
17 software-defined network as really utilizing --

18 Q Dr. Min, I don't mean to interrupt you, but
19 we're going to get into what everything means in a
20 second. For right now, if you would, I'd just ask
21 you to focus on -- and the background is helpful.

22 But if you could focus on your specific work

1 in that area, that would be great.

2 A Yes. Actually, I was getting to that.

3 Q Thank you.

4 A So I was running the company starting from
5 late 1990s. My company was actually switching from
6 ATM to this ethernet-based multiswitches. We called
7 it multiservices switch router.

8 And what it would do providing that function
9 on the fly was SDN, software-defined networks. It
10 can create different switch functions.

11 For example, it can make ethernet switch
12 to --

13 (Stenographer requested clarification
14 due to audio distortion/malfunction.)

15 THE WITNESS: Ethernet switch to act
16 like router or ATM switch to act like ethernet
17 switch. I mean, this is a utility that
18 software-defined network was providing.

19 So we actually used a lot of that
20 through my entrepreneurial effort, and, you know,
21 basically we worked on that product for quite a bit.

22 The SDN controller was not something

1 that I made. It was available third party, but we
2 built the switches that can actually act as --

3 (Stenographer requested clarification
4 due to audio distortion/malfunction.)

5 THE WITNESS: -- OpenFlow protocol
6 switch.

7 MS. FENDER: Elisabeth, that's
8 OpenFlow, F-L-O-W. We'll be using that term a lot
9 for whatever it's worth.

10 BY MS. FENDER:

11 Q And thank you, Dr. Min.

12 With respect to deep packet inspection, can
13 you describe for me again -- I know there's a lot of
14 background, we'll have a chance to talk about it
15 more generally, but your specific work using DPI?

16 A Yeah. But this was also part of my company
17 work. We're building switches, and also we're
18 building firewalls. The firewalls had intrusion
19 detection and intrusion prevention cart. And we're
20 building deep packet inspection engine at TGA.

21 I actually have a couple of patents in my --
22 among my 11 patents that are related to deep packet

1 inspection engine.

2 MS. FENDER: Anything else you need,
3 Elisabeth, right there?

4 THE STENOGRAPHER: No.

5 BY MS. FENDER:

6 Q So, Dr. Min, I want to understand a little
7 bit of the process that you went through in forming
8 your opinions today in getting ready for the
9 deposition.

10 Okay?

11 So let's go back to the beginning.

12 You submitted a declaration in connection
13 with this Arista IPR on the '111 patent, right?

14 A Yes.

15 Q And I know you may have it in front of you
16 in an unmarked version as you've represented.

17 MS. FENDER: But, Ms. Zeigler, if you
18 could go ahead and pull up for the record what's
19 been marked as Exhibit 1002.

20 (Marked Exhibit 1002.)

21 BY MS. FENDER:

22 Q I will ask you, Dr. Min, for this one just

1 to confirm what's on the screen is, in fact, your
2 declaration.

3 A That is the cover page of my declaration
4 submitted for this IPR proceeding.

5 MS. FENDER: And I'm going to go ahead
6 and ask Ms. Zeigler to flip back to Appendix A,
7 which should be at about page 153 of this. Scroll
8 down one more page, Ms. Zeigler, if you would.

9 BY MS. FENDER:

10 Q And, Dr. Min, this is -- Appendix A to your
11 declaration is the copy of your, at the time, I'm
12 sure, current curriculum vitae; is that right?

13 A That is correct.

14 MS. FENDER: Go ahead and take that
15 down for now, Ms. Zeigler.

16 BY MS. FENDER:

17 Q Dr. Min, you've looked at both of those
18 documents, I'm sure, many times and very carefully,
19 correct?

20 A I haven't really read through my CV, but
21 certainly report many times. CV I try my best to be
22 accurate and update as time goes.

1 Q And you drafted your CV, correct?

2 A Yes, that's correct.

3 Q Is there any mistake or error that you're
4 aware of in your CV?

5 A Not that I can tell you right here sitting
6 now -- down. Not sitting here, no.

7 Q And what about in your declaration, any
8 mistakes or errors that you're aware of?

9 A Once again, same answer. I read it many
10 times, but nothing that comes to my mind.

11 Q Anything that you wanted to change or add as
12 you sit here right now?

13 A Nothing specific, no.

14 Q And anything that you would want to delete,
15 for instance, or omit from your declaration?

16 A Once again, nothing that I can think of.

17 Q Throughout our deposition today, when I
18 refer to your report or your declaration, I'm going
19 to be referring to Exhibit 1002.

20 Okay?

21 A Okay.

22 Q Sir, who wrote your declaration?

1 A So it was a joint effort. So I start by
2 looking at prior references and also some of the
3 materials that were related, such as prior IPR
4 proceedings.

5 After reviewing the documents that I had, I
6 formed my opinion. Then we start drafting. So I
7 did some part of the thing, and I asked for help
8 from the counsel to draft a certain portion, after I
9 had specified what my opinion was. And they helped
10 me in putting together the draft.

11 Q Just to make sure I'm clear, Dr. Min, your
12 representation is that after you had fully formed
13 your opinion, only then did you work with counsel to
14 jointly draft this report?

15 A I started working before obviously. But it
16 was really after I had formed my opinion as to what
17 goes into my report, then the drafting began. And I
18 requested assistance from the counsel to help me put
19 the ideas on the paper.

20 Q You mentioned that you looked at -- well,
21 let me first go ahead and direct your attention to
22 page 18 and 19 of your report.

1 MS. FENDER: And if we can bring that
2 up, Ms. Zeigler, for the record.

3 BY MS. FENDER:

4 Q This is a copy of the specific --

5 MS. FENDER: We probably can't do a
6 side by side, so we may need to scroll through,
7 Ms. Zeigler, if you can scroll slowly through the
8 next page.

9 BY MS. FENDER:

10 Q What you're seeing here on the screen,
11 Dr. Min, that is specifically the list of references
12 that you indicated you referred to in the course of
13 forming your opinions and drafting your declaration;
14 is that right?

15 A So these are the materials as shown in this
16 paragraph 25 of my declaration, the table containing
17 some 27 -- it's not quite 27. The numbers are
18 missing.

19 But it's a number of document -- these are
20 all the documents that I relied on in forming my
21 opinion.

22 Q And, of course, there's --

1 MS. FENDER: In the next paragraph
2 down -- if you can scroll down, Ms. Zeigler.

3 BY MS. FENDER:

4 Q -- there's a reference to another IPR in a
5 declaration there.

6 Other than these materials that you've just
7 looked at, what's in the table and what's referenced
8 in paragraph 26, was there any other reference or
9 source of information that you relied upon in
10 forming your opinion?

11 A Of course, I have my own personal knowledge
12 and experience.

13 Q Of course.

14 A As to what constituted my knowledge and
15 opinion, I could not tell you. You know, it's over
16 time.

17 But what I am telling here is that these are
18 the materials that I have relied on forming my
19 opinion that are specific to this IPR proceeding.

20 Q So you just mentioned, sir, that you --

21 MS. FENDER: Go ahead and take that
22 down, Ms. Zeigler. Thank you.

1 BY MS. FENDER:

2 Q You just mentioned, Dr. Min, that you were
3 aware of other IPR proceedings; is that right?

4 A Yes.

5 Q What specific other proceedings are you
6 aware of that involve the '111 patent?

7 A So I say in -- during claim constructions
8 discussion that's in paragraph 58. And I list two
9 particular IPR proceeding as in the footnote at the
10 bottom of page 45 of my report. There's one by
11 Cisco System and another one by Juniper. I guess
12 the third one is actually what attorneys described
13 as a joinder, which is sort of like a -- sort of
14 like copycat. I mean, that was the description that
15 I can recall.

16 So there really are two, if not three
17 different IPR proceedings that I have referenced
18 here.

19 Q And when you say you reference them, what
20 specifically did you do to intake or analyze the
21 materials that were a part of those IPRs?

22 A I have reviewed at a different level the

1 expert declarations for --

2 Q For all of them.

3 A I mean, I have looked at them, yes, that's
4 correct. To the extent that -- I mean, I spent
5 different amounts of time differently based on my
6 initial assessment of prior references that these
7 declaration expert will rely on.

8 Q So we just went over the specific list of
9 exhibits on pages 18 and 19 of your declaration.

10 Who provided you that list of references?

11 MR. STAVINOHA: I'll counsel the
12 witness not to reveal the substance of any
13 discussions with counsel.

14 THE WITNESS: So during my review, in
15 particular Dr. Nader Mir, M-I-R, as opposed to Min,
16 M-I-N, which is me, his declaration for Juniper IPR
17 contained a lot of these references. And also in
18 review of his declaration, I identify many of these
19 documents, and it was put together based on that
20 identification.

21 BY MS. FENDER:

22 Q So what about the references that you have

1 added in your declaration for the first time, so new
2 references that were not referenced in a prior IPR,
3 where did those references come from? Did you
4 identify them yourself, or were they given to you by
5 counsel?

6 A You know, I certainly have identified some,
7 and some probably have come from the attorneys. I
8 just couldn't tell you which is which at this point.

9 Q Dr. Min, did you personally read all of
10 these references that are cited in pages 18 and 19?

11 A I wouldn't say all of it, but I read all of
12 the document but not all in its entirety. So I read
13 the ones that -- portions of list on those that I
14 felt relevant.

15 Q Did you review any of these references again
16 just prior to your deposition today?

17 A Yes.

18 Q Which references did you rereview prior to
19 your deposition today?

20 A Of course, '111 patent, Lefebvre, Chua, and
21 I went through some of the file history, Rash,
22 Moore, McKeown. I see 793. And the OpenFlow spec

1 1.1. I mean, those are the ones that I can think
2 of, but I may have read others as well.

3 Q Other than the references that you just
4 described, were there any new materials that you
5 specifically referenced in advance of today's
6 deposition; so, for instance, something that you
7 looked at, perhaps you didn't have the advantage of
8 it during your drafting of the report but in getting
9 ready for today, new references or information that
10 you looked at?

11 A I don't think so.

12 Q Nothing online, no, you know, IEEE
13 definition, nothing like that?

14 A I don't think so.

15 Q You obviously prepared your report and
16 prepared for today's deposition with the counsel
17 that we were just discussing, Baker Botts.

18 Understanding that you should not disclose
19 the substance of any communications, but who
20 specifically did you meet with in preparing for your
21 deposition?

22 A I met with Mr. Stavinoha -- I knew I was

1 going to do this, Stavinotha and Ms. Potter and very
2 briefly Mr. Eliot Roberto [sic]. I'm sorry, what's
3 his last -- I forgot his name.

4 Q That's okay.

5 A Yeah.

6 Q How many times did you meet with counsel to
7 prepare for today's deposition?

8 A In the past about two, three weeks, three
9 times, four times, couple hours at a time.

10 Q And as you noted, you consulted a
11 declaration in particular from another expert in
12 another IPR as part of your analysis and your
13 preparation for today; is that right?

14 A Consulted? I mean, I reviewed declaration
15 by Dr. Mir pretty carefully. So if that is what
16 consulting means, the answer is yes.

17 Q You used some of Dr. Mir's language and
18 analysis from that Jupiter IPR -- I'm sorry, Juniper
19 IPR verbatim in your own declaration.

20 Is that right, Dr. Min?

21 A Some of the language is maybe identical from
22 Dr. Mir's; that is correct.

1 I used those language only after I confirmed
2 my opinion -- his opinion is consistent with mine
3 and his analysis was to my satisfaction. And then I
4 have used his language verbatim, as you mentioned.

5 Q And I just want to be clear for the record
6 because you said the word maybe. It's not maybe.

7 You used some of Dr. Mir's language verbatim
8 in your report; is that correct?

9 A I think some cases, that is correct.

10 Q Are you not sure about that?

11 A No, no. I just answered the question, yes.

12 Q I just want to make sure that we're clear.

13 A Yeah.

14 Q Sir, have you ever met Dr. Nader Mir?

15 A No.

16 Q Did you ever discuss with him in any way the
17 '111 patent?

18 A No.

19 Q Any of the prior art?

20 A No.

21 Q Have you ever spoken to him in any form,
22 text message, by phone, anything?

1 A Not -- no. I mean, I don't think I know
2 him. It's possible that we may have crossed paths
3 in the past but not with respect to this
4 particular -- this proceeding, no.

5 Q And as you sit here today, you don't have
6 any specific recollection of ever having spoken to
7 him, for instance, at a conference or any sort of,
8 you know, technical meeting?

9 A Yeah, that's correct.

10 Q Have you ever read any of his papers?

11 A Yeah, I mean, I have read some of his papers
12 in the past.

13 Q Do you remember the subject matter of any of
14 those papers?

15 A I think it was switching related. I mean,
16 of course, sitting here I don't recall, but I have
17 read some of his papers.

18 Q Do you know anything about his educational
19 background, what degrees he holds?

20 A No, I don't know.

21 Q Do you know where he works right now?

22 A No.

1 Q Do you know what his level of expertise is?

2 A I don't know. Precisely, I don't know how
3 to specify that.

4 But based on the opinions that I've seen in
5 his declaration, he has the knowledge and experience
6 in the subject matter.

7 Q Did you review his curriculum vitae as part
8 of your review of the Juniper IPR?

9 A No, I did not review his CV.

10 Q So when you draw the conclusion that he has
11 the level of expertise, that's based just on his
12 declaration; is that fair to say?

13 A Yeah, I would say that that is correct, and
14 also my previous reading of some of his papers.
15 That was my impression that I had.

16 Q So your testimony is that you knew who he
17 was by virtue of his reputation in the field before
18 you saw his declaration?

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: I don't really know his
21 reputation, per se. I just know some of his work in
22 the past and also the expert report that he has

1 submitted. That's really the basis for my opinion
2 with my impression of him at this point.

3 BY MS. FENDER:

4 Q Do you know how many times he's served as an
5 expert witness in patent litigation cases?

6 A No.

7 Q Are you familiar at all with the process
8 that Dr. Mir used to conduct his analysis and to
9 draft his expert report with Juniper?

10 A No.

11 Q Do you know what instructions, if any, he
12 received from Juniper's attorneys in drafting his
13 declaration?

14 A No.

15 Q And what specific other materials from the
16 other IPRs related to the '111 patent did you
17 review? You mentioned that there were some other
18 proceedings.

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: I reviewed Dr. Mir's
21 declaration, and I glanced through the Cisco expert
22 report declaration. That was really the gist of it.

1 BY MS. FENDER:

2 Q And are there any materials related to --
3 let me back up.

4 You noted in your report that you were aware
5 that there was also district court litigation
6 involving Cisco; is that right?

7 A Yes.

8 Q Did you review any materials related to the
9 district court proceedings, whether Cisco or with
10 anybody else, as it relates to the '111 patent?

11 A No. The answer is no, but I think -- if you
12 look at paragraph 59 of my declaration.

13 MS. FENDER: You can go ahead and put
14 that up, Ms. Zeigler, for the record. Paragraph 59
15 is on page 45. That's Exhibit 1002.

16 THE WITNESS: So I'm aware that a
17 district court has preliminarily construed the term
18 controller to mean an entity that is capable of
19 controlling deep packet inspection.

20 BY MS. FENDER:

21 Q Okay.

22 A So this is something that's related to

1 district court litigation. I am told this by the
2 counsel. I did not really review any documents from
3 the district court case proceeding.

4 Q Thank you for clarifying, Dr. Min.

5 MS. FENDER: Let's go ahead and take
6 that down, Ms. Zeigler.

7 BY MS. FENDER:

8 Q I want to talk a little bit more about
9 Dr. Mir's declaration, Dr. Min.

10 So, again, it's not actually listed in your
11 exhibit list, but it's just after in your
12 declaration, right, paragraph 26?

13 A Yes.

14 MS. FENDER: Let's go ahead and show,
15 Ms. Zeigler, what we've marked as Exhibit 2008.

16 (Marked Exhibit 2008.)

17 MS. FENDER: This is Dr. Mir's
18 declaration.

19 BY MS. FENDER:

20 Q I'll give you a chance to look at it,
21 Dr. Min.

22 This is the declaration that you referred to

1 and that you adopted in part in your own report; is
2 that right?

3 A That's correct.

4 Q And just for the record, this is the
5 declaration of Dr. Nader F. Mir, which was
6 Exhibit 1003 in IPR 2024-00895, which I'm going to
7 refer to as the Juniper IPR.

8 Okay, Dr. Min?

9 A Okay.

10 MS. FENDER: Go ahead and take that
11 down for me, Ms. Zeigler, if you would.

12 BY MS. FENDER:

13 Q Dr. Min, you said that although your
14 declaration addresses claims not expressly
15 considered in Dr. Mir's declaration, you were able
16 to repeat portions of Dr. Mir's analysis in your own
17 declaration; isn't that right?

18 A I think that's right.

19 Q Dr. Mir only analyzed Claims 32 through 54,
20 but in your declaration, you analyze all of the
21 claims of the '111 patent, correct?

22 A Yes.

1 Q And it sounds like you're aware but let me
2 confirm.

3 You're aware that the exhibit list in your
4 declaration is largely taken from Dr. Mir's
5 declaration, right? All of the exhibits up to
6 Exhibit 1019?

7 A I mean, I think I said it as such
8 previously. A lot of the references came from -- a
9 lot of references listed here in my paragraph 25 of
10 my declaration were identified in Dr. Mir's
11 declaration.

12 Q And in your declaration --

13 MS. FENDER: Let's go ahead actually,
14 Ms. Zeigler, if you would, I'd like to do a
15 side-by-side, Exhibit 1002, page 47, as compared to
16 Exhibit 2008, page 10.

17 BY MS. FENDER:

18 Q Dr. Min, for significant portions of this --
19 I know we've talked about parts were taken verbatim
20 from Dr. Mir -- I'm going to have to be careful with
21 my record -- the Dr. Mir declaration, correct?

22 A Could you repeat the question?

1 Q Sure.

2 You've told me that portions of your report
3 were taken verbatim from Dr. Mir's declaration,
4 correct?

5 A Yes.

6 Q And in your declaration, for example, on
7 page 47, paragraph 63, other than the footnotes,
8 which in Dr. Mir's declaration they are footnotes;
9 in your declaration, you move the source citations
10 up to the body of the paragraph.

11 Other than that, these paragraphs are
12 verbatim identical; is that right?

13 A Do you want me to actually compare?

14 Q Sure.

15 A Yes.

16 Q Thank you.

17 MS. FENDER: Ms. Zeigler, if you would
18 just so we have completeness of the record, if you
19 could scroll down on Exhibit 2008 just to show the
20 footnotes so that Dr. Min can see that.

21 BY MS. FENDER:

22 Q So, again, what appears to have happened

1 here -- and please correct me if I'm wrong,
2 Dr. Min -- is that this language and a lot of the
3 other language in your report was taken verbatim
4 from Dr. Mir's declaration, but the footnotes were
5 brought up into the body of your declaration.

6 Is that right?

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: In the paragraph 63, that
9 is the case.

10 BY MS. FENDER:

11 Q And that continues, for instance, from
12 paragraph 63 all the way up through paragraph 71 in
13 your declaration, right?

14 A I mean, I couldn't tell you without
15 comparing.

16 Q You don't know how much of it was taken
17 verbatim?

18 A Not sitting here I couldn't tell you. This
19 is with regard to describing the deep packet
20 inspection technology. These are not something that
21 requires a lot of opinion. It's just a description
22 of what the technology is.

1 So I'm not at all surprised that I adopted
2 his description here, even sitting here, you know,
3 thinking back.

4 Q I would hope that you wouldn't be surprised.

5 A I'm sorry?

6 Q If it's a surprise, then we have different
7 questions to ask.

8 A No, I mean -- what I meant by that is,
9 description of technology coming from someone who
10 clearly knows the material at least based on the
11 description, there's no reason for me to repeat the
12 characterization as I agree with his
13 characterization.

14 Q I'm still going to ask you some questions
15 about exactly what portions were copied from
16 Dr. Mir's report, okay, Dr. Min, so be patient with
17 me.

18 And I notice, again, you have some of these
19 paper copies in front of you. And so to the extent
20 you have your own declaration and Dr. Mir's, you may
21 find it more convenient to look at those in paper to
22 be able to compare because I'm going to ask you a

1 lot of questions just like this.

2 Okay?

3 A Yeah. I don't have a paper copy of
4 Dr. Mir's. As I mentioned, I have a paper copy of
5 my declaration, '111 patent, Lefebvre, Chua, and
6 Rash.

7 Q Okay.

8 A Those are the ones that I have paper copies.

9 Q Then we'll be happy to take the time that we
10 need.

11 MS. FENDER: So if you could,
12 Ms. Zeigler -- I don't know if there's a
13 side-by-side scroll feature that would help us do
14 this in somewhat concert, but let's go ahead and
15 scroll from where we are right now, which is
16 paragraph 64 on the left-hand side is Dr. Min's
17 declaration and comparing that to paragraph 26 on
18 the right-hand side, Exhibit 2008, Dr. Mir's
19 declaration.

20 If we could scroll slowly up until
21 about paragraph 71 of Dr. Min's declaration.

22

1 BY MS. FENDER:

2 Q And we'll do this exercise relatively
3 quickly, Dr. Min, because I think as you
4 represented, it does not surprise you that this part
5 was taken verbatim, correct?

6 MR. STAVINOHA: Objection, form.

7 THE WITNESS: I mean, as I said, this
8 is really not the portion that describes a lot of
9 opinion. This is a section describing the
10 technology.

11 BY MS. FENDER:

12 Q Understood.

13 A I reviewed Dr. Mir's description of the --
14 referring in this case, deep packet inspection, and
15 I agree. And so I utilized his description and
16 incorporated it into my declaration.

17 MS. FENDER: Ms. Zeigler, let's go
18 ahead and pause there for one second.

19 BY MS. FENDER:

20 Q Understood, Dr. Min. Nonetheless, if you're
21 not able to recall your report and how it was
22 drafted clearly enough to help me understand what

1 portions were taken verbatim from Dr. Mir's
2 declaration or not, then it will be an exercise that
3 we need to go through, whether it's the background
4 portion of some of the technology or other portions
5 of your declaration, which I think we'll get to in a
6 moment.

7 Okay?

8 A Okay.

9 MR. STAVINOHA: Objection, form.

10 BY MS. FENDER:

11 Q As you look here, Dr. Min, at what is
12 page 49 of your declaration as compared to --

13 MS. FENDER: I'm sorry, Ms. Zeigler,
14 can you scroll up just a little bit?

15 BY MS. FENDER:

16 Q -- page 12 of Dr. Mir's deposition, again,
17 these appear to be identical, correct?

18 A That is correct.

19 MS. FENDER: Let's go now, Ms. Zeigler,
20 to page 26 of Dr. Min's declaration and page 15 of
21 Dr. Mir's declaration.

22

1 BY MS. FENDER:

2 Q This is the section Overview of the '111
3 Patent.

4 And, again, Dr. Min, I'm going to ask you
5 that this portion of the text taken from your
6 paragraph about 41, the Subject Matter, down to
7 paragraph 44, that's all taken verbatim from
8 Dr. Mir's declaration?

9 I'm trying to be careful with Mir and Min,
10 so please correct me if you find that I've
11 misspoken.

12 Is that right?

13 A What is shown on the screen seems identical
14 from paragraph 42 of my declaration and paragraph 35
15 of Dr. Mir's declaration, at least the portion that
16 I see.

17 Q And the same approach of taking language
18 verbatim was used in your declaration when it came
19 to summarizing the relevant prior art; is that
20 correct?

21 A I think, once again, that might be the case.
22 It is characterizing the prior art reference. So as

1 I have reviewed Dr. Mir's declaration, if I find his
2 characterization being consistent with my opinion, I
3 would have adopted his description.

4 Q So let's go ahead and look at your
5 declaration, your summary of the Lefebvre patent.
6 For the record, that's U.S. Patent 10,097,452.
7 That's Exhibit 1005 in your declaration.

8 (Marked Exhibit 1005.)

9 BY MS. FENDER:

10 Q You talk about that patent at page 54 of
11 your declaration.

12 Do you see that there, sir?

13 A Yeah.

14 MS. FENDER: And I'm going to go ahead
15 and ask Ms. Zeigler to compare that to Exhibit 2008
16 at page 21, paragraph 45.

17 BY MS. FENDER:

18 Q So, again, recognizing that we're not going
19 to read these entire reports, but this is consistent
20 with your memory that the background and overview of
21 the Lefebvre patent was taken verbatim from
22 Dr. Mir's declaration; is that right?

1 MR. STAVINOHA: Objection, form.

2 THE WITNESS: At least the portion that
3 I see here, that appears to be the case.

4 BY MS. FENDER:

5 Q Do you have any reason to think otherwise
6 for the entirety of the background discussion of the
7 Lefebvre patent? Do you think that you had any of
8 your own conclusions with respect to describing this
9 prior art?

10 MR. STAVINOHA: Objection, form.

11 THE WITNESS: Yeah, description of
12 prior art would not have any conclusion with regard
13 to my opinion as a description. And if I found
14 Dr. Mir's description of prior art to be consistent
15 with mine, then I would have adopted his
16 description.

17 (Marked Exhibit 1006.)

18 BY MS. FENDER:

19 Q And same approach taken with respect to the
20 Chua patent; that's U.S. Patent Number 9,264,301
21 (Chua).

22 Is that right, Dr. Min?

1 A If you scroll down, Dr. Mir's, yeah.

2 Q Happy to have that happen.

3 MS. FENDER: Ms. Zeigler, if you would
4 go ahead to page 58 of Dr. Min's declaration and
5 page 26 of Dr. Mir's declaration.

6 THE WITNESS: The portions that I see
7 on the screen of Chua's description of -- I'm sorry,
8 Dr. Mir's description of a Chua reference seems
9 identical to what I have adopted in my declaration.

10 BY MS. FENDER:

11 Q You have no reason to doubt, as you sit here
12 today, that you took this portion of your report
13 verbatim from Dr. Mir's report, correct?

14 A No, not that I can think of as, once again,
15 describing prior art references, a Chua reference
16 here. And if I -- after reviewing Dr. Mir's
17 description of a Chua reference and if that is
18 consistent with my characterization of a Chua
19 reference, then I would have adopted the description
20 from Dr. Mir's declaration.

21 Q So, Dr. Min, I'm going to ask you to just
22 listen to my question and answer my question, which

1 is -- because you've looked at this portion of the
2 Chua descriptions.

3 I think you agree that they're identical,
4 correct?

5 A The portions that I see, yes.

6 Q And you have no reason to doubt, based on
7 what you've just described, that the remainder of
8 your portion of the discussion of Chua was taken
9 verbatim from Dr. Mir's declaration, correct?

10 A Yes, that's correct. I thought that was
11 what I was answering.

12 Q Thank you, sir.

13 Let's go ahead and turn to your discussion
14 of the Rash patent.

15 MS. FENDER: For the record, that's
16 U.S. Patent 9,813,447. That begins at paragraph 90,
17 page 59 of your declaration; and page 28 of the Mir
18 declaration.

19 (Marked Exhibit 1007.)

20 BY MS. FENDER:

21 Q Do you see that, Dr. Min?

22 A I do see it.

1 Q I'll ask you the same question. It will not
2 be a surprise, I'm sure, by now.

3 Are there any differences in the portion of
4 your declaration as compared to Dr. Min's -- excuse
5 me, Dr. Mir's in regard to the discussion of the
6 Rash patent?

7 A I mean, the paragraph numbering is
8 different. Paragraph 57 was broken into --
9 paragraph 57 of Dr. Mir's description was broken
10 into two in mine, 90 and 91.

11 Q Any other differences?

12 A I'm just looking right now.

13 Can you scroll down Dr. Mir's?

14 Q Well, I think the -- absolutely, we can do
15 that, Dr. Min. I think the purpose here is not to
16 have you read the entire section but to help you
17 remember whether you made any changes to this
18 discussion of the prior art.

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: Yes. As you asked if I
21 made any changes, that necessitates looking at the
22 entire section. But I'm looking.

1 No. I think they look identical to
2 each other.

3 BY MS. FENDER:

4 Q The same is true with respect to your
5 description of a person of ordinary skill in the
6 art.

7 That description of a person of ordinary
8 skill in the art in your declaration is precisely
9 the same and indeed was taken from Dr. Mir's
10 declaration; is that right?

11 A Just one second, please.

12 MS. FENDER: Actually, go ahead and
13 take that down for one second, Ms. Zeigler.

14 BY MS. FENDER:

15 Q Dr. Min, do you recall your definition of a
16 person of ordinary skill in the art?

17 A I couldn't tell you exactly what I said.
18 But this computer science, computer engineering,
19 electrical engineering, and two years in -- not
20 talking in that world and then talk about additional
21 degree, you know, can reduce the work requirement,
22 but basically the idea is that.

1 Q Say that last part again for me, sir.

2 If they had additional degrees, then they
3 would need --

4 A Then it can compensate for less work
5 experience.

6 Q And where did you come up with that
7 definition of a person of ordinary skill in the art?

8 A Where did I come up with that?

9 Q Uh-huh.

10 A I looked at the patent. I know a bunch of
11 people who worked in the area at the time of
12 invention, 2014. And, I mean, I just know the
13 industry, and that would be something that I can
14 assert to be one of ordinary skill in the art at the
15 time. It's just based on my experience. I was just
16 stating my opinion.

17 Q So your definition of a person of ordinary
18 skill in the art, which I know sometimes I'll say
19 for Elisabeth's sake, our court reporter, we
20 sometimes refer to as a POSITA, right, person of
21 skill in the art.

22 Your definition that you provided in your

1 declaration, that is something that you crafted and
2 you came up with based upon your understanding of
3 the field at the time of the invention; is that
4 right?

5 A The opinion in regard to what an ordinary
6 person -- ordinary skill, the person in the art is
7 in my opinion. And if it coincided with Dr. Mir's
8 definition, I would have adopted his passages in
9 mine.

10 Q So I don't want you to speculate. I want
11 you to remember what you actually did, if you can,
12 Dr. Min.

13 Did you come up with a definition of a
14 person of ordinary skill in the art on your own and
15 then compare it to Dr. Mir's declaration or his
16 opinion; or did you instead adopt his definition of
17 a person of ordinary skill in the art?

18 A No, the first --

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: I considered what a
21 person of ordinary skill in the art would be, and
22 then I also reviewed Dr. Mir's. And his opinion

1 coincided with mine, then I would have adopted his
2 passages.

3 BY MS. FENDER:

4 Q Are you aware of the fact that, again, your
5 definition of a person of ordinary skill in the art
6 is verbatim Dr. Mir's?

7 A It might be the case. If I adopted it, it
8 is because his opinion was consistent with my
9 understanding of what a POSITA would be.

10 Q And your testimony is, again, that you came
11 up with that deposition on your own independent of
12 referencing Dr. Mir at all? And if there's any
13 similarity between the two, it's a coincidence; is
14 that right?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: I mean, this would not be
17 coincidence. I think this is not a difficult
18 exercise.

19 Requiring bachelor's and a couple of
20 years of experience in the field to be an ordinary
21 skilled person, that is a pretty widely understood
22 practice of recognizing what a person of ordinary

1 skill in the art.

2 It is not a coincidence. It is just an
3 opinion that happened to match with mine, his
4 opinion, that happened to match with mine. I would
5 not call that a coincidence.

6 BY MS. FENDER:

7 Q But just to be clear, your testimony is that
8 you crafted your own definition of a person of
9 ordinary skill in the art, first, before you saw
10 Dr. Mir's, correct?

11 A That is correct.

12 MS. FENDER: Ms. Zeigler, would you go
13 ahead and put up for us on the screen from
14 Exhibit 1002, Dr. Min's declaration, page 33; and
15 from Dr. Mir's declaration, Exhibit 2008, page 29.

16 MR. STAVINOHA: Counsel, we've been
17 going for about an hour now. So if we're about to
18 switch gears into something else, maybe it's a good
19 time for a break.

20 MS. FENDER: I think probably, Clarke,
21 if you don't mind, I probably need another ten
22 minutes on this line of questioning.

1 MR. STAVINOHA: Dr. Min, is that okay
2 with you?

3 MS. FENDER: Yeah, that's fine. Yeah.
4 BY MS. FENDER:

5 Q All right. So if you would, Dr. Min, please
6 go ahead and look at the definition that you provide
7 in paragraph 52 of your declaration.

8 MS. FENDER: If you could go ahead and
9 scroll up a little bit, Ms. Zeigler.

10 BY MS. FENDER:

11 Q That is exactly the same definition as
12 Dr. Mir's definition in paragraph 61; isn't that
13 right?

14 A Yeah.

15 MS. FENDER: You can take that down,
16 Ms. Zeigler. Thank you.

17 BY MS. FENDER:

18 Q Dr. Min, what factors did you analyze or
19 consider in deciding whether you agreed with
20 Dr. Mir's opinion as to a person of ordinary skill
21 in the art?

22 A That's not what I did.

1 Q Okay.

2 A I was trying to form my own opinion. I was
3 not trying to find whether I agree with him.

4 First of all, the field, computer
5 engineering, computer science, electrical
6 engineering, they are the type of people working in
7 this area. And there may be some other degree
8 trying to be, like, work in the industry related to
9 this, but they are not the typical people.

10 And so the field is pretty straightforward,
11 and this is not a patent that would require advanced
12 degrees such as Ph.D. And the ordinary skill in
13 this case will be either bachelor's or master's
14 degree in this field. And bachelor's degree out
15 of -- cannot do this. It will require a couple of
16 years.

17 The two years is important as -- the first
18 year, they just learn the ropes. And then second
19 year, they actually begin to contribute.

20 Q I --

21 A No, this is my process of forming an
22 opinion. And I'm telling you that was the process

1 that I went through. And I know because I ran the
2 company, I have seen the people, what they do. That
3 takes about two years to be productive and become an
4 ordinary person -- ordinary skill. And that was the
5 process that I went through.

6 And the master's degree -- because a lot of
7 times during the master's study, they will actually
8 work on hands-on project, and that compensates for
9 the work experience after the bachelor's degree.
10 This is not just coming out of a -- you know,
11 looking through the head and find out the number.
12 This is really based on my experience.

13 And clearly Dr. Mir has the experience as
14 well to determining this. And his opinion is the
15 same as mine, and I agree with him, and there was no
16 reason for me to draft a different sentence.

17 Q I'm going to turn now to Ground 1 in your
18 declaration.

19 That means the first ground for your claims
20 of invalidity for the '111 patent, right? When I
21 say Ground 1, you know what I mean, correct?

22 A Yes.

1 Q So turning to that language, in your
2 declaration, that was also taken from Dr. Mir's
3 report, correct?

4 A Could you --

5 MR. STAVINOHA: Objection, form.

6 THE WITNESS: -- tell me which
7 paragraph you're referring to?

8 BY MS. FENDER:

9 Q In your declaration, paragraph 95, page 61.

10 A Paragraph 95, once again --

11 Q Go ahead, Dr. Min.

12 A Once again, I don't recall if this language
13 in paragraph 95 is identical as Dr. Mir's
14 description. But my Ground 1 is different, right.
15 My Ground 1 covers different claims. The Claim 1
16 through 31 was not analyzed by Dr. Mir.

17 Once again, I do not recall if the language
18 here is identical or not.

19 MS. FENDER: I want to go ahead and
20 have Ms. Zeigler then pull up both Exhibit 1002,
21 page 61; and Exhibit 2008, page 33.

22

1 BY MS. FENDER:

2 Q While she's doing that, I'll ask you,
3 Dr. Min -- again, we're talking about Ground 1, so
4 these are the specific assertions that you're
5 making. This is the start of the section in which
6 you're making specific assertions about the
7 invalidity of Claims 1 through 6, 9 through 15, 18
8 and 19, 21 through 36, 41 through 42, and 44 through
9 54.

10 You say that they are rendered obvious by
11 Lefebvre in view of Chua, correct?

12 A Yes.

13 Q And so as you point out, those claims are
14 not analyzed in Dr. Mir's declaration, right?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: What I said was 1 through
17 31 was not analyzed. They were not analyzed.

18 32 through 54 were analyzed -- I mean,
19 not all of them. But, you know, 32 through 36, 41,
20 42, 45 through 54 were analyzed.

21 BY MS. FENDER:

22 Q Thank you. You're exactly right. I

1 misspoke.

2 What I meant to say was, some of these
3 claims in your Ground 1, you will agree with me they
4 were not analyzed by Dr. Mir, correct?

5 A That's right.

6 Q And you weren't sure whether this section of
7 your report included language that was taken
8 verbatim from Dr. Mir's report, right?

9 A I'm sure there is some, but I don't recall
10 exactly which one.

11 MS. FENDER: Let's go ahead and turn to
12 paragraph 95, if you can scroll up a little bit,
13 Ms. Zeigler, and compare that to paragraph 70.

14 BY MS. FENDER:

15 Q Now, I point out, Dr. Min, that the first
16 portion, you say in your declaration, As I discussed
17 above in Section VI, if I've got my Roman numerals
18 correct; Dr. Mir says, As I discussed in
19 Section III.

20 But from that point on, the language of this
21 paragraph is identical, correct?

22 A Allow me.

1 Q Sure.

2 A Paragraph 95 of my declaration, paragraph 70
3 of Dr. Mir's declaration look identical.

4 Q Thank you, sir.

5 MS. FENDER: And if we scroll up a
6 little bit to the Motivation to Combine sections,
7 Ms. Zeigler.

8 BY MS. FENDER:

9 Q Dr. Min, I want to ask you first, is it fair
10 to say that at least for Ground 1 the references
11 were discussing Chua and Lefebvre? Those are the
12 two primary references that you rely on, correct?

13 A Yeah, that's correct.

14 Q And between those two references, it's your
15 expert opinion that all of those claims I just
16 discussed, 1 through 6, 9 through 15, 18 and 19, 21
17 through 36, 41 through 42, and 44 through 54 in the
18 '111 patent, that between those two references, all
19 of the specific elements of the claims in the '111
20 patent are disclosed in either Chua or Lefebvre,
21 correct?

22 MR. STAVINOHA: Objection, form.

1 THE WITNESS: They are disclosed, and
2 combination of them are obvious to one of ordinary
3 skill in the art.

4 MS. FENDER: And just for the record --
5 I apologize, I need to learn to say your last name.

6 But, Mr. Stavinocha, I think if we can
7 go to 12:30 and then take a break, if that works,
8 that would be great because I think I'll be through
9 this entire section by then.

10 THE WITNESS: That's fine.

11 MR. STAVINOCHA: Dr. Min, if it's okay
12 with you.

13 MS. FENDER: Perfect.

14 BY MS. FENDER:

15 Q You agree, Dr. Min, that for a patent claim
16 to be found obvious, all of the elements of the
17 patent claim have to be found in either a single
18 reference or in a combination of references at which
19 a person of ordinary skill in the art would have
20 been reasonably expected to arrive, right? That's
21 your language?

22 A Yeah, that's correct.

1 Q And to be clear, I think based on your
2 testimony earlier, it is very obvious that your
3 skills, your personal skills well exceed the
4 standard of a person of ordinary skill in this art.

5 Fair to say?

6 MR. STAVINOHA: Objection, form.

7 THE WITNESS: I mean, that's correct.

8 What I said was, as one of ordinary skill in the
9 art, I believe I said a minimum of, but let me just
10 go back and take a look at that section one more
11 time, precise language here.

12 BY MS. FENDER:

13 Q I can go ahead and clarify, Dr. Min.

14 But to be clear, your level of skill is far
15 above the level of skill of a person of ordinary
16 skill in the art here, correct?

17 MR. STAVINOHA: Objection, form.

18 THE WITNESS: So what I describe in
19 paragraph 52 is someone who had at least a
20 bachelor's degree in computer science, electrical
21 engineering, computer engineering or closely related
22 field, and two or more years of professional

1 experience in packet switched networking systems.

2 So what I describe here is the minimum
3 requirement to be a person of ordinary skill in the
4 art. So my degree and experience certainly exceeds
5 the minimum, if that's what you're describing, but
6 I --

7 BY MS. FENDER:

8 Q To be clear, Dr. Min, let me just clarify
9 this one more time.

10 Your level of skill far exceeds that of the
11 person you defined as a person of ordinary skill in
12 the art.

13 Yes?

14 A That's what I was explaining.

15 MR. STAVINOHA: Objection to form.

16 THE WITNESS: My description of a
17 POSITA describes minimal at least and two or more
18 years, so it encompasses everybody that qualifies
19 the minimum and up. That's what I was trying to
20 explain to you.

21 BY MS. FENDER:

22 Q What I'm trying to understand is, do you

1 consider yourself a person of ordinary skill in the
2 art; or do you consider yourself an expert?

3 A I consider myself as both.

4 Q So what I'd like to understand is how did
5 you make sure that you -- as a person with
6 experience that vastly exceeds what you've described
7 as the minimum experience, how did you make sure
8 that you applied the perspective of a person of
9 ordinary skill in the art as you undertook your
10 analysis of the prior art? What steps did you take?

11 MR. STAVINOHA: Objection.

12 THE WITNESS: I mean, that's actually
13 quite easy. I'm a teacher by training. I teach the
14 subject. In fact, 2014 timeframe, I was teaching
15 not talking in switches. And the people who was
16 sitting in my classroom at the time taking my
17 courses would be someone who has bachelor degrees in
18 those three fields, computer engineering, computer
19 science, and electrical engineering, and working on
20 project for a year maybe, because usually they take
21 my class in the second year of master's.

22 So I know what they think and what they

1 know.

2 BY MS. FENDER:

3 Q Okay.

4 A So I have the perspective. And moreover, I
5 also have ran the company, so I know the interaction
6 through the people who worked in my company, some
7 are vastly exceeding this minimum, like a Ph.D.; but
8 some just had bachelor degrees and working hard in
9 that area.

10 I am trained to put myself in their shoes,
11 and that's what I do for a living.

12 Q Thank you.

13 I want to go ahead and look at the
14 Motivation to Combine sections of your report and
15 Dr. Mir's report, which Ms. Zeigler has up on the
16 screen for you. This is page 62 of your report;
17 page 34 of Dr. Mir's.

18 So this is the Motivation to Combine section
19 of the two reports.

20 And I want to ask you again, Dr. Min, is
21 this language identical or nearly identical to the
22 language, your report versus Dr. -- let me start

1 that over.

2 Your report, Dr. Min, the definition of a
3 POSITA, we've already discussed.

4 The Motivation to Combine Lefebvre and Chua,
5 as reflected in page 62, is that language nearly
6 identical to the language in Dr. Mir's declaration?

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: If you can scroll down
9 Dr. Mir's report a bit.

10 Paragraph 97 seems identical.

11 BY MS. FENDER:

12 Q And this is, again, the section on
13 Motivation to Combine the specific prior art,
14 Lefebvre and Chua, correct?

15 A Yes, that's correct.

16 MS. FENDER: Now, we can take that down
17 Ms. Zeigler. Thank you.

18 BY MS. FENDER:

19 Q So you analyzed all of the claims of the
20 '111 patent, right, Dr. Min?

21 A Yes, that's correct.

22 Q And there's only two independent claims,

1 correct?

2 A That is correct.

3 Q The first one is Claim 1, unsurprisingly?

4 A Yes.

5 Q And I just want to make sure I understand
6 something, because there are, fair to say,
7 significant portions of your report and analysis
8 that are drawn from Dr. Mir's analysis.

9 I want to understand how it is that you are
10 able to do that for a, for instance, independent
11 Claim 1 when Dr. Mir did not himself analyze
12 independent Claim 1. As you pointed out, his
13 analysis starts at the first independent claim in
14 the 30s. I believe it's Claim 31.

15 So how is it that you were able to take his
16 analysis and apply it to these other claims that you
17 analyzed in your declaration?

18 MR. STAVINOHA: Objection, form.

19 THE WITNESS: I think you're
20 mischaracterizing what I said I did. I did not take
21 his analysis and try to apply to Claim 1. That's
22 not what I did.

1 I reviewed Dr. Mir's report, of course,
2 I told you that I did that, before I started
3 drafting my report.

4 I recognized a difference between the
5 two independent claims, 1 and 32, and I formed my
6 opinion of both of these independent claims. And
7 then I started drafting.

8 If what Dr. Mir has done is consistent
9 with my opinion, then I adopted paragraphs or
10 sentences that he has stated in his report. It is
11 not that I was trying to modify his opinion to fit
12 mine. That's not what happened here.

13 BY MS. FENDER:

14 Q I'm just trying to understand your process,
15 Dr. Min.

16 So it is correct, is it not, that there is
17 language that is taken in the analysis of the claims
18 where you analyze Claims 1 through 31, language in
19 that portion of your report that can be found
20 verbatim in Dr. Mir's report in portions where he is
21 discussing Claims 32 through 54?

22 A Yeah, I'm --

1 MR. STAVINOHA: Object to form.

2 THE WITNESS: Yeah, I'm sure there are.

3 BY MS. FENDER:

4 Q And I want to understand, because I think
5 this is important, what you're telling me.

6 I believe your testimony is you analyzed
7 these claims yourself referencing the exhibits that
8 we've just discussed, and you came up with your own
9 independent analysis and conclusions as to why the
10 claims of the '111 patent are invalid, right?

11 A Yeah, that's correct.

12 Q And you did that without referencing
13 Dr. Mir's opinion?

14 MR. STAVINOHA: Objection, form.

15 THE WITNESS: When you say referencing,
16 what do you mean by that?

17 BY MS. FENDER:

18 Q I believe what you're telling me -- and this
19 is what I'm trying to clarify -- is you came to your
20 conclusions independently about the invalidity of
21 the claims that you analyzed in your report.

22 A That is correct.

1 Q And that was without reference, you did not
2 take your opinions, you're saying, from Dr. Mir's
3 declaration; you came to those conclusions on your
4 own; is that right?

5 A Yeah, that's correct.

6 Q And so what I'm trying to understand, sir,
7 is how there is so much language from Dr. Mir's
8 declaration that is appearing verbatim in your
9 report, so I'm trying to understand your process.

10 When you drafted your expert report, did you
11 sit down and draft that -- working closely, of
12 course, with the attorneys, did you draft that
13 report without referencing Dr. Mir's opinion and
14 report?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: I did not say that. What
17 I said was -- you know, I told you several times, I
18 reviewed Dr. Mir's declaration prior to start
19 putting -- drafting my own report. By that time, I
20 had my own opinion when I start drafting.

21 And as I was drafting, I reviewed all
22 the references, including Dr. Mir's declaration. If

1 his description of a certain claim element -- his
2 description regarding to a certain claim element was
3 something that was consistent with my opinion, I
4 adopted it.

5 I think I have made it crystal clear
6 many times.

7 BY MS. FENDER:

8 Q Sir, if it was clear, respectfully, I
9 wouldn't be still asking. So I'm just trying to
10 make sure I understand and that we're on the same
11 page, so I'll ask you to be patient with me because
12 I do want to understand your process.

13 And this is what I'm confused about is the
14 fact that there is so much language that is
15 verbatim, including in the substantive analysis of
16 claims.

17 So what I'm just trying to clarify is, your
18 testimony, I think, is that you analyzed the prior
19 art references, came up with your own independent
20 conclusions, and only after you had done that and
21 conferred with your lawyers -- or, excuse me, the
22 Arista counsel, only after that did you look at

1 Dr. Mir's declaration --

2 MR. STAVINOHA: Objection, form.

3 THE WITNESS: That's not what I said.

4 I said I --

5 BY MS. FENDER:

6 Q Doctor, please slow down. Let's not talk
7 over each other. I'm trying to understand, so
8 please explain it to me, and we'll go from there.

9 A I think I said at least two, three or four
10 times that Dr. Mir's declaration, together with the
11 other materials that I considered and listed, I
12 reviewed them prior to start drafting. I think I
13 said that several times by now.

14 And after reviewing all the document,
15 including Dr. Mir's declaration, I formed my
16 opinion, and then I start drafting. And if
17 Dr. Mir's description of a certain claim element,
18 the opinion stated therein, Dr. Mir's declaration
19 was consistent with mine, then I have adopted his
20 description. That's what I told you.

21 MS. FENDER: Let's go ahead and take a
22 break now. We're at 12:30 Eastern Time.

1 How long do we need for a break?

2 THE WITNESS: 15 minutes.

3 MR. STAVINOHA: What do you think,
4 Doctor?

5 THE WITNESS: 15 minutes okay?

6 MS. FENDER: Does that give everyone
7 enough time? I know we're on a bunch of different
8 time zones. So I don't know if folks need to eat --
9 are we planning to -- I'm sorry, Elisabeth, we can
10 probably go off the record at this point, lunch
11 discussion.

12 (Recess: 12:29 p.m. to 1:03 p.m.)

13 MS. FENDER: It is 1:03 Eastern
14 Daylight Time, and we are back on with Dr. Min.

15 And we have Mr. Stavinocha -- am I
16 saying that right?

17 MR. STAVINOHA: It's close enough. We
18 say Stavinocha, but...

19 MS. FENDER: Stavinocha. I will
20 practice that.

21 BY MS. FENDER:

22 Q Let's go ahead and get started then again,

1 Dr. Min. I got my Diet Coke. Hopefully you got
2 something that can help you if you're not going to
3 eat lunch.

4 A Diet Coke.

5 Q There you go. Great minds think alike.

6 So when we left off, we were talking
7 obviously about the differences and the similarities
8 between your report and Dr. Mir's report.

9 I would like to understand -- based on what
10 you talked about with your analysis, I'd like to
11 understand what portions of Dr. Mir's analysis did
12 you disagree with specifically. So maybe we can do
13 that by walking through some of the Motivation to
14 Combine section and the claims.

15 So with respect to motivation to combine,
16 were there portions of Dr. Mir's analysis that you
17 disagreed with?

18 A Sitting here, I would not know. It's
19 possible there were some. I do not recall anything
20 specific.

21 Q Do you recall anything specific about any
22 disagreements you had with respect to Dr. Mir's

1 analysis and your thoughts on Claims 1 through 31?

2 So, again, I'll go ahead and make clear, I

3 understand that Dr. Mir did not specifically discuss
4 those claims.

5 But as you pointed out, there is, I think in
6 your view, minimal difference between independent
7 Claim 1, for instance, and independent Claim 32.

8 Were there any specific reasons why you did
9 not adopt Dr. Mir's analysis with regard to Claims 1
10 through 31 that you recall?

11 MR. STAVINOHA: Objection, form.

12 THE WITNESS: And I cannot think of a
13 specific sitting here. This was almost a year ago
14 when I submitted this report, so I cannot really
15 recall anything specific sitting here.

16 BY MS. FENDER:

17 Q You reviewed your report before you showed
18 up to this deposition today, right, Doctor?

19 A Yes.

20 Q When is the last time that you looked at
21 Dr. Mir's report?

22 A It's been a while.

1 Q What's your best estimate of how long ago?

2 A It was before the submission of my report in
3 August of 2024.

4 Q Putting aside any specific language, is
5 there anything in your mind right now that stands
6 out as something that you disagreed with Dr. Mir on?

7 A I can think of maybe claim construction. I
8 maintain all the -- I did not provide any claim
9 construction terms and the order terms to be plain
10 and ordinary meaning.

11 Q Let's talk about that for a moment.

12 So as you said, Dr. Min, in your
13 declaration, for instance, you don't provide a
14 construction for the word controller as that term is
15 used in the '111 patent, right?

16 A I say the term controller is just too plain
17 and ordinary meaning in light of the rest of the
18 passages in the claim.

19 Q Who advised you not to construe the word
20 controller?

21 MR. STAVINOHA: Objection.

22 I'm going to instruct you not to reveal

1 the substance of any discussions with counsel,
2 Dr. Min. To the extent you can answer without
3 revealing any of those discussions, you may, but...

4 THE WITNESS: It was my own opinion.
5 Just reading the claim term controller, in light of
6 the claim language themselves, you know, it was
7 pretty clear to me that a plain and ordinary meaning
8 would suffice.

9 BY MS. FENDER:

10 Q Do you recall Dr. Mir's construction that he
11 adopted at this time?

12 A I know -- I think there was the passage that
13 I was discussing early on, on page 45 starting
14 paragraph 58 of my declaration, there I say that.
15 And then the court has construed --

16 (Stenographer requested clarification
17 due to audio distortion/malfunction.)

18 THE WITNESS: The court has constructed
19 the claim term controller as described in
20 paragraph 59 of my report. So this is to the extent
21 that I know at least two different claim
22 constructions were proposed.

1 And to me, I didn't think it was
2 necessary to construe the term controller, and I
3 considered two proposed construction in my analysis.
4 But, you know, my analysis is based on the plain and
5 ordinary meaning of the term.

6 BY MS. FENDER:

7 Q Let's unpack that a little bit.

8 So as you just pointed out, you're aware
9 that there's a district court claim construction.

10 And you decided not to adopt that, correct?

11 A I mean, I considered. I'm not proposing any
12 construction, so I have an opinion as to whether I
13 would adopt or not. I just chose to consider the
14 plain and ordinary meaning of it.

15 Q Well, let's take a step back.

16 So you're aware that there's a district
17 court construction, and that at least did not change
18 your opinion that no construction was necessary for
19 the term controller, right?

20 A That is my opinion, yes.

21 Q And so same thing with Dr. Mir's
22 declaration, he has a proposed construction for the

1 term controller, An entity configured to perform
2 deep packet inspection on packets.

3 You did not adopt that construction, right?

4 A Once again, I considered, and it certainly
5 meets my definition of the plain and ordinary
6 meaning. So I considered, but I did not consider
7 that as construction.

8 Q And so why did you disagree that the term
9 needed to be construed? How did you reach that
10 conclusion?

11 A How did I? I'm a person of ordinary skill
12 in the art and an expert, so I can come up with my
13 own opinion.

14 Q Okay.

15 A Just reading the claim terms and in light of
16 specification, it was pretty clear to me that
17 controller as we cited in the claim has a plain and
18 ordinary meaning.

19 Q And as you sit here today, you have no
20 reason to disagree with that conclusion, that
21 controller, plain and ordinary meaning, right?

22 A Yeah.

1 Q I believe your conclusion is that the prior
2 art teaches the claimed controller under any
3 reasonable construction, right?

4 A Yes, that's correct.

5 Q Now, in your opinion, is construing the term
6 controller to mean an entity capable of controlling
7 deep packet inspection, is that a reasonable
8 construction?

9 A I mean, in light of claim language as a
10 whole, where the claim term is recited, it certainly
11 is a reasonable interpretation of the claim term to
12 mean. But, once again, I have not done any
13 exercises to coming out with the precise language
14 that defines the metes and bound of the scope of a
15 claim. I have not done that exercise.

16 So sitting here, it is reasonable, but I'm
17 not opining on whether or not that claim
18 construction is correct.

19 Q And for the term packet applicable criterion
20 and criterion, you came to the conclusion that those
21 terms did require construction, right?

22 A I mean, this is not a claim construction,

1 per se. It is -- I was just putting down some plain
2 and ordinary meanings that would certainly satisfy
3 the packet applicable criterion or criterion.

4 Once again, I did not do the exercise of
5 determining precise scope of the claim term as to,
6 you know, claim construction would define. I did
7 not do the exercise, so this is just a description
8 of plain, ordinary meaning that I can use to, you
9 know, provide my opinion in this declaration, not
10 the construction.

11 Q So help me understand what distinction
12 you're drawing in your mind, then, Dr. Min, between
13 a construction and a helpful plain and ordinary
14 meaning.

15 A I mean, claim construction, as I understand,
16 is a legal exercise, and it determines the precise
17 metes and bound of the scope of the claim.

18 Whereas, understanding -- one of the ways to
19 describe what the plain and ordinary meaning is may
20 not be there. It describes what the plain and
21 ordinary meaning is; may not define that scope. So
22 I think there's a difference.

1 Q So in your declaration when you say, It is
2 my opinion that a POSITA would have understood the
3 packet applicable criterion and criterion to include
4 the conditions or basis used to identify packets for
5 actions such as inspection, that is not a
6 construction; that is just one way to provide some
7 context for those terms?

8 A I think, as I said here, the packet
9 applicable criterion and criterion to include. I
10 didn't say to mean. So it certainly includes the
11 interpretation that is described here, the
12 conditions or basis used to identify packets for
13 action such as inspection.

14 Q So in other words, it could be broader than
15 that? This is just a limited -- to include as some
16 subset of the definition of the plain and ordinary
17 meaning of those terms, right?

18 A Yeah, that's right.

19 Q And when you undertook your analysis of the
20 claims of the '111 patent and you looked at the
21 prior art, walk me through how you're using then the
22 plain and ordinary meaning of this term, so

1 criterion --

2 MR. STAVINOHA: Objection, form.

3 THE WITNESS: So as I described here,
4 the packet applicable criterion and criterion to
5 include is, so if a prior art reference or
6 references disclose this particular phrase, The
7 conditions or basis used to identify packets for
8 action, such as an inspection, then it discloses as
9 a packet applicable criterion and criterion.

10 There may be other way to identify
11 whether these prior art reference discloses packet
12 applicable criterion or criterion, but this is
13 certainly one way to do it.

14 And the phrase that I have here, The
15 conditions or basis used to identify packets for
16 action such as inspection, if prior references
17 discloses, then it satisfies the requirement.

18 BY MS. FENDER:

19 Q And as you sit here today, no reason to
20 modify that opinion, right?

21 A I mean, yeah, I mean, to include this
22 particular phrase, yeah, there's no reason.

1 Q And in your opinion, there were no other
2 terms that needed to be construed in the '111
3 patent?

4 A That is correct.

5 Q Again, no reason to modify that opinion
6 today, right, Dr. Min?

7 A That is correct.

8 Q Just to be clear, you did not conduct an
9 analysis of the claims of the '111 patent against
10 the prior art using Dr. Mir's preferred
11 construction, for instance, of the term controller,
12 right?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: No, that's not true. I
15 think I said, as I was describing element-by-element
16 analysis, and I said controller term to appear and
17 it satisfied plain and ordinary meaning as well as
18 the two proposal construction, or in one case,
19 essentially a port construction. I think I analyzed
20 in some of the cases where controller term is
21 recited.

22

1 BY MS. FENDER:

2 Q So just to make sure I'm understanding, when
3 I'm reading your declaration, if you've considered,
4 for instance, Dr. Mir's construction of the term
5 controller, you made that clear if your analysis
6 applies using that construction?

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: I think I did. To the
9 best of my recollection, that's what I did.

10 BY MS. FENDER:

11 Q And same thing with respect to the district
12 court's construction, if you were looking at an
13 analysis through that lens and adopting the district
14 court's claim construction, you made that clear in
15 your report?

16 MR. STAVINOHA: Objection, form.

17 THE WITNESS: Once again, the same
18 answer. To the best of my recollection, I think I
19 did.

20 BY MS. FENDER:

21 Q To the extent that you didn't specify a
22 construction being used for the term controller, a

1 reader should take that to mean that you applied no
2 construction and were just using the plain and
3 ordinary meaning of the term as you define it; is
4 that right?

5 MR. STAVINOHA: Objection, form.

6 THE WITNESS: I think I have a list to
7 describe one -- I do know for a fact that I talk
8 about two constructions that we're disclosing on
9 page 44, paragraphs 58 and 59. I have considered
10 those two constructions as well as the plain and
11 ordinary meaning.

12 I believe my opinion was consistent
13 throughout my declaration that I have considered
14 those two in addition to plain and ordinary meaning
15 when I analyzed the term controller to appear in any
16 of the claims.

17 BY MS. FENDER:

18 Q Let's talk about some of the concepts that
19 are discussed in your declaration, Dr. Min. And,
20 again, I know you know this, but just for the
21 record, I'm going to be asking you to talk about
22 these concepts and your understanding from the

1 person of ordinary skill in the art's perspective,
2 okay, not your expert perspective.

3 So if at any point we sort of shifted out of
4 that perspective, please let me know.

5 Okay?

6 A I'll do my best.

7 Q Thank you. That's all I can ever ask.

8 Let's start with the Technology Background.
9 So you talk about deep packet inspection. That term
10 has come up a few times.

11 Can you explain for us, what is deep packet
12 inspection or DPI?

13 A So starting from paragraph 63, you know, I
14 described a deep packet inspection. So ordinarily
15 depending on where you are in the network processing
16 chain, at a different point in processing the packet
17 through the network, you look at, in the minimum,
18 different portion of the header.

19 If you have a router, you look at Layer 3;
20 and if you go further, it can sometimes look at
21 different portion of the header.

22 The deep packet inspection is going beyond

1 the header at a respective layer, the material
2 processing packet at Layer 3, and if you go beyond
3 the header of a Layer 3, then you're going into deep
4 packet inspection. That doesn't necessarily mean
5 you can look at the entire packet, but something
6 going beyond the boundary.

7 Q Let's just, again, take it step-by-step so
8 that we make sure we're using the same language and
9 understanding the same concepts, Dr. Min.

10 So just to back up, what is your
11 understanding of a packet?

12 A Packet is a unit of data sometimes called --
13 (Stenographer requested clarification
14 due to audio distortion/malfunction.)

15 THE WITNESS: -- protocol data unit,
16 PDU, protocol data unit.

17 Packets have a header portion and
18 payload portion.

19 BY MS. FENDER:

20 Q And what is the header portion?

21 A Header portion tells you how to treat the
22 payload, and it's an instruction basically.

1 Q And what is the payload portion?

2 A Payload portion is the information at the
3 respective layers of a protocol stack.

4 Q I'm going to try to, if we can, leave aside
5 layers for a second because I just want to make sure
6 that we're starting from the very beginning.

7 So when you talk about deep packet
8 inspection and you say that it is beyond the header,
9 explain, if you can, what is actually being
10 inspected as part of deep packet inspection.

11 A You said when or --

12 Q What?

13 A Oh, what?

14 Q Uh-huh.

15 A Basically, anything beyond the packet header
16 portion, so you treat whatever it is in the payload
17 that is after the header, see what's in there. You
18 will look at -- you can look at some portion in the
19 beginning, or you can look at the entire thing and
20 trying to see -- identify what is inside of that
21 payload, as well as the header.

22 Q So if you just inspect the header, it's not

1 deep packet inspection, right?

2 A So you have to be careful with that
3 characterization because you will -- the packet has
4 multiple layers typically. Deep inside of the
5 packet is the application data, coming like emails
6 and PDUs and whatever you want to transport. And
7 that application data is wrapped around the
8 application layer header, and that is now passed to
9 the layer below that session, presentation. There
10 are different layers.

11 And then as you go through this stack, you
12 continuously wrap more headers. So depending on
13 where you are in the processing scheme, are you
14 processing the encryption, are you processing the --
15 trying to identify the destination address.

16 Depending on where you are, some header
17 belonging to other layer may actually be the payload
18 of a different layer. You cannot just characterize
19 just a header. But it's more like where you are in
20 the processing the different layers. That's what
21 determines where the packet header ends, the payload
22 begins.

1 Q Let me see if I understand that.

2 Basically, if we have sort of nested sets of
3 information, there's going to be a sort of outer
4 layer --

5 A Yeah.

6 Q -- that has a header and is the payload.
7 And that payload may have sort of different packets
8 that have different headers and things inside of it.

9 A Yeah, that's right.

10 Q The furthest outside trunk, if you will, has
11 a header and payload.

12 A Yeah.

13 Q If you were to just inspect that portion of
14 the outermost layer, if you were to just inspect
15 that header, that would not be deep packet
16 inspection, right?

17 A That's right.

18 MR. STAVINOHA: Objection to form.

19 MS. FENDER: Yeah, that's fair. It was
20 a little convoluted, but I'm trying.

21 BY MS. FENDER:

22 Q In your declaration, Dr. Min, you say that

1 the purpose of deep packet inspection is to classify
2 network traffic, correct?

3 A I mean, it is one of the purpose. And '111
4 patent talks about the security issues. So in that
5 regard, yes, that is correct.

6 Q And you also talk in your declaration about
7 DPI relating to bandwidth misuse and to security
8 concerns, right?

9 A Yeah.

10 Q As of the priority date of the '111 patent,
11 is it fair to say that from a person of ordinary
12 skill in the art's perspective, DPI was viewed as
13 primarily for purposes of identifying and addressing
14 security concerns?

15 MR. STAVINOHA: Objection.

16 THE WITNESS: No. It was certainly one
17 of the main use, but DPI can be used for application
18 layer switching, for example. You identify what the
19 application is. And based on it, that
20 identification of the application, you can route or
21 switch the packet differently.

22 So you could actually have a

1 malperformance issue, and that was our sole widely
2 used application for DPI. Yeah, I mean, those two
3 are -- and then analytics, like compiling the
4 statistics of usage. So that could be another one.

5 But security was clearly one of the
6 main use of a DPI.

7 BY MS. FENDER:

8 Q And you were talking earlier, I think, about
9 the concept of firewalls as well.

10 A firewall can be used to address security
11 concerns as well, right?

12 A Yes.

13 Q Can you help me understand the difference
14 between a DPI and a firewall?

15 A So firewall is to -- overall concept, in the
16 firewall, you know, to detect any kind of a security
17 threat. So firewall does the intrusion detection,
18 intrusion prevention in light of a service
19 mitigation and virus scanning -- it has a lot of
20 security functions.

21 DPI is used as a component or the
22 functioning block to support the functions that

1 firewall has to perform.

2 Q Can a firewall operate without DPI?

3 A Some do, yeah.

4 Q You also talk a little bit about a mirroring
5 function which clones packets in your declaration.
6 This is at paragraph 66.

7 Can you help me understand, Dr. Min, what is
8 a mirror function?

9 A So mirroring is -- sometimes network
10 traffics are very delay sensitive. So one way to
11 inspect the packet is to capture it and trap it and
12 hold it for inspection before sending it out.

13 Mirroring is, you let the packets go
14 through, make a copy of the packets that have gone
15 through, and then inspect in parallel as the
16 original packets travels through the network and
17 making the determination sort of like in parallel
18 fashion. So that's the mirroring technique.

19 Q So when the packets are mirrored or cloned,
20 do they undergo -- sorry, let me rephrase that.

21 For the cloned packets, so you've done the
22 mirroring, you have a cloned packet, does that

1 cloned packet undergo some type of analysis or
2 inspection in DPI? It's the cloned packet?

3 A I mean, they could, yes. I mean, not all
4 have to be. It could be mirrored and stored or
5 cached someplace in which case you don't necessarily
6 do DPI or any other security measure.

7 But often, the mirrored or cloned packets
8 would go into inspection based on DPI.

9 Q You also talk about policies.

10 Can you define a policy in the context of
11 software-defined networking and DPI, all of the
12 things that we're talking about? What is a policy?

13 A I mean, policy can be a lot of different
14 things.

15 But for -- with regard to switching or
16 routing as in software-defined network, so once you
17 identify -- so you have a policy that tells you how
18 to treat packets. So, I mean, the policies could be
19 at many different level. It could be subscriber
20 based; somebody is paying a premium, say, versus
21 not. Then you may want to treat the premium
22 customer's packet differently.

1 Or some applications, such as email, can
2 tolerate more delay than, say, video streaming, so
3 that's more like an application level.

4 And some could have, you know, flow base,
5 for example, the flow base meaning some packet
6 stream coming from a particular flow as opposed to
7 individual packet. You can treat them differently
8 as well.

9 So you identify packets by classification
10 and figure out how to characterize them. Does the
11 packet belong to a subscriber, application, a flow,
12 or what have you? And then treat them differently.
13 That's the policy.

14 Q How is that different than a criterion?

15 A Criterion -- policy will give you the
16 criteria. So as to the '111 patent, it describes
17 what policy said, and that tells you, Okay, so we
18 are going to treat User A differently. Then
19 criteria becomes on the packet now. It's a
20 packet-applicable criterion.

21 On the packet, you look for IP address that
22 belongs to the subscriber either as a source address

1 or a destination address.

2 So that becomes more of a --

3 (Stenographer requested clarification
4 due to audio distortion/malfunction.)

5 THE WITNESS: -- parameter that are
6 embedded inside a packet.

7 BY MS. FENDER:

8 Q Let's just make sure since we are using
9 technical language, Dr. Min, that we both slow down.

10 So how are policies set?

11 MR. STAVINOHA: Objection, form.

12 THE WITNESS: I don't understand the
13 question. Policy...

14 BY MS. FENDER:

15 Q So you said -- you described the difference
16 between policy and criterion, and you're talking
17 about things like setting up policy that all
18 subscriber traffic is treated a certain way or all
19 email traffic is treated a certain way.

20 How are the terms of a policy set?

21 MR. STAVINOHA: Objection.

22

1 BY MS. FENDER:

2 Q Is it difference in software, for instance?
3 Like, where do policies come from? Somewhere,
4 somebody has to decide what policies to effectuate.
5 How does that happen?

6 MR. STAVINOHA: Objection.

7 THE WITNESS: For the most part, I
8 think policies are set by network administrator.
9 It's a person who will determine the policy and
10 then, you know, utilizing some software tools, and
11 then that tool compiles the policy into a criterion
12 and softwares.

13 BY MS. FENDER:

14 Q That's where I want to focus.

15 So how are the policies actually implemented
16 in the system?

17 A Well, let me give you an example. Say you
18 want to treat User A differently. Say User A is a
19 corporate company. Then that company would have
20 lots of IP addresses. So network administrator
21 would identify those IP addresses into a table, say,
22 for example. I'm just giving you an example.

1 And that gets entered into some kind of
2 software system, and then that software system will
3 translate through packet applicable criterion, which
4 is identifying the IP addresses belonging to that
5 are listed in that table.

6 And then that can be either source address,
7 IP address, or destination IP address. So that's
8 how the transition works.

9 Q So in the example that you just gave, the
10 table, for instance, that has this information, is
11 that -- how do -- what I'm trying to understand is
12 how does something go from, for instance, a
13 controller to a switch or a router? So how do the
14 policies get translated to something like a switch
15 or a router?

16 MR. STAVINOHA: Objection, form.

17 THE WITNESS: So the controller gets
18 the policy. I guess a policy comes from some
19 central operating center or data center where the
20 network administrator reside. He or she would enter
21 the policy, and then that software network
22 administrator uses or compile policy into the

1 criterion.

2 So it will give you some criterion as
3 to look for -- sort of an action, look for this IP
4 address either in source or destination IP address
5 field in a packet. And that information will be
6 sent down to a controller, and there would be many
7 controllers in, say, network operator.

8 Then from the controller, controller
9 would utilize -- for the case of an SDN, OpenFlow
10 protocol to -- transmitted to the OpenFlow, capable
11 switch, and then becomes part of switch table.

12 BY MS. FENDER:

13 Q So let's actually dig into the
14 software-defined network a little bit.

15 Define, if you would, what a
16 software-defined network is.

17 How do you explain that term?

18 MR. STAVINOHA: Objection, form.

19 THE WITNESS: It's a standard, so I
20 don't know -- I can characterize it. I don't know
21 if I can define it because it's a standard that
22 comprises multiple, multiple aspects of networking.

1 It is a standard that facilitates
2 configurable network by use of software and
3 interactions from the central controller to the
4 switches in the network by configuring the switches
5 by the controller have or switch to perform some
6 prescribed functions.

7 That's really what SDN is. It's not a
8 definition, because, as I said, definition --
9 there's just so many different aspects of this. I
10 don't know if I can just define it on the fly.

11 BY MS. FENDER:

12 Q Is it fair to say that a software-defined
13 network in sort of its simplest form involves
14 separating out the control plane from the data
15 plane?

16 MR. STAVINOH: Objection, form.

17 THE WITNESS: It is a characteristic of
18 software-defined network. I don't know if there's
19 any exception to this, but it is envisioned to have
20 controller to be a separate entity than the switches
21 and routers in the network themselves.

22

1 BY MS. FENDER:

2 Q And is there any difference in your mind,
3 Dr. Min, between the term data plane or a forwarding
4 plane; or can they be used synonymously?

5 A You know, depending on different standard.
6 I know SDN uses a data plane and forwarding plane in
7 the same manner.

8 Forwarding is an action, so doesn't
9 necessarily limit the actionable forwarding to just
10 a data. I mean, control packet can be forwarded
11 too.

12 But in the context of SDN, I think it is
13 used synonymously.

14 Q And what about the idea of a control plane,
15 what components or parts, if you will, make up the
16 control plane in an SDN?

17 MR. STAVINOHA: Objection, form.

18 THE WITNESS: In the SDN, it is a
19 communication between the controllers and the
20 switches or routers. That's the control plane.

21 BY MS. FENDER:

22 Q Is it fair to say that switches or routers

1 would make up the data or the forwarding plane, and
2 the controller makes up the control plane?

3 A I mean, data has a control plane in the
4 connection because the data has to connect to a
5 controller. So, I mean, I cannot preclude a part of
6 all data -- the switches that communicates with
7 controller as a part of a controller, a control
8 plane.

9 So it is more of a logical distinction in
10 the matter than the definitive physical boundary.

11 Q When was software-defined networking
12 invented?

13 A I don't know the exact date. So this
14 OpenFlow paper that's Exhibit 113 -- I'm sorry, 1013
15 is a paper by Nick McKeown from Stanford. He talks
16 about OpenFlow protocol.

17 That was one of the key element of
18 software-defined network. That came about -- the
19 paper was published in April 2008. So somewhere
20 around that time, I think people became very
21 interested in SDN.

22 Q And SDN is discussed and clearly referenced

1 in the Lefebvre patent that we were talking about
2 earlier, right?

3 A Yes.

4 Q It's also discussed in Chua, correct?

5 A That's correct.

6 Q And the '111 patent as well?

7 A Yes.

8 Q So you were just discussing OpenFlow. Let's
9 just back up for one second.

10 What is the OpenFlow protocol?

11 A It's a communication protocol that SDN
12 controller uses to communicate with the switches,
13 the OpenFlow switches.

14 Q And it's fair to say that OpenFlow is a
15 specific type of SDN, but it's not the only type of
16 software-defined network, right?

17 A SDN is a protocol that is used in the
18 context of SDN. There may be other protocols used
19 by SDN.

20 Q Just to clarify, OpenFlow is a protocol
21 that --

22 A Yes.

1 Q I'm sorry, can you say that again for the
2 record, Dr. Min? I think maybe there was a
3 misspeaking.

4 A The OpenFlow is a communication protocol
5 used in SDN but not the only one.

6 Q In your declaration, you talk about the
7 OpenFlow controller is remotely controlling packet
8 forwarding tables.

9 What is a forwarding table?

10 A The forwarding table in the end, the
11 comments, where the incoming packets will go. So in
12 a switch or router, there are multiple input ports
13 and multiple output ports. And each of input ports
14 and output ports is connected to another entity in
15 the network.

16 So determining a packet coming on a specific
17 input port as to where that packet is going to exit
18 from the switch and on an output port, that's
19 basically the forwarding action.

20 Q So fair to say that the forwarding tables
21 live on the switches or the routers? That's where
22 the tables are to help --

1 A Yes, that's correct.

2 Q How are forwarding tables created?

3 A I mean, that depends on different protocols.

4 In the ordinary internet, the routing table or we

5 call it IP prefix matching table is created by --

6 individually on the router itself, the router

7 running what we call border gateway protocol, BGP.

8 In the case of an SDN, the forwarding table

9 is created by the controller, SDN controller, and

10 communicated to those switches. So it depends on

11 different networking protocol how the forwarding

12 tables are created.

13 Q But in SDN, it would be created by the

14 controller?

15 A Yes.

16 Q You mentioned the term flow a little bit

17 earlier, sir.

18 Can you describe, what is a flow generally?

19 A So flow is another one that has different

20 meanings. But flow as described in SDN is a

21 sequence of packets that comes from the same source

22 to same destination utilizing the same application.

1 Q Sort of to identify a flow requires that it
2 is coming from the same source and going to the same
3 destination, the series of packets?

4 A And the same application --

5 MR. STAVINOHA: Object to form.

6 THE WITNESS: -- because you and I can
7 communicate. You see my video; I see yours. But
8 you also hear my voice. So these are two different
9 flows, and sometimes these flows are treated
10 differently.

11 BY MS. FENDER:

12 Q If you were to inspect the header of the
13 first packet of a particular flow, would you call
14 that DPI?

15 A Just a header?

16 Q Uh-huh.

17 A No.

18 Q Sorry, that's my bad for the record.

19 Yes, I asked, Just the header; and you said,
20 No.

21 Is that right, Dr. Min?

22 A Yes.

1 Q So what does it mean to apply the concept of
2 DPI to an entire flow? How do you apply DPI to a
3 flow?

4 MR. STAVINOHA: Objection, form.

5 THE WITNESS: So if you are insisting
6 that you look at the entire flow by and subject to
7 DPI, then you look at every packet coming from the
8 flow from the beginning to the end. That's what you
9 do.

10 Often that is not necessary. Once you
11 identify flow and determine the nature of a flow,
12 then often you stop that first few.

13 BY MS. FENDER:

14 Q What does it mean to block a flow?

15 A You don't let the packets in the flow to go
16 through.

17 If it's in the context of SDN, then the
18 blocking will happen in one of the switches as the
19 packets go through.

20 It is exceedingly hard to block the flow at
21 the source. You know, if somebody bad wants to send
22 bad data, if he or she send it, you have to block it

1 by dropping the packets at a switch somewhere.

2 Q What about mirroring a flow, does that mean
3 copying the entire flow like we talked about with
4 deep packet inspection? Can you mirror just a
5 portion of a flow?

6 A You can --

7 MR. STAVINOHA: Objection.

8 THE WITNESS: Yeah, you can mirror a
9 portion. You don't have -- I mean, it all depends
10 on, I guess, the policy as to what you will do when
11 you find something suspicious.

12 BY MS. FENDER:

13 Q In sort of the general parlance of the
14 field, if someone says that they've mirrored a flow,
15 would you take that to mean that they mirrored the
16 entire flow?

17 A I think it depends on the context.

18 Q What about redirecting a flow, what does
19 that mean?

20 A It means -- in the context of '111 patent,
21 it actually means instead of sending it directly to
22 the destination, it is sent to somebody else for

1 different processing.

2 Q So I actually want to stay away from the
3 '111 right now and just understand these terms on
4 their own merits.

5 So in the art itself, what does it mean to
6 redirect a flow?

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: Redirecting can be many
9 different things. I think the ones that we are most
10 aware as an ordinary user is when you try to go to a
11 website and then you sometimes see a message saying
12 that redirecting.

13 Although I have identified -- or my
14 computer has identified certain website to be the
15 one that my packet should go, the receiving website
16 may have identified some site that is closer to me
17 that has identical content.

18 So in that regard, that redirecting has
19 a different meaning than redirecting as described in
20 '111 patent. So the redirecting can mean different
21 things.

22

1 BY MS. FENDER:

2 Q So we're focused on the idea of
3 software-defined networking.

4 What does redirecting mean in that context?

5 A I mean, once again, you have to get in
6 there, is it software-defined networking and '111
7 context or just to software-defined networking
8 context? If it is software-defined networking
9 context alone, then the same description that I gave
10 you earlier as to redirecting the website still
11 applies; whereas, a '111 patent is more to do with
12 the redirecting tool inspecting the content.

13 Q What about the concept of forwarding a --

14 MS. FENDER: Oh, are you still there?

15 THE WITNESS: I'm here.

16 MS. FENDER: Everything just went dark
17 for me. You're back.

18 BY MS. FENDER:

19 Q What about the concept of forwarding a flow?
20 What does it mean to forward a flow in the context
21 of software-defined networking?

22 A Forwarding -- a forwarding just means you're

1 sending it across the -- from the input port to the
2 output port.

3 But in the context of '111 patent,
4 forwarding here means sending it to the destination.

5 Q So I'm going to ask you plenty of questions
6 about the '111 patent, but first I think, Dr. Min,
7 it's helpful if we have an understanding of what
8 terms mean in the area of software-defined
9 networking, so let's leave aside the '111 patent for
10 right now. We're going to get to it in just a
11 moment, but I want to make sure I understand these
12 concepts as a general matter to the best of my
13 ability.

14 Okay?

15 These terms, mirroring, directing,
16 forwarding, transforming, all of these terms,
17 blocking, are terms that are used quite commonly in
18 software-defined networks.

19 Yes?

20 A Yes.

21 MR. STAVINOHA: Objection, form.
22

1 BY MS. FENDER:

2 Q And so I want to understand in that context
3 how you would take these terms to mean. We'll talk
4 about how they apply to the prior art and the
5 patents in a moment.

6 Okay?

7 So what does it mean to transform a flow?

8 A Transform a flow?

9 Q Uh-huh.

10 A You can change it in some way. The
11 transforming means many different things. It
12 changes format, changes encoding. Just doing
13 different things to the flow itself.

14 Q What about encapsulating a flow, what does
15 that mean?

16 A So encapsulation as a part of a protocol
17 processing means what comes in as a data unit,
18 typically a packet, gets put -- that entirety is put
19 in as a payload to another packet. So that's what
20 encapsulation means.

21 Q And what about dropping a flow, what does
22 that mean?

1 A It means -- a receipt switch will receive it
2 and basically not forward it. It disappears.

3 Q Would you consider dropping a flow to be the
4 same as blocking a flow?

5 A Yeah. By dropping the packets, you're
6 blocking the flow or blocking the packet.

7 Q Thank you.

8 Now we can talk about the '111 patent. I
9 think we showed this to you before, and I know you
10 have it in front of you, Dr. Min.

11 MS. FENDER: But Exhibit 1001,
12 Ms. Zeigler, if you could put that up on the screen
13 for us.

14 BY MS. FENDER:

15 Q Do you see that on your screen, Dr. Min?

16 A Yes.

17 Q This is, again, the '111 patent. It's
18 titled Method and System for Deep Packet Inspection
19 in Software Defined Networks.

20 That is the '111 patent, yes, that you
21 considered?

22 A Yes.

1 Q So as you say in your declaration, the '111
2 patent describes a method for DPI in an SDN where
3 the method is performed by a central controller of
4 the SDN; is that right?

5 A Yes, the DPI is performed in the central
6 controller.

7 Q Is your opinion that the only device that
8 performs that method in the '111 patent is the
9 central controller?

10 MR. STAVINOHA: Objection, form.

11 THE WITNESS: I mean, I think the '111
12 patent talks about some of the application servers
13 to do further analysis from the central controller
14 performing DPI. So some of this application servers
15 could also perform DPI.

16 But what is required as a claimed scope
17 requires in some of the claims a central controller
18 to perform DPI.

19 BY MS. FENDER:

20 Q What part of the patent are you looking at
21 for that conclusion, sir?

22 A I'm looking at -- so if you look at Column 3

1 as describing Figure 1, and I'm looking at the
2 paragraph starting on line 56. It describes the
3 application servers.

4 And on line 59, the patent says, An
5 application server 120 executes, for example,
6 security application (e.g., firewall, intrusion
7 detection), data analytic application, and so on.

8 So some of these application server
9 functions would use deep packet inspection. So deep
10 packet inspection could be on the central controller
11 as well as some of the application servers.

12 Q And here in this portion of the patent, it
13 talks about specifically firewalls, intrusion
14 detection, data analytics.

15 It does not specifically say DPI in that
16 portion of the patent, correct?

17 A It doesn't mention. But as I have described
18 to you earlier on, DPI is a tool or component in
19 these devices, like application servers such as a
20 firewall, intrusion detection, and data analytical.

21 MS. FENDER: I think we can take that
22 down right now, Ms. Zeigler. Thank you.

1 BY MS. FENDER:

2 Q And what is a central controller in the
3 context of software-defined networking generally,
4 Dr. Min? What is a central controller?

5 A Central controller is still one that
6 communicates with OpenFlow switches using OpenFlow
7 protocol to configure the OpenFlow of switches to
8 perform the functions required for those OpenFlow
9 switches.

10 Q Because I think it's bigger and easier to
11 reference, I'm going to look at your declaration,
12 page 27, for the Figure 1 of the '111 patent. But
13 we're talking about the '111 patent's disclosure.

14 So looking at the '111 patent, how does the
15 controller instruct the network nodes to determine
16 if incoming packets require inspection?

17 A By sending the packet applicable criterion
18 to the network node and configure the network node,
19 the switches, to look for particular parameters in
20 the packet. And that's how the -- and then the
21 communication is done by OpenFlow protocol.

22 Q How is the controller conducting the

1 inspection?

2 A A controller, upon receiving packets, so
3 looking at '111 patent, would perform DPI, and DPI
4 would identify the threat patterns, such as a
5 intrusion, detection, or anything else that you want
6 to look at, and then would make the determination.

7 And then if certain result came about from
8 the DPI, based on DPI inspection, and central
9 controller can forward that DPI result to
10 corresponding application servers to do further
11 inspection.

12 Q In the '111 patent, it says that an SDN --
13 In an SDN network, the network intelligence is
14 logically centralized in the central controller,
15 which configures using OpenFlow protocol, network
16 nodes, and to control application data traffic
17 flows.

18 Dr. Min, can you explain the idea of network
19 intelligence in this context? What does network
20 intelligence mean?

21 A So the network node workers, they are given
22 instruction as to what to do with the packets if the

1 packet satisfies packet-applicable criteria. So
2 they are workers. They do what controller tells
3 them to do.

4 Q Okay.

5 A And the central controller has the
6 intelligence to tell the switches what to do.

7 Q In the '111 patent, only data that's
8 inspected at the controller is sent to the
9 application servers for further processing; is that
10 right?

11 MR. STAVINOHA: Objection, form.

12 THE WITNESS: You said only? I don't
13 think I got that question correctly. Can you repeat
14 that, please?

15 BY MS. FENDER:

16 Q I can try.

17 In the '111 patent, it's data that's
18 inspected at the controller to some degree, then
19 gets sent on to the application servers for some
20 sort of further processing; is that right?

21 A Yes. If you look at Figure 1, application
22 servers are connected to the central controller, not

1 to the network nodes. So going to application
2 servers are described as by way of a central
3 controller.

4 Q You also discussed the '111's disclosure of
5 flow detection modules. I know we've talked about
6 flow a lot already.

7 But what is a flow detection module?

8 A So if you look at the Figure 3 of the '111
9 patent -- and similar things come up in Figure 4 as
10 well, but we can focus on Figure 3 -- there's a DPI
11 flow detection unit and central controller. So what
12 this does is, central controller has instructed the
13 network node.

14 In Figure 3, the bottom box is the network
15 node; the top box is the controller. So the network
16 node following the instruction given by the central
17 controller send, so in this case, either mirroring
18 or redirecting, whatever that satisfies the
19 criterion given by the central controller to the
20 network node, will send that packet to central
21 controller.

22 At that point, the central controller at the

1 flow detection unit, DPI flow detection unit, will
2 detect a flow to come and then figure out which flow
3 that packet the central controller just received
4 belonged to and then process opinions from there on.

5 Q You also mentioned this term earlier I think
6 in some of your own work. But there's a note here
7 in Figure 3, DPI Engine 312.

8 What is a DPI engine?

9 A That's the one that looks for some kind of
10 pattern matching. The patterns could be a lot of
11 different things depending on what you want to do.
12 It could be a threat pattern such as a virus or
13 intrusion patterns; or it could be analytic type
14 looking for statistic compilation; or it could be
15 application identification like looking for certain
16 key words that are used in different applications.

17 So the DPI would look through the packet and
18 then try to do pattern matching.

19 Q Can DPI be performed outside of a dedicated
20 engine?

21 MR. STAVINOHA: Objection, form.

22 THE WITNESS: Yeah, that's possible.

1 BY MS. FENDER:

2 Q Can you describe a circumstance in which
3 that would be true?

4 A I mean, even a software can do DPI. I mean,
5 it depends on how fast you want to do it. The idea
6 of a DPI is not limited to the dedicated appliance
7 or dedicated engine. You're basically looking
8 through the packet and look for the pattern.

9 Q What does it mean -- in the context of,
10 let's say, SDN OpenFlow protocol, what does it mean
11 to probe something?

12 A I mean, probe is like inspecting it, so it
13 is looking at something more than just to
14 forwarding, so --

15 Q I'm sorry, more than just forwarding?

16 A Forwarding, yes. So you want to look at the
17 packet more carefully.

18 Q We were just talking about the flow
19 detection module.

20 What is a probe flow module?

21 A I mean, it's the -- one of the components in
22 the network node as defined in '111 patent. Probe

1 flow module performs -- it follows the instruction
2 given by the SDN controller according to the
3 packet-applicable criteria. That's what probe flow
4 module do.

5 And depending on the instruction, it will
6 forward, redirect, mirror, and so on and so forth.

7 Q So that's one of the things I'm trying to
8 understand, Dr. Min, is how does the idea of a probe
9 flow module -- it's a tongue-twister, probe flow
10 module, how does that relate to the idea of probe
11 instructions? How do those things play off each
12 other?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: Instruction, I don't know
15 if the patent uses a probe instruction, but
16 instruction -- oh, it does. Probing instruction.

17 So the probe flow module would execute
18 different types of instruction. That instruction
19 could be probing instruction, mirroring instruction,
20 forwarding instruction, termination instruction.
21 Those are the actions. So it's a different kind of
22 an instruction action.

1 BY MS. FENDER:

2 Q Are probe instructions synonymous with the
3 TCP flags?

4 A No.

5 MR. STAVINOHA: Objection, form.

6 BY MS. FENDER:

7 Q What are TCP flags?

8 A I mean, TCP flags, that's defined in the
9 standard, TCP standard. TCP header has fields, five
10 or six fields, that are flags and --

11 Q This is -- I'm so sorry. Go ahead.

12 A Those are the TCP flags.

13 Q So, Dr. Min, those flags include things like
14 SYN, S-Y-N; ACK -- I'm just throwing out some that
15 I've seen in the literature -- A-C-K.

16 You would not call those TCP flags probe
17 instructions?

18 A The flags on their own are not probe
19 instruction, no.

20 Q So instead it's the recognition of those
21 flags or to use the -- I don't understand this
22 concept of TCP flags as it relates to probe

1 instruction, so help me out because I'm trying to
2 understand.

3 You send something that has that kind of
4 flag, a TCP flag, and there is some recognition of
5 the flag to identify, for instance, something that
6 meets that criterion, right?

7 A So the flags are field or the parameters
8 defined in the header of TCP packets. As I
9 mentioned, packet-applicable criterion are defined
10 on some of those parameters. So those flags could
11 be used as a part of a packet-applicable criterion.
12 So a packet-applicable criterion could be look for a
13 flag called RST, reset. And if that reset value is
14 cut to one, then you do something else, something.
15 That something is the instruction.

16 So the packet-applicable criterion will be
17 followed by the instruction that act on the
18 satisfying that criterion.

19 Q In the '111 patent, what is a mask value?

20 A The mask sequence?

21 Q Well, there's a mask value that's disclosed
22 in the '111 patent.

1 A Yeah, the mask is you have -- in the end,
2 the data packets are all ones and zeros. You know,
3 it's digital packets.

4 So mask is looking through it as a whole, we
5 call it mask, only identifying those values to be of
6 concern and ignore the rest. So that's the mask
7 that is used as a term of art.

8 Q What is the purpose of that?

9 MR. STAVINOHA: Objection, form.

10 THE WITNESS: I mean, generally, it
11 basically defines particular positions in a packet
12 that you need to consider.

13 BY MS. FENDER:

14 Q And with regard to mask value, how does mask
15 value get computed?

16 A So it's a matter of what you want to
17 perform. So if you are looking to perform -- as an
18 example, first few packets in a flow, and then based
19 on whether or not those first few packets have any
20 threat patterns, then you can either upset the whole
21 flow or block the whole flow.

22 Then you look at the sequence, the packet

1 sequence that correspond to that first few.

2 So typically in that case, only the few,
3 least significant bit positions in the sequence
4 number will vary, either from one -- I'm sorry, 000,
5 001, 010, 011. So only the last couple values will
6 vary. So you're only looking at the last, say,
7 three bits, and then you can set the mask value to
8 look at those three bit positions.

9 So it depends on what you want to do.

10 MS. FENDER: I'm at a spot where I'm
11 about to move to another section, so do we want to
12 take a little five- or ten-minute breather?

13 THE WITNESS: Sounds good.

14 MS. FENDER: Ten minutes. Thank you.

15 (Recess: 2:14 p.m. to 2:26 p.m.)

16 BY MS. FENDER:

17 Q One of the questions I meant to ask was on
18 the '111 patent -- we're about to move on to talking
19 about the Lefebvre patent.

20 But with respect to the '111, in your
21 opinion, are there any embodiments in the
22 specification or the claims of the '111, are there

1 any embodiments in which the controller is not
2 capable of performing DPI -- or capable of --

3 MR. STAVINOHA: Objection to the form.

4 BY MS. FENDER:

5 Q So I was asking, Dr. Min, in your opinion,
6 are there any embodiments in the '111 patent in
7 which the controller is not capable of controlling
8 DPI?

9 MR. STAVINOHA: Objection, form.

10 THE WITNESS: I mean, like, the
11 invention that's described in Claim 1 does not
12 really talk about DPI.

13 It is more about a classification by
14 looking at, like, a packet-applicable criterion, and
15 then making a decision as to either send it to the
16 destination or send it to somewhere else.

17 BY MS. FENDER:

18 Q I think, Dr. Min, because of our objection
19 and overspeak, my question got a little garbled.

20 But if I look back, the question was, in the
21 specification or the claims of the '111, are there
22 any embodiments in which the controller is not

1 capable of performing DPI?

2 MR. STAVINOHA: Objection, form.

3 BY MS. FENDER:

4 Q So with regards to the specific --

5 A It talks about separate embodiment -- I
6 mean, if you look at the summary of invention in the
7 specification, there are two paragraphs, one
8 starting on Column 2, line 27, and one that starts
9 on line 48 in Column 2 going on to the next page,
10 both of these two embodiment describe as a part of a
11 summary, they both talk about DPI.

12 Let me just see -- yes.

13 Yeah, they both talk about the method is --
14 the method is the deep packet inspection method
15 performed by the central controller, so that's what
16 I see.

17 Q So the method that's described, for
18 instance, in Column 2 starting at line 27 talks
19 about a method for deep packet inspection in an SDN
20 where the method is performed by a central
21 controller of the SDN, right?

22 A That's right.

1 Q That has to be performed, okay.

2 Let's talk about the Lefebvre patent for a
3 moment. That's Exhibit 1005 in your declaration,
4 Dr. Min. This is the one that relates to chaining
5 of inline services using an SDN.

6 That's the technical field of the Lefebvre
7 patent, right?

8 A That's the title, yes.

9 Q And at a high level, the Lefebvre patent is
10 about steering network traffic through various
11 inline services using an SDN, right?

12 A That is a reasonable characterization, yes.

13 Q What does inline service mean?

14 A It means it go through -- the data actually
15 go through that chain, whatever the component
16 module, service modules that are in cascade, if you
17 will, one at a time.

18 Q So it has to go through one, then the next,
19 then the next in line, correct?

20 A That's correct.

21 Q What does chaining mean?

22 A Like a cascading one after another. You

1 just sequence it, alter it, and that's what the
2 chaining is.

3 Q What about traffic steering, what does
4 traffic steering mean?

5 A You send the traffic towards a certain
6 direction.

7 Q In this case, towards a specific service
8 chain?

9 A Yes.

10 Q And when we talk about a service chain, I
11 know we've talked about inline service and chaining.
12 But what is a service chain?

13 A So each service along the service chain does
14 something different. It would provide different
15 types of service, be it virus scanning or data
16 analytics, whatever the service is, it would perform
17 one at a time in the sequence.

18 Q In Lefebvre, only subscriber traffic goes
19 through a service chain, right? If it's not
20 subscriber traffic, it gets dropped?

21 MR. STAVINOHA: Objection, form.

22 THE WITNESS: It may get dropped, or it

1 can be forwarded towards the destination. It has a
2 different embodiment.

3 BY MS. FENDER:

4 Q Is it fair to say that in Lefebvre only
5 subscriber traffic would go through a service chain?

6 A That is correct.

7 Q So using an SDN to route the flows more
8 intelligently is one of the aims of the Lefebvre
9 patent, right, to avoid having flows go through
10 unnecessary or expensive dedicated appliances unless
11 they have to?

12 MR. STAVINOHA: Objection, form.

13 THE WITNESS: That is one of the
14 descriptions as a goal.

15 BY MS. FENDER:

16 Q And the '111 patent also talks about this
17 idea, right, that DPI, for instance, is often
18 performed by dedicated engines that are installed in
19 various networks? Right?

20 A That's what Lefebvre reference describes,
21 yes.

22 Q But that's also part of the '111's

1 disclosure, right?

2 A Can you point to where the '111 patent
3 states that?

4 Q Sure. I'll direct your attention to
5 Exhibit 1001 at Column 1, line 28.

6 A Yes, the '111 patent says, Typically, the
7 DPI is performed by dedicated engines installed in
8 such network. Here such a network means --
9 basically various network, any kind of network.

10 Q Lefebvre only talks about deep packet
11 inspection two times, right?

12 A I --

13 MR. STAVINOHA: Objection, form. I did
14 not count that number, so -- let me just take a look
15 at it quickly.

16 BY MS. FENDER:

17 Q Sure.

18 I can maybe help by directing you to some of
19 my specific questions, but I don't want to
20 interrupt.

21 A Yeah.

22 I mean, it may refer to the term deep packet

1 inspection that you mentioned twice or any other
2 number. But a lot of the teachers and utilities of
3 these service functions that Lefebvre describes
4 would utilize deep packet inspection.

5 So I don't know how many times actually deep
6 packet inspection is stated explicitly, but it has a
7 lot of utility that would require deep packet
8 inspection described in Lefebvre patent.

9 Q Well, so my question was, how many times
10 does Lefebvre expressly talk about deep packet
11 inspection.

12 And I think your answer is, you don't know?

13 A I don't know. I mean, that is true.

14 Q Did you -- sorry. Go ahead.

15 A I'm finished.

16 Q I'll direct your attention to Column 1 of
17 Lefebvre at line 24.

18 In Lefebvre, it discloses that deep packet
19 inspection is a functionality that can be one type
20 of middle box or inline service, right?

21 A Yes, it does.

22 Q And Lefebvre is pretty clear that DPI is

1 viewed as an expensive service, right?

2 MR. STAVINOHA: Objection, form.

3 THE WITNESS: I mean, if it is a
4 dedicated appliance, it is expensive service.

5 BY MS. FENDER:

6 Q And DPI, in your experience, Dr. Min, it's
7 expensive in other ways.

8 So, for instance, DPI could cause additional
9 processing time, right?

10 A I mean, any service that is provided would
11 add or delay all the latency in the packet, clearly.
12 So in that regard, DPI is time-consuming.

13 Having said that, you know, I have done DPI.
14 You know, the appliances that utilize DPI, such as
15 intrusion detection or, you know --

16 (Stenographer requested clarification
17 due to audio distortion/malfunction.)

18 THE WITNESS: -- distributed DOS,
19 D-O-S, appliance, they're basically wire speed. So
20 the packets flows in; packets flows out. There's
21 minimal latency there.

22 You can perform DPI in many different

1 ways. You can do it that way, the way that I
2 described, which it requires a dedicated appliance,
3 or you can do DPI just using software.

4 BY MS. FENDER:

5 Q The way that Lefebvre describes it, though,
6 is a dedicated appliance, right? It says, DPI's
7 functionality that can be one type of middle box or
8 inline service, right?

9 A Yes, I think that's correct.

10 Q And Lefebvre discloses a way to allow
11 operators to steer traffic away from DPI where
12 that's appropriate, right?

13 A Where it is appropriate, yes, that's
14 correct.

15 Q Lefebvre also makes certain assumptions
16 about the network that it's discussing.

17 So, for instance, we just talked about one,
18 which is that the traffic that's getting routed
19 through inline services is all going to be
20 subscriber traffic, right?

21 A Yes, that's right.

22 Q And if it's not subscriber traffic in

1 Lefebvre, it does not traverse any inline services?

2 A That is correct.

3 Q So in Lefebvre, if I'm understanding this
4 correctly, Dr. Min, every service is connected to a
5 switch using two ports because inline services
6 definitionally means it has to be able to be
7 traversed by the traffic, right?

8 A That's fair --

9 MR. STAVINOHA: Objection.

10 THE WITNESS: That's a disclosure. In
11 other words, Lefebvre -- no, actually, that's not
12 quite true.

13 I recall seeing Lefebvre connecting
14 service to -- service module to another service
15 module. I forget where it was. But Lefebvre
16 actually talks about, it can go from -- so, like, if
17 you look at Figure 1 of Lefebvre, all the service
18 module, S1, S2, S3, and S4, are connected to the
19 same switch. So the upstream and then downstream
20 ports are connected to the same switch.

21 But Lefebvre, in its disclosure, says
22 it doesn't have to be connected to the same switch.

1 In other words, it can be connected to something
2 else, such as another service module.

3 BY MS. FENDER:

4 Q Do you know where that disclosure is in
5 Lefebvre?

6 A Let me see.

7 So generally here on Column 5, starting from
8 line 47, it talks about the steering network --

9 (Stenographer requested clarification
10 due to audio distortion/malfunction.)

11 THE WITNESS: Yeah, a steering network,
12 which is basically the entire SDN network in
13 Figure 1. And here in line 49, Each service
14 instance has a two communication interface to the
15 service network. And then it talks about
16 potentially on different switches, so upstream and
17 downstream doesn't have to be connected to the same
18 switch.

19 And then it goes on to say, One for
20 each direction. And then it says, Service instances
21 with more than two interfaces are also supported by
22 the proposed traffic steering mechanism. In other

1 words, it doesn't have to be just to two. It can be
2 more than two, so it can be connected to anything
3 else.

4 BY MS. FENDER:

5 Q In Column 5, line 21, it talks about some of
6 the assumptions that are being made, one of which
7 was every service is connected to a switch using two
8 ports. Similar to routers and bridges, inline
9 services are by definition traversed by the traffic,
10 so this is a natural requirement. The services need
11 to have a clear notion of upstream and downstream
12 traffic and require the use of two ports.

13 A Yep.

14 Q Help me understand how that relates to what
15 you were just describing to the extent that you were
16 saying it does not require a clear notion of
17 upstream and downstream traffic.

18 A No, it is consistent with what is described
19 here. The thing only says service has to have two
20 ports, upstream and downstream. And the upstream
21 and downstream -- so it's a minimum of two. But
22 what I just read on line 52, it says, Service

1 instances with more than two interfaces are also
2 supported, right. So it doesn't have to be just
3 upstream and downstream, but it can be connected to,
4 say, another service instance, for example.

5 Q And so to the extent that in Lefebvre one of
6 the services offered to a subscriber is DPI, DPI
7 would be an inline service, though?

8 MR. STAVINOHA: Objection, form.

9 THE WITNESS: So if a DPI is offered as
10 an inline service -- one of the services in the
11 service chain, that would be an inline service.

12 Having said that, this service, S1
13 through S4, shown in Figure 1, there is clearly some
14 kind of server, computer providing that -- all the
15 appliance, right.

16 So what I have shown in combination of
17 Chua is that that service can be also put into --
18 that's what Chua says -- on any kind of a
19 computer-running environment, such as the controller
20 itself.

21 BY MS. FENDER:

22 Q So I think right now, Dr. Min, we're staying

1 focused on Lefebvre, and we'll get to Chua in a
2 moment.

3 A Okay.

4 Q But in Lefebvre, DPI, as disclosed in this
5 patent, would take place, if I understand correctly,
6 at the switch or at the router; is that right?

7 A DPI would be one of the service module, not
8 switch or router.

9 Q So service node is different than a switch
10 or a router in Lefebvre?

11 A Yes, that's correct.

12 Q And Lefebvre also talks about a number of
13 different policies that could be at play with its
14 traffic steering. So they talk about -- you just
15 referenced this -- subscriber-based policies,
16 application-based policies, flow-based policies,
17 service-ordering policies.

18 Can you explain the difference between those
19 different types of policies and how those would be
20 effectuated in Lefebvre's disclosure?

21 MR. STAVINOHA: Objection, form.

22 THE WITNESS: I think Lefebvre

1 describes this pretty extensively.

2 BY MS. FENDER:

3 Q Well, what I'd like to focus on, Dr. Min, is
4 the difference between it. So just briefly if you
5 can explain subscriber based, application based,
6 flow based, and service ordering, how those concepts
7 differ.

8 A So basically you're looking for different
9 packet-applicable criterion. So you look at the
10 packet; it has a whole bunch of parameters as a part
11 of the headers. If it's a subscriber base, then you
12 look for source or destination IP address. And if
13 it's application based, then you look for how they
14 filled in IP packet, and it has a protocol number.
15 And you can get the information from there, or you
16 can look for inside of an application packet and see
17 if there's any key parameters.

18 If it's a flow base -- and typically in IP
19 net, they'll flow -- many times it's defined by what
20 we call the 5-tuple, source and destination IP
21 addresses, source and destination ports, and
22 protocol number. If you match those, then you have

1 the same flow.

2 So based on identification of a packet
3 matching any of those criteria, you have different
4 actions to exercise. So those are different kind of
5 policies.

6 Q For the service-ordering policy, how does
7 that work in Lefebvre?

8 A So different -- so you identify a packet
9 matching any of those criteria. And then you have a
10 service set that these traffic will be steered to.
11 And a service set contains multiple services. And
12 Lefebvre defines, like, a global priority. If
13 you're going to perform this many services, you do
14 it in this way.

15 So, you know, that's the service-ordering
16 policy.

17 Q So after the service policies are defined by
18 an operator, the policies are then -- if I
19 understand correctly, they're translated by the
20 controller into rules that get programmed onto the
21 switches in the service network; is that right?

22 A Yes.

1 Q How does the controller translate policies
2 into rules?

3 A That's a complex procedure. Basically, the
4 policy will tell you, say, for example, this
5 subscriber signed up for intrusion detection, denied
6 over service mitigation, virus scanning, say. Then
7 that service policy will say this service chain, you
8 go to depict an inspection and then go to virus
9 scanning, go to intrusion detection, and go to
10 denied over service mitigation.

11 And better be defined by this global
12 ordering -- service ordering, and that just goes to
13 the table. And that table is shown in Lefebvre
14 Figures 4A through 4F, basically go through the
15 table and figure out what to do.

16 Q Does Lefebvre disclose an instruction?

17 A Yeah, because it tells you what to do.

18 Q Where is that disclosed in Lefebvre, the --

19 A The service holding, you identify packet
20 satisfying certain criteria, and then the traffic
21 will be steered, so you are doing a redirection.

22 So if traffic is steered to certain service

1 chain, you are doing the redirecting; or for a
2 subscriber that does not match, it's a
3 nonsubscriber, then you don't steer to that
4 direction. You just don't forward it. So those are
5 the instructions.

6 Q So an instruction -- if I'm understanding
7 correctly, an instruction would not just apply to
8 subscriber traffic; an instruction would also apply
9 to nonsubscriber traffic that gets dropped or
10 blocked -- or, no, I'm sorry, let me withdraw that.

11 The instruction for nonsubscriber traffic
12 would be forward without doing anything?

13 A Yeah, that's right. Just looking for
14 destination address.

15 Q Does Lefebvre disclose any kind of probe
16 instruction?

17 A Probe instruction is, like, take a look at
18 the packet more carefully, so, yeah, it does. It
19 talks about DPIs and other security measures.

20 Q So can you help me understand where in
21 Lefebvre it specifically talks about the idea of a
22 probe instruction; or instead, are you just looking

1 to the idea of a DPI disclosure as necessarily
2 including probe?

3 A So looking at -- I'm sorry, that's not.

4 Whenever Lefebvre talks about security
5 functions, that would be a probe instruction. I'm
6 trying to find that where that is -- I'm trying to
7 identify here.

8 (Stenographer requested clarification
9 due to audio distortion/malfunction.)

10 MS. FENDER: I think he said, I'll see
11 if it's in the front.

12 BY MS. FENDER:

13 Q Is that right, Dr. Min?

14 A I'm sorry?

15 Q Did you say, I'll see if it's in the front?

16 A Yeah. I mean, I know Lefebvre talks about
17 the security as a part of a service. That's what I
18 am looking at.

19 So it's in the background. But basically it
20 talks about steering -- this is in the paragraph
21 starting on Column 1, Line 28.

22 But in particular, like, starting from

1 line 34, it talks about operator to steer video
2 traffic and away from expensive service such as a
3 deep packet inspection.

4 So, you know, this is a part where there is
5 a deep packet inspection appliance as a part of a
6 service module, but sometimes you don't want to send
7 the traffic through there. So steering to, that's a
8 service chain that includes, say, deep packet
9 inspection, would be probing, you know, trying to
10 probe the packet further as opposed to not.

11 Q So probing in that context just means the
12 deep packet inspection itself?

13 A In that context, yes, just to look at the
14 packet further as a part of a service chain.

15 Q What about redirecting as an instruction,
16 does Lefebvre describe any kind of redirecting?

17 A Yeah, it talks about rewriting packet
18 headers and that was -- redirecting is, I think,
19 mentioned in several different places.

20 Q And Lefebvre doesn't disclose any specifics
21 regarding what actions result from the service
22 processing the traffic along the service path,

1 right? It talks about how to steer traffic through
2 the services, but it doesn't talk about what happens
3 after.

4 MR. STAVINOHA: Objection, form.

5 THE WITNESS: It steers the traffic
6 through service chain. I'm not sure what you're
7 asking me. It goes through the service chain.
8 That's what it does. Services end up -- the service
9 chain will do whatever the service it is defined to
10 perform. I mean, that's the whole idea of this
11 service chain.

12 BY MS. FENDER:

13 Q Right.

14 And so I'm actually citing you back to
15 yourself, Dr. Min, where you said, Lefebvre does not
16 expressly disclose specifics regarding actions
17 resulting from the services processing the traffic
18 along the service path, at page 66, paragraph 102.

19 You agree with that, right?

20 A Yeah, that's what I said in this paragraph.

21 Q As far as DPI generally, I just want to make
22 sure I understand.

1 So DPI, at least in Lefebvre, is viewed as
2 expensive for various reasons.

3 Are you aware of any other security services
4 or alternatives to DPI that would be viewed as --
5 well, let me rephrase that.

6 What are some alternatives to DPI that a
7 person of ordinary skill in the art would be aware
8 of?

9 MR. STAVINOHA: Objection, form.

10 THE WITNESS: So I think the
11 distinction is, DPI as a separate appliance versus
12 DPI as a part of, say, software suite running DPI.

13 DPI is a concept that is looking
14 through the entire packet and look for the pattern.
15 So it can do it in an appliance. And when you have
16 this separate appliance, you are looking at DPI at
17 an extreme speed.

18 But if you're doing a DPI -- like, if
19 you -- I buy a computer and I can subscribe to
20 virus-scanning software like Norton or any of those
21 subscription-based software, that software is doing
22 DPI. It is looking through the entire packet, but

1 it is treated as software, right.

2 BY MS. FENDER:

3 Q What I'm trying to understand is, what are
4 alternatives to DPI? What would be viewed by a
5 person of skill in the art as an alternative?

6 MR. STAVINOHA: Objection, form.

7 THE WITNESS: If you're doing security,
8 you have to do DPI, whether you do it in software or
9 in hardware. Those are the alternatives.

10 BY MS. FENDER:

11 Q I want to talk about the Chua patent that's
12 Exhibit 1006 in your declaration. So, again, sort
13 of starting at the high level as we did with
14 Lefebvre, Chua generally describes techniques
15 related to using SDNs to ensure good network
16 availability.

17 Is that fair?

18 A Yeah, that is a good characterization.

19 Q So when you actually look at Chua's claims,
20 it's a method, a controller device, and a
21 nontransitory computer-readable storage medium that
22 are geared toward defining two paths for network

1 traffic between network devices of an SDN to ensure
2 that if there's a failure event, the network devices
3 can be configured to use an alternate route, right?

4 A Yeah, those are the claims.

5 Q In the network -- I think you note this.

6 The network that the SDN controls in Chua,
7 that network is composed of network devices and
8 service devices, right?

9 A Yes, that's correct.

10 Q So as I often do, Dr. Min, I'm going to ask
11 you to explain, what is a service device?

12 A Service device is like those service modules
13 in Lefebvre. So they perform specific services.

14 Q And can you give -- I think some examples
15 that we just talked about, but let me clarify if I
16 understand correctly.

17 Services would include things like intrusion
18 detection, the firewalls? Those would all be
19 service devices; is that right?

20 A Yeah, that's right.

21 Q What about a network device? What's a
22 network device?

1 A A network device is like switches and
2 routers. They have -- in the context of an SDN,
3 they perform the data plane operation. They receive
4 packet, process, and forward.

5 Q What device type -- of service device or
6 network device, what device type does Chua disclose
7 performing deep packet inspection?

8 MR. STAVINOHA: Objection, form.

9 THE WITNESS: I mean, it's a service
10 device, but that service function can be performed
11 in SDN controller as well. So service device and
12 SDN controller can perform the deep packet
13 inspection.

14 BY MS. FENDER:

15 Q So I want to focus on Chua's disclosure
16 specifically.

17 What device type does Chua disclose
18 performing DPI?

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: So if you look at
21 Column 6 of Chua starting on line 53, there's a
22 paragraph talking about the DMZ function, the

1 demilitarized zone function. There the SDN can be
2 used to configure the physical devices.

3 And then it goes onto the next column,
4 Column 7, and starting from line 2, the devices that
5 are controlled by -- the service devices here may be
6 plugged into the SDN controllers. And these devices
7 can perform all those functions, like firewalls, web
8 proxy, and so forth, antivirus, and intrusion
9 detection, intrusion prevention -- a lot of these
10 devices will require some form of a deep packet
11 inspection.

12 So the server devices, service device
13 will be some kind of computer that performs a server
14 functions.

15 And then --

16 (Stenographer requested clarification
17 due to audio distortion/malfunction.)

18 THE WITNESS: -- Chua describes SDN
19 controller itself can be programmed to provide those
20 functions.

21 BY MS. FENDER:

22 Q Chua also discloses the idea that the

1 controller can execute other programs directly,
2 right?

3 A Yes. That's right.

4 Q And so does Chua disclose any program that
5 could be hosted or executed by the controller? Is
6 there any limit to the type of program?

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: I mean, I don't know if
9 Chua discloses the limit. But it certainly
10 discloses a DPI being performed by the SDN
11 controller.

12 BY MS. FENDER:

13 Q And actually, this is going back to
14 something you were talking about before, Dr. Min, so
15 I can hope to finally understand it.

16 But Chua also discloses hosting services.
17 It talks about hosting an L4 through L7 service.

18 Do you remember that disclosure?

19 A Yes.

20 Q So I want to first just take a step back and
21 talk about this idea of layers that we were talking
22 about before, so L3, L4 through 7.

1 What is your understanding of these
2 different layers as it relates to SDN?

3 MR. STAVINOHA: Objection, form.

4 THE WITNESS: It's a tool disjoint
5 concept. SDN is just configuring the network
6 through a software configuration. That's what SDN
7 is. And the L4 through L7 processing can be done
8 outside of an SDN or in conjunction with SDN, so
9 it's there like two separate concepts.

10 BY MS. FENDER:

11 Q Let's unpack it a little bit.

12 Are you familiar with the phrase open
13 systems interconnection, the OSI model?

14 A Sure.

15 Q Please give me an explanation of what that
16 means.

17 A It means the networking is a -- I should say
18 the information -- communicating information is a
19 very complex process, and you segment along the
20 sequence of processing in layers, so go from Layer 1
21 through 7 and, like, collect similar functions and
22 put it into the same layer and make it -- so in the

1 end, there are seven of those. And that's like a
2 basic concept behind OSI implementation.

3 Q So it's a way to think about these different
4 sort of actions or where things are happening across
5 the network; is that fair?

6 A It's more than just the thinking about it.

7 If you defined a boundary between these
8 layers, the idea there was, the first two lettering,
9 OSI open, the O means different vendors can
10 implement different parts of the information
11 processing chain, so it promotes the competition
12 across industry.

13 So someone who provides an application,
14 which is Layer 7, does not have to concern how the
15 switching is going to take place at Layer 3 or 4 or
16 2, so someone else can do that part as long as the
17 handle point between the boundary of layers is
18 precisely defined.

19 Q Layer 3 in OSI is the network layer; is that
20 right, Dr. Min?

21 A Yes.

22 Q And Layer 4 is the transport layer?

1 A Yes, that's right.

2 Q Can you provide some context or explanation
3 of what those concepts mean? What is the
4 distinction that's being drawn between Layer 3 and
5 Layer 4?

6 A Yeah.

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: So there's the seven
9 layers starting from the application, session,
10 presentation, and transport. Those are the four top
11 layers. They exist only at the source and the
12 destination.

13 Intermediate layer -- I'm sorry,
14 intermediate method portion, like all the switches
15 and routers that the information has to traverse, it
16 does not perform the upper layer, top four layers.
17 So the transport layer is the bottommost of these
18 top four, and transport layers basically insert the
19 packet into the network. That takes place at the
20 source.

21 And function -- a main function in
22 transport layer is when to put it in, that packet,

1 like in a speed at which it needs to put that packet
2 in. And if the packet is lost, how to retransmit.
3 That's, like, a transport layer.

4 Now, network layer, Layer 3, is
5 performed at every intermediate node. Network layer
6 is, you accept the packet from the source; its job
7 is to deliver as quickly as possible to the
8 destination. So it does not concern, like, when the
9 packets are coming in. It has no choice. When it
10 receives the packet, it has to forward it as soon as
11 possible.

12 BY MS. FENDER:

13 Q So in the Chua disclosure, as you point out
14 in your declaration, Chua discloses that the Layer 3
15 applications could execute in the SDN.

16 Do you recall writing that?

17 A Can you point to me where that is?

18 Q Sure. Page 59 of Exhibit 1002,
19 paragraph 89.

20 A Yes, I see that.

21 Q So I'm trying to understand, Dr. Min, first
22 of all, what does it mean to host, like, an L4

1 through L7 service?

2 A It means whatever the L4 through L7 service
3 that is influenced.

4 So L4 service, for example, is -- one other
5 thing, we can do load balancing. So remember what I
6 said, Layer 4 is a transport. It determines the
7 pace. So if there's a multiple route that
8 the packet can go -- you can distribute the packets
9 across multiple path, so you can host the service,
10 meaning the OpenFlow switch that host -- L4 service
11 of the load balancing can actually perform that
12 task.

13 Q So is that synonymous with saying that an
14 SDN is hosting a service? It sounded like what you
15 were just talking about was hosting in the switch.

16 MR. STAVINOHA: Objection, form.

17 THE WITNESS: In this case, what I'm
18 saying is, the SDN service that Chua describes can
19 host those services that I just described by being
20 configured by the SDN controller.

21 BY MS. FENDER:

22 Q So you say in your declaration, Dr. Min,

1 that Chua discloses that Layer 3 applications could
2 execute in the software-defined network.

3 Do you see that?

4 A Yes.

5 Q And so when we say execute in the
6 software-defined network, what do you mean by that?

7 A Meaning Layer 3 application is basically --
8 there are two main application at L3 like an IP
9 forwarding.

10 You look at IP header and then look at the
11 destination and then do the previews matching, so
12 that's an L3 application.

13 Or you can do another one for ICMG, so it's
14 looking at, like, a pinging other device in IP net
15 token C, you know, if it's working or still there
16 and that kind of thing.

17 So those are L3 applications.

18 Q So if you actually look at the Chua patent,
19 it talks about the L3 application being executed by
20 the SDN controller.

21 And what I want to understand is, to you
22 executing in the SDN versus being -- executing by

1 the SDN controller, is there any difference between
2 those two terms?

3 A I mean, SDN network comprised, SDN
4 controller, and SDN switch is OpenFlow switches.

5 SDN controller has the intelligence, as you
6 and I described earlier. And SDN controller will
7 translate the action and packet-applicable criterion
8 to be ported and configured in SDN switches. So
9 they have to work together. So SDN controller will
10 have to -- first to translate the L3 application as
11 an instruction and packet-applicable criterion and
12 configure the OpenFlow switches with those
13 instruction and packet-applicable criterion.

14 So as a result, the L3 application would be
15 executed in the SDN, but the processing of that
16 protocol control SDN network would be executed as a
17 protocol SDN controller.

18 Q You also talk about Chua disclosing a
19 controller that can perform DPI on packets from
20 client devices, and so I just want to walk through
21 that logic. So this is your declaration again at
22 still paragraph 89, the last sentence there.

1 A Yeah.

2 Q Do you see that, sir?

3 A Yes.

4 Q So you cite there the Chua patent at
5 Column 10, starting at line 48; and then Column 31,
6 starting at line 48.

7 In the part of Chua that you cite, Chua
8 says, The central control platform can capture and
9 inspect the first or a fixed number of packets to
10 perform DPI for application classification to extend
11 the policy enforcement to specific application
12 types.

13 I think -- you've stated that this is the
14 same as saying that the controller can perform DPI
15 because Chua says the central platform can be a
16 controller such as an SDN controller or just an
17 application with an SDN interface; is that right?

18 A Yeah --

19 MR. STAVINOHA: Object to form.

20 THE WITNESS: Central platform is the
21 controller.

22

1 BY MS. FENDER:

2 Q So the term central control platform is
3 broader than an SDN controller as disclosed by Chua,
4 correct?

5 A I mean -- I think that they are -- I'm
6 trying to look and see if there's any other use of
7 that term.

8 Q So I'll direct your attention, Dr. Min, to
9 Column 10 at line -- it looks like it's about
10 line 12. Excuse me.

11 The central platform may be a controller
12 such as an SDN controller 112 or simply an
13 application that has a southbound OpenFlow or other
14 SDN interface.

15 Do you see that?

16 A Yeah, I see that.

17 Q Again, the term central control platform is
18 broader than an SDN controller as disclosed at least
19 by Chua, correct?

20 A I mean, it says it could be SDN controller
21 or something else application -- the second portion
22 of the sentence you just read. That means either

1 one of these two can do what cited text Column 10,
2 line 48 to 52. It can be done at central controller
3 or something else, which is consistent with my
4 interpretation of what it says.

5 Q So the SDN controller, again, is perhaps a
6 type of central control platform but they're not
7 synonymous; the central control platform is
8 something broader, right?

9 A It says the Chua central -- central control
10 platform can be simply an application that has a
11 southbound OpenFlow or other SDN interface, so
12 that's one possibility.

13 Another possibility is the first portion of
14 the sentence, the central platform may be a
15 controller such as SDN controller.

16 So either one is possible. And the cited
17 text on Column 10, line 48, it says central
18 controller platform can do the DPI.

19 So SDN can do a DPI or application -- the
20 second portion of the sentence on line 15 through 16
21 on Column 10. It could be application. So it could
22 be either one. So it says SDN can do this.

1 Q I'm going to, again, ask you to listen to my
2 question, Dr. Min, and answer my question.

3 Okay?

4 The central control platform as described by
5 Chua is defined to include an SDN controller, right?

6 A Yes.

7 Q And to be broader, right?

8 A As something else there too, yes.

9 MS. FENDER: I think, Elisabeth, it's,
10 yes, there's something else there too.

11 BY MS. FENDER:

12 Q Is that right, Dr. Min?

13 A Yes.

14 Q Thank you.

15 So what I want to understand from you,
16 Dr. Min, is, is there any difference in your mind
17 between a central control platform and a central
18 platform?

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: Difference between
21 central control platform and central platform?

22

1 BY MS. FENDER:

2 Q Yes.

3 A I think they're talking about the same
4 thing.

5 Q What about a central application control
6 platform, is there anything different between a
7 central control platform and a central application
8 control platform?

9 A Can you point --

10 MR. STAVINOHA: Objection.

11 THE WITNESS: Can you point to me where
12 central application control platform is in Chua?

13 BY MS. FENDER:

14 Q You want us to show it? Is that what you
15 just said?

16 A Yeah, where that is if you can point.

17 Q Let me see what the page number is. Give me
18 one second.

19 So there are a number of places in which the
20 phrase control platform appears in the Chua patent.
21 I don't know -- I think the best one to direct you
22 to -- I just want to be clear, this isn't the only

1 one -- is Column 10, line 12, which is the section I
2 had highlighted for you before where they talk
3 about -- the sentence starts at line 10.

4 Therefore, in accordance with these
5 techniques, these stacks may be moved onto a central
6 application - control platform.

7 A You said Column 10 and line --

8 Q The sentence starts also at line 10, sir.

9 A Line 10.

10 Q And I just want to understand in your mind
11 if there's any distinction between that term and the
12 idea of a central control platform or a central
13 platform.

14 MR. STAVINOHA: Objection, form.

15 THE WITNESS: As I'm reading this, I'm
16 connecting that phrase with the sentence starting
17 from line 13 in Column 10, which -- to line 14 of
18 Column 10, which, again, I have been talking about.

19 The first part is the SDN controller,
20 so the central platform may be a controller such as
21 SDN controller.

22 And then the second part says that

1 application that has a southbound OpenFlow, so we're
2 talking the central platform performing two
3 different functions.

4 To me, that's what application
5 platform, which is the second half of this sentence,
6 as opposed to the control platform, which is the
7 first part of the sentence that you and I have been
8 discussing.

9 BY MS. FENDER:

10 Q Taking a step back, how does deep packet
11 inspection -- well, let me start over.

12 The deep packet inspection that's disclosed
13 in Chua is for application classification to extend
14 the policy enforcement to specific application
15 types.

16 Do you see that disclosure in Chua, or do
17 you remember it?

18 A Yes, I do.

19 Q So I want to talk about that particular
20 sentence.

21 How does DPI classify applications?

22 A So DPI can look at the payload of a -- in

1 most payload, which is something that comes from an
2 application, and you can look for some key phrases,
3 such as -- I think the example that's given is an
4 HTTP gap, some comments that gives a unique
5 signature.

6 So by looking at the content of the payload,
7 it can identify the actual application.

8 You know, the packet header would also have
9 an application, but sometimes people misuse it to
10 avoid some kind of mitigation.

11 Q What does it mean then to extend the policy
12 enforcement? We talk about extending the policy
13 enforcement, what policy is being discussed there?

14 A It's --

15 MR. STAVINOHA: Objection, form.

16 Dr. Min, please give me time to object
17 before you start answering just so we're not talking
18 over each other.

19 THE WITNESS: I apologize.

20 If you -- just to classify the packet
21 based on the header and if for -- senders use some
22 random application number, the IP header has a

1 protocol field that defines the application. And
2 sometimes network operators will mitigate flow of a
3 certain application.

4 To avoid that, you would use a random
5 header field, so you would not match the
6 classification based on the header. Then the packet
7 wouldn't get through because it didn't match the
8 pattern. But if you do a deep packet inspection,
9 it can actually identify the application, and you
10 can enforce the policy based on the true nature of
11 the packet.

12 BY MS. FENDER:

13 Q I see.

14 So the other portion of Chua that you cite
15 for the idea that the controller can perform DPI is
16 at Column 31, starts at line 48.

17 And there Chua is discussing SDN controllers
18 interacting with client devices; is that right?

19 A I'm reading the wrong column. I'm sorry.

20 Q That's okay.

21 MS. FENDER: Just in kind of keeping
22 with the idea, Dr. Min, that we wait until we're

1 through a section, we have just a couple more
2 questions on this, and then maybe we can take
3 another quick break.

4 THE WITNESS: Yeah.

5 Yeah, I think that's correct.

6 BY MS. FENDER:

7 Q And in Chua, what is a client device?

8 A Chua defines a client device as -- just one
9 second. Let me remind myself.

10 Here under Column 31, line 18, there's a
11 description of client device 102, in parentheses, is
12 a mobile device, for example, like an end-user
13 device.

14 Q End-user device? Okay.

15 So, for instance, a cell phone would be a
16 client device?

17 A Yes.

18 Q And Chua talks -- I think this is what you
19 were just discussing, Dr. Min.

20 Chua talks about an example where the SDN
21 controller may inspect the preliminary packets of a
22 flow to determine if traffic is malicious, right?

1 A Yes.

2 Q And so in the disclosure from Chua, the
3 controller can also program network devices to
4 forward packets from the flow to a DPI service,
5 right?

6 A That's correct.

7 Q And in that example, the service device
8 would not be in the controller; the service device
9 would be something else located distinct from the
10 controller, right?

11 A In this --

12 MR. STAVINOHA: Objection, form.

13 THE WITNESS: In this scenario you just
14 described, service device would be something other
15 than controller.

16 BY MS. FENDER:

17 Q I'll try to help out my opposing counsel,
18 sir, and ask you again for everyone's sake on the
19 reporting to just take it a little slow.

20 In your view, does Chua claim a
21 software-defined network that conducts deep packet
22 inspection on anything other than packets from

1 client devices?

2 MR. STAVINOHA: Objection, form.

3 THE WITNESS: Packets come from some
4 level -- some form of device, so the client device
5 being one of them. So as I mentioned before,
6 packets start from the source, goes to the
7 destination, and vice versa.

8 It could be client device or it could
9 be server device in the internet.

10 BY MS. FENDER:

11 Q I'm focused specifically on Chua right now,
12 Dr. Min.

13 A Yeah.

14 Q So in Chua, is there any disclosure of
15 something other than packets from client devices?

16 A I do not recall.

17 Q How is the packet from a client device --
18 this is going to be a somewhat inarticulate
19 question, but please bear with me.

20 How does the packet from a client device
21 make its way to the SDN controller for DPI to be
22 conducted on it in Chua? So what's the route that

1 it takes? What things does it pass through along
2 the way?

3 A I think that's --

4 MR. STAVINOHA: Objection, form.

5 THE WITNESS: That's the same as what
6 Lefebvre does. So it will come from the client
7 device. It will go through some access network. It
8 will hit SDN somewhere in the middle of the network.

9 Once it gets to SDN network, the switch
10 will basically perform the classification looking
11 for the packet headers. It will classify whatever
12 it needs to classify.

13 And then from there, if it's identified
14 to be, you know, matching criteria for deep packet
15 inspection, it will go towards that.

16 BY MS. FENDER:

17 Q Where does Chua disclose a criterion?

18 A Chua talks about classification, and
19 classification is basically based on the criterion.
20 In other words, classification itself is looking for
21 matching criteria and identifying the packet to have
22 matched that criteria. And that's the

1 classification.

2 I don't know if Chua uses the term
3 criterion, but Chua talks about classification.

4 Q What about instruction, does Chua disclose
5 an instruction?

6 A I mean, once again, Chua may not use the
7 term instruction itself, but the action that follows
8 the classification going to different services or go
9 to SDN controller for deep packet inspection, that's
10 the instruction or just to forward it. And Chua
11 talks about the mirroring, transmitting,
12 encapsulating. So it talks about all different type
13 of instructions.

14 Q Where exactly are you looking in the Chua
15 disclosure for the -- I don't know if it's defined
16 or just given examples, but for the term
17 classification?

18 A So if you look at Column 7, starting from
19 line 28, there's a paragraph on the kind of actions
20 that network switches, network devices of an SDN can
21 perform. And it looks for, you know, for example,
22 explicitly allow a certain net of flow to proceed to

1 its destination.

2 So in other words, it's identifying a flow.

3 And then it's all done at a --

4 (Stenographer requested clarification
5 due to audio distortion/malfunction.)

6 THE WITNESS: -- based on flow,
7 F-L-O-W.

8 BY MS. FENDER:

9 Q Just to clarify my question, Dr. Min, it was
10 specifically -- I think you were pointing to the
11 idea of Chua's classification disclosure.

12 A Right.

13 Q About the idea of criterion and instruction.

14 I had asked you to identify where in the
15 Chua patent the idea of classification was
16 discussed.

17 A Yes, that's what I was explaining.

18 Q Okay.

19 A These actions are based on flow. The flow
20 is identified by the 5-tuple, as I mentioned to you,
21 those source and destination IP addresses, source
22 and destination ports number, and protocol number.

1 In other words, you look at the packet and
2 see if for those 5-tuple matches what is identified
3 as a flow of interest. These are describing all the
4 classification processes.

5 I was actually looking to see if there
6 was -- the word classification itself appears. I
7 mean, it's pretty clear what it does.

8 Q Just to clarify, Dr. Min, you don't see a
9 description of classification, but I think you're
10 pointing to this part of Column 7 starting at
11 line 28 to give examples that would relate to
12 needing to have a classification; is that right?

13 A I mean --

14 MR. STAVINOHA: Objection, form.

15 THE WITNESS: To act upon a flow, you
16 have to classify.

17 BY MS. FENDER:

18 Q So because these are things that would act
19 upon a flow, intrusion detection systems, for
20 instance, would require a flow?

21 A I mean, it could be one of the parameters
22 for intrusion detection. So whatever the function

1 that it has to perform, you could identify a flow as
2 including some threat patterns.

3 Q Last question before we take a break.

4 Where does Chua disclose a probe?

5 A I mean, probably -- inspection, so if you do
6 a deep packet inspection, that's an inspection.

7 And Chua talks about --

8 (Stenographer requested clarification
9 due to audio distortion/malfunction.)

10 THE WITNESS: Chua talks about DMZ.
11 It's a firewall that's within Column 7 paragraph
12 citing -- line 3, antivirus, IDS, IPS, and so forth.
13 So these are all examples that I can tell you.

14 MS. FENDER: Let's go ahead and take a
15 break. Can we go off the record, Elisabeth?

16 Thank you.

17 (Recess: 3:46 p.m. to 4:02 p.m.)

18 MS. FENDER: Let's jump back into it,
19 Dr. Min.

20 BY MS. FENDER:

21 Q So I want to talk with you really briefly
22 about the Rash patent that's Exhibit 1007 to your

1 declaration.

2 (Marked Exhibit 1007.)

3 BY MS. FENDER:

4 Q So in your declaration, you say that Rash
5 mirrors packets or portions of packets to a
6 destination other than the original intended
7 destination.

8 Do you recall that?

9 A Yes.

10 Q Rash doesn't disclose the packets or
11 portions of packets being directed to a controller
12 for any type of further analysis, does it?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: Could you repeat the
15 question? I missed the last part of it.

16 BY MS. FENDER:

17 Q Sure.

18 Rash does not disclose that packets or
19 portions of packets are directed to a controller for
20 any type of further analysis, does it?

21 A So Rash patent does not consult directly on
22 the software-defined network, so it does not really

1 talk about, like, a controller.

2 Q What is the network control manager in Rash?

3 A So, like, a network system central manager,
4 is that what you're referring to when you say
5 network control manager?

6 Q I think a network control manager term is
7 actually used in Rash, so I'm asking your
8 understanding of that term.

9 A Yeah, let me try to find that.

10 Q So, for instance, Column 7, line 24 would be
11 an example.

12 A Okay. Did you say Column 7, line 24?

13 Q I did.

14 So it says, That determination is
15 established in the application identification
16 function and transmitted to one or more other
17 devices of the network, including a network control
18 manager.

19 A Yeah. So...

20 Q And I'm not asking you about that line in
21 particular, Dr. Min --

22 A Yeah.

1 Q -- to clarify.

2 I'm just trying to understand from a person
3 of ordinary skill in the art what is a network
4 control manager.

5 A I'm still having a hard time finding the
6 phrase you just read.

7 Q Are you looking at the patent that ends in
8 '447?

9 A Yeah, the Rash patent, '447, Column 7,
10 line 24, it says, The present invention further
11 include.

12 Q That's -- so I apologize if I misspoke as to
13 the specific line. If you could move up one line.

14 A Oh, okay.

15 Q There we go.

16 A So in this context, it is some form of a
17 server that actually does this identification of an
18 application. So it is a -- some server function
19 that provide a -- how to control the network based
20 on this identification of what underlying
21 application is performing.

22 Q Are the mirrored packets directed back to

1 the network control manager in Rash?

2 A Let me see here. One second.

3 I mean, it doesn't really say that it's
4 transmitted to the network control function.

5 Q Okay.

6 A Allow me one moment, please, here.

7 Yeah, so it controls the mirroring function,
8 but it does not say it is actually mirrored to the
9 controller.

10 Q Let's go ahead and talk now, Dr. Min, about
11 your analysis of the elements of the '111 patent as
12 against Lefebvre and Chua.

13 Okay?

14 So I think to try to help us move with some
15 more alacrity, as I described, I'll try to direct
16 your attention to parts of your declaration.
17 Obviously you need to take the time you need to
18 take.

19 A Yeah.

20 Q But let me go ahead and direct your
21 attention to page 71 of your declaration just so
22 that we know where we're starting from. So I'm

1 going to walk through the different elements of the
2 claims and ask you about some of your conclusions.

3 Okay?

4 A Yes.

5 Q So first of all, with respect to Claim 1, if
6 you turn the page there to page 72 of your
7 declaration.

8 MS. FENDER: And if we could go ahead
9 and put that up, Ms. Zeigler, just for everyone's
10 reference for at least a moment.

11 BY MS. FENDER:

12 Q You include the same annotated version of
13 Lefebvre's Figure 1 as from Dr. Mir as you describe
14 in paragraph 109, right?

15 A Yes.

16 Q And so looking at this --

17 MS. FENDER: I don't know if it's
18 possible, Ms. Zeigler, to just zoom in on the figure
19 just because of my eyes.

20 BY MS. FENDER:

21 Q Dr. Min, looking at Figure 1, as reproduced
22 in your declaration, the service network of Lefebvre

1 does not include the R1 or R2 routers, right?

2 A That's correct.

3 Q The R2 router is the link to the internet or
4 some sort of internal network.

5 That's either 126 or 124, right?

6 A Yes, that's correct.

7 Q And the R1 router is the point of connection
8 to user equipment, so that's 120 or 122 in this
9 figure, right?

10 A That's right.

11 Q And if I'm correct, you define everything
12 shown in Figure 1 as the packet network, right?

13 A Yeah.

14 (Stenographer requested clarification
15 due to audio distortion/malfunction.)

16 THE WITNESS: They are part of the
17 packet network.

18 BY MS. FENDER:

19 Q What specific components of the items shown
20 in Figure 1 to your mind make up part of the packet
21 network? Is it everything shown in Figure 1?

22 MR. STAVINOHA: Objection, form.

1 THE WITNESS: I mean, end device would
2 not be the part of network. But it starts from
3 router all the way in, with exception of the two
4 user equipment, the two laptops, 120 and 122.

5 As the service node device, S1, S2, S3,
6 and S4 are inline services, they would also be part
7 of the network, packet network.

8 BY MS. FENDER:

9 Q So only the laptops at 120 and 122 would be
10 excluded as part of the packet network?

11 A They're not part of the network. That's
12 correct.

13 Q And does Lefebvre define itself the
14 components that make up a packet network?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: I mean, it talks about
17 the internet, for example, is a network, and it also
18 talks about internal network and the service
19 network. And I think the description is pretty
20 clear as to what Lefebvre talks about as a network,
21 packet network.

22

1 BY MS. FENDER:

2 Q You defined everything shown in Figure 1
3 except for the laptops as part of the packet
4 network, right?

5 A I mean, as shown in the figure, that is my
6 interpretation of packet network.

7 Q And you said -- I think the phrase you used,
8 Dr. Min, was end device, that it would preclude the
9 end devices, which you then said were the laptops;
10 is that right?

11 A In that --

12 MR. STAVINOHA: Objection, form.

13 THE WITNESS: That is typically how you
14 define a network. Network does not typically
15 include end device.

16 BY MS. FENDER:

17 Q You also say, Dr. Min, that this figure
18 discloses a first and a second entity. It's in
19 paragraph 110 of your declaration.

20 So can you, looking at Figure 1, identify
21 for me, what is the first entity or what entities or
22 entity would be the first entity here?

1 A The first entity, as I use as a -- my
2 description of an analysis, there's the user devices
3 that are 120 or 122.

4 Q What's the second entity or entities?

5 A In this case, whatever the destination is,
6 so whatever the destination address specifies in the
7 IP packet. So it would be somewhere in the internal
8 network or internet, the end node.

9 Q And what's a perimeter switch?

10 A Perimeter switches are the OpenFlow switches
11 that SDN controller controls.

12 Q And the perimeter switches here are on the
13 edges of the network, right? Perimeter means edge?

14 A Yes --

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: Yes, but in this case, a
17 PS2 is not really at the edge. It's something that
18 connects to the service node. S2 and S3, for
19 example, for the PS2.

20 BY MS. FENDER:

21 Q But you still would define PS2 as a
22 perimeter switch?

1 A I mean, that is what Lefebvre defines PS2 to
2 be.

3 Q Are the perimeter switches of Lefebvre also
4 nodes?

5 A They are network node.

6 Q Would you consider the routers R1 and R2 of
7 Lefebvre to be nodes?

8 A So when you say node, if you are referring
9 to -- since we are doing the element-by-element
10 analysis here, the network node is something that is
11 controlled by SDN controller. So in that regard,
12 the Router 1 and Router 2 are not network node, but
13 they are node in the network.

14 Q So looking at the first specific element of
15 Claim 1, which says, Sending by the controller to
16 the network node over the packet network an
17 instruction and a packet-applicable criterion, where
18 does Lefebvre disclose that the controller sends the
19 instruction and the packet-applicable criterion to a
20 node?

21 And for your reference, sir, I can direct
22 you to paragraph 116, which is page 76 of your

1 declaration.

2 A Yeah. So here I describe the programming
3 the rule into the switch of the service network.
4 And that programming is done by OpenFlow protocol,
5 so that's the action that's taking place by sending
6 that instruction and the packet-applicable criteria.

7 Q Is it the rule, or is it a rule or a policy
8 that the controller then passes to the switches of
9 the service network?

10 MR. STAVINOHA: Objection, form.

11 THE WITNESS: So the policy is set by
12 the network operator, as I mentioned here. And then
13 that becomes the rule. And then rule in Lefebvre is
14 programmed into Lefebvre table, Table 1 and Table 2,
15 as shown in Lefebvre. And that is what's been
16 programmed.

17 BY MS. FENDER:

18 Q What component within the network is
19 defining or setting the predefined policies?

20 MR. STAVINOHA: Objection, form.

21 THE WITNESS: I mean, the table says --
22 this is a translated policy, policy translated into

1 the rules and --

2 BY MS. FENDER:

3 Q Sorry, Dr. Min, I didn't understand you.

4 Can you repeat that?

5 A Sure. The policy is translated into rules,
6 and rules are configured in all these different
7 tables shown in Table 1 and Table 2 of Lefebvre --

8 Q I want to ask you something slightly
9 different, Dr. Min, which is in reference to
10 Figure 1, what component within the network is
11 defining or setting the policies for the network?

12 A Figure 1 doesn't show that. That would be
13 something the network operator will have in their --
14 the control centers, you know, headquarters will
15 enter those rules -- I'm sorry, the policies. And
16 then that gets translated into rules.

17 And the software SDN controller will program
18 OpenFlow switches, such as PS1, 2, and 3, and 4 --
19 PS1, 2, and 3. And that result is having the
20 perimeter switches, having those tables shown in
21 Table 1 and Table 2.

22 Q Does Lefebvre disclose a controller that

1 instructs to allow -- to include allowing blocking
2 or mirroring packets?

3 MR. STAVINOHA: Objection, form.

4 THE WITNESS: So I assume that you're
5 referring to Claim 2.

6 Is that what you're referring to?

7 BY MS. FENDER:

8 Q No, I'm asking you about the disclosure of
9 Lefebvre.

10 So just separately, does Lefebvre disclose a
11 controller that instructs to include allowing
12 blocking or mirroring packets?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: For example, the
15 blocking, as I mentioned in Lefebvre Figure 2, it
16 shows some dropping packets. I mean, to me,
17 dropping refers to blocking the flow, so through the
18 traversal of a table and the rules, and it does some
19 blocking.

20 And I mentioned in my report in
21 corresponding section of the report that describes
22 blocking, blocking instruction, I say, to the extent

1 that drop is not the same as a block, and Chua does
2 that.

3 But to me, drop as shown in Figure 2 is
4 essentially doing the blocking. Lefebvre does not
5 do mirroring.

6 MS. FENDER: We can also go ahead and
7 take that down, Ms. Zeigler. Thank you.

8 BY MS. FENDER:

9 Q So in the '111 patent, the network node
10 receives from a first entity a packet addressed to
11 the second entity, right?

12 A Yes.

13 Q With respect to the Chua patent, where does
14 Chua disclose that, a network node receiving from a
15 first entity a packet addressed to a second entity?

16 A It must --

17 Q In your disclosure --

18 A That's the fundamentals of communication
19 network. Any packets traversing through
20 communication network of any kind will have a source
21 and destination, the first entity and second entity.

22 Q So you used the term entity just to refer

1 generically to a source and a destination?

2 A And that's what Claim 1 describes. It's the
3 same thing. You take it from the first entity to
4 the second entity.

5 Q So in Lefebvre, I thought you mentioned that
6 the user equipment would be the first entity?

7 A Yes.

8 Q But I think what you're saying now is that
9 at the end of the day, anything that goes from one
10 place to another, from a source to a destination,
11 that could be considered a first entity and a second
12 entity; is that right?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: I mean in the context of
15 a communication network, first entity sending a
16 packet to second entity, so these are whatever the
17 two IP addresses that are specified in the packet
18 header.

19 And in the case of Lefebvre, I said
20 first entity sending -- the client device is sending
21 to a server and internal -- or any end device and
22 internal network or the internet.

1 BY MS. FENDER:

2 Q So in Lefebvre, can the -- I think you just
3 said this.

4 But the internet could be a second entity,
5 right?

6 A The destination and the internet. The
7 internet comprises end devices.

8 Q Looking to Claim Element 1D, which reads,
9 Checking, by the network node, if the packet
10 satisfies the criterion -- let me try that again for
11 Ms. Lorenz.

12 Checking, by the network node, if the packet
13 satisfies the criterion.

14 Does Chua disclose this element, Checking by
15 the network node if a packet satisfies the
16 criterion?

17 A So that's what -- discussion that you and I
18 had earlier on. Chua discloses different actions to
19 take place based on flow.

20 For example, flow allow and block --
21 identifying the flow is a process of checking by the
22 network node the packet satisfy the criteria, in

1 this case, identifying the flow.

2 Q With respect to Lefebvre, the first step
3 that we talked about of traffic steering, so when
4 you're trying to steer traffic, the first step
5 involves classifying incoming packets, right?

6 A Yes.

7 Q Where does that take place in Lefebvre,
8 meaning where in the network?

9 A At the edge switch, the perimeter switch,
10 like, for example, PS1.

11 Q The perimeter switches?

12 A Yes.

13 Q For Claim Element 1E, which is, Responsive
14 to the packet not satisfying the criterion, sending,
15 by the network node over the packet network, the
16 packet to a second entity, do you identify that
17 claim element in Chua?

18 A My expert report does not discuss Chua with
19 respect to this claim element.

20 Q And based on your review and knowledge of
21 the Chua patent, where in Chua is that element
22 disclosed, if at all?

1 A I mean, I didn't really identify that. I'm
2 not sure if I can do that on the fly here. So,
3 yeah.

4 Q That's okay.

5 Perhaps same answer, but I had the same
6 question with respect to Claim 1F.

7 So -- no, I'm sorry, Claim 1F reads,
8 Responsive to the packet satisfying the criterion,
9 sending the packet, by the network node over the
10 packet network, to an entity that is included in the
11 instruction and is other than the second entity.

12 So in Lefebvre, where is the disclosure of
13 an entity other than the second entity that's
14 included in the instruction?

15 A So Lefebvre is talking about traffic
16 steering to service chain. The service chain --
17 each of the service device has its own address.

18 And if you steer the traffic towards that
19 service device in the service chain, the second
20 entity is different from the service node.

21 So the packet would have a second entity
22 address as a part of an IP packet header. But

1 instead of going towards that, Lefebvre talks about
2 steering the traffic to something else. So that's
3 the entity other than the second entity.

4 Q And what is that other than a second entity
5 in Lefebvre?

6 A Like service devices.

7 Q And the instruction that we've been talking
8 about, that would have to have been sent with the
9 criterion from the controller to the network node,
10 right?

11 A Yes.

12 MR. STAVINOHA: Objection, form.

13 BY MS. FENDER:

14 Q Turning to Claim 2, which I won't read for
15 everyone's sake, I certainly can if anyone wants me
16 to, so in discussing this claim, Claim 2, which in
17 your declaration is at page 85, you talk about a
18 transit port.

19 What is a transit port?

20 A Transit port is, according to Lefebvre, a
21 port that does not have a direction either upstream
22 nor downstream.

1 Q And I think we've talked about this a little
2 bit.

3 But what happens to data in the packet when
4 it gets dropped? Does it get erased?

5 A Basically, yes.

6 Q Where does Lefebvre disclose a node
7 receiving a terminate instruction?

8 A The dropping is terminating. So in Lefebvre
9 in Table 2, in Lefebvre Column 10, it talks about
10 dropping. There is a couple of dropping actions.
11 The first one is, if the MAC address does not match,
12 then you would basically drop it. You would
13 terminate them. So it's destined to a device that
14 is not known to the service network.

15 So there's an example of that.

16 Q I know we've talked about this a few
17 different times. I just want to get my head around
18 it.

19 In Lefebvre, the traffic that is going to
20 get routed through the inline services is all
21 subscriber traffic, right?

22 A Yes.

1 Q If it's not subscriber traffic, then it's
2 just, I think, allowed to pass through, right?

3 A There are two options. So one is you can
4 just drop it; or you can just have it forward
5 through as if some ordinary IP network traffic to
6 the destination.

7 Q And so if it just gets forwarded through, I
8 think that obviously is not terminated, right?
9 There's no terminate instruction for that; it's just
10 forwarded?

11 A That's correct.

12 Q If it's dropped, are you saying that that
13 would constitute a terminate instruction?

14 A I mean, I think that's what it is.

15 Q And does Lefebvre disclose blocking?

16 A So the actions described in Lefebvre does
17 not use the word block; instead, it uses drop.

18 But to me, they are very similar.

19 Q What about in Chua, does Chua disclose a
20 terminate instruction?

21 A Yes.

22 So paragraph 141 of my expert report is

1 disclosed in Chua Column 7, line 35 through 54,
2 which include the blocking. And that is, once
3 again, the termination.

4 Q I apologize, I didn't mean to speak over
5 you. I just saw the block language as well.

6 And where is the node in Chua that actually
7 does this blocking action? Where would you find it
8 within the network?

9 MR. STAVINOHA: Objection, form.

10 THE WITNESS: Any of the OpenFlow
11 switches. Those are the ones that get configured.

12 BY MS. FENDER:

13 Q Now, you and I have talked about Chua
14 disclosing the concept of mirroring in an SDN
15 controller, right?

16 A Yes.

17 Q And the controller in Chua, it does
18 mirroring in response to information it receives
19 from security devices or business-level security
20 rules, right?

21 A Yes, that's correct.

22 Q Can you again -- well, let me back up.

1 These service devices include devices like
2 the intrusion detection systems we were talking
3 about, right?

4 A That's right.

5 Q What is a business-level security rule?

6 A Chua doesn't really describe in detail. But
7 as someone who's been working in the security
8 domain, it is, like, there's some known business
9 practice. I cannot really give a good example here,
10 but, like, you know, we don't really deal with that
11 company. For example, I don't know if they're --
12 it's something that's done at the business level,
13 which will be translated into something much more
14 finer.

15 Q Can Chua's SDN controller perform an action
16 like mirroring without receiving information first
17 from a service device or a business-level security
18 rule?

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: Mirroring is an action
21 described in the claimed instruction. In other
22 words, you identify a packet to satisfy certain

1 criterion, and then you do the mirroring.

2 So that rule and the policy or business
3 level or what have you has to be translated and
4 programmed into the OpenFlow switches.

5 BY MS. FENDER:

6 Q So I think what I'm asking is a little bit
7 upstream from that, if you will, which is, so we
8 just discussed -- and this is Column 7 starting at
9 line about 34 in Chua -- that the controller in Chua
10 does its mirroring in response to information it's
11 getting from either service devices or
12 business-level security rules, right?

13 A Yes.

14 Q And so what I'm trying to get at is, can the
15 SDN controller perform an action like mirroring
16 without first receiving information from a service
17 device or a business-level security rule? Is there
18 any other disclosure in Chua about how information
19 would come to the SDN controller for something like
20 mirroring?

21 MR. STAVINOHA: Objection, form.

22 THE WITNESS: If you -- first of all,

1 SDN controller is not the one actually performs the
2 mirroring. Mirroring is one of the instruction that
3 is performed by the switch -- the OpenFlow switches.

4 And a criterion has to be set by SDN
5 controller. As to how this is set is through the --
6 some kind of policy. So in order for mirroring to
7 be performed, the packet-applicable criterion has to
8 be entered into some kind of table in OpenFlow
9 switch.

10 BY MS. FENDER:

11 Q So where does Chua specifically disclose the
12 mirroring -- I'm looking at Column 37, Dr. Min.

13 Where does Chua specifically disclose the
14 mirroring occurring within, for instance, a network
15 node as opposed to controller?

16 A Did you say Column 37?

17 Q If I did, I misspoke. Column 7.

18 A 7.

19 Q So looking, for instance, at line 34.

20 A Yes.

21 So this is one of the actions. It says,
22 Such programmed action may include, right, that's on

1 line 38, and mirror is one of the actions.

2 Starting from line 35, the sentence says,
3 SDN controller 112 may program network device of SDN
4 to perform --

5 (Stenographer requested clarification
6 due to audio distortion/malfunction.)

7 THE WITNESS: -- network devices of SDN
8 106 to perform programmed action on packets of a
9 packet flow. So it has to be programmed into, like,
10 a packet-applicable criterion.

11 BY MS. FENDER:

12 Q And Chua discloses that the mirroring will
13 send a copy of the traffic to a service device for
14 deeper inspection? That's at -- sort of right where
15 we were talking about, Column 7, lines 34 through
16 45, right? So the traffic goes to a service device?

17 A As an example, one of a service device. So
18 it's clearly contemplating something else as well
19 since it sets an example of service devices.

20 Q Let's talk about Claim 4.

21 So Chua -- we've talked about this idea of a
22 probe instruction a few times. And I think what

1 you've said, Dr. Min, but correct me if I'm
2 misstating, is that although the idea of a probe
3 instruction is not expressly stated in Chua or
4 Lefebvre, there are actions that suggest a probe
5 instruction in your view necessarily; is that right?

6 MR. STAVINOHA: Objection, form.

7 THE WITNESS: Can you point to the
8 paragraph that I'm describing that?

9 BY MS. FENDER:

10 Q Well, we can walk through it again, but I
11 think -- you have expressed that the concept of a
12 probe instruction is not -- I'm sorry, my computer
13 is not working very well. Give me one second.

14 You've expressed that the concept of a probe
15 instruction is not expressly stated in Chua or
16 Lefebvre, right?

17 A I mean, Chua or Lefebvre does not use the
18 word probe, but probe is -- as used in '111 patent
19 is like a further instruction. You're just looking
20 at something more about packet. And that concept is
21 clearly disclosed in both Chua and Lefebvre.

22 Q Chua talks about redirecting, right?

1 A Yeah, redirecting to service devices for the
2 processing of the packet such as the security
3 functions.

4 Q So we go to another network device or
5 another service device after the redirect; the
6 traffic would go to another network device or a
7 service device?

8 A Not network device but service device, yes.

9 Q As a general matter, what is the difference
10 between the type of inspection that is happening in
11 deep packet inspection versus, for instance, IDS?

12 A I mean, IDS will require deep packet
13 inspection that looks at every bits of the entire
14 packet, and DPI is what would do that for you.

15 Q So is there no difference? There's no
16 distinction to be drawn between DPI and IDS?

17 A No, no, no. IDS will use DPI to perform the
18 intrusion detection function.

19 Q I'm going to direct you to page 94 of your
20 declaration.

21 I think you say this, but Chua does not
22 expressly disclose a controller that has memory,

1 right?

2 A I'm not sure if I said --

3 Q I'm sorry, it's the next page, page 95.

4 A 95. Okay.

5 I say in paragraph 161, you know, I cite
6 Chua at Column 10, line 67 through Column 11 --

7 (Stenographer requested clarification
8 due to audio distortion/malfunction.)

9 THE WITNESS: -- line 67 through
10 Column 11, line 6; and Column 31, line 60 through
11 Column 32, line 6. There, you know, it talks about
12 the controller unit that has one or more processor
13 and/or computer readable memory for storing software
14 or firmware instruction. That's what I cite here.
15 BY MS. FENDER:

16 Q So in that case, what distinction is being
17 drawn between the controller and the control unit?
18 Does the control unit live on the controller?

19 MR. STAVINOHA: Objection, form.

20 THE WITNESS: Yeah, Control Unit 130 in
21 this Figure 2 is pretty clear describing what an SDN
22 controller would look like. It has the control unit

1 and also has some interfaces.

2 BY MS. FENDER:

3 Q At the bottom of page 94, you talk about the
4 idea that, in Chua, the SDN controller 112 must
5 store at the very least certain indicators that can
6 identify the packet flow.

7 Do you see that, Dr. Min?

8 A Yes.

9 Q Why is it necessarily true that in Chua the
10 SDN controller -- it's the SDN controller that
11 stores those certain indicators?

12 A For example, as a part of actions defined in
13 Chua such as allow, block, and mirror shown in
14 Column 7, they are based on flows. So the flow is
15 something that there is over time, source and
16 destination IP address, source and destination port
17 number, and application, they vary over time.

18 So to program OpenFlow switches to perform
19 these actions, the SDN controller must maintain some
20 identification of flows that would satisfy these
21 actions to take place.

22 Q Is there any other way in which the

1 determination that the SDN controller had inspected
2 a predetermined number of packets, is there any
3 other way that that determination could be made?

4 MR. STAVINOHA: Objection, form.

5 THE WITNESS: I'm not sure if I
6 understand the question.

7 Certain number of packets?

8 BY MS. FENDER:

9 Q I can rephrase, Dr. Min.

10 So in your declaration, you say that, in
11 Chua, the SDN controller may inspect one or more
12 preliminary packets of packet flows.

13 Do you see that?

14 A Yes.

15 Q And after determining that the packet flows
16 are not malicious, it can stop inspecting those
17 packets from the packet flow.

18 A Yes.

19 Q You argue that a person of skill in the art
20 would have understood in order to even determine
21 that the controller had inspected a predetermined
22 number of packets belonging to the same packet flow,

1 that the controller would have to store at the very
2 least -- this is your language -- at the very least
3 certain indicators that can identify the packet
4 flow.

5 What I'm trying to ask is, why is it
6 necessarily true that it has to be the SDN
7 controller storing these indicators to identify
8 packet flow? Is there any other way in which that
9 determination could be made that the SDN controller
10 had inspected a predetermined number of packets from
11 the packet flow?

12 MR. STAVINOH: Objection, form.

13 THE WITNESS: SDN controller controls
14 in that domain all of the OpenFlow switches, not
15 just one. And one OpenFlow switch has inspected
16 like a sender, packet mirror, Packet 2, service
17 devices that does an deep packet inspection and
18 determine that there is nothing malicious.

19 And that result is reported to the SDN.
20 And it is the SDN switch that programs to the
21 OpenFlow switches.

22 OpenFlow switches cannot program

1 itself, that's not how the SDN works, so that has to
2 go through the SDN controller.

3 BY MS. FENDER:

4 Q And the indicator that you're talking about
5 in this paragraph 160, is that indicator necessarily
6 the header; or could it be part of a payload?

7 MR. STAVINOHA: Objection, form.

8 BY MS. FENDER:

9 Q So, Dr. Min, you described that the
10 controller must store the very certain indicators
11 that identify the packet flow, which would be a
12 portion of the packet header.

13 A Yeah.

14 Q What I'm asking you is, does it have to be
15 the packet header?

16 A I am -- because the term packet flow is
17 used, as I mentioned, like a 5-tuple, T-U-P-L-E, so
18 those are all coming from the header of the packet.

19 So by storing certain packet flow need not
20 be further inspected.

21 Wait to identify that as having those
22 5-tuple stored as a flow that is not malicious.

1 Q So it will always be the packet header?

2 A For the flow, that is correct.

3 Q If it wasn't the flow, would it be some
4 other part of the payload -- I'm sorry, of the
5 packet?

6 A Could be --

7 MR. STAVINOHA: Objection, form.

8 THE WITNESS: Like, if you are looking
9 at content monitoring, then it will be actually
10 inside of an application.

11 BY MS. FENDER:

12 Q Now, you mentioned that Lefebvre does not
13 expressly disclose any details about its controller,
14 right?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: I mean, Lefebvre talks
17 about what control does as to looking at all the
18 tables and, you know, what SDN controller generates.

19 But the figure does not really include
20 the SDN controller, so --

21 BY MS. FENDER:

22 Q Dr. Min, again, I'm pointing to your

1 language, paragraph 161.

2 A Yeah.

3 Q Although Lefebvre omits detailed discussion
4 of its controller, right?

5 A By that I mean --

6 (Stenographer requested clarification
7 due to audio distortion/malfunction.)

8 THE WITNESS: It doesn't describe block
9 diagram of SDN controller.

10 BY MS. FENDER:

11 Q There's nothing express in Lefebvre about
12 the controller having a memory, right?

13 A I mean, the Lefebvre does not really say
14 that the component of a controller like a process
15 server memory, but is something that is inherent. I
16 mean, without that, you couldn't program another
17 device. The whole idea of a program is having
18 instruction and executing the instruction. So, you
19 know, it requires a processing memory.

20 Q Let's talk about -- I'm looking at Claim 10
21 for reference and your page 97. So here you're
22 talking about an application server.

1 And I want to understand, how is an
2 application server different than a server-based
3 application-aware device?

4 This is paragraph 170 of your declaration.

5 MR. STAVINOHA: Objection, form.

6 THE WITNESS: Application server is a
7 device. It's a server. And the application
8 aware -- I'm sorry, the second term you're asking me
9 was?

10 BY MS. FENDER:

11 Q So it's a server-based application-aware
12 device.

13 A I mean, it's still a server, but I think the
14 emphasis there is application aware. It serves
15 whatever the request based on the application. So
16 they're describing very similar things.

17 Q And is this all -- let me rephrase that.

18 Those concepts, application server,
19 server-based application-aware device, are those
20 also synonymous with the word appliance in this part
21 of your declaration?

22 A No.

1 Q What is the difference?

2 A Appliance can be something more general.
3 The appliance could be any device that does certain
4 things. It doesn't necessarily have to be server
5 based.

6 Q Looking at Claim 14, so this is about
7 page 103 of your declaration, we've talked about the
8 idea of a DPI engine already.

9 In your view, does Lefebvre disclose a DPI
10 engine?

11 A Yes. DPI appliance -- dedicated appliance
12 that Lefebvre talks about is a DPI engine. It has a
13 DPI GYN.

14 Q So what does the word engine mean in this
15 context?

16 A It's the one that performs the function, the
17 DPI function.

18 Q And so by that reasoning, then Chua also
19 discloses a DPI engine; is that right?

20 A That's correct.

21 Q In Claim 18 now, which is around page 106 --
22 we are moving a little bit faster -- in this portion

1 of your declaration, you're discussing IP packets;
2 is that right?

3 A Yes, it has addresses. That's correct.

4 Q Claim 18 in the '111 patent talks about
5 packets comprising distinct headers, payload fields,
6 but it doesn't specifically call for an IP packet;
7 is that right?

8 A The claim does not say IP packets.

9 Q And can there be other types of packets that
10 have distinct headers and payload fields but are not
11 IP packets?

12 A Yeah, all the packets has header and
13 payload.

14 Q What are some specific examples of other
15 types of packets that are not IP packets?

16 A Ethernet packet, PCP packet, ICMG packet. I
17 mean, there are all different type of packets.

18 Q In Lefebvre, where is the concept of a
19 predetermined address disclosed? If you look --
20 just to clarify the question, if you look to the
21 language of Claim 18.

22 A Yeah.

1 Q It talks about the method of Claim 1,
2 wherein, among other things, the packet-applicable
3 criterion that is the first entity address, the
4 second entity address, or both match a predetermined
5 address or addresses.

6 So the question is, where in Lefebvre are
7 predetermined addresses disclosed?

8 A That's the predetermined address or
9 addresses, either one, that's programmed into the
10 OpenFlow switches. Once again, they are in -- you
11 know, some examples are shown in the Tables 1 and 2.

12 Q And what about in Chua?

13 A I mean, there too, you know, identifying the
14 flow in Column 7 to make a determination as allow,
15 block, or mirror identification of flow, include
16 source address and destination address that are in
17 IP packets.

18 Q Turning to Claim 25, Dr. Min, where the
19 patentee is describing the standard protocol based
20 on or compatible with OpenFlow Protocol
21 Version 1.3.3 or 1.4.0.

22 What is the basis for your opinion that a

1 person of skill in the art would have found it
2 obvious to modify the software-defined network to
3 use a different incompatible version of OpenFlow?

4 MR. STAVINOHA: Objection, form.

5 THE WITNESS: So they're not
6 incompatible. So what I describe here is SDN
7 Version 1.1 that is disclosed in Lefebvre.

8 And, you know, if you look at -- I know
9 this for a fact, that Version 1.1 has many commands
10 that are still used in 1.3.3 and 1.4.0. And they
11 are compatible in the sense that you can use those
12 commands to program and configure the OpenFlow
13 switches, and the claim language of course will be
14 based on or compatible with, so it has certainly
15 satisfied that requirement.

16 BY MS. FENDER:

17 Q For Claim 26 now, which is at page 114 of
18 your declaration, this is a term that we haven't
19 discussed before.

20 What is the -- can you explain what the type
21 length value structure is, the TLV?

22 A Yeah, so TLV is a very commonly used

1 technique. When one device need to send information
2 to other device, one way to do that is to put that
3 information inside of a payload. And inside of
4 payload would have this format, TLV.

5 The first item appearing in the payload is
6 what is coming afterwards. And then the second
7 field will say how long is that data and followed by
8 the data itself. So if you use a TLV, you can have
9 multiple TLV information in the same payload.

10 And this is done a lot. In fact, OpenFlow
11 Protocol 1.1 also has that too. It is -- it doesn't
12 really course flow TLV structure, but it actually
13 uses a TLV structure in communicating between the
14 SDN controller and the OpenFlow switches.

15 Q So TLV is used -- correct me if I'm wrong.

16 TLV is used consistently as part of the
17 OpenFlow protocols --

18 A 1.1 that is disclosed in Lefebvre as well as
19 1.4 that is published in October 14, 2013.

20 Q Are there other protocols besides OpenFlow
21 in which TLV is used?

22 A Many. Actually, I used it when I was at

1 BellCo in 1987. So, I mean, TLV is used widely.

2 Q I want to turn to Claim 32, which is the
3 other independent claim. Give me one second. Too
4 many papers.

5 Claim 32, the other independent claim, so,
6 Dr. Min, other than the limitation that the method
7 must be, quote, by the network node, it is --
8 Claim 32 is very similar to Claim 1; is that right?

9 A That's right.

10 Q And so is it fair to say that to the extent
11 claims after Claim 32, claims that depend on
12 Claim 32 mirror some of the language that we just
13 walked through in detail on Claims 1 through 31,
14 your analysis would apply with equal force?

15 A That is correct.

16 Q All right. Then let's go ahead and turn to
17 Ground 2, this is page 128 of your declaration,
18 addressing Claims 7, 8, 37, and 38.

19 So here you're citing -- in addition to
20 Lefebvre and Chua, you're citing Rash for your
21 conclusion that the claims I just described are
22 rendered obvious; is that right?

1 A Yes, that's correct.

2 Q And just to be clear, Rash does not disclose
3 deep packet inspection, does it?

4 A I don't recall all the details, but that
5 deep packet inspection portion is not what I am
6 relying on for Rash as the deep packet inspection
7 has plenty of disclosures from Lefebvre and Chua.

8 Q But you don't recall it in Rash?

9 A I don't recall that. I am relying on Rash
10 to support the portion of a packet to be mirrored as
11 opposed to the packet as a whole.

12 Q And so you say that Rash explains that the
13 network control engine may use the packet fields to
14 make mirroring determinations.

15 Those fields are on the header; is that
16 right?

17 MR. STAVINOHA: Objection.

18 MS. FENDER: Sure. Let me rephrase.

19 BY MS. FENDER:

20 Q You say that Rash explains that the network
21 control engine may use packet fields to make
22 mirroring determinations, right?

1 A Yeah, that's right.

2 Q The packet fields that you're describing,
3 those are all fields in the header, right?

4 A I think Rash say first L consecutive bytes,
5 so that can be anything really. The packets can be
6 very large, like 2,000 bytes. It could be any L
7 consecutive bytes.

8 So it could be more than just packet
9 headers.

10 Q And fair to say that Rash's focus is on
11 mirroring the network traffic, right, not steering
12 it?

13 MR. STAVINOHA: Objection, form.

14 THE WITNESS: I mean, the portion that
15 I'm relying on is the mirroring. It has like -- so
16 the mirrored frame or mirrored portion of the packet
17 I guess is steered to something else so that is to
18 be inspected further. So there's steering going on.

19 But the mirrored portion of it is
20 steered.

21 BY MS. FENDER:

22 Q I think we went through this before,

1 Dr. Min, and you described that Rash is focused on
2 establish -- sorry, let me just take a look at the
3 actual claims. Cancel that line of questioning or
4 that particular start to a question.

5 I want to turn to paragraph 289 of your
6 declaration.

7 So in Rash, there is a discussion of the
8 complexity and expense associated with deploying
9 application identification functions in the network,
10 right?

11 A As in paragraph 289 you said?

12 Q That's where you're talking about this
13 portion of Rash.

14 A Yes, I'm not finding the sentence you just
15 read.

16 Q And -- go ahead.

17 A Paragraph 289 is, as a part of a motivation
18 to combine. Lefebvre identifies that dedicated
19 appliances for DPI is expensive, and Rash shows you,
20 like, a mirroring of a portion of the packet. So,
21 you know, I can reduce an amount of the data that
22 needs to be, you know, likely inspected.

1 So that's really -- that's just what this
2 paragraph is talking about.

3 Q So Rash is disclosing effectively through
4 its mirroring another way to help minimize
5 additional costs, right?

6 A By mirroring a portion of the packet instead
7 of the entire packet.

8 Q And what is a protocol data unit?

9 A It's a unitable data that is understood by
10 the protocol.

11 Q Turning to Claim 7, your discussion is at
12 page 134 of your declaration.

13 As you describe, neither Chua nor Lefebvre
14 discloses sending a portion of the packet to the
15 controller, right; that comes from Rash?

16 A That's right.

17 Q Where in the Rash disclosure does Rash
18 specifically disclose sending a portion of the
19 packet to the controller?

20 A Once again, Rash does not concern the SDN
21 network, but it's mirroring some portion for the
22 processing. So it could be a controller, so --

1 Q Rash does not have a specific disclosure at
2 all about sending a portion of the packet to the
3 controller, right?

4 A Not specifically to the controller.

5 Q We were just talking about the first -- this
6 is for Ms. Lorenz' benefit -- the first L byte, the
7 letter L.

8 I want to understand, Dr. Min, the basis for
9 your opinion that a person of skill in the art would
10 understand Rash to teach mirroring multiple
11 consecutive bytes by referencing the first L bytes.

12 When you say the first L bytes, what does a
13 person of ordinary skill in the art understand that
14 to mean?

15 A It refers to --

16 MR. STAVINOHA: Objection, form.

17 THE WITNESS: Refers to L consecutive
18 bytes, and that's what that means.

19 BY MS. FENDER:

20 Q It just means any set of consecutive, i.e.,
21 one after the other, bytes?

22 A L of such, yes. That's correct.

1 Q Let's talk about your Ground 3 that's
2 focused on Claims 16 through 20 and 39 through 43,
3 starting with Claim 16, which is at page 138 of your
4 declaration. So we talked about this a little bit
5 before, Dr. Min.

6 But what is a flag bit? I know we were
7 talking about TCP flags.

8 What is a flag bit generally?

9 A Flag bit generally means it satisfies
10 certain criteria. So flag is set or reset. It
11 could be either one or zero indicating whatever the
12 criterion that flag stands for is satisfied.

13 Q For Lefebvre and Chua, they don't expressly
14 disclose the use of flag bits at all, right?

15 MR. STAVINOHA: Objection, form.

16 THE WITNESS: I mean, they did not talk
17 about flag bits directly as a packet-applicable
18 criterion.

19 BY MS. FENDER:

20 Q But if I understand properly, your basis for
21 concluding that it would be obvious to use flag bits
22 is that they're part of the -- flag bits are part of

1 the TCP standard, right?

2 A A flag bit is part of a standard. And as
3 Lefebvre and Chua, all those actions based on
4 packet-applicable criteria, the packet-applicable
5 criteria can include matching flag bits. I mean,
6 it's just as -- there's nothing different about flag
7 bit versus any other bits.

8 Q How does Lefebvre's traffic steering take
9 into account the connection state? So you talk
10 about this at paragraph 310 of your declaration.

11 MR. STAVINOHA: Objection, form.

12 THE WITNESS: The status reflected in
13 paragraph 310 means whether a particular flag bit is
14 set or reset, one or zero. So, for example, if SYN,
15 S-Y-N, is set to one as coming from the end device,
16 like a start to the flow in TCP -- so you know the
17 direction it's coming from. It's an upstream
18 packet.

19 So Lefebvre talks about upstream or
20 downstream extensively. Like, in determining
21 service chain, whether a packet is upstream packet
22 or downstream packet, you have a different service

1 chain.

2 So this flag bit, as in, like, a SYN or
3 FYN, it's a finishing, the final packet, that too is
4 coming from the source. The receiving end cannot
5 finish the flow. Or in the middle, the reset can be
6 done by both.

7 But at least the beginning and the end
8 of a flow has to come from the source. So it can
9 assist Lefebvre's determination of upstream or
10 downstream, you know, the packet belongs to.

11 BY MS. FENDER:

12 Q And what about in Chua, how does Chua take
13 into account the connection state?

14 A I cannot recall any specific use by Chua on
15 those flag bits. Once again, as Chua does the
16 classification of the packet header information, it
17 is nothing different about classifying the packets
18 based on any of the field, including the flag field
19 in Chua.

20 MR. STAVINOHA: Counsel, are we getting
21 to a point where we should take a break? We've been
22 going for over an hour now, and it's getting late in

1 the day. So I recognize you may be almost finished,
2 but Dr. Min might need a break.

3 So, Dr. Min, how are you feeling?

4 MS. FENDER: I appreciate that. I'm in
5 the very, very homestretch, so if we can power
6 through, I'd appreciate it, but if we can't, that's
7 okay, Dr. Min.

8 What do you need?

9 THE WITNESS: That's fine. We can go
10 ahead and finish.

11 MS. FENDER: Thank you.

12 BY MS. FENDER:

13 Q So I want to just talk about Claim 20, and
14 then we'll just have a few final questions.

15 So Claim 20, your discussion of that claim
16 starts on page 144, paragraph 306 [sic] just for
17 reference if we need it. So we can move -- I'm
18 sorry, that's not right. Claim 20. We're all
19 getting late in the day.

20 Claim 20 is, I'm sorry, at page 144.

21 So here -- we've talked about masks before.

22 What are TCP sequence masks, Dr. Min?

1 A So this is what is defined in '111 patent.
2 But it really is not part of a TCP header structure.

3 In '111 patent, TCP sequence mask is
4 actually calculated based on input as in Column 6,
5 the paragraph starting line 53.

6 In calculating the TCP -- the sequence mask,
7 you have to have this input for TCP data sized DPI
8 that is -- that's shown in line 59. So you need
9 that information.

10 And then using that, it goes to the next
11 column to calculate actually this mask value.

12 So if what is described here in Claim 20,
13 the TCP sequence mask field is something that '111
14 patent consider as a part of a TCP packet header
15 structure, in the same way that TCP standard itself
16 would have the same information.

17 MS. FENDER: I think with that, if I
18 can have one moment to just go on pause, I'd like to
19 confer with Mitch and -- I'm sorry, Mr. Yang and
20 Ms. Zeigler and just make sure that we don't have
21 anything else to clean up before we can just take a
22 break and then let you speak to your expert,

1 Mr. Stavinoha.

2 Is that okay?

3 MR. STAVINOHA: Yeah, that sounds good.

4 MS. FENDER: Just give me one second.

5 (Recess: 5:23 p.m. to 5:25 p.m.)

6 MS. FENDER: With that folks, I think
7 we are officially done with our portion of
8 questions. So thank you all for your patience and
9 time.

10 I will look to my opposing counsel for
11 next steps.

12 MR. STAVINOHA: Yeah, if you could just
13 give us about ten minutes. If we have something, I
14 don't expect it will be much. But give us ten
15 minutes, and then we'll circle back.

16 MS. FENDER: Of course, so back at 5:35
17 Eastern Time, 4:35 Central.

18 MR. STAVINOHA: Perfect.

19 (Recess: 5:35 p.m. to 5:35 p.m.)

20 MR. STAVINOHA: Let's go back on the
21 record then.

22 Thank you, Dr. Min. We have no further

1 questions, but we would like to read and sign.

2 THE STENOGRAPHER: Do you want a rough
3 draft? And I was told to see if you needed anything
4 expedited.

5 MS. FENDER: I don't think we need
6 anything expedited. I do think a rough draft
7 probably makes sense just because of the technical
8 nature and delays and issues like that. So I think
9 that would be helpful.

10 THE STENOGRAPHER: What about you,
11 Clarke?

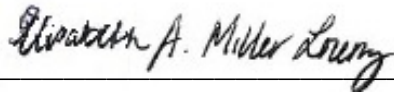
12 MR. STAVINOHA: We'll take a rough, but
13 no need to expedite.

14 (Time noted: 5:35 p.m. EDT.)
15
16
17
18
19
20
21
22

CERTIFICATE OF SHORTHAND REPORTER

I, ELISABETH A. LORENZ, Registered Merit Reporter and Certified Realtime Reporter, the officer before whom the foregoing deposition was taken, do hereby certify that the foregoing transcript is a true and correct record of the testimony given; that said testimony was taken by me stenographically and thereafter reduced to typewriting under my direction; that reading and signing was requested; and that I am neither counsel for, related to, nor employed by any of the parties to this case and have no interest, financial or otherwise, in its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand this 9th day of June, 2025.



ELISABETH A. LORENZ

NCRA Registered Merit Reporter

NCRA Certified Realtime Reporter

ACKNOWLEDGMENT OF DEPONENT

I, PAUL MIN, PH.D., do hereby certify
that I have read and examined the foregoing
testimony, and that the same is a true, correct, and
complete transcription of the testimony given by me,
and any corrections appear on the attached
Deposition Errata Sheet signed by me.

PAUL MIN, PH.D.

DATE

Subscribed and sworn to on the ____ day of
_____, 2025, before me,

Notary Public, in and for the State of

_____.

A			
a-c-k	94:16, 111:3,	addition	advantage
135:15	113:8, 116:19,	97:14, 231:19	38:7
ability	134:22, 172:7,	additional	advent
10:7, 10:13,	186:7, 200:5,	60:20, 61:2,	26:12
123:13	211:7, 212:15,	146:8, 235:5	advertisements
able	212:20, 213:15,	address	24:15
46:15, 50:22,	214:22, 215:8	101:15, 104:10,	advised
52:21, 78:10,	actionable	107:21, 107:22,	87:19
78:15, 148:6	113:9	108:1, 110:6,	advocating
above	actions	110:7, 111:4,	26:16
70:17, 73:15	93:5, 134:21,	153:12, 156:14,	affect
absolutely	154:4, 158:21,	198:6, 207:17,	10:7, 10:13
14:11, 59:14	159:16, 167:4,	207:22, 209:11,	after
academic	186:19, 187:19,	219:16, 227:19,	9:3, 32:5,
25:19	205:18, 209:10,	228:3, 228:4,	32:8, 32:12,
accept	210:16, 214:21,	228:5, 228:8,	32:16, 40:1,
169:6	215:1, 216:4,	228:16	45:11, 57:16,
access	219:12, 219:19,	addressed	67:9, 82:20,
185:7	219:21, 238:3	203:10, 203:15	82:22, 83:14,
accordance	actual	addresses	100:17, 141:22,
178:4	180:7, 234:3	46:14, 109:20,	154:17, 159:3,
according	actually	109:21, 110:4,	217:5, 220:15,
134:2, 208:20	13:11, 27:2,	153:21, 187:21,	231:11, 236:21
account	27:5, 27:19,	204:17, 227:3,	afterwards
238:9, 239:13	28:2, 28:21,	228:5, 228:7,	230:6
accurate	35:12, 45:10,	228:9	again
30:22	47:13, 48:13,	addressing	14:14, 21:19,
accused	60:12, 62:11,	103:13, 231:18	25:2, 28:13,
20:3	66:19, 67:7,	administrator	31:9, 31:16,
ack	75:12, 100:9,	109:8, 109:20,	37:15, 45:10,
135:14	101:17, 103:22,	110:20, 110:22	48:22, 50:18,
acknowledgment	109:15, 111:13,	adopt	53:16, 54:4,
245:3	120:21, 121:2,	62:16, 86:9,	54:21, 55:18,
across	141:14, 145:5,	89:10, 89:13,	57:14, 61:1,
123:1, 167:4,	148:11, 148:16,	90:3	63:4, 63:10,
167:12, 170:9	159:14, 161:19,	adopted	68:10, 68:12,
act	165:13, 170:11,	46:1, 50:1,	68:17, 69:3,
27:15, 27:16,	171:18, 181:9,	55:3, 56:15,	76:20, 77:12,
28:2, 136:17,	188:5, 191:7,	57:9, 57:19,	84:22, 86:2,
188:15, 188:18	192:17, 193:8,	62:8, 63:1,	90:4, 91:12,
acted	211:6, 214:1,	63:7, 79:9,	92:4, 95:5,
25:6	223:9, 230:12,	82:4, 83:19,	96:17, 97:20,
acting	230:22, 241:4,	88:11	99:7, 116:1,
18:4, 20:2	241:11	adopting	122:5, 125:17,
action	add	96:13	161:12, 172:21,
93:13, 94:8,	31:11, 146:11	advance	174:17, 175:5,
	added	8:18, 38:5	176:1, 178:18,
	37:1	advanced	183:18, 186:6,
		66:11	

205:10, 211:3, 211:22, 216:10, 223:22, 228:10, 235:20, 239:15 against 22:15, 22:19, 95:9, 193:12 ago 86:13, 87:1 agree 13:19, 50:12, 52:15, 58:3, 66:3, 67:15, 70:3, 72:15, 159:19 agreed 65:19 agreement 15:19 ahead 9:14, 11:17, 13:5, 14:7, 21:6, 29:18, 30:5, 30:14, 32:21, 34:21, 44:13, 45:5, 45:14, 46:10, 47:13, 51:14, 52:18, 55:4, 55:14, 57:4, 58:13, 60:12, 64:13, 65:6, 65:8, 68:11, 68:19, 70:11, 73:13, 76:13, 83:21, 84:22, 86:2, 135:11, 145:14, 189:14, 193:10, 193:20, 194:8, 203:6, 231:16, 234:16, 240:10 aims 143:8 alacrity 193:15 alike 85:5	all 3:2, 7:1, 12:13, 12:17, 13:4, 16:8, 19:9, 33:20, 36:2, 37:9, 37:11, 37:12, 43:7, 46:20, 47:5, 49:12, 50:1, 54:7, 63:12, 65:5, 66:4, 69:19, 71:15, 71:18, 72:16, 77:19, 81:21, 83:14, 87:8, 98:7, 106:3, 106:11, 108:17, 108:18, 114:6, 120:9, 123:16, 137:2, 146:11, 147:19, 148:17, 151:14, 162:18, 164:7, 168:14, 169:22, 186:12, 187:3, 188:3, 189:13, 194:5, 196:3, 201:6, 206:22, 209:20, 213:22, 221:14, 222:18, 223:17, 225:17, 227:12, 227:17, 231:16, 232:4, 233:3, 236:2, 237:14, 238:3, 240:18, 242:8 allow 70:22, 147:10, 186:22, 193:6, 202:1, 205:20, 219:13, 228:14 allowed 210:2 allowing 202:1, 202:11 almost 86:13, 240:1 alone 122:9	along 142:13, 158:22, 159:18, 166:19, 185:1 already 11:2, 77:3, 131:6, 226:8 also 5:4, 26:10, 28:16, 28:17, 32:2, 36:17, 42:14, 42:22, 44:5, 62:22, 68:2, 76:5, 103:6, 105:4, 106:9, 115:4, 118:8, 126:15, 131:4, 132:5, 143:16, 143:22, 147:15, 149:21, 151:1, 151:17, 152:12, 156:8, 164:22, 165:16, 172:18, 178:8, 180:8, 183:3, 196:6, 196:17, 197:17, 199:3, 203:6, 219:1, 225:20, 226:18, 230:11 alter 142:1 alternate 162:3 alternative 161:5 alternatives 160:4, 160:6, 161:4, 161:9 although 46:13, 121:13, 216:2, 224:3 always 12:2, 223:1 among 28:22, 228:2 amount 234:21	amounts 36:5 analysis 20:17, 39:12, 39:18, 40:3, 43:8, 46:16, 75:10, 78:7, 78:8, 78:13, 78:16, 78:21, 79:17, 80:9, 82:15, 85:10, 85:11, 85:16, 86:1, 86:9, 89:3, 89:4, 93:19, 95:9, 95:16, 96:5, 96:13, 106:1, 126:13, 190:12, 190:20, 193:11, 198:2, 199:10, 231:14 analytic 127:7, 132:13 analytical 127:20 analytics 104:3, 127:14, 142:16 analyze 35:20, 46:20, 65:18, 78:11, 79:18 analyzed 46:19, 68:16, 69:14, 69:17, 69:18, 69:20, 70:4, 77:19, 78:17, 80:6, 80:21, 82:18, 95:19, 97:15 annotated 194:12 another 8:6, 34:4, 35:11, 39:11, 39:12, 64:21, 104:4, 116:14, 117:19, 124:19,
--	---	---	--

138:11, 141:22, 148:14, 149:2, 151:4, 171:13, 175:13, 182:3, 204:10, 217:4, 217:5, 217:6, 224:16, 235:4 answer 11:17, 31:9, 39:16, 44:11, 57:22, 88:2, 96:18, 145:12, 176:2, 207:5 answered 40:11 answering 58:11, 180:17 answers 10:9, 10:14, 11:11 anticipate 8:4 antivirus 164:8, 189:12 any 8:8, 8:18, 10:6, 10:12, 10:17, 15:7, 16:7, 16:10, 18:3, 18:8, 18:18, 20:20, 22:12, 31:3, 31:7, 34:8, 36:12, 37:15, 38:4, 38:19, 40:16, 40:19, 40:21, 41:6, 41:7, 41:10, 41:13, 43:11, 44:2, 44:8, 45:2, 56:5, 56:7, 56:12, 59:3, 59:11, 59:17, 59:21, 63:12, 85:21, 86:8, 87:4, 87:8, 88:1, 88:3, 89:11,	91:2, 91:12, 97:15, 98:3, 104:16, 106:6, 112:19, 113:2, 137:19, 138:21, 139:1, 139:6, 139:22, 144:9, 145:1, 146:10, 148:1, 151:18, 153:17, 154:3, 154:9, 156:15, 158:16, 158:20, 160:3, 160:20, 165:4, 165:6, 172:1, 174:6, 176:16, 178:11, 184:14, 190:12, 190:20, 203:19, 203:20, 204:21, 211:10, 213:18, 219:22, 220:2, 221:8, 223:13, 226:3, 233:6, 236:20, 238:7, 239:14, 239:18, 244:12, 245:9 anybody 44:10 anyone 208:15 anything 10:17, 11:22, 12:11, 29:2, 31:11, 31:14, 40:22, 41:18, 85:19, 85:21, 86:15, 87:5, 100:15, 129:5, 150:2, 156:12, 177:6, 183:22, 204:9, 233:5, 241:21, 243:3, 243:6 apologize 8:18, 72:5, 180:19, 192:12, 211:4 appeal 1:2	appear 53:17, 95:16, 97:15, 245:9 appearing 3:2, 81:8, 230:5 appears 48:22, 56:3, 177:20, 188:6 appendix 30:6, 30:10 appliance 133:6, 146:4, 146:19, 147:2, 147:6, 151:15, 158:5, 160:11, 160:15, 160:16, 225:20, 226:2, 226:3, 226:11 appliances 143:10, 146:14, 234:19 applicable 91:19, 92:3, 93:3, 93:9, 94:4, 94:9, 94:12, 110:3, 128:17 application 24:6, 101:5, 101:7, 101:8, 103:17, 103:19, 103:20, 104:2, 107:3, 107:11, 117:22, 118:4, 126:12, 126:14, 127:3, 127:5, 127:6, 127:7, 127:8, 127:11, 127:19, 129:10, 129:16, 130:9, 130:19, 130:21, 131:1, 132:15, 153:5, 153:13, 153:16, 167:13, 168:9, 171:7, 171:8, 171:12, 171:19, 172:10,	172:14, 173:10, 173:11, 173:17, 174:13, 174:21, 175:10, 175:19, 175:21, 177:5, 177:7, 177:12, 178:6, 179:1, 179:4, 179:13, 179:14, 180:2, 180:7, 180:9, 180:22, 181:1, 181:3, 181:9, 191:15, 192:18, 192:21, 219:17, 223:10, 224:22, 225:2, 225:6, 225:7, 225:14, 225:15, 225:18, 234:9 application-aware 225:3, 225:11, 225:19 application-based 152:16 applications 107:1, 132:16, 169:15, 171:1, 171:17, 179:21 applied 75:8, 97:1 applies 96:6, 122:11 apply 21:22, 78:16, 78:21, 119:1, 119:2, 124:4, 156:7, 156:8, 231:14 appreciate 11:3, 240:4, 240:6 approach 18:17, 54:17, 56:19 appropriate 147:12, 147:13 april 114:19
--	--	--	---

area 24:6, 24:7, 27:1, 61:11, 66:7, 76:9, 123:8 areas 23:8, 23:11, 25:6 argue 220:19 arista 1:6, 12:18, 15:11, 15:19, 16:3, 16:6, 16:19, 18:3, 18:8, 18:9, 18:11, 21:20, 25:11, 29:13, 82:22 around 101:7, 114:20, 209:17, 226:21 arrive 72:20 art 13:13, 40:19, 54:19, 54:22, 56:9, 56:12, 56:14, 57:15, 59:18, 60:6, 60:8, 60:16, 61:7, 61:14, 61:18, 61:21, 62:6, 62:14, 62:17, 62:21, 63:5, 64:1, 64:9, 65:21, 72:3, 72:19, 73:4, 73:9, 73:16, 74:4, 74:12, 75:2, 75:9, 75:10, 77:13, 82:19, 90:12, 91:2, 93:21, 94:5, 94:11, 95:10, 121:5, 124:4, 137:7, 160:7,	161:5, 192:3, 220:19, 229:1, 236:9, 236:13 art's 98:1, 103:12 aside 87:4, 100:4, 123:9 asked 32:7, 59:20, 118:19, 187:14 asking 12:12, 82:9, 97:21, 139:5, 159:7, 191:7, 191:20, 202:8, 213:6, 222:14, 225:8 aspect 20:21 aspects 111:22, 112:9 assert 61:14 assertions 69:4, 69:6 assessment 36:6 assist 239:9 assistance 32:18 associated 234:8 assume 202:4 assumptions 147:15, 150:6 asynchronous 26:3 atm 26:3, 26:6, 27:6, 27:16 attached 245:9 attending 8:3 attention 32:21, 144:4,	145:16, 174:8, 193:16, 193:21 attorney 1:4, 15:15, 15:16 attorneys 35:12, 37:7, 43:12, 81:12 audio 27:14, 28:4, 88:17, 99:14, 108:4, 146:17, 149:10, 157:9, 164:17, 187:5, 189:9, 195:15, 215:6, 218:8, 224:7 august 87:3 automatic 23:14 availability 161:16 available 28:1 avenue 3:7, 4:7 avoid 11:8, 143:9, 180:10, 181:4 aware 8:7, 22:14, 31:4, 31:8, 35:3, 35:6, 44:4, 44:16, 47:1, 47:3, 63:4, 89:8, 89:16, 121:10, 160:3, 160:7, 225:8, 225:14 away 8:9, 26:9, 121:2, 147:11, 158:2 B bachelor 75:17, 76:8	bachelor's 63:19, 66:13, 66:14, 67:9, 73:20 back 12:2, 16:3, 29:11, 30:6, 44:3, 50:3, 73:10, 84:14, 89:15, 99:10, 115:9, 122:17, 139:20, 159:14, 165:13, 165:20, 179:10, 189:18, 192:22, 211:22, 242:15, 242:16, 242:20 background 25:16, 26:21, 28:14, 41:19, 53:3, 55:20, 56:6, 98:8, 157:19 backup 8:8 bad 118:18, 119:21, 119:22 baker 4:6, 4:15, 15:16, 25:10, 38:17 balancing 170:5, 170:11 bandwidth 103:7 base 107:4, 107:5, 153:11, 153:18 based 17:11, 36:5, 36:19, 42:4, 42:11, 50:10, 58:6, 61:15, 62:2, 67:12, 73:1, 85:9, 89:4, 103:19, 106:8, 106:20,
--	--	--	---

129:8, 137:18, 153:5, 153:6, 153:13, 154:2, 180:21, 181:6, 181:10, 185:19, 187:6, 187:19, 192:19, 205:19, 206:20, 219:14, 225:15, 226:5, 228:19, 229:14, 238:3, 239:18, 241:4 basic 167:2 basically 27:21, 60:22, 99:22, 100:15, 102:2, 116:19, 125:2, 133:7, 137:11, 144:9, 146:19, 149:12, 153:8, 155:3, 155:14, 157:19, 168:18, 171:7, 185:10, 185:19, 209:5, 209:12 basis 43:1, 93:4, 93:12, 94:7, 94:15, 228:22, 236:8, 237:20 bear 26:1, 184:19 became 26:6, 114:20 because 10:20, 12:9, 40:6, 50:22, 52:3, 58:1, 63:8, 67:1, 67:6, 72:8, 75:20, 78:6, 80:4, 82:11, 100:5, 101:3, 111:21, 112:8, 114:4, 118:6, 128:10, 136:1, 139:18, 148:5,	155:17, 173:15, 181:7, 188:18, 194:19, 222:16, 243:7 become 67:3 becomes 107:19, 108:2, 111:11, 200:13 been 9:3, 9:17, 12:17, 13:5, 16:9, 17:3, 18:15, 18:21, 19:6, 19:7, 19:11, 20:3, 23:2, 25:10, 29:19, 64:16, 72:20, 86:22, 178:18, 179:7, 200:15, 208:7, 208:8, 212:7, 239:21 before 1:2, 2:10, 8:14, 9:17, 13:10, 32:15, 42:17, 64:9, 79:2, 86:17, 87:2, 105:12, 125:9, 165:14, 165:22, 178:2, 180:17, 184:5, 189:3, 229:19, 233:22, 237:5, 240:21, 241:21, 244:5, 245:19 began 32:17 begin 66:19 beginning 29:11, 100:6, 100:19, 119:8, 239:7 begins 58:16, 101:22 behalf 3:4, 3:12, 4:4,	4:13, 15:10, 19:21, 20:2, 25:11 behind 167:2 being 12:10, 55:2, 96:22, 100:9, 150:6, 165:10, 168:4, 170:19, 171:19, 171:22, 180:13, 184:5, 190:11, 218:16 believe 16:13, 73:9, 78:14, 80:6, 80:18, 91:1, 97:12 bellco 231:1 belong 107:11 belonged 132:4 belonging 101:17, 110:4, 220:22 belongs 107:22, 239:10 below 101:9 benefit 236:6 besides 230:20 best 8:6, 17:1, 17:22, 30:21, 87:1, 96:9, 96:18, 98:6, 123:12, 177:21 better 21:7, 155:11 between 63:13, 71:14, 71:18, 79:4, 85:8, 86:6, 92:12, 104:14,	108:16, 113:3, 113:19, 152:18, 153:4, 162:1, 167:7, 167:17, 168:4, 172:1, 176:17, 176:20, 177:6, 178:11, 217:10, 217:16, 218:17, 230:13 beyond 98:22, 99:2, 99:6, 100:8, 100:15 bgp 117:7 bigger 128:10 bit 12:8, 18:19, 23:5, 27:21, 29:7, 45:8, 53:14, 65:9, 70:12, 71:6, 77:9, 89:7, 105:4, 111:14, 117:16, 138:3, 138:8, 166:11, 209:2, 213:6, 226:22, 237:4, 237:6, 237:8, 237:9, 238:2, 238:7, 238:13, 239:2 bits 138:7, 217:13, 237:14, 237:17, 237:21, 237:22, 238:5, 238:7, 239:15 block 104:22, 119:14, 119:20, 119:22, 137:21, 203:1, 205:20, 210:17, 211:5, 219:13, 224:8, 228:15 blocked 156:10
---	---	---	--

blocking 119:18, 123:17, 125:4, 125:6, 202:1, 202:12, 202:15, 202:17, 202:19, 202:22, 203:4, 210:15, 211:2, 211:7 board 1:2 body 48:10, 49:5 border 117:7 both 30:17, 68:20, 75:3, 79:6, 108:9, 140:10, 140:11, 140:13, 216:21, 228:4, 239:6 bottom 35:10, 131:14, 219:3 bottommost 168:17 botts 4:6, 4:15, 15:16, 25:10, 38:17 bound 91:14, 92:17 boundary 99:6, 114:10, 167:7, 167:17 box 131:14, 131:15, 145:20, 147:7 break 64:19, 72:7, 83:22, 84:1, 182:3, 189:3, 189:15, 239:21, 240:2, 241:22 breaks 12:7 breather 138:12	bridges 150:8 briefly 39:2, 153:4, 189:21 bring 33:1 broader 93:14, 174:3, 174:18, 175:8, 176:7 broken 59:8, 59:9 brought 49:5 building 28:17, 28:18, 28:20 built 28:2 bunch 61:10, 84:7, 153:10 business 18:13, 212:8, 212:12, 213:2 business-level 211:19, 212:5, 212:17, 213:12, 213:17 buy 160:19 byte 236:6 bytes 233:4, 233:6, 233:7, 236:11, 236:12, 236:18, 236:21 C cable 24:15 cached 106:5 calculate 241:11 calculated 241:4	calculating 241:6 california 3:15, 3:17 call 64:5, 117:5, 117:7, 118:13, 135:16, 137:5, 153:20, 227:6 called 9:3, 27:6, 99:12, 136:13 came 25:22, 47:8, 54:18, 62:2, 63:10, 80:8, 80:19, 81:3, 82:19, 91:20, 114:18, 129:7 can't 12:11, 12:12, 33:5, 240:6 cancel 234:3 cannot 66:15, 86:12, 86:14, 101:18, 114:5, 212:9, 221:22, 239:4, 239:14 capable 44:18, 91:6, 111:10, 139:2, 139:7, 140:1 capture 11:10, 105:11, 173:8 care 11:8 careful 47:20, 54:9, 101:2 carefully 30:18, 39:15, 133:17, 156:18 carmichael 5:5 cart 28:19	cascade 141:16 cascading 141:22 case 12:18, 15:5, 15:15, 15:16, 15:20, 16:2, 17:13, 17:15, 18:7, 25:11, 45:3, 49:9, 52:14, 54:21, 56:3, 63:7, 66:13, 95:18, 106:5, 111:9, 117:8, 131:17, 138:2, 142:7, 170:17, 198:5, 198:16, 204:19, 206:1, 218:16, 244:13 cases 16:8, 20:8, 20:18, 21:2, 21:10, 26:15, 40:9, 43:5, 95:20 cause 146:8 caution 15:6 cdt 1:17 cell 182:15 cellular 26:11 center 110:19 centers 201:14 central 110:19, 112:3, 126:3, 126:5, 126:9, 126:13, 126:17, 127:10, 128:2, 128:4, 128:5, 129:8,
--	---	--	---

129:14, 130:5, 130:22, 131:2, 131:11, 131:12, 131:16, 131:19, 131:20, 131:22, 132:3, 140:15, 140:20, 173:8, 173:15, 173:20, 174:2, 174:11, 174:17, 175:2, 175:6, 175:7, 175:9, 175:14, 175:17, 176:4, 176:17, 176:21, 177:5, 177:7, 177:12, 178:5, 178:12, 178:20, 179:2, 191:3, 242:17 centralized 129:14 certain 32:8, 82:1, 82:2, 83:17, 108:18, 108:19, 121:14, 129:7, 132:15, 142:5, 147:15, 155:20, 155:22, 181:3, 186:22, 212:22, 219:5, 219:11, 220:7, 221:3, 222:10, 222:19, 226:3, 237:10 certainly 17:9, 18:18, 30:21, 37:6, 74:4, 90:4, 91:10, 92:2, 93:10, 94:13, 103:16, 165:9, 208:15, 229:14 certificate 244:1 certified 2:11, 244:4, 244:22 certify 244:6, 245:5	chain 98:16, 141:15, 142:8, 142:10, 142:12, 142:13, 142:19, 143:5, 151:11, 155:7, 156:1, 158:8, 158:14, 159:6, 159:7, 159:9, 159:11, 167:11, 207:16, 207:19, 238:21, 239:1 chaining 141:4, 141:21, 142:2, 142:11 chance 28:14, 45:20 change 12:1, 31:11, 89:17, 124:10, 246:2, 247:2 changes 59:17, 59:21, 124:12 characteristic 112:17 characterization 50:12, 50:13, 55:2, 57:18, 101:3, 141:12, 161:18 characterize 18:17, 20:19, 101:18, 107:10, 111:20 characterizing 54:22 checking 205:9, 205:12, 205:14, 205:21 chips 18:16 choice 169:9 chose 89:13 chua's 57:7, 161:19,	163:15, 187:11, 212:15 circle 242:15 circuit 26:9 circuitry 25:2, 25:4 circumstance 133:2 cisco 35:11, 43:21, 44:6, 44:9 citations 48:9 cite 173:4, 173:7, 181:14, 218:5, 218:14 cited 37:10, 90:17, 175:1, 175:16 citing 159:14, 189:12, 231:19, 231:20 claim 35:7, 68:15, 72:15, 72:17, 78:3, 78:11, 78:12, 78:13, 78:14, 78:21, 82:1, 82:2, 83:17, 86:7, 87:7, 87:8, 87:18, 88:5, 88:6, 88:19, 88:21, 89:9, 90:15, 90:17, 91:9, 91:10, 91:11, 91:15, 91:17, 91:22, 92:5, 92:6, 92:15, 92:17, 96:14, 139:11, 183:20, 194:5, 199:15, 202:5, 204:2, 205:8, 206:13, 206:17,	206:19, 207:6, 207:7, 208:14, 208:16, 215:20, 224:20, 226:6, 226:21, 227:4, 227:8, 227:21, 228:1, 228:18, 229:13, 229:17, 231:2, 231:3, 231:5, 231:8, 231:11, 231:12, 235:11, 237:3, 240:13, 240:15, 240:18, 240:20, 241:12 claimed 91:2, 126:16, 212:21 claims 21:22, 46:14, 46:19, 46:21, 67:19, 68:15, 69:7, 69:13, 70:3, 71:15, 71:19, 77:19, 77:22, 78:16, 79:5, 79:6, 79:17, 79:18, 79:21, 80:7, 80:10, 80:21, 82:16, 85:14, 86:1, 86:4, 86:9, 93:20, 95:9, 97:16, 126:17, 138:22, 139:21, 161:19, 162:4, 194:2, 231:11, 231:13, 231:18, 231:21, 234:3, 237:2 clarification 27:13, 28:3, 88:16, 99:13, 108:3, 146:16, 149:9, 157:8, 164:16, 187:4, 189:8, 195:14, 215:5, 218:7,
---	--	---	---

224:6 clarify 73:13, 74:8, 80:19, 82:17, 115:20, 162:15, 187:9, 188:8, 192:1, 227:20 clarifying 45:4 clarke 4:5, 4:11, 64:20, 243:11 class 75:21 classification 107:9, 139:13, 173:10, 179:13, 181:6, 185:10, 185:18, 185:19, 185:20, 186:1, 186:3, 186:8, 186:17, 187:11, 187:15, 188:4, 188:6, 188:9, 188:12, 239:16 classify 103:1, 179:21, 180:20, 185:11, 185:12, 188:16 classifying 206:5, 239:17 classroom 75:16 clean 241:21 clear 18:2, 21:9, 26:6, 32:11, 40:5, 40:12, 64:7, 73:1, 73:14, 74:8, 82:5, 82:8, 86:2, 88:7, 90:16, 95:8, 96:5, 96:14, 145:22, 150:11, 150:16, 177:22, 188:7, 196:20,	218:21, 232:2 clearly 50:10, 52:22, 67:13, 104:5, 114:22, 146:11, 151:13, 215:18, 216:21 client 172:20, 181:18, 182:7, 182:8, 182:11, 182:16, 184:1, 184:4, 184:8, 184:15, 184:17, 184:20, 185:6, 204:20 cloned 105:19, 105:21, 105:22, 106:1, 106:2, 106:7 clones 105:5 close 84:17 closely 73:21, 81:11 closer 121:16 coincided 62:7, 63:1 coincidence 63:13, 63:17, 64:2, 64:5 coke 85:1, 85:4 collect 166:21 column 126:22, 140:8, 140:9, 140:18, 144:5, 145:16, 149:7, 150:5, 157:21, 163:21, 164:3, 164:4, 173:5, 174:9, 175:1, 175:17, 175:21, 178:1, 178:7, 178:17, 178:18, 181:16,	181:19, 182:10, 186:18, 188:10, 189:11, 191:10, 191:12, 192:9, 209:9, 211:1, 213:8, 214:12, 214:16, 214:17, 215:15, 218:6, 218:10, 218:11, 219:14, 228:14, 241:4, 241:11 com 3:10, 3:19, 4:11, 4:19 combination 72:2, 72:18, 151:16 combine 71:6, 76:14, 76:18, 77:4, 77:13, 85:14, 85:15, 234:18 come 12:2, 37:3, 37:7, 61:6, 61:8, 62:13, 90:12, 98:10, 109:3, 131:9, 132:2, 184:3, 185:6, 213:19, 239:8 comes 20:16, 31:10, 110:18, 117:21, 124:17, 180:1, 235:15 coming 26:13, 50:9, 67:10, 91:13, 101:5, 107:6, 116:16, 118:2, 119:7, 169:9, 222:18, 230:6, 238:15, 238:17, 239:4 commands 229:9, 229:12 comments 116:11, 180:4	commonly 123:17, 229:22 communicate 115:12, 118:7 communicated 117:10 communicates 114:6, 128:6 communicating 166:18, 230:13 communication 113:19, 115:11, 116:4, 128:21, 149:14, 203:18, 203:20, 204:15 communications 23:12, 38:19 companies 20:3, 22:16, 26:7, 26:15 company 18:15, 27:4, 27:5, 28:16, 67:2, 76:5, 76:6, 109:19, 212:11 compare 48:13, 50:22, 55:15, 62:15, 70:13 compared 47:15, 53:12, 59:4 comparing 49:15, 51:17 compatible 228:20, 229:11, 229:14 compensate 61:4 compensates 67:8 competition 167:11 compilation 132:14 compile 110:22
---	--	---	--

compiles 109:11 compiling 104:3 complete 10:8, 10:14, 245:8 completely 13:19, 14:3 completeness 48:18 complex 26:7, 155:3, 166:19 complexity 234:8 complimentary 8:15 component 104:21, 127:18, 141:15, 200:18, 201:10, 224:14 components 113:15, 133:21, 195:19, 196:14 composed 162:7 comprised 172:3 comprises 111:22, 205:7 comprising 227:5 computed 137:15 computer 8:9, 26:12, 60:18, 66:4, 66:5, 73:20, 73:21, 75:18, 121:14, 151:14, 160:19, 164:13, 216:12, 218:13 computer-readable 161:21 computer-running 151:19 concept 104:9, 104:15,	119:1, 122:13, 122:19, 135:22, 160:13, 166:5, 167:2, 211:14, 216:11, 216:14, 216:20, 227:18 concepts 97:18, 97:22, 99:9, 123:12, 153:6, 166:9, 168:3, 225:18 concern 137:6, 167:14, 169:8, 235:20 concerns 103:8, 103:14, 104:11 concert 51:14 concluding 237:21 conclusion 21:3, 42:10, 56:12, 90:10, 90:20, 91:1, 91:20, 126:21, 231:21 conclusions 56:8, 80:9, 80:20, 81:3, 82:20, 194:2 conditions 93:4, 93:12, 94:7, 94:15 conduct 43:8, 95:8 conducted 1:15, 2:2, 184:22 conducting 128:22 conducts 183:21 confer 241:19 conference 1:13, 2:1, 41:7 conferred 82:21	configurable 112:2 configuration 166:6 configure 128:7, 128:18, 164:2, 172:12, 229:12 configured 90:1, 162:3, 170:20, 172:8, 201:6, 211:11 configures 129:15 configuring 112:4, 166:5 confirm 30:1, 47:2 confirmed 40:1 confused 82:13 conjunction 166:8 connect 8:13, 114:4 connected 116:14, 130:22, 148:4, 148:18, 148:20, 148:22, 149:1, 149:17, 150:2, 150:7, 151:3 connecting 8:13, 148:13, 178:16 connection 15:4, 29:12, 114:4, 195:7, 238:9, 239:13 connects 198:18 consecutive 233:4, 233:7, 236:11, 236:17, 236:20 consider 65:19, 75:1,	75:2, 75:3, 89:13, 90:6, 125:3, 137:12, 199:6, 241:14 considered 46:15, 62:20, 83:11, 89:3, 89:11, 90:4, 90:6, 96:3, 97:9, 97:13, 125:21, 204:11 consistent 40:2, 55:2, 55:19, 56:14, 57:18, 63:8, 79:8, 82:3, 83:19, 97:12, 150:18, 175:3 consistently 230:16 constitute 210:13 constituted 34:14 constructed 88:18 construction 87:7, 87:9, 87:14, 88:10, 89:3, 89:9, 89:12, 89:17, 89:18, 89:22, 90:3, 90:7, 91:3, 91:8, 91:18, 91:21, 91:22, 92:6, 92:10, 92:13, 92:15, 93:6, 95:11, 95:18, 95:19, 96:4, 96:6, 96:12, 96:14, 96:22, 97:2 constructions 35:7, 88:22, 97:8, 97:10 construe 87:19, 89:2
---	--	---	--

construed 44:17, 88:15, 90:9, 95:2 construing 91:5 consult 190:21 consulted 39:10, 39:14 consulting 39:16 contained 36:17 containing 33:16 contains 154:11 contemplating 215:18 content 121:17, 122:12, 180:6, 223:9 context 93:7, 106:10, 113:12, 115:18, 119:17, 120:17, 120:20, 122:4, 122:7, 122:8, 122:9, 122:20, 123:3, 124:2, 128:3, 129:19, 133:9, 158:11, 158:13, 163:2, 168:2, 192:16, 204:14, 226:15 continued 4:2, 5:2 continues 49:11 continuously 101:12 contribute 66:19 control 112:14, 113:10, 113:14, 113:16, 113:20, 114:2, 114:3, 114:7,	129:16, 172:16, 173:8, 174:2, 174:17, 175:6, 175:7, 175:9, 176:4, 176:17, 176:21, 177:5, 177:7, 177:8, 177:12, 177:20, 178:6, 178:12, 179:6, 191:2, 191:5, 191:6, 191:17, 192:4, 192:19, 193:1, 193:4, 201:14, 218:17, 218:18, 218:20, 218:22, 223:17, 232:13, 232:21 controlled 164:5, 199:11 controllers 111:7, 113:19, 164:6, 181:17 controlling 44:19, 91:6, 116:7, 139:7 controls 162:6, 193:7, 198:11, 221:13 convenience 13:17 convenient 50:21 conversations 8:10 convoluted 102:20 copied 50:15 copies 13:18, 50:19, 51:8 copy 13:11, 14:11, 30:11, 33:4, 51:3, 51:4, 105:14, 215:13 copycat 35:14	copying 120:3 copyrights 24:10 core 26:10 corporate 109:19 corporation 1:9 corrections 245:9 correctly 130:13, 148:4, 152:5, 154:19, 156:7, 162:16 correspond 138:1 corresponding 129:10, 202:21 costs 235:5 could 11:2, 11:8, 26:22, 29:18, 34:15, 47:22, 48:19, 51:11, 51:20, 65:8, 68:4, 93:14, 103:22, 104:4, 106:3, 106:4, 106:18, 106:19, 107:4, 125:12, 126:15, 127:10, 132:10, 132:12, 132:13, 132:14, 134:19, 136:10, 136:12, 146:8, 152:13, 165:5, 169:15, 171:1, 174:20, 175:21, 184:8, 188:21, 189:1, 190:14, 192:13, 194:8, 204:11, 205:4, 220:3, 221:9, 222:6, 223:6, 226:3, 233:6,	233:8, 235:22, 237:11, 242:12 couldn't 37:8, 49:14, 49:18, 60:17, 224:16 counsel 12:11, 15:8, 21:20, 22:5, 32:8, 32:13, 32:18, 36:11, 36:13, 37:5, 38:16, 39:6, 45:2, 64:16, 82:22, 88:1, 183:17, 239:20, 242:10, 244:11 count 144:14 counted 17:7 counting 17:5 couple 28:21, 39:9, 63:19, 66:15, 138:5, 182:1, 209:10 course 21:10, 33:12, 33:22, 34:11, 34:13, 37:20, 41:16, 79:1, 81:12, 229:13, 230:12, 242:16 courses 75:17 court 11:4, 11:10, 44:5, 44:9, 44:17, 45:1, 45:3, 61:19, 88:15, 88:18, 89:9, 89:17 court's 96:12, 96:14 cover 30:3
---	--	---	--

covers 68:15 crafted 62:1, 64:8 create 27:10 created 117:2, 117:5, 117:9, 117:12, 117:13 criteria 107:16, 107:19, 130:1, 134:3, 154:3, 154:9, 155:20, 185:14, 185:21, 185:22, 200:6, 205:22, 237:10, 238:4, 238:5 criterion 91:19, 91:20, 92:3, 93:3, 93:9, 94:1, 94:4, 94:9, 94:12, 107:14, 107:15, 107:20, 108:16, 109:11, 110:3, 111:1, 111:2, 128:17, 131:19, 136:6, 136:9, 136:11, 136:12, 136:16, 136:18, 139:14, 153:9, 172:7, 172:11, 172:13, 185:17, 185:19, 186:3, 187:13, 199:17, 199:19, 205:10, 205:13, 205:16, 206:14, 207:8, 208:9, 213:1, 214:4, 214:7, 215:10, 228:3, 237:12, 237:18 crossed 41:2 crr 1:20	crystal 82:5 cue 9:7 current 16:14, 18:4, 30:12 currently 12:10, 18:7 curriculum 30:12, 42:7 customer's 106:22 cut 136:14 cv 16:9, 30:20, 30:21, 31:1, 31:4, 42:9 D d-o-s 146:19 dallas 4:9 dark 122:16 data 99:12, 99:15, 99:16, 101:5, 101:7, 110:19, 112:14, 113:3, 113:6, 113:10, 114:1, 114:3, 114:4, 114:6, 119:22, 124:17, 127:7, 127:14, 127:20, 129:16, 130:7, 130:17, 137:2, 141:14, 142:15, 163:3, 209:3, 230:7, 230:8, 234:21, 235:8, 235:9, 241:7 date 103:10, 114:13, 245:15, 246:22,	247:22 day 204:9, 240:1, 240:19, 244:16, 245:18 daylight 84:14 deal 212:10 decade 26:5 decades 19:7 decide 109:4 decided 89:10 deciding 65:19 decision 139:15 declarations 36:1 dedicated 132:19, 133:6, 133:7, 143:10, 143:18, 144:7, 146:4, 147:2, 147:6, 226:11, 234:18 deep 19:14, 28:12, 28:20, 28:22, 44:19, 49:19, 52:14, 90:2, 91:7, 98:9, 98:11, 98:14, 98:22, 99:3, 100:7, 100:10, 101:1, 101:4, 102:15, 103:1, 120:4, 125:18, 127:9, 140:14, 140:19, 144:10, 144:22, 145:4, 145:5, 145:7, 145:10, 145:18, 158:3, 158:5,	158:8, 158:12, 163:7, 163:12, 164:10, 179:10, 179:12, 181:8, 183:21, 185:14, 186:9, 189:6, 217:11, 217:12, 221:17, 232:3, 232:5, 232:6 deeper 215:14 define 92:6, 92:21, 97:3, 106:10, 111:15, 111:21, 112:10, 195:11, 196:13, 197:14, 198:21 defined 74:11, 125:19, 133:22, 135:8, 136:8, 136:9, 153:19, 154:17, 155:11, 159:9, 167:7, 167:18, 176:5, 186:15, 197:2, 219:12, 241:1 defines 91:14, 137:11, 154:12, 181:1, 182:8, 199:1 defining 161:22, 200:19, 201:11 definition 22:4, 38:13, 60:15, 61:7, 61:17, 61:22, 62:8, 62:13, 62:16, 63:5, 64:8, 65:6, 65:11, 65:12, 77:2, 90:5, 93:16, 112:8, 150:9 definitionally 148:6
---	--	---	--

definitive 114:10 degree 60:21, 66:7, 66:14, 67:6, 67:9, 73:20, 74:4, 130:18 degrees 41:19, 61:2, 66:12, 75:17, 76:8 delay 105:10, 107:2, 146:11 delays 243:8 delete 31:14 deliver 169:7 demilitarized 164:1 denied 155:5, 155:10 depend 231:11 depending 98:15, 101:12, 101:16, 113:5, 132:11, 134:5 depends 117:3, 117:10, 120:9, 120:17, 133:5, 138:9 depict 155:8 deploying 234:8 deponent 245:3 deposed 9:17 deposition 1:13, 2:1, 8:16, 10:22, 13:12, 16:21, 17:19, 22:2, 29:9, 31:17,	37:16, 37:19, 38:6, 38:16, 38:21, 39:7, 53:16, 63:11, 86:18, 244:5, 245:10, 246:1, 247:1 describe 28:13, 73:18, 74:2, 92:19, 97:7, 117:18, 133:2, 140:10, 158:16, 194:13, 200:2, 212:6, 224:8, 229:6, 235:13 described 35:12, 38:4, 58:7, 75:6, 88:19, 93:11, 94:3, 98:14, 108:15, 117:20, 121:19, 127:17, 131:2, 139:11, 140:17, 145:8, 147:2, 150:18, 170:19, 172:6, 176:4, 183:14, 193:15, 210:16, 212:21, 222:9, 231:21, 234:1, 241:12 describes 52:8, 74:17, 92:20, 107:16, 126:2, 127:2, 143:20, 145:3, 147:5, 153:1, 161:14, 164:18, 170:18, 202:21, 204:2 describing 49:19, 52:9, 56:8, 57:15, 74:5, 95:15, 127:1, 150:15, 188:3, 216:8, 218:21, 225:16,	228:19, 233:2 description 6:8, 35:14, 49:21, 50:2, 50:9, 50:11, 52:13, 52:15, 55:3, 56:11, 56:13, 56:14, 56:16, 57:7, 57:8, 57:17, 57:19, 59:9, 60:5, 60:7, 68:14, 74:16, 82:1, 82:2, 83:17, 83:20, 92:7, 122:9, 182:11, 188:9, 196:19, 198:2 descriptions 58:2, 143:14 designing 18:22, 19:11 destination 101:15, 108:1, 110:7, 111:4, 117:22, 118:3, 120:22, 123:4, 139:16, 143:1, 153:12, 153:20, 153:21, 156:14, 168:12, 169:8, 171:11, 184:7, 187:1, 187:21, 187:22, 190:6, 190:7, 198:5, 198:6, 203:21, 204:1, 204:10, 205:6, 210:6, 219:16, 228:16 destined 209:13 detail 212:6, 231:13 detailed 224:3 details 223:13, 232:4 detect 104:16, 132:2	detection 28:19, 104:17, 127:7, 127:14, 127:20, 129:5, 131:5, 131:7, 131:11, 132:1, 133:19, 146:15, 155:5, 155:9, 162:18, 164:9, 188:19, 188:22, 212:2, 217:18 determination 105:17, 129:6, 191:14, 220:1, 220:3, 221:9, 228:14, 239:9 determinations 232:14, 232:22 determine 109:9, 119:11, 128:15, 182:22, 220:20, 221:18 determines 92:16, 101:21, 170:6 determining 67:14, 92:5, 116:16, 220:15, 238:20 device 126:7, 161:20, 162:11, 162:12, 162:21, 162:22, 163:1, 163:5, 163:6, 163:10, 163:11, 163:17, 164:12, 171:14, 182:7, 182:8, 182:11, 182:12, 182:13, 182:14, 182:16, 183:7, 183:8, 183:14, 184:4, 184:8, 184:9, 184:17, 184:20, 185:7, 196:1, 196:5, 197:8, 197:15, 204:20, 204:21,
--	---	---	--

207:17, 207:19, 209:13, 212:17, 213:17, 215:3, 215:13, 215:16, 215:17, 217:4, 217:5, 217:6, 217:7, 217:8, 224:17, 225:3, 225:7, 225:12, 225:19, 226:3, 230:1, 230:2, 238:15 devices 127:19, 162:1, 162:2, 162:7, 162:8, 162:19, 164:2, 164:4, 164:5, 164:6, 164:10, 164:12, 172:20, 181:18, 183:3, 184:1, 184:15, 186:20, 191:17, 197:9, 198:2, 205:7, 208:6, 211:19, 212:1, 213:11, 215:7, 215:19, 217:1, 221:17 diagram 224:9 diet 85:1, 85:4 differ 153:7 difference 79:4, 86:6, 92:22, 104:13, 108:15, 109:2, 113:2, 152:18, 153:4, 172:1, 176:16, 176:20, 217:9, 217:15, 226:1 differences 59:3, 59:11, 85:7 different 16:1, 22:16,	22:19, 25:6, 27:10, 35:17, 35:22, 36:5, 50:6, 59:8, 67:16, 68:14, 68:15, 84:7, 88:21, 98:16, 98:18, 98:21, 101:10, 101:18, 101:20, 102:7, 102:8, 106:13, 106:19, 107:14, 112:9, 113:5, 117:3, 117:11, 117:19, 118:8, 121:1, 121:9, 121:19, 121:20, 124:11, 124:13, 132:11, 132:16, 134:18, 134:21, 142:14, 143:2, 146:22, 149:16, 152:9, 152:13, 152:19, 153:8, 154:3, 154:4, 154:8, 158:19, 166:2, 167:3, 167:9, 167:10, 177:6, 179:3, 186:8, 186:12, 194:1, 201:6, 201:9, 205:18, 207:20, 209:17, 225:2, 227:17, 229:3, 238:6, 238:22, 239:17 differently 36:5, 103:21, 106:22, 107:7, 107:12, 107:18, 109:18, 118:10 difficult 63:17 dig 111:13 digital 137:3 direct 32:21, 144:4,	145:16, 174:8, 177:21, 193:15, 193:20, 199:21, 217:19 directed 190:11, 190:19, 192:22 directing 123:15, 144:18 direction 142:6, 149:20, 156:4, 208:21, 238:17, 244:10 directly 18:18, 120:21, 165:1, 190:21, 237:17 disagree 85:12, 90:8, 90:20 disagreed 85:17, 87:6 disagreements 85:22 disappears 125:2 disclose 38:18, 94:6, 155:16, 156:15, 158:20, 159:16, 163:6, 163:17, 165:4, 185:17, 186:4, 189:4, 190:10, 190:18, 199:18, 201:22, 202:10, 203:14, 205:14, 209:6, 210:15, 210:19, 214:11, 214:13, 217:22, 223:13, 226:9, 232:2, 235:18, 237:14 disclosed 20:10, 20:11, 21:1, 71:20, 72:1, 136:21, 152:4, 155:18, 174:3, 174:18,	179:12, 206:22, 211:1, 216:21, 227:19, 228:7, 229:7, 230:18 discloses 94:8, 94:11, 94:17, 145:18, 147:10, 164:22, 165:9, 165:10, 165:16, 169:14, 171:1, 197:18, 205:18, 215:12, 226:19, 235:14 disclosing 97:8, 172:18, 211:14, 235:3 disclosure 10:21, 128:13, 131:4, 144:1, 148:10, 148:21, 149:4, 152:20, 157:1, 163:15, 165:18, 169:13, 179:16, 183:2, 184:14, 186:15, 187:11, 202:8, 203:17, 207:12, 213:18, 235:17, 236:1 disclosures 232:7 discuss 40:16, 86:3, 206:18 discussed 70:16, 70:18, 71:16, 77:3, 80:8, 97:19, 114:22, 115:4, 131:4, 180:13, 187:16, 213:8, 229:19 discussing 38:17, 71:11, 79:21, 88:13, 115:8, 147:16, 179:8, 181:17, 182:19, 208:16,
--	---	--	--

227:1 discussion 8:8, 35:8, 56:6, 58:8, 58:13, 59:5, 59:18, 84:11, 205:17, 224:3, 234:7, 235:11, 240:15 discussions 15:8, 36:13, 88:1, 88:3 disjoint 166:4 distinct 183:9, 227:5, 227:10 distinction 92:11, 114:9, 160:11, 168:4, 178:11, 217:16, 218:16 distortion 27:14, 28:4, 88:17, 99:14, 108:4, 146:17, 149:10, 157:9, 164:17, 187:5, 189:9, 195:15, 215:6, 218:8, 224:7 distribute 170:8 distributed 146:18 district 44:5, 44:9, 44:17, 45:1, 45:3, 89:9, 89:16, 96:11, 96:13 dmz 163:22, 189:10 docket 1:4 doctor 83:6, 84:4, 86:18	document 7:4, 33:19, 37:12, 83:14 documents 14:1, 30:18, 32:5, 33:20, 36:19, 45:2 doing 9:13, 10:20, 10:22, 11:3, 19:6, 19:7, 69:2, 124:12, 155:21, 156:1, 156:12, 160:18, 160:21, 161:7, 199:9, 203:4 domain 212:8, 221:14 done 12:13, 17:5, 20:1, 20:17, 24:12, 25:15, 25:19, 79:8, 82:20, 91:12, 91:15, 105:21, 128:21, 146:13, 166:7, 175:2, 187:3, 200:4, 212:12, 230:10, 239:6, 242:7 dos 146:18 doubt 57:11, 58:6 down 21:6, 30:8, 30:15, 31:6, 34:2, 34:22, 45:6, 46:11, 48:19, 54:6, 57:1, 59:13, 60:13, 65:15, 77:8, 77:16, 81:11, 83:6, 92:1, 108:9, 111:6, 127:22, 203:7 downstream 148:19, 149:17,	150:11, 150:17, 150:20, 150:21, 151:3, 208:22, 238:20, 238:22, 239:10 dpi 19:14, 25:16, 28:15, 98:12, 103:7, 103:12, 103:17, 104:2, 104:6, 104:14, 104:21, 105:2, 106:2, 106:6, 106:8, 106:11, 118:14, 119:2, 119:7, 126:2, 126:5, 126:14, 126:15, 126:18, 127:15, 127:18, 129:3, 129:8, 129:9, 131:10, 132:1, 132:7, 132:8, 132:17, 132:19, 133:4, 133:6, 139:2, 139:8, 139:12, 140:1, 140:11, 143:17, 144:7, 145:22, 146:6, 146:8, 146:12, 146:13, 146:14, 146:22, 147:3, 147:11, 151:6, 151:9, 152:4, 152:7, 157:1, 159:21, 160:1, 160:4, 160:6, 160:11, 160:12, 160:13, 160:16, 160:18, 160:22, 161:4, 161:8, 163:18, 165:10, 172:19, 173:10, 173:14, 175:18, 175:19, 179:21, 179:22, 181:15, 183:4, 184:21, 217:14, 217:16,	217:17, 226:8, 226:9, 226:11, 226:12, 226:13, 226:17, 226:19, 234:19, 241:7 dpi's 147:6 dpis 156:19 draft 32:8, 32:10, 32:14, 43:9, 67:16, 81:11, 81:12, 243:3, 243:6 drafted 31:1, 52:22, 81:10 drafting 32:6, 32:17, 33:13, 38:8, 43:12, 79:3, 79:7, 81:19, 81:20, 81:21, 83:12, 83:16 draw 42:10 drawing 92:12 drawn 78:8, 168:4, 217:16, 218:17 drop 203:1, 203:3, 209:12, 210:4, 210:17 dropped 142:20, 142:22, 156:9, 209:4, 210:12 dropping 120:1, 124:21, 125:3, 125:5, 202:16, 202:17, 209:8, 209:10 dual-mode 23:11 due 27:14, 28:4,
--	--	--	---

88:17, 99:14, 108:4, 146:17, 149:10, 157:9, 164:17, 187:5, 189:9, 195:15, 215:6, 218:8, 224:7 duly 9:4 during 13:16, 22:2, 35:7, 36:14, 38:8, 67:7	edt 243:14 educational 41:18 effectively 235:3 effectuate 109:4 effectuated 152:20 effort 27:20, 32:1 either 66:13, 71:20, 72:17, 107:22, 110:6, 111:4, 131:17, 137:20, 138:4, 139:15, 174:22, 175:16, 175:22, 195:5, 208:21, 213:11, 228:9, 237:11 electrical 60:19, 66:5, 73:20, 75:19 electronic 24:19 electronics 24:17 element 82:1, 82:2, 83:17, 114:17, 199:14, 205:8, 205:14, 206:13, 206:17, 206:19, 206:21 element-by-element 95:15, 199:9 elements 71:19, 72:16, 193:11, 194:1 eliot 4:14, 4:19, 39:2 elisabeth 1:20, 2:10, 28:7, 29:3,	84:9, 176:9, 189:15, 244:3, 244:20 elisabeth's 61:19 else 29:2, 44:10, 64:18, 120:22, 129:5, 136:14, 139:16, 149:2, 150:3, 167:16, 174:21, 175:3, 176:8, 176:10, 183:9, 208:2, 215:18, 233:17, 241:21 email 107:1, 108:19 emails 101:5 embedded 108:6 embodiment 140:5, 140:10, 143:2 embodiments 138:21, 139:1, 139:6, 139:22 emphasis 225:14 employed 244:12 enabled 8:11 encapsulating 124:14, 186:12 encapsulation 124:16, 124:20 encoding 124:12 encompasses 74:18 encryption 101:14 end 116:10, 119:8, 137:1, 159:8, 167:1, 196:1,	197:8, 197:9, 197:15, 198:8, 204:9, 204:21, 205:7, 238:15, 239:4, 239:7 end-user 182:12, 182:14 ends 101:21, 192:7 enforce 181:10 enforcement 173:11, 179:14, 180:12, 180:13 engine 28:20, 29:1, 132:7, 132:8, 132:20, 133:7, 226:8, 226:10, 226:12, 226:14, 226:19, 232:13, 232:21 engineering 60:18, 60:19, 66:5, 66:6, 73:21, 75:18, 75:19 engines 143:18, 144:7 enough 52:22, 84:7, 84:17 ensure 161:15, 162:1 enter 110:20, 201:15 entered 110:1, 214:8 entire 55:19, 59:16, 59:22, 72:9, 99:5, 100:19, 119:2, 119:6, 120:3, 120:16, 149:12, 160:14, 160:22, 217:13, 235:7 entirety 37:12, 56:6,
--	---	---	--

124:18 entities 22:20, 197:21, 198:4 entity 44:18, 90:1, 91:6, 112:20, 116:14, 197:18, 197:21, 197:22, 198:1, 198:4, 203:10, 203:11, 203:15, 203:21, 203:22, 204:3, 204:4, 204:6, 204:11, 204:12, 204:15, 204:16, 204:20, 205:4, 206:16, 207:10, 207:11, 207:13, 207:20, 207:21, 208:3, 208:4, 228:3, 228:4 entrepreneurial 27:20 environment 151:19 envisioned 112:19 equal 231:14 equipment 195:8, 196:4, 204:6 erased 209:4 errata 245:10, 246:1, 247:1 error 31:3 errors 31:8 essentially 95:19, 203:4 establish 234:2 established 191:15	estimate 17:2, 87:1 ethernet 27:11, 27:15, 27:16, 227:16 ethernet-based 27:6 even 50:2, 133:4, 220:20 event 162:2 ever 18:9, 18:11, 22:13, 40:14, 40:16, 40:21, 41:6, 41:10, 98:7 every 119:7, 148:4, 150:7, 169:5, 217:13 everybody 74:18 everyone 8:3, 14:8, 84:6 everyone's 183:18, 194:9, 208:15 everything 26:19, 122:16, 195:11, 195:21, 197:2 ex 6:9, 6:10, 6:11, 6:12, 6:13, 6:14, 6:15 exact 7:4, 114:13 exactly 50:15, 60:17, 65:11, 69:22, 70:10, 186:14 examination 6:5 examinations 6:2 examined 245:6	example 20:20, 21:4, 27:11, 48:6, 103:18, 107:5, 109:17, 109:22, 110:9, 127:5, 137:18, 151:4, 155:4, 170:4, 180:3, 182:12, 182:20, 183:7, 186:21, 191:11, 196:17, 198:19, 202:14, 205:20, 206:10, 209:15, 212:9, 212:11, 215:17, 215:19, 219:12, 238:14 examples 162:14, 186:16, 188:11, 189:13, 227:14, 228:11 exceed 73:3 exceeding 76:7 exceedingly 119:20 exceeds 74:4, 74:10, 75:6 except 197:3 exception 112:19, 196:3 excluded 196:10 excuse 59:4, 82:21, 174:10 execute 134:17, 165:1, 169:15, 171:2, 171:5 executed 165:5, 171:19, 172:15, 172:16 executes 127:5	executing 171:22, 224:18 exercise 52:2, 53:2, 63:18, 91:15, 92:4, 92:7, 92:16, 154:4 exercises 91:13 exhibit 6:8, 13:6, 13:7, 14:17, 14:19, 29:19, 29:20, 31:19, 44:15, 45:11, 45:15, 45:16, 46:6, 47:3, 47:6, 47:15, 47:16, 48:19, 51:18, 55:7, 55:8, 55:15, 56:17, 58:19, 64:14, 64:15, 68:20, 68:21, 114:14, 125:11, 141:3, 144:5, 161:12, 169:18, 189:22, 190:2 exhibits 6:7, 7:1, 14:18, 36:9, 47:5, 80:7 exist 168:11 exit 116:17 expect 17:14, 242:14 expected 72:20 expedite 243:13 expedited 243:4, 243:6 expense 234:8 expenses 16:15
--	---	---	---

expensive 143:10, 146:1, 146:4, 146:7, 158:2, 160:2, 234:19 experience 17:11, 18:20, 34:12, 42:5, 61:5, 61:15, 63:20, 67:9, 67:12, 67:13, 74:1, 74:4, 75:6, 75:7, 146:6 expert 13:15, 15:4, 16:6, 17:3, 18:4, 19:18, 19:21, 20:6, 22:15, 23:2, 23:10, 24:8, 24:12, 25:7, 36:1, 36:7, 39:11, 42:22, 43:5, 43:9, 43:21, 71:15, 75:2, 81:10, 90:12, 98:2, 206:18, 210:22, 241:22 expertise 42:1, 42:11 explain 74:20, 83:8, 98:11, 100:9, 111:17, 129:18, 152:18, 153:5, 162:11, 229:20 explaining 74:14, 187:17 explains 232:12, 232:20 explanation 166:15, 168:2 explicitly 145:6, 186:22 express 224:11	expressed 216:11, 216:14 expressly 46:14, 145:10, 159:16, 216:3, 216:15, 217:22, 223:13, 237:13 extend 173:10, 179:13, 180:11 extending 180:12 extensively 153:1, 238:20 extent 36:4, 50:19, 88:2, 88:20, 96:21, 150:15, 151:5, 202:22, 231:10 extreme 160:17 eyes 194:19 F f-l-o-w 28:8, 187:7 facilitates 112:1 fact 13:19, 30:1, 63:4, 75:14, 82:14, 97:7, 229:9, 230:10 factors 65:18 failure 162:2 fair 10:19, 10:21, 22:17, 23:5, 25:5, 42:12, 71:9, 73:5, 78:6, 102:19, 103:11, 112:12, 113:22, 115:14, 116:20, 143:4,	148:8, 161:17, 167:5, 231:10, 233:10 familiar 20:15, 43:7, 166:12 far 73:14, 74:10, 159:21 fashion 105:18 fast 133:5 faster 226:22 feature 51:13 feel 11:22 feeling 240:3 felt 37:14 fender@kobrekim 3:10 few 98:10, 119:12, 137:18, 137:19, 138:1, 138:2, 209:16, 215:22, 240:14 field 42:17, 62:3, 63:20, 66:4, 66:10, 66:14, 73:22, 111:5, 120:14, 136:7, 141:6, 181:1, 181:5, 230:7, 239:18, 241:13 fields 75:18, 135:9, 135:10, 227:5, 227:10, 232:13, 232:15, 232:21, 233:2, 233:3 figuratively 14:9	figure 107:10, 127:1, 128:12, 130:21, 131:8, 131:9, 131:10, 131:14, 132:2, 132:7, 148:17, 149:13, 151:13, 155:15, 194:13, 194:18, 194:21, 195:9, 195:12, 195:20, 195:21, 197:2, 197:5, 197:17, 197:20, 201:10, 201:12, 202:15, 203:3, 218:21, 223:19 figures 155:14 file 37:21 filled 153:14 final 239:3, 240:14 finally 13:14, 165:15 financial 244:13 find 50:21, 54:10, 55:1, 66:3, 67:11, 120:11, 157:6, 191:9, 211:7 finding 192:5, 234:14 fine 14:3, 14:11, 65:3, 72:10, 240:9 finer 212:14 finish 239:5, 240:10 finished 145:15, 240:1 finishing 239:3
---	---	---	---

firewall 104:10, 104:14, 104:15, 104:16, 104:17, 105:1, 105:2, 127:6, 127:20, 189:11 firewalls 28:18, 104:9, 127:13, 162:18, 164:7 firmware 218:14 first 9:3, 10:1, 10:21, 15:3, 16:2, 19:18, 32:21, 37:1, 62:18, 64:9, 66:4, 66:17, 67:19, 70:15, 71:9, 78:3, 78:13, 118:13, 119:12, 123:6, 137:18, 137:19, 138:1, 165:20, 167:8, 169:21, 172:10, 173:9, 175:13, 178:19, 179:7, 194:5, 197:18, 197:21, 197:22, 198:1, 199:14, 203:10, 203:15, 203:21, 204:3, 204:6, 204:11, 204:15, 204:20, 206:2, 206:4, 209:11, 212:16, 213:16, 213:22, 228:3, 230:5, 233:4, 236:5, 236:6, 236:11, 236:12 fit 79:11 five 16:10, 16:11, 135:9, 138:12 fixed 173:9	flag 136:4, 136:5, 136:13, 237:6, 237:8, 237:9, 237:10, 237:12, 237:14, 237:17, 237:21, 237:22, 238:2, 238:5, 238:6, 238:13, 239:2, 239:15, 239:18 flags 135:3, 135:7, 135:8, 135:10, 135:12, 135:13, 135:16, 135:18, 135:21, 135:22, 136:7, 136:10, 237:7 flash 23:21 flip 30:6 floor 3:16 flow 107:4, 107:5, 107:6, 107:11, 117:16, 117:18, 117:19, 117:20, 118:1, 118:13, 119:2, 119:3, 119:6, 119:8, 119:11, 119:14, 119:15, 119:20, 120:2, 120:3, 120:5, 120:14, 120:16, 120:18, 121:6, 122:19, 122:20, 124:7, 124:8, 124:13, 124:14, 124:21, 125:3, 125:4, 125:6, 131:5, 131:6, 131:7, 131:11, 132:1, 132:2, 133:18, 133:20, 134:1,	134:3, 134:9, 134:17, 137:18, 137:21, 153:6, 153:18, 153:19, 154:1, 181:2, 182:22, 183:4, 186:22, 187:2, 187:6, 187:19, 188:3, 188:15, 188:19, 188:20, 189:1, 202:17, 205:19, 205:20, 205:21, 206:1, 215:9, 219:6, 219:14, 220:17, 220:22, 221:4, 221:8, 221:11, 222:11, 222:16, 222:19, 222:22, 223:2, 223:3, 228:14, 228:15, 230:12, 238:16, 239:5, 239:8 flow-based 152:16 flows 118:9, 129:17, 143:7, 143:9, 146:20, 219:14, 219:20, 220:12, 220:15 fly 27:9, 112:10, 207:2 focus 12:20, 26:21, 26:22, 109:14, 131:10, 153:3, 163:15, 233:10 focused 122:2, 152:1, 184:11, 234:1, 237:2 folks 84:8, 242:6 followed 136:17, 230:7 following 131:16	follows 9:4, 134:1, 186:7 footnote 35:9 footnotes 48:7, 48:8, 48:20, 49:4 force 231:14 foregoing 244:5, 244:6, 245:6 forget 11:12, 148:15 forgot 39:3 format 124:12, 230:4 formed 32:6, 32:12, 32:16, 79:5, 83:15 forming 29:7, 33:13, 33:20, 34:10, 34:18, 66:21 forth 134:6, 164:8, 189:12 forward 122:20, 125:2, 129:9, 134:6, 156:4, 156:12, 163:4, 169:10, 183:4, 186:10, 210:4 forwarded 113:10, 143:1, 210:7, 210:10 forwarding 113:3, 113:6, 113:8, 113:9, 114:1, 116:8, 116:9, 116:10, 116:19, 116:20, 117:2, 117:8, 117:11, 122:13,
--	--	---	--

122:19, 122:22, 123:4, 123:16, 133:14, 133:15, 133:16, 134:20, 171:9 found 56:13, 72:16, 72:17, 79:19, 229:1 four 39:9, 83:9, 168:10, 168:16, 168:18 frame 233:16 francisco 3:17 friday 1:16 front 29:15, 50:19, 125:10, 157:11, 157:15 full 9:15, 10:8, 10:14, 10:21 fully 32:12 function 27:8, 105:5, 105:8, 163:10, 163:22, 164:1, 168:21, 188:22, 191:16, 192:18, 193:4, 193:7, 217:18, 226:16, 226:17 functionality 145:19, 147:7 functioning 104:22 functions 27:10, 104:20, 104:22, 112:6, 127:9, 128:8, 145:3, 157:5, 164:7, 164:14, 164:20, 166:21,	179:3, 217:3, 234:9 fundamentals 203:18 further 13:10, 98:20, 126:13, 129:10, 130:9, 130:20, 158:10, 158:14, 190:12, 190:20, 192:10, 216:19, 222:20, 233:18, 242:22 furthest 102:10 fyn 239:3 G gap 180:4 garbled 139:19 gateway 117:7 gave 110:9, 122:9 geared 161:22 gears 64:18 general 17:12, 120:13, 123:12, 217:9, 226:2 generally 19:4, 28:15, 117:18, 128:3, 137:10, 149:7, 159:21, 161:14, 237:8, 237:9 generates 223:18 generically 204:1 gestures 11:9 getting 27:2, 29:8,	38:8, 147:18, 213:11, 239:20, 239:22, 240:19 gist 43:22 give 10:8, 10:14, 45:20, 84:6, 107:15, 109:17, 111:2, 162:14, 166:15, 177:17, 180:16, 188:11, 212:9, 216:13, 231:3, 242:4, 242:13, 242:14 given 22:4, 37:4, 129:21, 131:16, 131:19, 134:2, 180:3, 186:16, 244:8, 245:8 gives 180:4 giving 109:22 glanced 43:21 global 154:12, 155:11 go 9:14, 9:21, 11:3, 11:17, 12:12, 13:5, 14:7, 21:5, 29:11, 29:18, 30:5, 30:14, 32:21, 34:21, 44:13, 45:5, 45:14, 46:10, 47:13, 51:14, 52:17, 53:3, 53:19, 55:4, 55:14, 57:4, 58:13, 60:12, 64:12, 65:6, 65:8, 68:11, 68:19, 70:11, 72:7, 73:10,	73:13, 76:13, 83:8, 83:21, 84:10, 84:22, 85:5, 86:2, 98:20, 99:2, 101:11, 105:13, 106:8, 110:12, 116:11, 119:15, 119:19, 121:10, 121:15, 135:11, 141:14, 141:15, 141:18, 143:5, 143:9, 145:14, 148:16, 155:8, 155:9, 155:14, 166:20, 170:8, 185:7, 185:15, 186:8, 189:14, 189:15, 192:15, 193:10, 193:20, 194:8, 203:6, 217:4, 217:6, 222:2, 231:16, 234:16, 240:9, 241:18, 242:20 goal 143:14 goes 30:22, 32:17, 142:18, 149:19, 155:12, 159:7, 164:3, 184:6, 204:9, 215:16, 241:10 going 9:21, 12:22, 14:14, 14:16, 15:6, 19:9, 23:9, 26:10, 26:19, 30:5, 31:18, 39:1, 46:6, 47:20, 50:14, 50:22, 54:4, 55:14, 55:18, 57:21, 64:17, 67:17, 85:2, 87:22, 97:21, 98:22,
---	---	--	---

99:3, 99:6, 100:4, 102:3, 107:18, 116:17, 118:2, 123:5, 123:10, 128:11, 131:1, 140:9, 147:19, 154:13, 162:10, 165:13, 167:15, 176:1, 184:18, 186:8, 194:1, 208:1, 209:19, 217:19, 233:18, 239:22 gone 105:14 good 9:8, 16:20, 64:18, 138:13, 161:15, 161:18, 212:9, 242:3 great 11:11, 27:1, 72:8, 85:5 ground 67:17, 67:19, 67:21, 68:14, 68:15, 69:3, 70:3, 71:10, 231:17, 237:1 guess 17:22, 35:11, 110:18, 120:10, 233:17 gyn 226:13	119:18 happened 24:6, 24:11, 25:3, 48:22, 64:3, 64:4, 79:12 happening 167:4, 217:10 happens 159:2, 209:3 happy 17:8, 51:9, 57:2 hard 13:11, 13:18, 14:11, 76:8, 119:20, 192:5 hardware 19:4, 19:6, 161:9 head 67:11, 209:17 header 98:18, 98:21, 99:1, 99:3, 99:17, 99:20, 99:21, 100:8, 100:15, 100:17, 100:21, 100:22, 101:8, 101:16, 101:19, 101:21, 102:6, 102:11, 102:15, 118:12, 118:15, 118:19, 135:9, 136:8, 171:10, 180:8, 180:21, 180:22, 181:5, 181:6, 204:18, 207:22, 222:6, 222:12, 222:15, 222:18, 223:1, 227:12, 232:15, 233:3, 239:16, 241:2, 241:14 headers 101:12, 102:8, 153:11, 158:18,	185:11, 227:5, 227:10, 233:9 headquarters 201:14 hear 118:8 hearing 10:16 help 8:11, 14:2, 32:7, 32:18, 51:13, 52:22, 59:16, 85:2, 92:11, 104:13, 105:7, 116:22, 136:1, 144:18, 150:14, 156:20, 183:17, 193:14, 235:4 helped 32:9 helpful 26:21, 92:13, 123:7, 243:9 here 11:15, 12:8, 12:20, 31:5, 31:6, 31:12, 33:10, 34:17, 35:18, 41:5, 41:16, 47:9, 49:1, 49:18, 50:2, 53:11, 56:3, 57:11, 57:16, 59:15, 68:18, 73:11, 73:16, 74:2, 79:12, 85:18, 86:13, 86:15, 90:19, 91:16, 93:8, 93:11, 94:3, 94:14, 94:19, 122:15, 123:4, 127:12, 132:6, 144:8, 149:7, 149:13, 150:19, 157:7, 164:5, 182:10,	193:2, 193:6, 197:22, 198:12, 199:10, 200:2, 200:12, 207:2, 212:9, 218:14, 224:21, 229:6, 231:19, 240:21, 241:12 hereby 244:6, 245:5 hereunto 244:15 high 141:9, 161:13 highlighted 178:2 himself 78:11 history 37:21 hit 185:8 hold 105:12 holding 155:19 holds 41:19 homestretch 240:5 hope 50:4, 165:15 hopefully 85:1 host 169:22, 170:9, 170:10, 170:19 hosted 165:5 hosting 165:16, 165:17, 170:14, 170:15 hour 16:14, 64:17, 239:22 hours 16:17, 17:14, 17:19, 39:9
H			
half 179:5 hand 244:16 handle 167:17 hands 11:9 hands-on 67:8 happen 57:2, 109:5,			

http 180:4 I icmg 171:13, 227:16 idea 16:21, 60:22, 113:14, 122:2, 129:18, 133:5, 134:8, 134:10, 143:17, 156:21, 157:1, 159:10, 164:22, 165:21, 167:8, 178:12, 181:15, 181:22, 187:11, 187:13, 187:15, 215:21, 216:2, 219:4, 224:17, 226:8 ideas 32:19 identical 39:21, 48:12, 53:17, 54:13, 57:9, 58:3, 60:1, 68:13, 68:18, 70:21, 71:3, 76:21, 77:6, 77:10, 121:17 identification 36:20, 103:20, 132:15, 154:2, 191:15, 192:17, 192:20, 219:20, 228:15, 234:9 identified 37:6, 47:10, 121:13, 121:14, 121:16, 185:13, 187:20, 188:2 identifies 234:18 identify 8:12, 8:14, 36:18, 37:4, 93:4, 93:12,	94:7, 94:10, 94:15, 100:20, 101:15, 103:18, 106:17, 107:9, 109:21, 118:1, 119:11, 129:4, 136:5, 154:8, 155:19, 157:7, 180:7, 181:9, 187:14, 189:1, 197:20, 206:16, 207:1, 212:22, 219:6, 221:3, 221:7, 222:11, 222:21 identifying 103:13, 110:4, 137:5, 185:21, 187:2, 205:21, 206:1, 228:13 ids 189:12, 217:11, 217:12, 217:16, 217:17 ieee 38:12 ignore 137:6 iii 70:19 impairments 10:16, 10:17 implement 167:10 implementation 167:2 implemented 109:15 important 66:17, 80:5 importantly 26:7 impression 42:15, 43:2 inarticulate 184:18 inc 1:6	include 19:5, 93:3, 93:9, 93:15, 94:5, 94:21, 135:13, 162:17, 176:5, 192:11, 194:12, 195:1, 197:15, 202:1, 202:11, 211:2, 212:1, 214:22, 223:19, 228:15, 238:5 included 23:11, 70:7, 207:10, 207:14 includes 93:10, 158:8 including 17:16, 17:18, 81:22, 82:15, 83:15, 157:2, 189:2, 191:17, 239:18 incoming 116:11, 128:16, 206:5 incompatible 229:3, 229:6 incorporated 52:16 indeed 60:9 independent 63:11, 77:22, 78:10, 78:12, 78:13, 79:5, 79:6, 80:9, 82:19, 86:6, 86:7, 231:3, 231:5 independently 80:20 index 6:2 indicate 7:3 indicated 33:12	indicating 237:11 indicator 222:4, 222:5 indicators 219:5, 219:11, 221:3, 221:7, 222:10 individual 107:7 individually 117:6 industry 24:11, 61:13, 66:8, 167:12 influenced 170:3 information 34:9, 38:9, 100:2, 102:3, 110:10, 111:5, 153:15, 166:18, 167:10, 168:15, 211:18, 212:16, 213:10, 213:16, 213:18, 230:1, 230:3, 230:9, 239:16, 241:9, 241:16 informed 21:21 infringing 20:3 inherent 224:15 initial 36:6 inline 141:5, 141:11, 141:13, 142:11, 145:20, 147:8, 147:19, 148:1, 148:5, 150:8, 151:7, 151:10, 151:11, 196:6, 209:20 input 116:12, 116:13,
--	--	---	---

116:17, 123:1, 241:4, 241:7 insert 168:18 inside 100:20, 101:4, 102:8, 108:6, 153:16, 223:10, 230:3 insisting 119:5 inspect 100:22, 102:13, 102:14, 105:11, 105:15, 118:12, 173:9, 182:21, 220:11 inspected 100:10, 130:8, 130:18, 220:1, 220:21, 221:10, 221:15, 222:20, 233:18, 234:22 inspecting 122:12, 133:12, 220:16 inspection 19:14, 28:12, 28:20, 29:1, 44:19, 49:20, 52:14, 90:2, 91:7, 93:5, 93:13, 94:8, 94:16, 98:9, 98:12, 98:14, 98:22, 99:4, 100:8, 100:10, 101:1, 102:16, 103:1, 105:12, 106:2, 106:8, 120:4, 125:18, 127:9, 127:10, 128:16, 129:1, 129:8, 129:11, 140:14, 140:19, 144:11, 145:1, 145:4, 145:6, 145:8, 145:11,	145:19, 155:8, 158:3, 158:5, 158:9, 158:12, 163:7, 163:13, 164:11, 179:11, 179:12, 183:22, 185:15, 186:9, 189:5, 189:6, 215:14, 217:10, 217:11, 217:13, 221:17, 232:3, 232:5, 232:6 installed 143:18, 144:7 instance 31:15, 38:6, 41:7, 49:11, 78:10, 86:7, 87:13, 95:11, 96:4, 109:2, 110:10, 110:12, 136:5, 140:18, 143:17, 146:8, 147:17, 149:14, 151:4, 182:15, 188:20, 191:10, 214:14, 214:19, 217:11 instances 149:20, 151:1 instead 11:9, 62:16, 120:21, 135:20, 156:22, 208:1, 210:17, 235:6 instruct 87:22, 128:15 instructed 131:12 instruction 99:22, 129:22, 131:16, 134:1, 134:5, 134:14, 134:15, 134:16, 134:18, 134:19, 134:20, 134:22, 135:19, 136:1, 136:15, 136:17,	155:16, 156:6, 156:7, 156:8, 156:11, 156:16, 156:17, 156:22, 157:5, 158:15, 172:11, 172:13, 181:8, 186:4, 186:5, 186:7, 186:10, 187:13, 199:17, 199:19, 200:6, 202:22, 207:11, 207:14, 208:7, 209:7, 210:9, 210:13, 210:20, 212:21, 214:2, 215:22, 216:3, 216:5, 216:12, 216:15, 216:19, 218:14, 224:18 instructions 43:11, 134:11, 135:2, 135:17, 156:5, 186:13 instructs 11:18, 202:1, 202:11 intake 35:20 intelligence 129:13, 129:19, 129:20, 130:6, 172:5 intelligently 143:8 intended 190:6 interacting 181:18 interaction 76:5 interactions 112:3 interconnection 166:13 interest 188:3, 244:13 interested 114:21	interface 149:14, 173:17, 174:14, 175:11 interfaces 149:21, 151:1, 219:1 intermediate 168:13, 168:14, 169:5 internal 195:4, 196:18, 198:7, 204:21, 204:22 internet 117:4, 184:9, 195:3, 196:17, 198:8, 204:22, 205:4, 205:6, 205:7 interpretation 91:11, 93:11, 175:4, 197:6 interrupt 26:18, 144:20 interruptions 8:19 intrusion 28:18, 28:19, 104:17, 104:18, 127:6, 127:13, 127:20, 129:5, 132:13, 146:15, 155:5, 155:9, 162:17, 164:8, 164:9, 188:19, 188:22, 212:2, 217:18 invalid 20:7, 80:10 invalidity 20:21, 67:20, 69:7, 80:20 invented 114:12 invention 20:10, 20:11, 21:10, 61:12, 62:3, 139:11,
---	---	--	--

140:6, 192:10 inventor 22:7 involve 35:6 involved 18:21, 19:11 involves 112:13, 206:5 involving 44:6 ip 5:5, 107:21, 109:20, 109:21, 110:4, 110:7, 111:3, 111:4, 117:5, 153:12, 153:14, 153:18, 153:20, 171:8, 171:10, 171:14, 180:22, 187:21, 198:7, 204:17, 207:22, 210:5, 219:16, 227:1, 227:6, 227:8, 227:11, 227:15, 228:17 ipr 1:3, 29:13, 30:4, 32:3, 34:4, 34:19, 35:3, 35:9, 35:17, 36:16, 37:2, 39:12, 39:18, 39:19, 42:8, 46:6, 46:7 iprs 16:21, 35:21, 43:16 ips 189:12 issue 20:7, 104:1 issues 10:6, 10:17, 103:4, 243:8 item 230:5	items 195:19 itself 117:6, 121:5, 124:13, 151:20, 158:12, 164:19, 185:20, 186:7, 188:6, 196:13, 222:1, 230:8, 241:15 J jessica 3:5, 3:10, 9:9 job 1:21, 169:6 joinder 35:13 joint 32:1 jointly 32:14 jump 189:18 june 244:16 juniper 35:11, 36:16, 39:18, 42:8, 43:9, 46:7 juniper's 43:12 jupiter 39:18 K keep 14:16 keeping 181:21 key 114:17, 132:16, 153:17, 180:2 kieran 4:22 kim 3:6, 3:14, 9:9 kind 104:16, 110:1,	132:9, 134:21, 136:3, 144:9, 151:14, 151:18, 154:4, 156:15, 158:16, 164:13, 171:16, 180:10, 181:21, 186:19, 203:20, 214:6, 214:8 knew 38:22, 42:16 knowledge 34:11, 34:14, 42:5, 206:20 known 209:14, 212:8 knows 50:10 kobre 3:6, 3:14, 9:9 L 13 165:22, 171:8, 171:12, 171:17, 171:19, 172:10, 172:14 14 165:17, 165:22, 166:7, 169:22, 170:2, 170:4, 170:10 17 165:17, 166:7, 170:1, 170:2 language 39:17, 39:21, 40:1, 40:4, 40:7, 49:2, 49:3, 54:17, 68:1, 68:12, 68:17, 70:7, 70:20, 72:21, 73:11, 76:21, 76:22, 77:5, 77:6, 79:17, 79:18, 81:7, 82:14, 87:4,	88:6, 91:9, 91:13, 99:8, 108:9, 211:5, 221:2, 224:1, 227:21, 229:13, 231:12 laptops 196:4, 196:9, 197:3, 197:9 large 233:6 largely 47:4 last 39:3, 61:1, 72:5, 86:20, 138:5, 138:6, 172:22, 189:3, 190:15 late 26:6, 27:5, 239:22, 240:19 latency 146:11, 146:21 law 21:16 lawyer 11:15, 21:20 lawyers 82:21 layer 98:19, 99:1, 99:2, 99:3, 101:8, 101:9, 101:17, 101:18, 102:4, 102:14, 103:18, 166:20, 166:22, 167:14, 167:15, 167:19, 167:22, 168:4, 168:5, 168:13, 168:16, 168:17, 168:22, 169:3, 169:4, 169:5, 169:14, 170:6, 171:1, 171:7 layers 100:3, 100:5,
--	---	---	--

101:4, 101:10, 101:20, 165:21, 166:2, 166:20, 167:8, 167:17, 168:9, 168:11, 168:16, 168:18 leading 16:21 learn 66:18, 72:5 least 23:1, 26:14, 50:10, 54:15, 56:2, 71:10, 73:19, 74:17, 83:9, 88:21, 89:17, 138:3, 160:1, 174:18, 194:10, 219:5, 221:2, 239:7 leave 100:4, 123:9 led 15:20, 18:5 lefebvre's 152:20, 194:13, 238:8, 239:9 left 85:6 left-hand 51:16 legal 20:13, 20:19, 21:3, 21:15, 92:16 length 229:21 lens 96:13 less 61:4 let's 12:16, 18:19, 29:11, 45:5, 45:14, 47:13, 51:14, 52:17, 53:19, 55:4, 58:13, 70:11,	83:6, 83:21, 84:22, 87:11, 89:7, 89:15, 97:18, 98:8, 99:7, 108:8, 111:13, 115:8, 123:9, 133:10, 141:2, 166:11, 189:14, 189:18, 193:10, 215:20, 224:20, 231:16, 237:1, 242:20 letter 236:7 lettering 167:8 level 35:22, 42:1, 42:11, 73:14, 73:15, 74:10, 106:19, 107:3, 141:9, 161:13, 184:4, 212:12, 213:3 license 18:11 licensing 18:17 light 87:17, 88:5, 90:15, 91:9, 104:18 lighting 25:1, 25:3 likely 234:22 limit 113:9, 165:6, 165:9 limitation 231:6 limited 93:15, 133:6 line 64:22, 127:2, 127:4, 140:8, 140:9, 140:18, 141:19, 144:5,	145:17, 149:8, 149:13, 150:5, 150:22, 157:21, 158:1, 163:21, 164:4, 173:5, 173:6, 174:9, 174:10, 175:2, 175:17, 175:20, 178:1, 178:3, 178:7, 178:8, 178:9, 178:17, 181:16, 182:10, 186:19, 188:11, 189:12, 191:10, 191:12, 191:20, 192:10, 192:13, 211:1, 213:9, 214:19, 215:1, 215:2, 218:6, 218:9, 218:10, 218:11, 234:3, 241:5, 241:8, 246:2, 247:2 lines 215:15 link 195:3 list 33:11, 35:8, 36:8, 36:10, 37:13, 45:11, 47:3, 97:6 listed 45:10, 47:9, 83:11, 110:5 listen 57:22, 176:1 literally 14:9 literature 135:15 litigation 22:13, 43:5, 44:5, 45:1 little 12:8, 18:19, 21:7, 29:6, 45:8, 53:14,	65:9, 70:12, 71:6, 89:7, 102:20, 105:4, 111:14, 117:16, 138:12, 139:19, 166:11, 183:19, 209:1, 213:6, 226:22, 237:4 live 116:21, 218:18 living 76:11 load 170:5, 170:11 located 183:9 logic 172:21 logical 114:9 logically 129:14 long 13:20, 19:7, 84:1, 87:1, 167:16, 230:7 look 14:11, 17:8, 44:12, 45:20, 50:21, 53:11, 55:4, 60:1, 65:6, 71:3, 73:10, 76:13, 82:22, 98:17, 98:19, 98:20, 99:5, 100:18, 100:19, 107:21, 111:3, 119:6, 119:7, 126:22, 128:11, 128:19, 129:6, 130:21, 131:8, 132:17, 133:8, 133:16, 136:12, 137:22, 138:8, 139:20, 140:6, 144:14, 148:17, 153:9, 153:12, 153:13,
---	--	--	--

153:16, 156:17, 158:13, 160:14, 161:19, 163:20, 171:10, 171:18, 174:6, 179:22, 180:2, 186:18, 188:1, 218:22, 227:19, 227:20, 229:8, 234:2, 242:10 looked 30:17, 32:20, 34:7, 36:3, 38:7, 38:10, 58:1, 61:10, 86:20, 93:20 looking 32:2, 59:12, 59:21, 59:22, 67:11, 96:12, 126:20, 126:22, 127:1, 128:14, 129:3, 132:14, 132:15, 133:7, 133:13, 137:4, 137:17, 138:6, 139:14, 153:8, 156:13, 156:22, 157:3, 157:18, 160:13, 160:16, 160:22, 171:14, 180:6, 185:10, 185:20, 186:14, 188:5, 192:7, 194:16, 194:21, 197:20, 199:14, 205:8, 214:12, 214:19, 216:19, 223:8, 223:17, 224:20, 226:6 looks 17:3, 22:10, 132:9, 174:9, 186:21, 217:13 lorenz 1:20, 2:11, 205:11, 236:6, 244:3, 244:20	lost 169:2 lot 22:15, 22:16, 27:19, 28:8, 28:13, 36:17, 47:8, 47:9, 49:2, 49:21, 51:1, 52:8, 67:6, 104:19, 106:13, 131:6, 132:10, 145:2, 145:7, 164:9, 230:10 lots 109:20 lunch 84:10, 85:3 M m-i-n 9:16, 36:16 m-i-r 36:15 mac 209:11 made 15:14, 18:2, 28:1, 59:17, 59:21, 82:5, 96:5, 96:14, 150:6, 220:3, 221:9 main 13:13, 103:17, 104:6, 168:21, 171:8 maintain 87:8, 219:19 make 11:9, 13:3, 13:20, 14:4, 17:1, 27:11, 32:11, 40:12, 75:5, 75:7, 78:5, 82:10, 86:2, 96:2, 99:8, 100:5,	105:14, 108:8, 113:15, 114:1, 123:11, 129:6, 159:21, 166:22, 184:21, 195:20, 196:14, 228:14, 232:14, 232:21, 241:20 makes 11:15, 114:2, 147:15, 243:7 making 69:5, 69:6, 105:17, 139:15 malfunction 27:14, 28:4, 88:17, 99:14, 108:4, 146:17, 149:10, 157:9, 164:17, 187:5, 189:9, 195:15, 215:6, 218:8, 224:7 malicious 182:22, 220:16, 221:18, 222:22 malperformance 104:1 manager 191:2, 191:3, 191:5, 191:6, 191:18, 192:4, 193:1 manner 7:2, 113:7 manufacturing 23:16 many 16:17, 17:14, 19:1, 19:3, 22:19, 30:18, 30:21, 31:9, 36:18, 39:6, 43:4, 82:6, 106:19, 111:6, 112:9, 121:8, 124:11, 145:5, 145:9, 146:22,	153:19, 154:13, 229:9, 230:22, 231:4 marked 6:7, 13:6, 13:7, 13:11, 13:15, 29:19, 29:20, 45:15, 45:16, 55:8, 56:17, 58:19, 190:2 markings 13:22, 14:1 mask 136:19, 136:20, 136:21, 137:1, 137:4, 137:5, 137:6, 137:14, 138:7, 241:3, 241:6, 241:11, 241:13 masks 240:21, 240:22 master's 66:13, 67:6, 67:7, 75:21 match 64:3, 64:4, 153:22, 156:2, 181:5, 181:7, 209:11, 228:4 matched 185:22 matches 188:2 matching 117:5, 132:10, 132:18, 154:3, 154:9, 171:11, 185:14, 185:21, 238:5 material 50:10, 99:1 materials 32:3, 33:15, 34:6, 34:18, 35:21, 38:4, 43:15, 44:2,
---	--	---	--

44:8, 83:11 matter 15:1, 15:11, 15:18, 16:5, 16:19, 18:5, 24:5, 25:4, 41:13, 42:6, 54:6, 114:10, 123:12, 137:16, 217:9 matters 16:7, 16:11, 18:1, 23:1 maybe 39:21, 40:6, 64:18, 75:20, 85:12, 87:7, 116:2, 144:18, 182:2 mcKeown 37:22, 114:15 meaning 10:3, 87:10, 87:17, 88:7, 89:5, 89:14, 90:6, 90:18, 90:21, 92:8, 92:14, 92:19, 92:21, 93:17, 93:22, 95:17, 97:3, 97:11, 97:14, 107:5, 121:19, 170:10, 171:7, 206:8 meanings 92:2, 117:20 means 10:2, 23:18, 26:19, 39:16, 67:19, 120:20, 120:21, 122:22, 123:4, 124:11, 124:17, 124:20, 125:1, 141:14, 144:8, 148:6, 158:11, 166:16, 166:17, 167:9, 170:2, 174:22,	198:13, 236:18, 236:20, 237:9, 238:13 meant 50:8, 70:2, 138:17 measure 106:6 measures 156:19 mechanism 149:22 medications 10:12 medium 161:21 meet 38:20, 39:6 meeting 41:8 meets 90:5, 136:6 memories 23:19 memory 10:17, 23:21, 55:20, 217:22, 218:13, 224:12, 224:15, 224:19 mention 127:17 mentioned 9:9, 16:6, 16:12, 18:2, 32:20, 34:20, 35:2, 40:4, 43:17, 51:4, 117:16, 132:5, 136:9, 145:1, 158:19, 184:5, 187:20, 200:12, 202:15, 202:20, 204:5, 222:17, 223:12 merit 2:11, 244:4, 244:21 merits 121:4	message 40:22, 121:11 met 38:22, 40:14 metes 91:14, 92:17 method 125:18, 126:2, 126:3, 126:8, 140:13, 140:14, 140:17, 140:19, 140:20, 161:20, 168:14, 228:1, 231:6 mic 8:10 middle 145:20, 147:7, 185:8, 239:5 might 10:12, 54:21, 63:7, 240:2 min's 51:16, 51:21, 53:20, 57:4, 59:4, 64:14 mind 26:1, 31:10, 64:21, 87:5, 92:12, 113:2, 176:16, 178:10, 195:20 minds 85:5 mine 40:2, 56:15, 59:10, 62:9, 63:1, 64:3, 64:4, 67:15, 79:12, 83:19 minimal 74:17, 86:6, 146:21 minimize 235:4 minimum 73:9, 74:2, 74:5, 74:19,	75:7, 76:7, 98:17, 150:21 minutes 64:22, 84:2, 84:5, 138:14, 242:13, 242:15 mir 6:15, 36:15, 39:15, 40:14, 43:8, 46:5, 46:19, 47:20, 47:21, 54:9, 58:17, 63:12, 67:13, 68:16, 70:4, 70:18, 78:11, 79:8, 86:3, 87:6, 194:13 mir's 39:17, 39:22, 40:7, 43:20, 45:9, 45:17, 46:15, 46:16, 47:4, 47:10, 48:3, 48:8, 49:4, 50:16, 50:20, 51:4, 51:18, 52:13, 53:1, 53:16, 53:21, 54:8, 54:15, 55:1, 55:22, 56:14, 57:1, 57:5, 57:8, 57:13, 57:16, 57:20, 58:9, 59:5, 59:9, 59:13, 60:9, 62:7, 62:15, 62:22, 63:6, 64:10, 64:15, 65:12, 65:20, 68:2, 68:13, 69:14, 70:8, 71:3, 76:15, 76:17, 77:6, 77:9, 78:8, 79:1, 79:20, 80:13,
--	---	--	--

81:2, 81:7, 81:13, 81:18, 81:22, 83:1, 83:10, 83:15, 83:17, 83:18, 85:8, 85:11, 85:16, 85:22, 86:9, 86:21, 88:10, 89:21, 95:10, 96:4 mirror 105:8, 120:4, 120:8, 134:6, 215:1, 219:13, 221:16, 228:15, 231:12 mirrored 105:19, 106:4, 106:7, 120:14, 120:15, 192:22, 193:8, 232:10, 233:16, 233:19 mirroring 105:4, 105:9, 105:13, 105:18, 105:22, 120:2, 123:15, 131:17, 134:19, 186:11, 193:7, 202:2, 202:12, 203:5, 211:14, 211:18, 212:16, 212:20, 213:1, 213:10, 213:15, 213:20, 214:2, 214:6, 214:12, 214:14, 215:12, 232:14, 232:22, 233:11, 233:15, 234:20, 235:4, 235:6, 235:21, 236:10 mirrors 190:5 mischaracterizing 78:20 missed 190:15 missing 33:18	misspeaking 116:3 misspoke 12:3, 22:22, 70:1, 192:12, 214:17 misspoken 54:11 misstating 216:2 mistake 31:3 mistakes 31:8 misuse 103:7, 180:9 mitch 5:5, 241:19 mitigate 181:2 mitigation 104:19, 155:6, 155:10, 180:10 mobile 182:12 mode 26:3 model 166:13 modify 79:11, 94:20, 95:5, 229:2 module 131:7, 133:19, 133:20, 134:1, 134:4, 134:9, 134:10, 134:17, 141:16, 148:14, 148:15, 148:18, 149:2, 152:7, 158:6 modules 131:5, 141:16, 162:12 moment 53:6, 87:11, 123:11, 124:5, 141:3, 152:2,	193:6, 194:10, 241:18 monitoring 223:9 moore 37:22 more 14:2, 25:2, 26:7, 26:10, 28:15, 30:8, 45:8, 50:21, 73:10, 73:22, 74:9, 74:17, 101:12, 101:19, 107:2, 107:3, 108:2, 114:9, 122:11, 133:13, 133:15, 133:17, 139:13, 143:7, 149:21, 150:2, 151:1, 156:18, 167:6, 182:1, 191:16, 193:15, 212:13, 216:20, 218:12, 220:11, 226:2, 233:8 moreover 76:4 morning 9:8, 9:10 morrison 4:22 most 14:17, 109:7, 121:9, 180:1 motivation 71:6, 76:14, 76:18, 77:4, 77:13, 85:13, 85:15, 234:17 move 14:2, 48:9, 138:11, 138:18, 192:13, 193:14, 240:17 moved 178:5 moving 26:9, 226:22	much 49:16, 81:7, 82:14, 212:13, 242:14 multiple 101:4, 111:22, 116:12, 116:13, 154:11, 170:7, 170:9, 230:9, 236:10 multiservices 27:7 multiswitches 27:6 must 203:16, 219:4, 219:19, 222:10, 231:7 mute 8:10 myself 75:3, 76:10, 182:9 N nader 36:15, 40:14, 46:5 name 9:8, 9:15, 9:16, 39:3, 72:5 named 22:7 natural 150:10 nature 119:11, 181:10, 243:8 ncra 244:21, 244:22 nearly 76:21, 77:5 necessarily 7:3, 99:4, 106:5, 113:9, 157:1, 216:5, 219:9, 221:6, 222:5, 226:4
---	--	---	--

necessary 89:2, 89:18, 119:10 necessitates 59:21 need 11:17, 12:1, 12:3, 29:2, 33:6, 51:10, 53:3, 61:3, 64:21, 72:5, 84:1, 84:8, 137:12, 150:10, 193:17, 222:19, 230:1, 240:2, 240:8, 240:17, 241:8, 243:5, 243:13 needed 90:9, 95:2, 243:3 needing 188:12 needs 169:1, 185:12, 234:22 negotiation 18:15 neither 235:13, 244:11 nested 102:2 net 153:19, 171:14, 186:22 networking 74:1, 106:11, 111:22, 114:11, 117:11, 122:3, 122:6, 122:7, 122:8, 122:21, 123:9, 128:3, 166:17 networks 1:6, 19:9, 19:12, 24:1, 24:21, 25:20, 26:8, 27:9,	123:18, 125:19, 143:19 new 3:8, 37:1, 38:4, 38:9 next 33:8, 34:1, 140:9, 141:18, 141:19, 164:3, 218:3, 241:10, 242:11 nick 114:15 node 128:18, 129:21, 131:13, 131:15, 131:16, 131:20, 133:22, 152:9, 169:5, 196:5, 198:8, 198:18, 199:5, 199:8, 199:10, 199:12, 199:13, 199:16, 199:20, 203:9, 203:14, 205:9, 205:12, 205:15, 205:22, 206:15, 207:9, 207:20, 208:9, 209:6, 211:6, 214:15, 231:7 nodes 128:15, 129:16, 131:1, 199:4, 199:7 nonetheless 52:20 nonsubscriber 156:3, 156:9, 156:11 nontransitory 161:21 nonvolatile 23:18 norton 160:20 notary 245:21	note 7:1, 132:6, 162:5 noted 39:10, 44:4, 243:14 notes 13:22 nothing 31:10, 31:13, 31:16, 38:12, 38:13, 221:18, 224:11, 238:6, 239:17 notice 2:10, 50:18 notion 150:11, 150:16 novel 20:10, 20:11, 21:1 novelty 20:14, 20:16, 20:18, 20:20 number 12:21, 33:19, 56:20, 67:11, 138:4, 144:14, 145:2, 152:12, 153:14, 153:22, 173:9, 177:17, 177:19, 180:22, 187:22, 219:17, 220:2, 220:7, 220:22, 221:10 numbering 59:7 numbers 14:17, 33:17 numerals 70:17 O oath 10:3, 13:21 object 80:1, 118:5, 173:19, 180:16	objection 11:16, 17:17, 21:18, 42:19, 43:19, 49:7, 52:6, 53:9, 56:1, 56:10, 59:19, 62:19, 63:15, 68:5, 69:15, 71:22, 73:6, 73:17, 74:15, 75:11, 77:7, 78:18, 80:14, 81:15, 83:2, 86:11, 87:21, 94:2, 95:13, 96:7, 96:16, 97:5, 102:18, 103:15, 108:11, 108:21, 109:6, 110:16, 111:18, 112:16, 113:17, 119:4, 120:7, 121:7, 123:21, 126:10, 130:11, 132:21, 134:13, 135:5, 137:9, 139:3, 139:9, 139:18, 140:2, 142:21, 143:12, 144:13, 146:2, 148:9, 151:8, 152:21, 159:4, 160:9, 161:6, 163:8, 163:19, 165:7, 166:3, 168:7, 170:16, 176:19, 177:10, 178:14, 180:15, 183:12, 184:2, 185:4, 188:14, 190:13, 195:22, 196:15, 197:12, 198:15, 200:10, 200:20, 202:3, 202:13, 204:13, 208:12, 211:9, 212:19, 213:21, 216:6,
--	---	--	---

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

276

218:19, 220:4, 221:12, 222:7, 223:7, 223:15, 225:5, 229:4, 232:17, 233:13, 236:16, 237:15, 238:11 obvious 21:11, 69:10, 72:2, 72:16, 73:2, 229:2, 231:22, 237:21 obviously 32:15, 38:15, 85:7, 193:17, 210:8 obviousness 21:3, 21:15, 21:20, 21:22, 22:1, 22:4 occurring 214:14 october 230:19 off-the-record 8:8 offered 20:7, 151:6, 151:9 office 1:1 officer 244:5 officially 242:7 often 106:7, 119:10, 119:12, 143:17, 162:10 oh 100:13, 122:14, 134:16, 192:14 okay 11:5, 11:13, 11:14, 12:5, 12:6, 12:14, 12:15, 14:12, 14:13, 14:20,	14:21, 15:13, 17:21, 23:4, 25:21, 29:10, 31:20, 31:21, 39:4, 44:21, 46:8, 46:9, 50:16, 51:2, 51:7, 53:7, 53:8, 65:1, 66:1, 72:11, 76:3, 84:5, 90:14, 98:2, 98:5, 107:17, 123:14, 124:6, 130:4, 141:1, 152:3, 176:3, 181:20, 182:14, 187:18, 191:12, 192:14, 193:5, 193:13, 194:3, 207:4, 218:4, 240:7, 242:2 omit 31:15 omits 224:3 once 21:19, 25:2, 31:9, 31:16, 54:21, 57:14, 68:10, 68:12, 68:17, 90:4, 91:12, 92:4, 96:17, 106:16, 119:10, 122:5, 185:9, 186:6, 211:2, 228:10, 235:20, 239:15 one 8:6, 18:11, 29:22, 30:8, 35:10, 35:11, 35:12, 52:18, 60:11, 60:13, 61:14, 70:10, 72:2, 73:8, 73:10, 74:9, 78:3, 92:18,	93:6, 94:13, 95:18, 97:7, 103:3, 103:16, 104:4, 104:5, 105:10, 114:17, 115:9, 116:5, 117:19, 119:18, 121:15, 128:5, 132:9, 133:21, 134:7, 136:14, 138:4, 138:17, 140:7, 140:8, 141:4, 141:17, 141:18, 141:22, 142:17, 143:8, 143:13, 145:19, 147:7, 147:17, 149:19, 150:6, 151:5, 151:10, 152:7, 170:4, 171:13, 175:1, 175:12, 175:16, 175:22, 177:18, 177:21, 178:1, 182:8, 184:5, 188:21, 191:16, 192:13, 193:2, 193:6, 204:9, 209:11, 210:3, 214:1, 214:2, 214:21, 215:1, 215:17, 216:13, 218:12, 220:11, 221:15, 226:16, 228:9, 230:1, 230:2, 231:3, 236:21, 237:11, 238:14, 238:15, 241:18, 242:4 ones 37:13, 38:1, 51:8, 121:9, 137:2, 211:11 online 38:12 only 15:16, 32:13, 40:1, 46:19,	77:22, 82:20, 82:22, 115:15, 116:5, 126:7, 130:7, 130:12, 137:5, 138:2, 138:5, 138:6, 142:18, 143:4, 144:10, 150:19, 168:11, 177:22, 196:9 open 166:12, 167:9 openflow 28:5, 28:8, 37:22, 111:9, 111:10, 114:14, 114:16, 115:8, 115:10, 115:13, 115:14, 115:20, 116:4, 116:7, 128:6, 128:7, 128:8, 128:21, 129:15, 133:10, 170:10, 172:4, 172:12, 174:13, 175:11, 179:1, 198:10, 200:4, 201:18, 211:10, 213:4, 214:3, 214:8, 219:18, 221:14, 221:15, 221:21, 221:22, 228:10, 228:20, 229:3, 229:12, 230:10, 230:14, 230:17, 230:20 operate 105:2 operating 110:19 operation 163:3 operator 111:7, 154:18, 158:1, 200:12, 201:13 operators 147:11, 181:2
--	--	--	---

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

277

opined 20:9, 21:10, 24:7 opining 91:17 opinion 32:6, 32:9, 32:13, 32:16, 33:21, 34:10, 34:15, 34:19, 40:2, 43:1, 49:21, 52:9, 55:2, 56:13, 61:16, 62:5, 62:7, 62:16, 62:22, 63:8, 64:3, 64:4, 65:20, 66:2, 66:22, 67:14, 71:15, 79:6, 79:9, 79:11, 80:13, 81:13, 81:20, 82:3, 83:16, 83:18, 88:4, 89:12, 89:18, 89:20, 90:13, 91:5, 92:9, 93:2, 94:20, 95:1, 95:5, 97:12, 126:7, 138:21, 139:5, 228:22, 236:9 opinions 20:7, 29:8, 33:13, 42:4, 81:2, 132:4 opposed 36:15, 107:6, 158:10, 179:6, 214:15, 232:11 opposing 183:17, 242:10 optical 24:21 option 12:1 options 210:3	orckit 1:9 order 87:9, 214:6, 220:20 ordering 153:6, 155:12 ordinarily 98:14 ordinary 60:5, 60:7, 60:16, 61:7, 61:14, 61:17, 62:5, 62:6, 62:14, 62:17, 62:21, 63:5, 63:20, 63:22, 64:9, 65:20, 66:12, 67:4, 72:2, 72:19, 73:4, 73:8, 73:15, 74:3, 74:11, 75:1, 75:9, 87:10, 87:17, 88:7, 89:5, 89:14, 90:5, 90:11, 90:18, 90:21, 92:2, 92:8, 92:13, 92:19, 92:21, 93:16, 93:22, 95:17, 97:3, 97:11, 97:14, 98:1, 103:11, 117:4, 121:10, 160:7, 192:3, 210:5, 236:13 original 105:16, 190:6 osi 166:13, 167:2, 167:9, 167:19 other 13:22, 15:15, 16:5, 16:7, 18:1, 18:3, 18:8, 34:6,	34:8, 35:3, 35:5, 38:3, 43:15, 43:16, 43:17, 48:7, 48:11, 49:3, 53:4, 59:11, 60:2, 66:7, 78:16, 83:7, 83:11, 93:14, 94:10, 95:1, 101:17, 106:6, 115:18, 134:12, 145:1, 146:7, 148:11, 149:1, 149:22, 156:19, 160:3, 165:1, 170:4, 171:14, 174:6, 174:13, 175:11, 180:18, 181:14, 183:14, 183:22, 184:15, 185:20, 187:2, 188:1, 190:6, 191:16, 207:11, 207:13, 208:3, 208:4, 212:21, 213:18, 219:22, 220:3, 221:8, 223:4, 227:9, 227:14, 228:2, 230:2, 230:20, 231:3, 231:5, 231:6, 236:21, 238:7 others 38:2 otherwise 56:5, 244:14 out 9:21, 15:3, 15:17, 18:16, 66:14, 67:10, 67:11, 69:13, 70:15, 78:12, 86:5, 87:6, 89:8, 91:13, 98:3, 105:12, 107:10, 112:14,	132:2, 135:14, 136:1, 146:20, 155:15, 169:13, 183:17 outcome 244:14 outer 102:3 outermost 102:14 output 116:13, 116:14, 116:18, 123:2 outside 102:10, 132:19, 166:8 over 8:6, 11:1, 12:12, 16:10, 17:4, 17:6, 17:9, 34:15, 36:8, 77:1, 83:7, 155:6, 155:10, 179:11, 180:18, 199:16, 206:15, 207:9, 211:4, 219:15, 219:17, 239:22 overall 104:15 overspeak 139:19 overview 54:2, 55:20 own 13:22, 34:11, 39:19, 46:1, 46:16, 50:20, 56:8, 62:14, 63:11, 64:8, 66:2, 80:8, 81:4, 81:19, 81:20, 82:19, 88:4, 90:13, 121:4, 132:6, 135:18, 207:17 owned 26:8
---	--	--	--

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

278

owner 1:10, 4:4, 4:13 owners 19:22 P p-a-u-l 9:16 pace 170:7 packet-applicable 107:20, 130:1, 134:3, 136:9, 136:11, 136:12, 136:16, 139:14, 153:9, 172:7, 172:11, 172:13, 199:17, 199:19, 200:6, 214:7, 215:10, 228:2, 237:17, 238:4 packets 90:2, 93:4, 93:12, 94:7, 94:15, 99:17, 102:7, 105:5, 105:13, 105:14, 105:16, 105:19, 105:21, 106:7, 106:18, 107:9, 116:11, 117:21, 118:3, 119:15, 119:19, 120:1, 125:5, 128:16, 129:2, 129:22, 136:8, 137:2, 137:3, 137:18, 137:19, 146:20, 169:9, 170:8, 172:19, 173:9, 182:21, 183:4, 183:22, 184:3, 184:6, 184:15, 190:5, 190:10, 190:11, 190:18, 190:19, 192:22, 202:2, 202:12, 202:16, 203:19,	206:5, 215:8, 220:2, 220:7, 220:12, 220:17, 220:22, 221:10, 227:1, 227:5, 227:8, 227:9, 227:11, 227:12, 227:15, 227:17, 228:17, 233:5, 239:17 page 6:3, 6:8, 14:8, 30:3, 30:7, 30:8, 32:22, 33:8, 35:10, 44:15, 47:15, 47:16, 48:7, 53:12, 53:16, 53:20, 55:10, 55:16, 57:4, 57:5, 58:17, 64:14, 64:15, 68:9, 68:21, 76:16, 76:17, 77:5, 82:11, 88:13, 97:9, 128:12, 140:9, 159:18, 169:18, 177:17, 193:21, 194:6, 199:22, 208:17, 217:19, 218:3, 219:3, 224:21, 226:7, 226:21, 229:17, 231:17, 235:12, 237:3, 240:16, 240:20, 246:2, 247:2 pages 36:9, 37:10 paper 32:19, 50:19, 50:21, 51:3, 51:4, 51:8, 114:14, 114:15, 114:19 papers 41:10, 41:11,	41:14, 41:17, 42:14, 231:4 paragraph 33:16, 34:1, 34:8, 35:8, 44:12, 44:14, 45:12, 47:9, 48:7, 48:10, 49:8, 49:12, 51:16, 51:17, 51:21, 54:6, 54:7, 54:14, 55:16, 58:16, 59:7, 59:8, 59:9, 65:7, 65:12, 68:7, 68:9, 68:10, 68:13, 70:12, 70:13, 70:21, 71:2, 73:19, 77:10, 88:14, 88:20, 98:13, 105:6, 127:2, 157:20, 159:18, 159:20, 163:22, 169:19, 172:22, 186:19, 189:11, 194:14, 197:19, 199:22, 210:22, 216:8, 218:5, 222:5, 224:1, 225:4, 234:5, 234:11, 234:17, 235:2, 238:10, 238:13, 240:16, 241:5 paragraphs 48:11, 79:9, 97:9, 140:7 parallel 105:15, 105:17 parameter 108:5 parameters 128:19, 136:7, 136:10, 153:10, 153:17, 188:21 parentheses 182:11	parlance 120:13 part 28:16, 32:7, 35:21, 39:12, 42:7, 46:1, 52:4, 61:1, 100:10, 109:7, 111:11, 114:5, 114:7, 124:16, 126:20, 136:11, 140:10, 143:22, 153:10, 157:17, 158:4, 158:5, 158:14, 160:12, 167:16, 173:7, 178:19, 178:22, 179:7, 188:10, 190:15, 195:16, 195:20, 196:2, 196:6, 196:10, 196:11, 197:3, 207:22, 219:12, 222:6, 223:4, 225:20, 230:16, 234:17, 237:22, 238:2, 241:2, 241:14 particular 16:18, 35:9, 36:15, 39:11, 41:4, 94:6, 94:22, 107:6, 118:13, 128:19, 137:11, 157:22, 179:19, 191:21, 234:4, 238:13 parties 244:12 parts 47:19, 113:15, 167:10, 193:16 party 28:1 pass 185:1, 210:2 passage 88:12
---	---	--	---

passages 62:8, 63:2, 87:18 passed 101:8 passes 200:8 past 16:10, 16:11, 21:13, 39:8, 41:3, 41:12, 42:22 patent's 128:13 patentee 228:19 patents 18:12, 18:18, 20:7, 20:16, 22:10, 22:12, 28:21, 28:22, 124:5 path 158:22, 159:18, 170:9 paths 41:2, 161:22 patience 242:8 patient 11:1, 50:16, 82:11 pattern 132:10, 132:12, 132:18, 133:8, 160:14, 181:8 patterns 129:4, 132:10, 132:13, 137:20, 189:2 paul 1:14, 2:1, 6:4, 9:2, 9:16, 245:5, 245:15, 246:22, 247:22 pause 52:18, 241:18 paying 106:20	payload 99:18, 99:22, 100:1, 100:2, 100:16, 100:21, 101:17, 101:21, 102:6, 102:7, 102:11, 124:19, 179:22, 180:1, 180:6, 222:6, 223:4, 227:5, 227:10, 227:13, 230:3, 230:4, 230:5, 230:9 payment 24:19 pcp 227:16 pdu 99:16 pdus 101:6 penalty 10:3 people 61:11, 66:6, 66:9, 67:2, 75:15, 76:6, 114:20, 180:9 perfect 14:6, 72:13, 242:18 perform 90:1, 105:1, 112:5, 126:15, 126:18, 128:8, 129:3, 137:17, 142:16, 146:22, 154:13, 159:10, 162:13, 163:3, 163:12, 164:7, 168:16, 170:11, 172:19, 173:10, 173:14, 181:15, 185:10, 186:21, 189:1, 212:15, 213:15, 215:4, 215:8, 217:17, 219:18	performed 126:3, 126:5, 132:19, 140:15, 140:20, 141:1, 143:18, 144:7, 163:10, 165:10, 169:5, 214:3, 214:7 performing 126:14, 139:2, 140:1, 163:7, 163:18, 179:2, 192:21 performs 126:8, 134:1, 164:13, 214:1, 226:16 perhaps 13:22, 38:7, 175:5, 207:5 perimeter 198:9, 198:10, 198:12, 198:13, 198:22, 199:3, 201:20, 206:9, 206:11 perjury 10:4 person 60:5, 60:7, 60:16, 61:7, 61:17, 61:20, 62:6, 62:14, 62:17, 62:21, 63:5, 63:21, 63:22, 64:8, 65:20, 67:4, 72:19, 73:4, 73:15, 74:3, 74:11, 75:1, 75:5, 75:8, 90:11, 98:1, 103:11, 109:9, 160:7, 161:5, 192:2, 220:19, 229:1, 236:9, 236:13 personal 18:19, 34:11,	73:3 personally 18:21, 37:9 perspective 75:8, 76:4, 98:1, 98:2, 98:4, 103:12 petitioner 1:7, 3:4, 3:12 petroleum 24:5, 24:11 petroleum-proces- sing 24:3 ph 1:14, 2:2, 6:4, 9:2, 66:12, 76:7, 245:5, 245:15, 246:22, 247:22 phone 8:13, 40:22, 182:15 phrase 94:6, 94:14, 94:22, 166:12, 177:20, 178:16, 192:6, 197:7 phrases 180:2 physical 114:10, 164:2 pinging 171:14 place 152:5, 167:15, 168:19, 200:5, 204:10, 205:19, 206:7, 219:21 places 158:19, 177:19 plain 87:9, 87:16, 88:7, 89:4, 89:14, 90:5, 90:17, 90:21, 92:1, 92:8, 92:13, 92:19,
--	---	--	---

92:20, 93:16, 93:22, 95:17, 97:2, 97:10, 97:14 plane 112:14, 112:15, 113:3, 113:4, 113:6, 113:14, 113:16, 113:20, 114:1, 114:2, 114:3, 114:8, 163:3 planning 84:9 platform 173:8, 173:15, 173:20, 174:2, 174:11, 174:17, 175:6, 175:7, 175:10, 175:14, 175:18, 176:4, 176:17, 176:18, 176:21, 177:6, 177:7, 177:8, 177:12, 177:20, 178:6, 178:12, 178:13, 178:20, 179:2, 179:5, 179:6 play 134:11, 152:13 please 8:5, 8:6, 8:9, 8:11, 8:14, 9:14, 49:1, 54:10, 60:11, 65:5, 83:6, 83:8, 98:4, 130:14, 166:15, 180:16, 184:19, 193:6 plenty 123:5, 232:7 plugged 164:6 plus 16:14 point 11:21, 12:10,	37:8, 43:2, 69:13, 70:15, 70:20, 84:10, 98:3, 98:16, 131:22, 144:2, 167:17, 169:13, 169:17, 177:9, 177:11, 177:16, 195:7, 216:7, 239:21 pointed 78:12, 86:5, 89:8 pointing 187:10, 188:10, 223:22 policies 106:9, 106:18, 108:10, 109:3, 109:4, 109:8, 109:15, 110:14, 152:13, 152:15, 152:16, 152:17, 152:19, 154:5, 154:17, 154:18, 155:1, 200:19, 201:11, 201:15 policy 106:10, 106:12, 106:13, 106:17, 107:13, 107:15, 107:17, 108:13, 108:16, 108:17, 108:20, 109:9, 109:11, 110:18, 110:21, 110:22, 120:10, 154:6, 154:16, 155:4, 155:7, 173:11, 179:14, 180:11, 180:12, 180:13, 181:10, 200:7, 200:11, 200:22, 201:5, 213:2, 214:6 port 95:19, 116:17, 116:18, 123:1,	123:2, 208:18, 208:19, 208:20, 208:21, 219:16 ported 172:8 portion 32:8, 52:8, 53:4, 54:5, 54:15, 56:2, 57:12, 58:1, 58:8, 59:3, 70:16, 79:19, 98:18, 98:21, 99:17, 99:18, 99:20, 99:21, 100:1, 100:2, 100:16, 100:18, 102:13, 120:5, 120:9, 127:12, 127:16, 168:14, 174:21, 175:13, 175:20, 181:14, 222:12, 226:22, 232:5, 232:10, 233:14, 233:16, 233:19, 234:13, 234:20, 235:6, 235:14, 235:18, 235:21, 236:2, 242:7 portions 37:13, 46:16, 47:18, 48:2, 50:15, 53:1, 53:4, 57:6, 58:5, 78:7, 79:20, 85:11, 85:16, 190:5, 190:11, 190:19 ports 116:12, 116:13, 116:14, 148:5, 148:20, 150:8, 150:12, 150:20, 153:21, 187:22 posita 61:20, 63:9, 74:17, 77:3,	93:2 positions 137:11, 138:3, 138:8 possibility 175:12, 175:13 possible 41:2, 85:19, 132:22, 169:7, 169:11, 175:16, 194:18 potentially 149:16 potter 39:1 power 240:5 practice 17:12, 63:22, 84:20, 212:9 precise 73:11, 91:13, 92:5, 92:16 precisely 42:2, 60:8, 167:18 preclude 114:5, 197:8 predefined 200:19 predetermined 220:2, 220:21, 221:10, 227:19, 228:4, 228:7, 228:8 preferred 95:10 prefix 117:5 preliminarily 44:17 preliminary 182:21, 220:12 premium 106:20, 106:21 prep 17:18 preparation 39:13
--	--	---	---

prepare 39:7 prepared 38:15, 38:16 preparing 17:15, 38:20 prescribed 112:6 present 5:4, 192:10 presentation 101:9, 168:10 pretty 26:6, 39:15, 63:21, 66:10, 88:7, 90:16, 145:22, 153:1, 188:7, 196:19, 218:21 prevailing 26:2 prevention 28:19, 104:18, 164:9 previews 171:11 previous 42:14 previously 47:8 primarily 103:13 primary 71:12 printed 13:11, 13:12, 13:15 prior 13:13, 15:18, 22:20, 32:2, 32:3, 36:6, 37:2, 37:16, 37:18, 40:19, 54:19, 54:22, 56:9, 56:12, 56:14, 57:15, 59:18, 75:10, 77:13, 81:18,	82:18, 83:12, 91:1, 93:21, 94:5, 94:11, 94:16, 95:10, 124:4 priority 103:10, 154:12 probably 33:5, 37:7, 64:20, 64:21, 84:10, 189:5, 243:7 probe 133:11, 133:12, 133:20, 133:22, 134:3, 134:8, 134:9, 134:10, 134:15, 134:17, 135:2, 135:16, 135:18, 135:22, 156:15, 156:17, 156:22, 157:2, 157:5, 158:10, 189:4, 215:22, 216:2, 216:4, 216:12, 216:14, 216:18 probing 134:16, 134:19, 158:9, 158:11 procedure 9:21, 155:3 proceed 13:10, 186:22 proceeding 8:3, 8:7, 13:16, 30:4, 34:19, 35:9, 41:4, 45:3 proceedings 32:4, 35:3, 35:5, 35:17, 43:18, 44:9 process 29:7, 43:7, 66:21, 66:22, 67:5, 79:14, 81:9, 82:12,	132:4, 163:4, 166:19, 205:21, 224:14 processes 188:4 processing 98:15, 98:16, 99:2, 101:13, 101:14, 101:20, 121:1, 124:17, 130:9, 130:20, 146:9, 158:22, 159:17, 166:7, 166:20, 167:11, 172:15, 217:2, 224:19, 235:22 processor 218:12 product 27:21 productive 67:3 professional 73:22 program 165:4, 165:6, 183:3, 201:17, 215:3, 219:18, 221:22, 224:16, 224:17, 229:12 programmed 154:20, 164:19, 200:14, 200:16, 213:4, 214:22, 215:8, 215:9, 228:9 programming 200:2, 200:4 programs 165:1, 221:20 project 67:8, 75:20 promotes 167:11 properly 237:20 proposal 95:18	proposed 26:14, 88:22, 89:3, 89:22, 149:22 proposing 89:11 protocol 28:5, 99:15, 99:16, 100:3, 111:10, 114:16, 115:10, 115:11, 115:17, 115:20, 116:4, 117:7, 117:11, 124:16, 128:7, 128:21, 129:15, 133:10, 153:14, 153:22, 172:16, 172:17, 181:1, 187:22, 200:4, 228:19, 228:20, 230:11, 235:8, 235:10 protocols 115:18, 117:3, 230:17, 230:20 provide 8:15, 65:6, 87:8, 87:13, 92:9, 93:6, 142:14, 164:19, 168:2, 192:19 provided 36:10, 61:22, 146:10 providers 26:16 provides 167:13 providing 27:8, 27:18, 151:14 proxy 164:8 pry 10:11 ps1 201:18, 201:19, 206:10
--	--	--	---

ps2 198:17, 198:19, 198:21, 199:1 public 245:21 published 114:19, 230:19 pull 13:5, 29:18, 68:20 purchase 8:17 purpose 13:12, 13:17, 59:15, 103:1, 103:3, 137:8 purposes 8:8, 103:13 pursuant 2:10 put 32:18, 36:19, 44:13, 64:13, 76:10, 124:18, 125:12, 151:17, 166:22, 168:22, 169:1, 194:9, 230:2 putting 32:10, 81:19, 87:4, 92:1	questioning 64:22, 234:3 questions 10:8, 10:13, 11:17, 50:7, 50:14, 51:1, 123:5, 138:17, 144:19, 182:2, 240:14, 242:8, 243:1 quick 9:20, 182:3 quickly 14:3, 52:3, 144:15, 169:7 quite 23:5, 27:21, 33:17, 75:13, 123:17, 148:12 quotations 7:1 quote 7:4, 231:7	234:1, 234:7, 234:13, 234:19, 235:3, 235:15, 235:17, 235:20, 236:1, 236:10 rash's 233:10 rate 16:14 reach 90:9 reached 15:3, 15:17 read 7:2, 30:20, 31:9, 37:9, 37:11, 37:12, 38:2, 41:10, 41:11, 41:17, 55:19, 59:16, 150:22, 174:22, 192:6, 208:14, 234:15, 243:1, 245:6 readable 218:13 reader 97:1 reading 42:14, 88:5, 90:15, 96:3, 178:15, 181:19, 244:10 reads 205:8, 207:7 ready 29:8, 38:9 realize 10:2, 11:21 really 11:3, 16:20, 16:22, 17:5, 20:12, 20:14, 20:18, 24:4, 25:4, 26:17, 30:20, 32:16, 35:16, 42:20, 43:1, 43:22,	45:2, 52:8, 67:12, 86:14, 112:7, 139:12, 189:21, 190:22, 193:3, 198:17, 207:1, 212:6, 212:9, 212:10, 223:19, 224:13, 230:12, 233:5, 235:1, 241:2 realtime 2:12, 244:4, 244:22 reason 11:12, 50:11, 56:5, 57:11, 58:6, 67:16, 90:20, 94:19, 94:22, 95:5, 246:2, 247:2 reasonable 91:3, 91:7, 91:11, 91:16, 141:12 reasonably 72:20 reasoning 226:18 reasons 86:8, 160:2 recall 35:15, 41:16, 52:21, 60:15, 68:12, 68:17, 70:9, 85:19, 85:21, 86:10, 86:15, 88:10, 148:13, 169:16, 184:16, 190:8, 232:4, 232:8, 232:9, 239:14 receipt 125:1 receive 125:1, 163:3 received 43:12, 132:3 receives 169:10, 203:10,
Q qualifies 74:18 question 20:14, 40:11, 47:22, 57:22, 59:1, 108:13, 130:13, 139:19, 139:20, 145:9, 176:2, 184:19, 187:9, 189:3, 190:15, 207:6, 220:6, 227:20, 228:6, 234:4 questioned 12:10	R r1 195:1, 195:7, 199:6 r2 195:1, 195:3, 199:6 ran 18:13, 67:1, 76:5 random 180:22, 181:4 rash 13:14, 37:21, 51:6, 58:14, 59:6, 189:22, 190:4, 190:10, 190:18, 190:21, 191:2, 191:7, 192:9, 193:1, 231:20, 232:2, 232:6, 232:8, 232:9, 232:12, 232:20, 233:4,		

211:18 receiving 121:15, 129:2, 203:14, 209:7, 212:16, 213:16, 239:4 recent 16:10 recess 84:12, 138:15, 189:17, 242:5, 242:19 recited 91:10, 95:21 recognition 135:20, 136:4 recognize 240:1 recognized 79:4 recognizing 55:18, 63:22 recollection 41:6, 96:9, 96:18 record 7:3, 9:14, 13:21, 22:21, 29:18, 33:2, 40:5, 44:14, 46:4, 47:21, 48:18, 55:6, 58:15, 72:4, 84:10, 97:21, 116:2, 118:18, 189:15, 242:21, 244:7 recording 8:7, 8:16, 11:7 redirect 121:6, 134:6, 217:5 redirecting 120:18, 121:8, 121:12, 121:18, 121:19, 121:20, 122:4, 122:10, 122:12, 131:18,	156:1, 158:15, 158:16, 158:18, 216:22, 217:1 redirection 155:21 reduce 60:21, 234:21 reduced 244:9 refer 12:22, 19:9, 31:18, 46:7, 61:20, 144:22, 203:22 reference 14:2, 14:14, 14:17, 15:14, 34:4, 34:8, 35:19, 54:22, 57:8, 57:15, 57:17, 57:19, 72:18, 81:1, 94:5, 94:11, 128:11, 143:20, 194:10, 199:21, 201:9, 224:21, 240:17 referenced 34:7, 35:17, 37:2, 38:5, 114:22, 152:15 references 13:14, 32:2, 33:11, 36:6, 36:10, 36:17, 36:22, 37:2, 37:3, 37:10, 37:15, 37:18, 38:3, 38:9, 47:8, 47:9, 57:15, 71:10, 71:12, 71:14, 71:18, 72:18, 81:22, 82:19, 94:6, 94:16 referencing 63:12, 80:7, 80:12, 80:15,	81:13, 236:11 referral 15:20, 18:5 referred 33:12, 45:22 referring 14:15, 31:19, 52:14, 68:7, 191:4, 199:8, 202:5, 202:6 refers 202:17, 236:15, 236:17 reflected 7:2, 77:5, 238:12 regard 16:1, 18:16, 49:19, 56:12, 59:5, 62:5, 86:9, 103:5, 106:15, 121:18, 137:14, 146:12, 199:11 regarding 82:2, 158:21, 159:16 regards 140:4 registered 2:11, 244:3, 244:21 relate 134:10, 188:11 related 18:18, 28:22, 32:3, 41:15, 43:16, 44:2, 44:8, 44:22, 66:8, 73:21, 161:15, 244:12 relates 21:16, 44:10, 135:22, 141:4, 150:14, 166:2 relating 103:7 relationship 18:3, 18:8	relatively 9:20, 52:2 relevant 37:14, 54:19 relied 33:20, 34:9, 34:18 rely 36:7, 71:12 relying 232:6, 232:9, 233:15 remainder 58:7 remember 8:5, 8:10, 17:12, 41:13, 59:17, 62:11, 165:18, 170:5, 179:17 remind 11:12, 182:9 remotely 1:15, 2:2, 3:2, 8:3, 10:20, 116:7 rendered 69:10, 231:22 repeat 46:16, 47:22, 50:11, 130:13, 190:14, 201:4 rephrase 105:20, 160:5, 220:9, 225:17, 232:18 report 12:20, 13:15, 15:1, 20:22, 21:14, 30:21, 31:18, 32:14, 32:17, 32:22, 35:10, 38:8, 38:15, 40:8, 42:22, 43:9, 43:22, 44:4, 46:1, 48:2, 49:3, 50:16,
---	--	--	---

52:21, 57:12, 57:13, 68:3, 70:7, 70:8, 76:14, 76:15, 76:16, 76:22, 77:2, 77:9, 78:7, 79:1, 79:3, 79:10, 79:19, 79:20, 80:21, 81:9, 81:10, 81:13, 81:14, 81:19, 85:8, 86:14, 86:17, 86:21, 87:2, 88:20, 96:15, 202:20, 202:21, 206:18, 210:22 reported 1:20, 221:19 reporter 2:11, 2:12, 8:11, 11:4, 11:10, 61:19, 244:1, 244:4, 244:21, 244:22 reporting 183:19 reports 23:10, 55:19, 76:19 represent 17:7 representation 13:21, 14:4, 32:12 represented 22:18, 29:16, 52:4 reproduced 194:21 reputation 42:17, 42:21 request 225:15 requested 27:13, 28:3, 32:18, 88:16,	99:13, 108:3, 146:16, 149:9, 157:8, 164:16, 187:4, 189:8, 195:14, 215:5, 218:7, 224:6, 244:11 require 66:11, 66:15, 91:21, 128:16, 145:7, 150:12, 150:16, 164:10, 188:20, 217:12 required 126:16, 128:8 requirement 60:21, 74:3, 94:17, 150:10, 229:15 requires 49:21, 118:1, 126:17, 147:2, 224:19 requiring 20:13, 63:19 rereview 37:18 researcher 25:19 reset 136:13, 237:10, 238:14, 239:5 reside 110:20 respect 17:13, 19:8, 20:18, 21:14, 22:20, 28:12, 41:3, 56:8, 56:19, 60:4, 85:15, 85:22, 96:11, 138:20, 194:5, 203:13, 206:2, 206:19, 207:6 respectfully 82:8 respective 99:1, 100:3	response 211:18, 213:10 responsive 206:13, 207:8 rest 87:17, 137:6 result 129:7, 129:9, 158:21, 172:14, 201:19, 221:19 resulting 159:17 retained 12:17, 15:10, 16:2, 23:2, 25:10 retaining 15:19 retransmit 169:2 reveal 15:7, 36:12, 87:22 revealing 88:3 review 36:14, 36:18, 37:15, 42:7, 42:8, 42:9, 43:17, 44:8, 45:2, 206:20 reviewed 35:22, 39:14, 43:20, 52:13, 55:1, 62:22, 79:1, 81:18, 81:21, 83:12, 86:17 reviewing 32:5, 57:16, 83:14 rewriting 158:17 right-hand 51:18 rnr 1:20 roberto 39:2	roman 70:17 ropes 66:18 ross 4:7 rough 243:2, 243:6, 243:12 route 103:20, 143:7, 162:3, 170:7, 184:22 routed 147:18, 209:20 router 27:7, 27:16, 98:19, 110:13, 110:15, 116:12, 117:6, 152:6, 152:8, 152:10, 195:3, 195:7, 196:3, 199:12 routers 19:2, 19:5, 112:21, 113:20, 113:22, 116:21, 150:8, 163:2, 168:15, 195:1, 199:6 routing 106:16, 117:4 rst 136:13 rule 200:3, 200:7, 200:13, 212:5, 212:18, 213:2, 213:17 rules 154:20, 155:2, 201:1, 201:5, 201:6, 201:15, 201:16, 202:18, 211:20, 213:12 run 8:4 running 27:4, 117:7,
---	--	---	---

160:12	same	20:20, 22:17,	144:6, 147:6,
S	11:2, 13:4,	23:6, 25:5,	148:21, 149:20,
s	13:20, 14:8,	35:7, 35:19,	150:19, 150:22,
26:6	14:16, 14:17,	37:11, 42:12,	151:18, 173:8,
s-y-n	31:9, 54:17,	42:13, 61:1,	173:15, 174:20,
135:14, 238:15	56:19, 59:1,	61:18, 67:21,	175:4, 175:9,
s1	60:4, 60:9,	69:10, 70:2,	175:17, 175:22,
148:18, 151:12,	65:11, 67:15,	70:16, 71:10,	178:22, 191:14,
196:5	82:10, 89:21,	72:5, 73:5,	192:10, 199:15,
s2	96:11, 96:17,	78:6, 80:15,	200:21, 214:21,
148:18, 196:5,	99:8, 99:9,	81:16, 84:18,	215:2
198:18	113:7, 117:21,	87:16, 88:14,	scanning
s3	117:22, 118:2,	93:1, 93:10,	104:19, 142:15,
148:18, 196:5,	118:4, 122:9,	100:8, 102:22,	155:6, 155:9
198:18	125:4, 148:19,	103:11, 106:20,	scenario
s4	148:20, 148:22,	107:2, 109:17,	183:13
148:18, 151:13,	149:17, 154:1,	109:18, 109:21,	scheme
196:6	166:22, 173:14,	111:7, 112:12,	101:13
said	177:3, 185:5,	113:22, 115:14,	science
11:22, 12:4,	194:12, 203:1,	116:1, 116:20,	60:18, 66:5,
20:22, 21:2,	204:3, 207:5,	126:1, 127:15,	73:20, 75:19
22:22, 40:6,	220:22, 230:9,	133:10, 138:6,	scope
46:13, 47:7,	241:15, 241:16,	143:4, 149:19,	91:14, 92:5,
52:7, 60:17,	245:7	151:4, 155:4,	92:17, 92:21,
69:16, 73:8,	sample	155:6, 155:7,	126:16
73:9, 78:20,	25:5	157:15, 158:8,	screen
81:17, 83:3,	san	160:12, 166:17,	14:8, 30:1,
83:4, 83:9,	3:17	170:22, 171:5,	33:10, 54:13,
83:13, 87:12,	satisfaction	190:4, 191:4,	57:7, 64:13,
93:8, 95:15,	40:3	191:12, 193:3,	76:16, 125:12,
95:16, 100:11,	satisfied	193:8, 197:17,	125:15
107:17, 108:15,	95:17, 229:15,	199:8, 202:22,	scroll
112:8, 118:19,	237:12	214:16, 217:21,	30:7, 33:6,
130:12, 146:13,	satisfies	218:5, 220:10,	33:7, 34:2,
151:12, 157:10,	94:17, 130:1,	224:13, 227:8,	48:19, 51:13,
159:15, 159:20,	131:18, 205:10,	230:7, 231:10,	51:15, 51:20,
170:6, 177:15,	205:13, 205:15,	232:12, 232:20,	53:14, 57:1,
178:7, 197:7,	237:9	233:4, 233:10,	59:13, 65:9,
197:9, 204:19,	satisfy	236:12	70:12, 71:5,
205:3, 216:1,	92:2, 205:22,	saying	77:8
218:2, 234:11,	212:22, 219:20	81:2, 84:16,	sdns
244:8	satisfying	121:11, 150:16,	19:10, 161:15
sake	136:18, 155:20,	170:13, 170:18,	se
14:10, 61:19,	206:14, 207:8	173:14, 204:8,	42:21, 92:1
183:18, 208:15	saw	210:12	second
sakes	42:18, 64:9,	says	26:20, 52:18,
19:10	211:5	70:18, 120:14,	60:11, 60:13,
	say	127:4, 129:12,	66:18, 75:21,
	12:2, 16:10,		

100:5, 115:9, 174:21, 175:20, 177:18, 178:22, 179:5, 182:9, 193:2, 197:18, 198:4, 203:11, 203:15, 203:21, 204:4, 204:11, 204:16, 205:4, 206:16, 207:11, 207:13, 207:19, 207:21, 208:3, 208:4, 216:13, 225:8, 228:4, 230:6, 231:3, 242:4 section 52:9, 54:2, 59:16, 59:22, 69:5, 70:6, 70:17, 70:19, 72:9, 73:10, 76:18, 77:12, 85:14, 138:11, 178:1, 182:1, 202:21 sections 71:6, 76:14 security 19:16, 103:4, 103:7, 103:14, 104:5, 104:10, 104:16, 104:20, 106:6, 127:6, 156:19, 157:4, 157:17, 160:3, 161:7, 211:19, 212:5, 212:7, 212:17, 213:12, 213:17, 217:2 see 13:9, 21:7, 37:22, 48:20, 54:16, 55:12, 56:3, 57:6, 58:5, 58:21, 58:22, 100:17, 100:20, 102:1,	118:7, 121:11, 125:15, 140:12, 140:16, 149:6, 153:16, 157:10, 157:15, 169:20, 171:3, 173:2, 174:6, 174:15, 174:16, 177:17, 179:16, 181:13, 188:2, 188:5, 188:8, 193:2, 219:7, 220:13, 243:3 seeing 33:10, 148:13 seems 54:13, 57:8, 77:10 seen 42:4, 67:2, 135:15 segment 166:19 selling 18:16 semiconductor 23:16, 23:19 send 119:21, 119:22, 131:17, 131:20, 136:3, 139:15, 139:16, 142:5, 158:6, 215:13, 230:1 sender 221:16 senders 180:21 sending 105:12, 120:21, 123:1, 123:4, 128:17, 199:15, 200:5, 204:15, 204:20, 206:14, 207:9, 235:14, 235:18, 236:2 sends 199:18	sense 229:11, 243:7 sensitive 105:10 sent 111:6, 120:22, 130:8, 130:19, 208:8 sentence 67:16, 172:22, 174:22, 175:14, 175:20, 178:3, 178:8, 178:16, 179:5, 179:7, 179:20, 215:2, 234:14 sentences 79:10 separate 15:11, 112:20, 140:5, 160:11, 160:16, 166:9 separately 202:10 separating 112:14 sequence 117:21, 136:20, 137:22, 138:1, 138:3, 142:1, 142:17, 166:20, 240:22, 241:3, 241:6, 241:13 series 118:3 served 43:4 server 127:5, 127:8, 151:14, 164:12, 164:13, 184:9, 192:17, 192:18, 204:21, 224:15, 224:22, 225:2, 225:6, 225:7, 225:13, 225:18, 226:4 server-based 225:2, 225:11,	225:19 servers 126:12, 126:14, 127:3, 127:11, 127:19, 129:10, 130:9, 130:19, 130:22, 131:2 serves 225:14 service-ordering 152:17, 154:6, 154:15 services 141:5, 141:11, 147:19, 148:1, 148:5, 150:9, 150:10, 151:6, 151:10, 154:11, 154:13, 159:2, 159:8, 159:17, 160:3, 162:13, 162:17, 165:16, 170:19, 186:8, 196:6, 209:20 serving 15:4, 19:18 session 101:9, 168:9 set 9:21, 108:10, 108:20, 109:8, 138:7, 154:10, 154:11, 200:11, 214:4, 214:5, 236:20, 237:10, 238:14, 238:15, 244:15 sets 102:2, 215:19 setting 108:17, 200:19, 201:11 seven 167:1, 168:8 several 26:4, 81:17, 83:13, 158:19 sheet 245:10, 246:1,
---	---	---	---

247:1 shifted 98:3 shoes 76:10 shorthand 244:1 should 8:9, 30:7, 38:18, 97:1, 121:15, 166:17, 239:21 show 14:7, 45:14, 48:19, 177:14, 201:12 showed 86:17, 125:9 shown 33:15, 54:13, 151:13, 151:16, 155:13, 195:12, 195:19, 195:21, 197:2, 197:5, 200:15, 201:7, 201:20, 203:3, 219:13, 228:11, 241:8 shows 202:16, 234:19 sic 39:2, 240:16 side 33:6, 51:16, 51:18 side-by-side 47:15, 51:13 sign 243:1 signature 180:5 signature-bi6ds 244:18 signed 155:5, 245:10 significant 47:18, 78:7, 138:3	signing 244:11 similar 16:1, 131:9, 150:8, 166:21, 210:18, 225:16, 231:8 similarities 85:7 similarity 63:13 simplest 112:13 simply 174:12, 175:10 since 12:8, 16:17, 108:8, 199:9, 215:19 single 72:17 sir 9:17, 10:6, 11:2, 13:9, 14:16, 17:1, 31:22, 34:20, 40:14, 55:12, 58:12, 61:1, 71:4, 81:6, 82:8, 117:17, 126:21, 173:2, 178:8, 183:18, 199:21 sit 31:12, 41:5, 57:11, 81:11, 90:19, 94:19 site 121:16 sitting 31:5, 31:6, 41:16, 49:18, 50:2, 75:16, 85:18, 86:13, 86:15, 91:16 six 135:10 sized 241:7	skill 60:5, 60:8, 60:16, 61:7, 61:14, 61:18, 61:21, 62:6, 62:14, 62:17, 62:21, 63:5, 64:1, 64:9, 65:20, 66:12, 67:4, 72:3, 72:19, 73:4, 73:8, 73:14, 73:15, 73:16, 74:3, 74:10, 74:11, 75:1, 75:9, 90:11, 98:1, 103:12, 160:7, 161:5, 192:3, 220:19, 229:1, 236:9, 236:13 skilled 63:21 skills 73:3 slightly 201:8 slow 11:4, 83:6, 108:9, 183:19 slowly 8:5, 33:7, 51:20 smoothly 8:4 software 24:3, 24:4, 24:10, 109:2, 109:10, 110:2, 110:21, 112:2, 125:19, 133:4, 147:3, 160:12, 160:20, 160:21, 161:1, 161:8, 166:6, 201:17, 218:13 software-defined 19:8, 19:12,	25:20, 25:21, 26:14, 26:17, 27:9, 27:18, 106:11, 106:16, 111:14, 111:16, 112:12, 112:18, 114:11, 114:18, 115:16, 122:3, 122:6, 122:7, 122:8, 122:21, 123:8, 123:18, 128:3, 171:2, 171:6, 183:21, 190:22, 229:2 softwares 109:12 sole 104:1 somebody 106:20, 109:4, 119:21, 120:22 someone 50:9, 73:19, 75:17, 120:14, 167:13, 167:16, 212:7 someplace 106:5 something 12:4, 19:6, 25:22, 27:22, 38:6, 44:22, 49:20, 61:13, 62:1, 64:18, 78:6, 82:3, 85:2, 87:6, 99:5, 110:12, 110:14, 120:11, 133:11, 133:13, 136:3, 136:5, 136:14, 136:15, 142:14, 149:1, 165:14, 174:21, 175:3, 175:8, 176:8, 176:10, 180:1, 183:9, 183:14, 184:15, 198:17, 199:10,
---	--	---	--

201:8, 201:13, 208:2, 212:12, 212:13, 213:19, 215:18, 216:20, 219:15, 224:15, 226:2, 233:17, 241:13, 242:13 sometimes 13:17, 19:21, 20:1, 20:2, 20:9, 61:18, 61:20, 98:20, 99:12, 105:9, 118:9, 121:11, 158:6, 180:9, 181:2 somewhat 16:1, 51:14, 184:18 somewhere 17:4, 17:19, 109:3, 114:19, 120:1, 139:16, 185:8, 198:7 soon 169:10 sorry 39:2, 39:18, 50:5, 53:13, 57:7, 84:9, 105:20, 114:14, 116:1, 118:18, 133:15, 135:11, 138:4, 145:14, 156:10, 157:3, 157:14, 168:13, 181:19, 201:3, 201:15, 207:7, 216:12, 218:3, 223:4, 225:8, 234:2, 240:18, 240:20, 241:19 sort 12:12, 17:12, 35:13, 41:7, 98:3, 102:2, 102:3, 102:7, 105:17, 111:3,	112:13, 118:1, 120:13, 130:20, 161:12, 167:4, 195:4, 215:14 sounded 170:14 sounds 11:7, 16:4, 19:20, 47:1, 138:13, 242:3 source 34:9, 48:9, 107:22, 110:6, 111:4, 117:21, 118:2, 119:21, 153:12, 153:20, 153:21, 168:11, 168:20, 169:6, 184:6, 187:21, 203:20, 204:1, 204:10, 219:15, 219:16, 228:16, 239:4, 239:8 southbound 174:13, 175:11, 179:1 speak 8:5, 11:10, 12:11, 211:4, 241:22 speaking 8:12, 8:14 spec 37:22 specific 26:22, 28:15, 31:13, 33:4, 34:19, 35:5, 36:8, 41:6, 43:15, 69:4, 69:6, 71:19, 77:13, 85:20, 85:21, 86:8, 86:13, 86:15, 87:4, 115:15, 116:16, 140:4, 142:7, 144:19, 162:13, 173:11,	179:14, 192:13, 195:19, 199:14, 227:14, 236:1, 239:14 specifically 11:18, 17:13, 33:11, 35:20, 38:5, 38:20, 85:12, 86:3, 127:13, 127:15, 156:21, 163:16, 184:11, 187:10, 214:11, 214:13, 227:6, 235:18, 236:4 specification 90:16, 138:22, 139:21, 140:7 specifics 158:20, 159:16 specified 32:9, 204:17 specifies 198:6 specify 42:3, 96:21 speculate 62:10 speed 146:19, 160:17, 169:1 spell 9:15 spent 16:18, 17:14, 36:4 spoken 40:21, 41:6 spot 138:10 stack 100:3, 101:11 stacks 178:5 standard 20:13, 20:15, 21:21, 73:4, 111:19, 111:21,	112:1, 113:5, 135:9, 228:19, 238:1, 238:2, 241:15 stands 87:5, 237:12 stanford 114:15 start 32:1, 32:6, 69:5, 76:22, 81:18, 81:20, 83:12, 83:16, 98:8, 179:11, 180:17, 184:6, 234:4, 238:16 started 12:16, 19:18, 32:15, 79:2, 79:7, 84:22 starting 18:14, 27:4, 88:13, 98:13, 100:6, 127:2, 140:8, 140:18, 149:7, 157:21, 157:22, 161:13, 163:21, 164:4, 168:9, 173:5, 173:6, 178:16, 186:18, 188:10, 193:22, 213:8, 215:2, 237:3, 241:5 starts 78:13, 140:8, 178:3, 178:8, 181:16, 196:2, 240:16 state 9:15, 238:9, 239:13, 245:21 stated 79:10, 83:18, 145:6, 173:13, 216:3, 216:15 states 1:1, 26:8,
---	--	--	--

144:3 stating 61:16 statistic 132:14 statistics 104:4 status 238:12 stavinoha@bakerb- otts 4:11 stay 121:2 staying 151:22 steady 11:4 steer 147:11, 156:3, 158:1, 159:1, 206:4, 207:18 steered 154:10, 155:21, 155:22, 233:17, 233:20 steering 141:10, 142:3, 142:4, 149:8, 149:11, 149:22, 152:14, 157:20, 158:7, 206:3, 207:16, 208:2, 233:11, 233:18, 238:8 steers 159:5 stenographer 27:13, 28:3, 29:4, 88:16, 99:13, 108:3, 146:16, 149:9, 157:8, 164:16, 187:4, 189:8, 195:14, 215:5, 218:7, 224:6, 243:2, 243:10 stenographer's 7:1	stenographically 244:9 step 89:15, 165:20, 179:10, 206:2, 206:4 step-by-step 99:7 steps 75:10, 242:11 still 11:17, 14:7, 50:14, 82:9, 122:10, 122:14, 128:5, 171:15, 172:22, 192:5, 198:21, 225:13, 229:10 stop 119:12, 220:16 storage 161:21 storage-area 24:1 store 219:5, 221:1, 222:10 stored 106:4, 222:22 stores 219:11 storing 218:13, 221:7, 222:19 straightforward 66:10 stream 107:6 streaming 107:2 street 3:15, 4:16 structure 229:21, 230:12, 230:13, 241:2, 241:15 study 67:7	subject 14:22, 15:18, 22:13, 24:5, 25:4, 41:13, 42:6, 54:6, 75:14, 119:6 submission 87:2 submitted 29:12, 30:4, 43:1, 86:14 subscribe 160:19 subscribed 245:18 subscriber 106:19, 107:11, 107:22, 108:18, 142:18, 142:20, 143:5, 147:20, 147:22, 151:6, 153:5, 153:11, 155:5, 156:2, 156:8, 209:21, 210:1 subscriber-based 152:15 subscription-bas- ed 160:21 subset 93:16 substance 15:7, 36:12, 38:19, 88:1 substances 10:12 substantive 82:15 suffice 88:8 suggest 216:4 suite 160:12 summarizing 54:19 summary 55:5, 140:6,	140:11 support 104:22, 232:10 supported 149:21, 151:2 sure 11:9, 12:7, 13:3, 17:6, 20:12, 20:14, 20:22, 30:12, 30:18, 32:11, 40:10, 40:12, 48:1, 48:14, 59:2, 70:6, 70:9, 71:1, 75:5, 75:7, 78:5, 80:2, 82:10, 96:2, 99:8, 100:5, 108:8, 123:11, 144:4, 144:17, 159:6, 159:22, 166:14, 169:18, 190:17, 201:5, 207:2, 218:2, 220:5, 232:18, 241:20 surprise 50:6, 52:4, 59:2 surprised 50:1, 50:4 suspicious 120:11 switch 26:9, 26:10, 27:7, 27:10, 27:11, 27:15, 27:16, 27:17, 28:6, 64:18, 103:21, 110:13, 110:14, 111:11, 112:5, 116:12, 116:18, 120:1, 125:1, 148:5, 148:19, 148:20, 148:22, 149:18, 150:7, 152:6,
---	--	---	--

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

290

152:8, 152:9, 170:10, 170:15, 172:4, 185:9, 198:9, 198:22, 200:3, 206:9, 214:3, 214:9, 221:15, 221:20 switched 74:1 switches 18:22, 19:5, 28:2, 28:17, 75:15, 112:4, 112:20, 113:20, 113:22, 114:6, 115:12, 115:13, 116:21, 117:10, 119:18, 128:6, 128:7, 128:9, 128:19, 130:6, 149:16, 154:21, 163:1, 168:14, 172:4, 172:8, 172:12, 186:20, 198:10, 198:12, 199:3, 200:8, 201:18, 201:20, 206:11, 211:11, 213:4, 214:3, 219:18, 221:14, 221:21, 221:22, 228:10, 229:13, 230:14 switching 15:22, 18:15, 23:14, 25:12, 26:2, 27:5, 41:15, 103:18, 106:15, 167:15 sworn 9:4, 10:1, 245:18 syn 135:14, 238:14, 239:2 synonymous 135:2, 170:13, 175:7, 225:20	synonymously 113:4, 113:13 system 25:3, 35:11, 109:16, 110:2, 125:18, 191:3 systems 23:14, 24:13, 24:19, 25:1, 74:1, 166:13, 188:19, 212:2 T t-u-p-l-e 222:17 table 33:16, 34:7, 109:21, 110:5, 110:10, 111:11, 116:9, 116:10, 117:4, 117:5, 117:8, 155:13, 155:15, 200:14, 200:21, 201:7, 201:21, 202:18, 209:9, 214:8 tables 116:8, 116:20, 116:22, 117:2, 117:12, 201:7, 201:20, 223:18, 228:11 take 11:8, 17:8, 21:6, 30:14, 34:21, 45:5, 46:10, 51:9, 60:13, 65:15, 72:7, 73:10, 75:10, 75:20, 77:16, 78:15, 78:20, 81:2, 83:21, 89:15, 97:1, 99:7, 120:15, 124:3, 127:21, 138:12, 144:14, 152:5, 156:17, 165:20,	167:15, 182:2, 183:19, 189:3, 189:14, 193:17, 193:18, 203:7, 204:3, 205:19, 206:7, 219:21, 234:2, 238:8, 239:12, 239:21, 241:21, 243:12 taken 47:4, 47:19, 48:3, 49:3, 49:16, 52:5, 53:1, 54:5, 54:7, 55:21, 56:19, 58:8, 60:9, 68:2, 70:7, 79:17, 244:6, 244:8 takes 67:3, 168:19, 185:1 taking 10:11, 54:17, 75:16, 179:10, 200:5 talk 8:6, 11:1, 18:19, 25:11, 25:18, 28:14, 45:8, 55:10, 60:20, 83:6, 87:11, 97:7, 97:18, 97:21, 98:9, 100:7, 103:6, 105:4, 106:9, 116:6, 124:3, 125:8, 139:12, 140:11, 140:13, 141:2, 142:10, 145:10, 152:14, 159:2, 161:11, 165:21, 172:18, 178:2, 179:19, 180:12, 189:21, 191:1, 193:10, 208:17, 215:20, 219:3,	224:20, 237:1, 237:16, 238:9, 240:13 talked 25:15, 47:19, 85:10, 120:3, 131:5, 142:11, 147:17, 162:15, 206:3, 209:1, 209:16, 211:13, 215:21, 226:7, 237:4, 240:21 talking 13:4, 60:20, 69:3, 75:15, 85:6, 104:8, 106:12, 108:16, 115:1, 128:13, 133:18, 138:18, 163:22, 165:14, 165:21, 170:15, 177:3, 178:18, 179:2, 180:17, 207:15, 208:7, 212:2, 215:15, 222:4, 224:22, 234:12, 235:2, 236:5, 237:7 talks 103:4, 114:15, 126:12, 127:13, 140:5, 140:18, 143:16, 144:10, 148:16, 149:8, 149:15, 150:5, 152:12, 156:19, 156:21, 157:4, 157:16, 157:20, 158:1, 158:17, 159:1, 165:17, 171:19, 182:18, 182:20, 185:18, 186:3, 186:11, 186:12, 189:7, 189:10, 196:16, 196:18, 196:20, 208:1, 209:9, 216:22, 218:11,
--	---	---	---

223:16, 226:12, 227:4, 228:1, 238:19 task 170:12 tavarria 3:13, 3:19 tcp 135:3, 135:7, 135:8, 135:9, 135:12, 135:16, 135:22, 136:4, 136:8, 237:7, 238:1, 238:16, 240:22, 241:2, 241:3, 241:6, 241:7, 241:13, 241:14, 241:15 teach 75:13, 236:10 teacher 75:13 teachers 145:2 teaches 91:2 teaching 75:14 tech 4:22 technical 41:8, 108:9, 141:6, 243:7 technical-related 8:19 technique 105:18, 230:1 techniques 161:14, 178:5 technologies 21:1, 22:17 technology 15:22, 23:8, 26:2, 26:11, 26:13, 49:20, 49:22, 50:9, 52:10, 53:4, 98:8	telephone 26:7, 26:8 tell 31:5, 34:15, 37:8, 49:14, 49:18, 60:17, 68:6, 130:6, 155:4, 189:13 telling 34:17, 66:22, 80:5, 80:18 tells 99:21, 106:17, 107:17, 130:2, 155:17 ten 64:21, 138:14, 242:13, 242:14 ten-minute 138:12 term 21:13, 21:15, 22:1, 28:8, 44:17, 87:14, 87:16, 88:5, 88:19, 89:2, 89:5, 89:19, 90:1, 90:8, 91:5, 91:10, 91:11, 91:19, 92:5, 93:22, 95:11, 95:16, 95:20, 96:4, 96:22, 97:3, 97:15, 98:9, 111:17, 113:3, 117:16, 132:5, 137:7, 144:22, 174:2, 174:7, 174:17, 178:11, 186:2, 186:7, 186:16, 191:6, 191:8, 203:22, 222:16, 225:8, 229:18 terminate 209:7, 209:13, 210:9, 210:13,	210:20 terminated 210:8 terminating 209:8 termination 134:20, 211:3 terminology 20:19 terms 87:9, 90:15, 91:21, 93:7, 93:17, 95:2, 108:20, 121:3, 123:8, 123:15, 123:16, 123:17, 124:3, 172:2 testified 9:4, 20:9, 22:15, 22:18, 22:19, 23:3, 23:5 testifying 15:21 testimony 10:2, 12:13, 12:20, 22:20, 23:10, 42:16, 63:10, 64:7, 73:2, 80:6, 82:18, 244:8, 245:7, 245:8 testing 21:22 texas 4:9 text 40:22, 54:5, 175:1, 175:17 tga 28:20 th 3:16 thank 8:2, 8:19, 9:11, 21:7, 27:3, 28:11, 34:22, 45:4,	48:16, 58:12, 65:16, 69:22, 71:4, 76:12, 77:17, 98:7, 125:7, 127:22, 138:14, 176:14, 189:16, 203:7, 240:11, 242:8, 242:22 themselves 88:6, 112:21 thereafter 244:9 therefore 178:4 therein 83:18 thing 13:4, 13:20, 32:7, 89:21, 96:11, 100:19, 150:19, 170:5, 171:16, 177:4, 204:3 things 14:7, 102:8, 106:12, 106:14, 108:17, 121:9, 121:21, 124:11, 124:13, 131:9, 132:11, 134:7, 134:11, 135:13, 162:17, 167:4, 185:1, 188:18, 225:16, 226:4, 228:2 thinking 50:3, 167:6 third 3:7, 28:1, 35:12 thought 58:10, 204:5 thoughts 86:1 threat 104:17, 129:4, 132:12, 137:20,
---	--	--	--

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

292

189:2 three 13:13, 35:16, 39:8, 75:18, 83:9, 138:7, 138:8 through 9:21, 23:9, 27:20, 29:7, 30:20, 33:6, 33:7, 37:21, 43:21, 46:19, 49:12, 53:3, 67:1, 67:5, 67:11, 68:16, 69:7, 69:8, 69:16, 69:18, 69:19, 69:20, 71:16, 71:17, 72:8, 76:6, 79:18, 79:21, 85:13, 86:1, 86:10, 93:21, 96:13, 98:17, 101:11, 105:14, 105:15, 105:16, 110:3, 119:16, 119:19, 132:17, 133:8, 137:4, 141:10, 141:14, 141:15, 141:18, 142:19, 143:5, 143:9, 147:19, 151:13, 155:14, 158:7, 159:1, 159:6, 159:7, 160:14, 160:22, 165:17, 165:22, 166:6, 166:7, 166:21, 170:1, 170:2, 172:20, 175:20, 181:7, 182:1, 185:1, 185:7, 194:1, 202:17, 203:19, 209:20, 210:2, 210:5, 210:7, 211:1, 214:5,	215:15, 216:10, 218:6, 218:9, 218:10, 222:2, 231:13, 233:22, 235:3, 237:2, 240:6 throughout 14:16, 19:10, 31:17, 97:13 throwing 135:14 time 8:14, 10:22, 15:10, 16:10, 19:7, 26:5, 26:9, 30:11, 30:22, 34:16, 36:5, 37:1, 39:9, 51:9, 61:11, 61:15, 62:3, 64:19, 73:11, 74:9, 75:16, 81:19, 83:22, 84:7, 84:8, 84:14, 86:20, 88:11, 114:20, 141:17, 142:17, 146:9, 180:16, 192:5, 193:17, 219:15, 219:17, 242:9, 242:17, 243:14 time-consuming 146:12 timeframe 25:22, 75:14 times 17:4, 17:9, 19:1, 19:3, 22:19, 23:3, 30:18, 30:21, 31:10, 39:6, 39:9, 43:4, 67:7, 81:17, 82:6, 83:10, 83:13, 98:10, 144:11, 145:5, 145:9, 153:19,	209:17, 215:22 title 141:8 titled 125:18 tlv 229:21, 229:22, 230:4, 230:8, 230:9, 230:12, 230:13, 230:15, 230:16, 230:21, 231:1 today 9:22, 10:3, 11:15, 11:21, 12:7, 12:21, 12:22, 13:12, 21:14, 29:8, 31:17, 37:16, 37:19, 38:9, 39:13, 41:5, 57:12, 86:18, 90:19, 94:19, 95:6 today's 38:5, 38:16, 39:7 together 32:10, 36:19, 83:10, 172:9 token 171:15 told 45:1, 48:2, 79:2, 81:17, 83:20, 243:3 tolerate 107:2 tongue-twister 134:9 took 57:12 tool 109:11, 122:12, 127:18, 166:4 tools 109:10 top 131:15, 168:10,	168:16, 168:18 total 16:18 toward 161:22 towards 142:5, 142:7, 143:1, 185:15, 207:18, 208:1 trademark 1:1 traffic 103:2, 108:18, 108:19, 129:16, 141:10, 142:3, 142:4, 142:5, 142:18, 142:20, 143:5, 147:11, 147:18, 147:20, 147:22, 148:7, 149:22, 150:9, 150:12, 150:17, 152:14, 154:10, 155:20, 155:22, 156:8, 156:9, 156:11, 158:2, 158:7, 158:22, 159:1, 159:5, 159:17, 162:1, 182:22, 206:3, 206:4, 207:15, 207:18, 208:2, 209:19, 209:21, 210:1, 210:5, 215:13, 215:16, 217:6, 233:11, 238:8 traffics 105:10 trained 76:10 training 75:13 transcript 8:17, 244:7 transcription 245:8 transfer 26:3
--	---	--	---

transform 124:7, 124:8 transforming 123:16, 124:11 transit 208:18, 208:19, 208:20 transition 110:8 translate 110:3, 155:1, 172:7, 172:10 translated 110:14, 154:19, 200:22, 201:5, 201:16, 212:13, 213:3 transmitted 111:10, 191:16, 193:4 transmitting 186:11 transport 24:21, 101:6, 167:22, 168:10, 168:17, 168:18, 168:22, 169:3, 170:6 trap 105:11 travels 105:16 traversal 202:18 traverse 148:1, 168:15 traversed 148:7, 150:9 traversing 203:19 treat 99:21, 100:16, 106:18, 106:21, 107:7, 107:12, 107:18, 109:18 treated 108:18, 108:19, 118:9, 161:1	trial 1:1, 1:2 tried 18:11 true 19:15, 60:4, 95:14, 133:3, 145:13, 148:12, 181:10, 219:9, 221:6, 244:7, 245:7 trunk 102:10 truthful 10:8 try 10:22, 11:12, 30:21, 78:21, 100:4, 121:10, 130:16, 132:18, 183:17, 191:9, 193:14, 193:15, 205:10 trying 54:9, 66:2, 66:3, 66:8, 74:19, 74:22, 79:11, 79:14, 80:19, 81:6, 81:9, 82:9, 82:17, 83:7, 100:20, 101:15, 102:20, 110:11, 134:7, 136:1, 157:6, 158:9, 161:3, 169:21, 174:6, 192:2, 206:4, 213:14, 221:5 turn 58:13, 67:17, 70:11, 194:6, 231:2, 231:16, 234:5 turning 68:1, 208:14, 228:18, 235:11 tv 24:15	twice 145:1 two 16:11, 16:21, 18:1, 35:8, 35:16, 39:8, 59:10, 60:19, 63:13, 66:17, 67:3, 71:12, 71:14, 71:18, 73:22, 74:17, 76:19, 77:22, 79:5, 83:9, 88:21, 89:3, 95:18, 97:8, 97:10, 97:14, 104:2, 118:8, 140:7, 140:10, 144:11, 148:5, 149:14, 149:21, 150:1, 150:2, 150:7, 150:12, 150:19, 150:21, 151:1, 161:22, 166:9, 167:8, 171:8, 172:2, 175:1, 179:2, 196:3, 196:4, 204:17, 210:3 type 66:6, 106:1, 115:15, 132:13, 145:19, 147:7, 163:5, 163:6, 163:17, 165:6, 175:6, 186:12, 190:12, 190:20, 217:10, 227:17, 229:20 types 134:18, 142:15, 152:19, 173:12, 179:15, 227:9, 227:15 typewriting 244:10 typical 66:9	typically 101:4, 124:18, 138:2, 144:6, 153:18, 197:13, 197:14 U uh-huh 61:9, 100:14, 118:16, 124:9 unable 8:12 under 10:3, 13:21, 91:2, 182:10, 244:10 undergo 105:20, 106:1 underlying 192:20 understand 10:7, 10:13, 21:15, 21:21, 25:14, 29:6, 52:22, 74:22, 75:4, 78:5, 78:9, 79:14, 80:4, 81:6, 81:9, 82:10, 82:12, 83:7, 85:9, 85:11, 86:3, 92:11, 92:15, 102:1, 104:13, 105:7, 108:12, 110:11, 121:3, 123:11, 124:2, 134:8, 135:21, 136:2, 150:14, 152:5, 154:19, 156:20, 159:22, 161:3, 162:16, 165:15, 169:21, 171:21, 176:15, 178:10, 192:2, 201:3, 220:6, 225:1, 236:8, 236:10, 236:13, 237:20
---	--	--	---

understanding 38:18, 62:2, 63:9, 92:18, 96:2, 97:22, 99:9, 99:11, 123:7, 148:3, 156:6, 166:1, 191:8 understood 52:12, 52:20, 63:21, 93:2, 220:20, 235:9 undertook 75:9, 93:19 unedited 8:16 unique 180:4 unit 99:12, 99:15, 99:16, 124:17, 131:11, 132:1, 218:12, 218:17, 218:18, 218:20, 218:22, 235:8 unitable 235:9 united 1:1, 26:8 unless 11:18, 143:10 unmarked 29:16 unnecessary 143:10 unpack 89:7, 166:11 unsurprisingly 78:3 until 12:13, 51:20, 181:22 update 30:22 upper 168:16 upset 137:20	upstream 148:19, 149:16, 150:11, 150:17, 150:20, 151:3, 208:21, 213:7, 238:17, 238:19, 238:21, 239:9 usage 104:4 use 13:16, 13:17, 14:2, 22:2, 26:16, 92:8, 103:17, 104:6, 112:2, 127:9, 135:21, 150:12, 162:3, 174:6, 180:21, 181:4, 186:6, 198:1, 210:17, 216:17, 217:17, 229:3, 229:11, 230:8, 232:13, 232:21, 237:14, 237:21, 239:14 user 107:18, 109:18, 121:10, 195:8, 196:4, 198:2, 204:6 uses 110:22, 113:6, 115:12, 134:15, 186:2, 210:17, 230:13 using 9:22, 11:8, 19:11, 21:14, 22:1, 28:8, 28:15, 93:21, 95:10, 96:6, 97:2, 99:8, 108:8, 128:6, 129:15, 141:5, 141:11, 143:7, 147:3, 148:5, 150:7, 161:15, 241:10	usp 6:9, 6:11, 6:12, 6:13, 6:14 usually 75:20 utilities 145:2 utility 27:17, 145:7 utilize 111:9, 145:4, 146:14 utilized 52:15 utilizing 26:17, 109:10, 117:22 v validity 20:21 value 136:13, 136:19, 136:21, 137:14, 137:15, 138:7, 229:21, 241:11 values 137:5, 138:5 various 141:10, 143:19, 144:9, 160:2 vary 138:4, 138:6, 219:17 vastly 75:6, 76:7 vehicular 24:13, 24:17 vendors 167:9 verbatim 39:19, 40:4, 40:7, 47:19, 48:3, 48:12, 49:3, 49:17, 52:5, 53:1, 54:7, 54:18, 55:21, 57:13,	58:9, 63:6, 70:8, 79:20, 81:8, 82:15 versa 184:7 version 29:16, 194:12, 228:21, 229:3, 229:7, 229:9 versus 76:22, 106:20, 160:11, 171:22, 217:11, 238:7 vi 70:17 via 2:2, 8:13 vice 184:7 video 1:13, 2:1, 8:11, 8:13, 11:7, 107:2, 118:7, 158:1 videographer 4:21, 8:2 view 69:11, 86:6, 183:20, 216:5, 226:9 viewed 103:12, 146:1, 160:1, 160:4, 161:4 virtue 42:17 virus 104:19, 132:12, 142:15, 155:6, 155:8 virus-scanning 160:20 visual 10:16 vitae 30:12, 42:7 voice 118:8
--	---	---	--

vs 1:8	49:12, 93:6, 94:10, 94:13, 105:10, 108:18, 108:19, 124:10, 131:2, 147:1, 147:5, 147:10, 154:14, 167:3, 184:21, 185:2, 196:3, 219:22, 220:3, 221:8, 230:2, 235:4, 241:15	website 121:11, 121:14, 121:15, 122:10	wire 146:19
W		weeks 39:8	withdraw 156:10
wait 181:22, 222:21		went 29:7, 36:8, 37:21, 67:1, 67:5, 122:16, 233:22	within 189:11, 200:18, 201:10, 211:8, 214:14
walk 23:9, 93:21, 172:20, 194:1, 216:10		weren't 70:6	without 49:14, 80:12, 81:1, 81:13, 88:2, 105:2, 156:12, 212:16, 213:16, 224:16
walked 231:13	ways 92:18, 146:7, 147:1	whatever 23:18, 28:9, 100:16, 101:6, 131:18, 141:15, 142:16, 159:9, 170:2, 185:11, 188:22, 198:5, 198:6, 204:16, 225:15, 237:11	word 40:6, 87:14, 87:19, 188:6, 210:17, 216:18, 225:20, 226:14
walking 85:13	we'll 9:22, 11:3, 12:7, 12:8, 14:7, 28:8, 28:14, 51:9, 52:2, 53:5, 83:8, 124:3, 152:1, 240:14, 242:15, 243:12	whenever 157:4	words 93:14, 132:16, 148:11, 149:1, 150:1, 185:20, 187:2, 188:1, 212:22
want 29:6, 31:14, 40:5, 40:12, 45:8, 48:13, 62:10, 68:19, 71:9, 76:13, 76:20, 78:5, 78:9, 80:4, 82:12, 100:5, 101:6, 106:21, 109:14, 109:18, 121:2, 123:11, 124:2, 129:5, 132:11, 133:5, 133:16, 137:16, 138:9, 138:11, 144:19, 158:6, 159:21, 161:11, 163:15, 165:20, 171:21, 172:20, 176:15, 177:14, 177:22, 178:10, 179:19, 189:21, 201:8, 209:17, 225:1, 231:2, 234:5, 236:8, 240:13, 243:2	we're 10:20, 12:13, 13:3, 14:16, 26:19, 28:17, 28:19, 40:12, 55:18, 64:17, 69:3, 82:10, 83:22, 84:7, 97:8, 99:8, 100:6, 106:12, 122:2, 123:10, 128:13, 138:18, 151:22, 179:1, 180:17, 181:22, 193:22, 240:18	whereas 92:18, 122:11	work 19:21, 20:6, 24:12, 25:15, 25:18, 26:22, 28:15, 28:17, 32:13, 42:21, 60:21, 61:4, 66:8, 67:8, 67:9, 132:6, 154:7, 172:9
wanted 31:11	we've 45:15, 47:19, 64:16, 77:3, 80:8, 131:5, 142:11, 208:7, 209:1, 209:16, 215:21, 226:7, 239:21, 240:21	wherein 228:2	worked 16:6, 16:8, 18:9, 26:3, 27:21, 61:11, 76:6
wants 119:21, 208:15		whereof 244:15	workers 129:21, 130:2
washington 4:17		whether 23:2, 44:9, 53:3, 59:17, 65:19, 66:3, 70:6, 89:12, 91:17, 94:11, 137:19, 161:8, 238:13, 238:21	working 15:10, 32:15, 66:6, 75:19, 76:8, 81:11, 171:15, 212:7, 216:13
way 22:1, 40:16,	web 164:7	whole 91:10, 137:4, 137:20, 137:21, 153:10, 159:10, 224:17, 232:11	
		widely 63:21, 104:1, 231:1	
		williams 4:14	
		williams@bakerbo- tts 4:19	

works 41:21, 72:7, 110:8, 222:1 world 60:20 worth 28:9 wouldn't 37:11, 50:4, 82:9, 181:7 wrap 101:12 wrapped 101:7 writing 169:16 wrong 49:1, 181:19, 230:15 wrote 31:22	162:20, 168:6, 173:1, 173:18, 174:16, 177:16, 182:4, 182:5, 184:13, 191:9, 191:19, 191:22, 192:9, 193:7, 193:19, 195:13, 200:2, 207:3, 217:1, 218:20, 222:13, 224:2, 227:12, 227:22, 229:22, 233:1, 242:3, 242:12 year 66:18, 66:19, 75:20, 75:21, 86:13 years 16:10, 16:11, 18:13, 26:4, 60:19, 63:20, 66:16, 66:17, 67:3, 73:22, 74:18 yep 150:13 york 3:8 yourself 8:14, 22:7, 37:4, 75:1, 75:2, 80:7, 159:15	57:3, 60:13, 64:12, 65:9, 65:16, 68:20, 70:13, 71:7, 76:15, 77:17, 125:12, 127:22, 194:9, 194:18, 203:7, 241:20 zeigler@kobrekim 3:19 zero 237:11, 238:14 zeros 137:2 zone 164:1 zones 84:8 zoom 2:2, 4:22, 10:22, 194:18	.2008 6:15 .29 6:10 .3 228:21, 229:10 .45 6:15 .4785 3:18 .55 6:11 .56 6:12 .58 6:13 .6484 4:10 .7700 4:18 .9 6:5
Y		\$	0
yang 5:5, 241:19 yeah 28:16, 39:5, 40:13, 41:9, 41:11, 42:13, 51:3, 55:13, 56:11, 57:1, 65:3, 65:14, 71:13, 72:22, 79:22, 80:2, 80:11, 81:5, 90:22, 93:18, 94:21, 94:22, 102:5, 102:9, 102:12, 102:19, 103:9, 104:2, 105:3, 120:8, 125:5, 132:22, 137:1, 140:13, 144:21, 149:11, 155:17, 156:13, 156:18, 157:16, 158:17, 159:20, 161:18, 162:4,	zeigler 3:13, 13:4, 21:5, 29:17, 30:6, 30:8, 30:15, 33:2, 33:7, 34:2, 34:22, 44:14, 45:6, 45:15, 46:11, 47:14, 48:17, 51:12, 52:17, 53:13, 53:19, 55:15,	\$500 16:14 ' 's 131:4, 143:22 . .0 228:21, 229:10 .1001 6:9 .1002 6:10 .1005 6:11 .1006 6:12 .1007 6:13, 6:14 .1200 3:9 .13 6:9 .190 6:14	000 138:4 001 138:5 00895 46:6 010 138:5 011 138:5 01239 1:3 02 1:17, 189:17 03 84:12, 84:13 083475.0110 1:4 1 84:12, 84:13, 231:8 1.1 38:1, 229:7,

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

297

229:9, 230:11, 230:18 1.3 228:21, 229:10 1.4 228:21, 229:10, 230:19 10 1:17, 47:16, 173:5, 174:9, 175:1, 175:17, 175:21, 178:1, 178:3, 178:7, 178:8, 178:9, 178:17, 178:18, 209:9, 218:6, 224:20 10,097,452 6:11, 55:6 10,652,111 6:9, 12:21 100 17:19 1001 13:6, 13:7, 14:19, 125:11, 144:5 1002 29:19, 29:20, 31:19, 44:15, 47:15, 64:14, 68:20, 169:18 10022 3:8 1003 46:6 1005 55:7, 55:8, 141:3 1006 56:17, 161:12 1007 58:19, 189:22, 190:2 1013 114:14 1019 47:6	102 159:18, 182:11 103 226:7 106 215:8, 226:21 109 194:14 11 22:10, 28:22, 218:6, 218:10 110 197:19 111 12:22, 13:6, 13:13, 14:15, 21:6, 29:13, 35:6, 37:20, 40:17, 43:16, 44:10, 46:21, 51:5, 54:2, 67:20, 71:18, 71:19, 77:20, 80:10, 87:15, 93:20, 95:2, 95:9, 103:3, 103:10, 107:16, 115:6, 120:20, 121:3, 121:20, 122:6, 122:11, 123:3, 123:6, 123:9, 125:8, 125:17, 125:20, 126:1, 126:8, 126:11, 128:12, 128:13, 128:14, 129:3, 129:12, 130:7, 130:17, 131:4, 131:8, 133:22, 136:19, 136:22, 138:18, 138:20, 138:22, 139:6, 139:21, 143:16, 143:22, 144:2, 144:6, 193:11, 203:9, 216:18, 227:4, 241:1, 241:3,	241:13 112 174:12, 215:3, 219:4 113 114:14 114 229:17 116 199:22 12 18:13, 53:16, 72:7, 83:22, 84:12, 174:10, 178:1 120 127:5, 195:8, 196:4, 196:9, 198:3 122 195:8, 196:4, 196:9, 198:3 124 195:5 126 195:5 128 231:17 13 178:17 130 218:20 134 235:12 138 237:3 14 138:15, 178:17, 226:6, 230:19 141 210:22 144 240:16, 240:20 15 53:20, 69:7, 71:16, 84:2, 84:5, 175:20 150 3:15, 17:19	153 30:7 16 175:20, 237:2, 237:3 160 222:5 161 218:5, 224:1 170 225:4 18 32:22, 36:9, 37:10, 69:7, 71:16, 182:10, 226:21, 227:4, 227:21 19 3:16, 32:22, 36:9, 37:10, 69:8, 71:16 1987 231:1 1990 26:1, 27:5 1d 205:8 1e 206:13 1f 207:6, 207:7 2 2 138:15 2,000 233:6 20 237:2, 240:13, 240:15, 240:18, 240:20, 241:12 2000 25:22 20001 4:17 2001 4:7 2007 19:19
---	--	--	--

Transcript of Paul Min, Ph.D.
Conducted on May 30, 2025

298

2008 18:14, 45:15, 45:16, 47:16, 48:19, 51:18, 55:15, 64:15, 68:21, 114:19 2013 230:19 2014 61:12, 75:14 202.639 4:18 2022 16:3, 16:17 2024 1:3, 46:6, 87:3 2025 1:16, 244:16, 245:19 21 55:16, 69:8, 71:16, 150:5 212.488 3:9 214.953 4:10 23 242:5 24 145:17, 191:10, 191:12, 192:10 25 33:16, 47:9, 228:18, 242:5 26 34:8, 45:12, 51:17, 53:20, 57:5, 138:15, 229:17 27 33:17, 128:12, 140:8, 140:18 28 58:17, 144:5, 157:21, 186:19, 188:11 289 234:5, 234:11,	234:17 29 64:15, 84:12 3 3 98:19, 189:17 30 1:16, 72:7, 78:14, 83:22 306 240:16 31 68:16, 69:17, 78:14, 79:18, 86:1, 86:10, 173:5, 181:16, 182:10, 218:10, 231:13 310 238:10, 238:13 312 132:7 32 46:19, 69:18, 69:19, 79:5, 79:21, 86:7, 218:11, 231:2, 231:5, 231:8, 231:11, 231:12 33 64:14, 68:21 34 76:17, 158:1, 213:9, 214:19, 215:15 35 54:14, 211:1, 215:2, 242:16, 242:17, 242:19, 243:14 36 69:8, 69:19, 71:17 37 214:12, 214:16, 231:18 38 215:1, 231:18	39 237:2 4 4 189:17, 242:17 41 54:6, 69:8, 69:19, 71:17 415.582 3:18 42 54:14, 69:8, 69:20, 71:17 43 237:2 44 54:7, 69:8, 71:17, 97:9 447 192:8, 192:9 45 35:10, 44:15, 55:16, 69:20, 88:13, 215:16 46 189:17 47 47:15, 48:7, 149:8 48 140:9, 173:5, 173:6, 175:2, 175:17, 181:16 49 53:12, 149:13 4a 155:14 4f 155:14 5 5 242:5, 242:16, 242:19, 243:14 5-tuple 153:20, 187:20, 188:2, 222:17,	222:22 50 17:6, 17:9 52 65:7, 73:19, 150:22, 175:2 53 163:21, 241:5 54 46:19, 55:10, 69:9, 69:18, 69:20, 71:17, 79:21, 211:1 56 127:2 5692 4:17 57 59:8, 59:9 58 35:8, 57:4, 88:14, 97:9 585566 1:21 59 44:12, 44:14, 58:17, 88:20, 97:9, 127:4, 169:18, 241:8 6 6 218:10 60 218:10 61 65:12, 68:9, 68:21 62 76:16, 77:5 63 48:7, 49:8, 49:12, 98:13 64 51:16 66 105:6, 159:18 67 218:6, 218:9
--	---	---	---

7	68:13, 70:12, 71:2, 218:3, 218:4	
70 70:13, 71:2	97 18:14, 77:10, 224:21	
700 4:16	9th 244:16	
71 49:12, 51:21, 193:21		
72 194:6		
75201 4:9		
76 199:22		
79 17:4, 17:6, 22:18, 23:1, 23:3		
793 37:22		
8		
800 3:7		
85 208:17		
89 169:19, 172:22		
9		
9,264,301 6:12, 56:20		
9,813,447 6:13, 6:14, 58:16		
90 26:6, 58:16, 59:10		
900 4:8		
91 59:10		
94 217:19, 219:3		
94111 3:17		
95 68:9, 68:10,		