

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS INC.,

Petitioner,

v.

LIONRA TECHNOLOGIES LIMITED,

Patent Owner.

IPR IPR2024-01281

Patent No. 7,738,471

Tuesday, August 26, 2025

10:01 a.m. (EDT)

REMOTE DEPOSITION OF THOMAS BROOKS

(This proceeding was conducted via Zoom.

All participants appeared remotely.)

STENOGRAPHICALLY REPORTED BY:

Deanna J. Dean, RDR, CRR

Henderson Legal Services

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Tuesday, August 26, 2025

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10:01 a.m. (EDT)

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Remote deposition of THOMAS BROOKS,

9

held via Zoom videoconference, before

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Deanna J. Dean, a Registered Diplomate

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Reporter, Certified Realtime Reporter,

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and licensed court reporter of the

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state of New Hampshire.

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

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1 I N D E X

2

3 Examination Page

4 THOMAS BROOKS

5 By Attorney Foster 6, 107

6 By Attorney Auchter 106

7

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9 E X H I B I T S

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11 Number Description Page

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13 (No new exhibits marked.)

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

2 THE REPORTER: Here begins the remote
3 deposition of Thomas Brooks, taken in the matter
4 Cisco Systems Inc., Petitioner, v. Lionra
5 Technologies Limited, Patent Owner, before the
6 Patent Trial and Appeal Board, Case No.
7 IPR2024-01281 for US Patent No. 7,738,471 B2.

8 Today's date is August 26, 2025.
9 The time is now 10:01 a.m. Eastern Daylight
10 Time.

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

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

18 ATTORNEY FOSTER: This is Theo Foster
19 representing Cisco Systems Incorporated.

20 ATTORNEY AUCHTER: This is Robert Auchter
21 representing patent owner, Lionra Technologies.

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

1 ATTORNEY FOSTER: Yes.

2 ATTORNEY AUCHTER: Patent owner agrees.

3 THOMAS BROOKS,
4 a witness called for examination, having been first
5 duly sworn according to law, was deposed and
6 testified as follows:

7 EXAMINATION

8 BY ATTORNEY FOSTER:

9 Q. Good morning.

10 A. **Good morning.**

11 Q. Can you please state your full name for
12 the record.

13 A. **It's Thomas Butler Brooks.**

14 Q. And is it okay if I call you "Mr. Brooks"?

15 A. **That's fine. You can also call me "Tom"**
16 **or "Thomas."**

17 Q. Mr. Brooks, have you ever been deposed
18 before?

19 A. **Yes.**

20 Q. How many times?

21 A. **Two times.**

22 Q. Were those times recent?

23 A. **They were in the later part of 2023.**

24 Q. And were those in connection with patent
25 litigation?

1 **A. Yes.**

2 Q. So I believe you probably know the general
3 rules for deposition, but I'd like to go over a few
4 of them with you.

5 Is there any reason that you would not be
6 able to answer questions fully, accurately, and
7 honestly today?

8 **A. No, there is no reason I can't do that.**

9 Q. And if you don't understand one of my
10 questions, will you please let me know?

11 **A. Yes.**

12 Q. And if I ask a question and you answer it,
13 is it fair to assume that you understood the
14 question?

15 **A. Yes, that's fair.**

16 Q. Your counsel may object to questions
17 throughout the deposition, and unless your counsel
18 instructs you not to answer a question, you are
19 required to answer the question.

20 Is that understood?

21 **A. Yes, that is understood.**

22 Q. And the court reporter today will prepare
23 a transcript of this deposition to ensure that we
24 obtain a clear record.

25 Can you please try to answer your

1 questions -- the questions with a full verbal
2 response such as "yes" or "no"?

3 **A. Yes.**

4 Q. And the court reporter may also have
5 difficulties preparing an accurate transcription if
6 two parties are speaking at the same time. And so,
7 to avoid that, I'll ask that you let me finish my
8 questions before you answer; and, likewise, I will
9 let you finish your answers before I ask another
10 question.

11 Can we agree to that?

12 **A. I agree.**

13 Q. And do you understand that, during the
14 portion of this deposition where I'm asking you
15 questions, you're not permitted to speak with your
16 counsel about the substance of your testimony,
17 including your declaration or your deposition
18 today?

19 **A. Yes, I understand that.**

20 Q. Okay.

21 Where are you located today?

22 **A. I am in Staunton, Virginia. That is**
23 **spelled S-t-a-u-n-t-o-n.**

24 Q. Are you in your home or in an office?

25 **A. I am in a conference room at a hotel.**

1 Q. Is there anyone there with you?

2 A. Yes.

3 Q. Who is with you?

4 A. Counsel is with me. Robert Auchter and
5 John Petrsoric.

6 Q. Do you have your phone with you today?

7 A. My phone is in airplane mode in my bag to
8 the side.

9 Q. And what equipment are you using to attend
10 the videoconference by Zoom?

11 A. My personal laptop.

12 Q. Do you have any other Windows programs or
13 other things running on your computer?

14 A. I only have Zoom open.

15 Q. Do you have any papers or books with you?

16 A. Yes.

17 Q. What papers or books?

18 A. I have a hard copy of my declaration and a
19 hard copy of the '471 patent and the Nelson '489
20 patent.

21 Q. Are those clean copies?

22 A. Yes.

23 Q. Can you turn to page 29 of your
24 declaration.

25 A. Okay. I'm at page 29.

1 Q. Is that your signature on page 29?

2 A. Yes.

3 Q. Did you sign this declaration on June 18,
4 2025?

5 A. Yes.

6 Q. In the declaration, you discuss United
7 States Patent No. 7,738,741 that is the subject of
8 this inter partes review. Is that correct?

9 ATTORNEY AUCHTER: Objection to form. I
10 think it's 7,738,471.

11 A. Yeah. You said '741. The patent is
12 actually '471.

13 Q. Yes. Thank you for correcting that.

14 If I refer to the patent that is the
15 subject of this inter partes review as the '471
16 patent, will you know what I'm referring to?

17 A. Yes.

18 Q. Did you prepare your declaration yourself?

19 A. I prepared my declaration with the help of
20 counsel.

21 Q. Are you aware of any errors or omissions
22 in your declaration?

23 A. No.

24 Q. Do you continue to stand behind all of the
25 statements in your declaration?

1 **A. Yes.**

2 Q. Did you meet with anyone to prepare for
3 today's deposition?

4 **A. Yes.**

5 Q. Who did you meet with?

6 **A. Counsel.**

7 Q. By "counsel," is that Mr. Petrscopic or
8 Mr. Auchter or both?

9 **A. Both.**

10 Q. Did you meet with any other attorneys or
11 anyone else to prepare for your deposition today?

12 **A. No.**

13 Q. When did you meet with Mr. Petrscopic and
14 Mr. Auchter?

15 **A. Two meetings. One yesterday and one the
16 previous Thursday.**

17 Q. Have you ever participated in an inter
18 partes review of a patent before?

19 ATTORNEY AUCHTER: Objection. Form.

20 **A. I am unsure as to what you mean by
21 "participated."**

22 Q. Have you ever submitted a declaration in
23 an inter partes review before?

24 **A. Not that I remember.**

25 Q. Have you ever been deposed in an

1 inter partes review before?

2 **A. No.**

3 Q. Have you ever been a consultant to a party
4 to an inter partes review before?

5 ATTORNEY AUCHTER: Objection to form.

6 **A. I don't remember.**

7 Q. Okay. Have you ever worked on a patent
8 matter before?

9 **A. Yes.**

10 Q. Can you describe the patent matters that
11 you've worked on?

12 **A. I've worked in this field for**
13 **approximately 10 years, covering a number of patent**
14 **matters. So it would be too numerous to name all**
15 **of them here and I wouldn't remember them.**

16 **I have a client list on my CV which**
17 **describes some of the -- or the patent -- the**
18 **patents that I've -- or the parties that I've**
19 **worked on.**

20 Q. What do you understand your role to be in
21 this proceeding?

22 **A. I've been asked to offer an opinion on the**
23 **IPR petition filed by Cisco concerning the '471**
24 **patent.**

25 Q. What is your understanding of what a

1 patent is?

2 **A. A patent is a publication that protects a**
3 **party's intellectual property.**

4 Q. Do you understand that patents protect
5 inventions?

6 **A. Yes.**

7 Q. Do you understand that in exchange for
8 receiving exclusive rights to their patented
9 invention, an inventor has an obligation to
10 disclose in the patent how to make and use the
11 invention?

12 ATTORNEY AUCHTER: Objection to form.
13 Relevance.

14 **A. I am not an attorney, so I guess I would**
15 **say that I did not know that.**

16 Q. Do you have a copy of your CV with you?

17 **A. No.**

18 Q. Okay. I'm going to share Exhibit 2006
19 that's been previously marked in this proceeding
20 through the Zoom window here.

21 Are you able to access that document?

22 **A. Yes. Let me -- it's downloading. Let me**
23 **open it.**

24 **Okay, I have it open.**

25 Q. Is this your curriculum vitae?

1 **A. Let me just peruse the document.**

2 **Yes, it appears to be my CV.**

3 Q. I see on your CV that you indicate that
4 you have an active security clearance. Is that
5 correct?

6 **A. That is correct.**

7 Q. Do you understand that the transcript of
8 today's deposition will be available to the public
9 once it is filed in the case?

10 **A. Yes, I understand that.**

11 Q. I do not believe that any of my questions
12 will get into issues where you cannot answer
13 because of your security clearance obligations, but
14 will you let me know if you are unable to answer
15 because of that?

16 **A. Yes, I will let you know that.**

17 Q. On page 2 of your CV, it indicates that
18 you have a Bachelor of Science in computer
19 engineering from Virginia Tech. Is that correct?

20 **A. That is correct.**

21 Q. Did you study any computer networking
22 technologies in your undergraduate studies?

23 **A. Yes.**

24 Q. Did you learn about the OSI networking
25 model as part of your undergraduate studies?

1 **A. Yes.**

2 **Q. Can you describe the OSI networking model?**

3 **A. The OSI networking model is a seven-layer**
4 **model whereby networking is described starting at**
5 **the lowest layer, which is the physical layer, and**
6 **moving up to the top, which is the application**
7 **layer. Each layer is responsible for a certain**
8 **aspect of networking.**

9 **Q. Is the OSI networking model the only model**
10 **for analyzing network communications?**

11 **A. I don't know. I do know it is the most**
12 **common.**

13 **Q. Are you familiar with the TCP/IP model**
14 **layer of network communication?**

15 **A. TCP/IP is a type of networking protocol.**
16 **It is not a model in the same way that OSI is a**
17 **model.**

18 **Q. Does TCP/IP have an application layer?**

19 **A. No.**

20 **Q. Does TCP/IP have a physical layer?**

21 **A. No.**

22 **Q. Does TCP/IP have a link layer?**

23 **ATTORNEY AUCHTER: Objection to form.**

24 **A. No.**

25 **Q. Page 1 of your CV indicates that you have**

1 several current positions with NOW Solutions, Barr
2 Group, and ADI Engineering. Is that correct?

3 **A. No.**

4 Q. Are you still an embedded engineering
5 consultant with NOW Solutions?

6 **A. Yes.**

7 Q. And is that a role where you are a
8 contractor or an employee?

9 **A. NOW Solutions is a company that I own. I**
10 **am a contractor to clients from my position as a**
11 **NOW Solutions consultant.**

12 Q. So NOW Solutions is your own company?

13 **A. Yes.**

14 Q. Does NOW Solutions have any other workers
15 or employees?

16 **A. No.**

17 Q. Are you still a senior engineer with Barr
18 Group?

19 **A. I am a consultant to Barr Group, yes.**

20 Q. And is that a contracting or employment
21 relationship?

22 **A. Contracting.**

23 Q. Are you still a senior staff engineer at
24 ADI Engineering?

25 **A. No.**

1 Q. When Lionra engaged you to work on this
2 case, did they do so through your business NOW
3 Solutions?

4 A. Yes. I am engaged through NOW Solutions.
5 NOW Solutions is not engaged directly with Lionra.
6 There's an intermediary between Lionra and NOW
7 Solutions.

8 Q. Is that intermediary an expert search
9 service or something like that?

10 A. No.

11 Q. Can you identify the intermediary?

12 A. RMB Consulting.

13 Q. And do you know who RMB Consulting is?

14 A. Yes.

15 Q. Who is RMB Consulting?

16 A. RMB Consulting is owned by Nigel Jones.

17 Q. And what does RMB Consulting do?

18 A. They are an engineering consulting
19 company. They focus on intellectual property as a
20 heavy portion of their business.

21 Q. If you turn to page 3 of your CV.

22 A. Okay.

23 Q. About five lines down from the top, you
24 list Barr Group as a client.

25 Do you see that?

1 **A. Yes.**

2 Q. Is that the same Barr Group that appeared
3 on page 1 of your CV?

4 **A. Yes.**

5 Q. And is the relationship that you have with
6 Barr Group as a client in providing engineering
7 consulting services as an embedded expert?

8 **A. Yes.**

9 Q. And the next line refers to RMB
10 Consulting. Is that correct?

11 **A. Correct.**

12 Q. Is that the same RMB Consulting that we
13 discussed just a few minutes ago?

14 **A. Yes.**

15 Q. If we go back to page 1 of your
16 declaration.

17 **A. Okay.**

18 Q. In your work for ADI Engineering, in the
19 last paragraph, you refer to CPLD technologies.

20 Do you see that?

21 **A. No.**

22 **Are you asking me to turn to page 1 of my**
23 **declaration? I do not see CPLD on there.**

24 Q. I'm sorry. I meant page 1 of your CV.

25 **A. Oh.**

1 **Could you repeat the question?**

2 Q. In the last paragraph on page 1 of your
3 CV, you refer to CPLD technologies.

4 Do you see that?

5 A. **Yes.**

6 Q. What are CPLD technologies?

7 A. **I do not remember what "CPLD" stands for.**

8 **CPLDs are programmable logic devices that are**
9 **similar to FPGAs, but smaller and nonvolatile.**

10 Q. Later on the same line, you refer to XAUI.

11 Do you see that?

12 A. **I do.**

13 Q. What is XAUI?

14 A. **XAUI is a -- commonly pronounced "Zowee."**

15 **It is a protocol used for communicating primarily**
16 **between Ethernet MACS and Ethernet PHYs for 10**
17 **Gigabit Ethernet.**

18 Q. Would it also be fair to say that XAUI is
19 an interface?

20 ATTORNEY AUCHTER: Objection. Form.

21 A. **Yes.**

22 Q. In your work with ADI Engineering, did you
23 implement XAUI?

24 A. **Yes.**

25 Q. Do you remember what the communication

1 speed of XAUI is?

2 A. XAUI is used for 10 Gbps Ethernet, so it
3 is a total bandwidth of 10 Gbps.

4 Q. Does XAUI specify an encoding technique to
5 be used for data?

6 A. I don't recall.

7 Q. Is XAUI a standard?

8 A. Yes.

9 Q. If you needed more information about XAUI,
10 what documents or where would you look to find more
11 information about it?

12 ATTORNEY AUCHTER: Objection to form.

13 A. I would either look for IEEE documents,
14 or, to be honest, the FPGA vendors have very good
15 documentation on these sorts of protocols. So I
16 would look to Xilinx or Altera documentation.

17 Q. Looking at your CV again, on that same
18 line at the bottom of page 1, you refer to SGMII.

19 Do you see that?

20 A. I do.

21 Q. What is SGMII?

22 A. SGMII is -- stands for serial gigabit
23 media-independent interface. Similar to XAUI, it
24 is an interface between a MAC and a PHY for 1
25 Gigabit Ethernet.

1 Q. Is SGMII a serial data interface?

2 A. Yes.

3 Q. What does it mean for an interface to be
4 serial?

5 ATTORNEY AUCHTER: Objection to form.

6 A. Serial means that the data are sent
7 sequentially one after another. It's often the
8 opposite side of parallel, in which data is sent
9 next to one another.

10 Q. Do you remember if XAUI is a serial
11 interface or not?

12 ATTORNEY AUCHTER: Objection. Form.

13 Asked and answered.

14 A. I do not remember.

15 Q. Would an SGMII interface perform encoding
16 or decoding of data?

17 A. Could you rephrase the question? I don't
18 understand the question.

19 Q. Would an SGMII interface perform encoding
20 of data?

21 A. No.

22 Q. Would an SGMII interface decode data?

23 A. No.

24 Q. Do you remember what the communication
25 speed of an SGMII interface is?

1 **A. It's for 1 Gigabit Ethernet, so it's 1**
2 **Gbps.**

3 Q. Is that 1 gigabit of data per second?

4 **A. Yes.**

5 Q. And is that measured before or after the
6 data is encoded?

7 ATTORNEY AUCHTER: Objection. Form.
8 Relevance.

9 **A. The 1 gigabit is before any encoding is**
10 **done.**

11 Q. Do you know what the encoding technique is
12 for SGMII?

13 ATTORNEY AUCHTER: Objection. Form.

14 Q. Let me rephrase that.

15 Do you know what the encoding technique is
16 for 1 Gigabit Ethernet?

17 ATTORNEY AUCHTER: Same objection.

18 **A. 8b/10b encoding.**

19 Q. And what is 8b/10b encoding?

20 **A. 8b/10b encoding is a mechanism whereby**
21 **8 bits of data are encoded with 10 bits for**
22 **transmission.**

23 Q. And so is the Gigabit Ethernet is capable
24 of 1 gigabit of data before encoding; then, during
25 transmission, the data rate for Gigabit Ethernet

1 would be more than 1 Gbps. Is that correct?

2 ATTORNEY AUCHTER: Objection. Form.

3 Relevance.

4 A. Correct. If 1 gigabit of data is sent and
5 it is 8b/10b encoding, then the actual speed of the
6 interface would be more than 1 Gbps, or 1 -- let
7 me -- it would be more than 1 GHz.

8 Q. On page 2 of your CV, you indicate that
9 you worked at IBM as a VLSI design engineer from
10 1998 to 2000. Is that correct?

11 A. Correct.

12 Q. Was that your first job after graduating
13 with your bachelor's degree?

14 A. Yes.

15 Q. And in that role, you were part of a team
16 creating a new Gigabit Ethernet switch. Is that
17 correct?

18 A. That is correct.

19 Q. Do you know why IBM was creating a new
20 Gigabit Ethernet switch?

21 ATTORNEY AUCHTER: Objection. Form.

22 Calls for speculation.

23 A. I do not know.

24 Q. Was Gigabit Ethernet a relatively new
25 technology at the time?

1 ATTORNEY AUCHTER: Objection. Form.

2 Vague.

3 A. Yes.

4 Q. When you were working at IBM to design a
5 new Gigabit Ethernet switch, did you consider
6 Gigabit Ethernet to be a high-speed networking
7 technology?

8 ATTORNEY AUCHTER: Objection. Form.

9 A. Yes.

10 Q. Did the team you were working with at IBM
11 have a goal of having the new Gigabit Ethernet
12 switch be able to process packets at a particular
13 speed?

14 ATTORNEY AUCHTER: Objection. Form.

15 A. Other than the fact that we supported
16 10/100 and Gigabit Ethernets, I do not recall any
17 particular performance metric.

18 Q. Let's turn to your declaration.

19 Do you still have that in front of you?

20 A. I do.

21 Q. And looking at paragraph 3, the last 10
22 you write, "I am familiar with the technology
23 involved therein, having practical hands-on
24 experience in the field for over 25 years."

25 Do you see that?

1 **A. Yes. If you don't mind, I'm going to read**
2 **the entirety of paragraph 3 here.**

3 Q. Sure.

4 **A. Okay.**

5 Q. What field are you referring to?

6 **A. The field of computer networks.**

7 Q. And then on the next page in paragraph 5,
8 you provide further information about your work for
9 IBM.

10 Do you see that?

11 **A. I do.**

12 Q. Where does a Gigabit Ethernet MAC
13 component fit within the OSI networking model?

14 **A. MACs are layer 2.**

15 Q. Are you familiar with the format of
16 Ethernet frames?

17 **A. Yes.**

18 Q. Is there more than one standard for the
19 format of an Ethernet frame recognized in the
20 industry?

21 ATTORNEY AUCHTER: Objection. Form.

22 **A. I don't know.**

23 Q. Are you familiar with the IEEE 802.3
24 standard?

25 **A. Yes.**

1 Q. And what does that standard relate to?

2 A. **802.3 generally relates to computer**
3 **networking, specifically Ethernet.**

4 Q. Are you familiar with the development of
5 Ethernet as a technology before it was standardized
6 by the IEEE?

7 ATTORNEY AUCHTER: Objection to form.

8 A. **No.**

9 Q. Have you ever heard of the DIX standard
10 for Ethernet?

11 A. **No.**

12 Q. In paragraph 6 of your declaration, you
13 talk about your work for GE FANUC.

14 Do you see that?

15 A. **Yes.**

16 Q. And as part of that work, you were
17 implementing a PROFIBUS network connectivity for a
18 control system. Is that correct?

19 A. **Yes.**

20 Q. What is PROFIBUS?

21 A. **PROFIBUS is a networking standard or**
22 **protocol specific to industrial automation. It is**
23 **used for high-reliability communication between**
24 **computing systems on factory floors.**

25 Q. Is PROFIBUS used with TCP/IP?

1 ATTORNEY AUCHTER: Objection to form.

2 A. I don't know.

3 Q. In your work for GE FANUC, was PROFIBUS
4 being used with TCP/IP?

5 A. No.

6 Q. In your work for GE FANUC, was PROFIBUS
7 being used with Ethernet?

8 A. No.

9 Q. Then in paragraph 7, you talk about your
10 work for Intransa.

11 Do you see that?

12 A. Yes.

13 Q. As part of that work, you write that you
14 designed from scratch a network endpoint that
15 implemented Ethernet and internet protocol. Is
16 that correct?

17 A. Yes.

18 Q. Were you involved in implementing internet
19 protocol for that network endpoint?

20 A. Yes.

21 Q. And where does internet protocol fit
22 within the OSI networking model?

23 A. Layer 3.

24 Q. The network endpoint you were developing
25 was providing an interface to ATA storage devices.

1 Is that correct?

2 A. ATA and serial ATA, SATA. Yes.

3 Q. And so how did that work?

4 ATTORNEY AUCHTER: Objection. Form.

5 A. That's sort of a vague question. Could
6 you be more specific?

7 Q. Did the network endpoint you developed
8 receive ATA commands in internet protocol packets?

9 A. Yes.

10 Q. And so in the context of the OSI
11 networking model, what layer did those ATA commands
12 received via the internet protocol correspond to?

13 ATTORNEY AUCHTER: Objection to form.

14 A. The ATA commands were a specific command
15 that we implemented and would not easily translate
16 to the OSI model.

17 Q. Was there a protocol layer in between the
18 internet protocol and the ATA commands?

19 ATTORNEY AUCHTER: Objection to form.

20 A. I don't recall.

21 Q. Then in paragraph 8 of your declaration,
22 you refer to your more recent work.

23 Do you see that?

24 A. Yes.

25 Q. And you refer there to transmission

1 control protocol.

2 Where does transmission control protocol
3 fit within the OSI networking model?

4 **A. It's typically found in layer 4.**

5 Q. You also refer to additional work you've
6 done to develop network components from scratch
7 that involved Ethernet. Is that correct?

8 **A. Yes.**

9 Q. Over the course of your engineering career
10 up to today, do you know approximately how many
11 times you've implemented Ethernet from scratch?

12 **A. No. I cannot put a number on it.**

13 Q. Would it be more than five times?

14 **A. Yes.**

15 Q. Would you say that you're an Ethernet
16 expert?

17 ATTORNEY AUCHTER: Objection to form.
18 Vague.

19 **A. I have implemented Ethernet and know
20 Ethernet well.**

21 Q. Have you ever represented yourself as
22 being an expert in Ethernet?

23 **A. No.**

24 Q. Does Ethernet have a physical layer?

25 **A. Yes.**

1 Q. At the physical layer, does an Ethernet
2 transmission begin with a preamble?

3 ATTORNEY AUCHTER: Objection. Form.

4 A. Yes.

5 Q. Is the Ethernet preamble followed by a
6 startup frame delimiter?

7 ATTORNEY AUCHTER: Objection. Form.

8 A. Yes.

9 Q. I'd like you to turn to paragraph 18 of
10 your declaration.

11 Let me know when you're there.

12 A. Okay. I'm there.

13 Q. About seven lines down in paragraph 18,
14 you quote from the '471 patent and its discussion
15 of "many solutions have been proposed for
16 decreasing the protocol header processing time at
17 intermediate and/or destination nodes of a
18 packet-based communications network."

19 Do you see that?

20 A. Yes.

21 I'm going to take a moment and read the
22 entirety of paragraph 18.

23 Q. Sure.

24 A. Okay.

25 Q. And the paragraph continues on and

1 discusses some of the drawbacks of prior art
2 approaches.

3 Do you see that?

4 **A. Yes.**

5 Q. One of those drawbacks that you referred
6 to is that "each of the protocol stack layers use
7 the packet buffer memory 122 to copy its respective
8 header into its own processing memory for receiving
9 processing."

10 Do you see that?

11 **A. I think you quoted it a little differently**
12 **than is actually written on the page here. But,**
13 **yes, I see that.**

14 Q. You were personally involved in developing
15 packet processing implementations using FPGAs and
16 ASICs before the 2007 priority date of the '471
17 patent. Is that correct?

18 **A. Yes.**

19 Q. Did the packet processing implementations
20 you developed before the 2007 priority date use the
21 approach that you describe in paragraph 18?

22 ATTORNEY AUCHTER: Objection to form.

23 **A. Yes.**

24 Q. I'd like you to turn to paragraph 22 of
25 your declaration.

1 Let me know when you're there.

2 **A. I'm there.**

3 Q. Do you want to read paragraph 22 to
4 yourself?

5 **A. Yes.**

6 **Okay.**

7 Q. So in paragraph 22, you quote portions of
8 the '471 patent that describe decoding of an
9 encoded packet.

10 What is decoding?

11 ATTORNEY AUCHTER: Objection. Form.

12 Ambiguous.

13 **A. Decoding is the mechanism by which an
14 encoded -- encoded data or encoded packet is put
15 back in its original form.**

16 Q. So would the 8b/10b encoding that we
17 discussed earlier, would that be an example of the
18 encoding and decoding contemplated by the '471
19 patent?

20 ATTORNEY AUCHTER: Objection. Form.

21 **A. I don't have an opinion on that. I wasn't
22 asked to consider that.**

23 Q. Is it your understanding of the '471
24 patent's processes that decoding of an entire
25 packet occurs before the packet is written to

1 memory?

2 ATTORNEY AUCHTER: Objection to form.

3 A. I was not asked to offer an opinion on
4 that. I cannot sitting here today say that that is
5 my understanding.

6 Q. Do you have a copy of the '471 patent
7 there?

8 A. Yes.

9 Q. I'd like for you to look at the abstract.
10 Can you read the third sentence of the abstract out
11 loud, please.

12 A. "The concurrent writing step is performed
13 subsequent to the decoding step."

14 Q. Does that refresh your memory of how the
15 '471 patent writing and decoding steps operate
16 relative to one another?

17 A. I agree that the third sentence of the
18 abstract says, "The concurrent writing step is
19 subsequent to the decoding step."

20 Q. In your view, is there a difference
21 between performing one action subsequent to another
22 action and performing those two actions
23 concurrently?

24 ATTORNEY AUCHTER: Objection to form.

25 A. Could you repeat the question?

1 Q. In your view, is there a difference
2 between performing one action subsequent to another
3 action and performing those two actions
4 concurrently?

5 ATTORNEY AUCHTER: Same objection.

6 A. **I was not asked to consider that. I do**
7 **not have an opinion on that.**

8 Q. Do you have an understanding of what
9 "concurrent" means?

10 A. **I know what "concurrent" means in the**
11 **English language. However, I also understand that**
12 **it is a term in the '471 patent which I have not**
13 **been asked to offer an opinion on.**

14 Q. And do you have an understanding of what
15 "subsequent" means?

16 A. **I understand that the "subsequent" is a**
17 **term used in the '471 patent of which I have not**
18 **been asked to offer an opinion on.**

19 Q. Is your understanding of "concurrent" and
20 "subsequent" that they mean the same thing?

21 ATTORNEY AUCHTER: Objection to form.

22 A. **That is not my understanding.**

23 Q. Is it your understanding that "concurrent"
24 is different than "subsequent"?

25 ATTORNEY AUCHTER: Objection to form.

1 Calls for a legal conclusion.

2 A. I've not been offered -- excuse me.

3 I have not been asked to offer an opinion
4 on the meaning of subsequent and concurrent, and
5 have no opinion on that.

6 We've been going about an hour. Could we
7 take a break?

8 ATTORNEY FOSTER: Sure.

9 We'll go off the record.

10 THE REPORTER: Off the record at 11:00.

11 (Recess taken from 11:00 a.m.

12 to 11:11 a.m.)

13 THE REPORTER: Back on the record at

14 11:11 a.m.

15 BY ATTORNEY FOSTER:

16 Q. Mr. Brooks, during the break did you
17 discuss your testimony or any of my questions with
18 counsel?

19 A. No.

20 Q. Before the break, we were talking about
21 the meaning of some words in the English language.

22 Is English your first language?

23 A. Yes.

24 Q. Do you speak any other languages?

25 A. No.

1 Q. Outside the context of the '471 patent, in
2 the English language, do the words "subsequent" and
3 "concurrent" have different meanings?

4 A. Yes.

5 Q. Outside the context of the '471 patent, in
6 the English language, how does the meaning of
7 "subsequent" compare to the meaning of
8 "concurrent"?

9 A. **"Concurrent" means at the same time.**
10 **"Subsequent" means following.**

11 Q. Let's turn to paragraph 23 of your
12 declaration.

13 Do you want a minute to read that
14 paragraph?

15 A. Yes, please.

16 Okay. I've had a read of it.

17 Q. In paragraph 23, you quote portions of the
18 '471 patent describing a DMA device.

19 Do you know what DMA is?

20 A. **DMA stands for direct memory access.**

21 Q. Is direct memory access a concept that
22 would have been known to a person of ordinary skill
23 in the art?

24 A. **I do not -- I was not asked to offer an**
25 **opinion on that, so I do not have an opinion on**

1 **that.**

2 Q. Do you know what a DMA device is?

3 A. **I was not asked to offer an opinion on**
4 **that, so I have no opinion on what a DMA device is.**

5 Q. Does the '471 patent describe how to
6 design or build a DMA device?

7 A. **Not to my knowledge.**

8 Q. Have you used or designed devices using
9 direct memory access in your work?

10 A. **I would say that DMA devices, or a DMA as**
11 **described by the '471 patent, I have no -- because**
12 **I can't offer an opinion on what a DMA device is or**
13 **DMA is, I would say that I cannot answer the**
14 **question of whether or not I have used one in my**
15 **work.**

16 Q. What does it mean for a DMA device to
17 write data?

18 A. **Again, because I'm not offering an opinion**
19 **on what a DMA device is, I cannot offer an opinion**
20 **what it means for a DMA device to write data.**

21 Q. Outside the context of the '471 patent,
22 what does it mean to use direct memory access to
23 write data?

24 ATTORNEY AUCHTER: Objection. Form.
25 Relevance.

1 A. Again, I do not have an opinion on what a
2 DMA device is. To write data means to put data
3 into a particular location.

4 Q. Is writing data to a particular location
5 something that computers commonly do?

6 ATTORNEY AUCHTER: Object to form.

7 A. Yeah, I mean, that -- that's such a vague
8 question that I'm not sure I know how to answer
9 that. Certainly writing data is something that is
10 commonly done in -- in the industry.

11 Q. Is writing data to a particular location
12 something that is commonly done in the industry?

13 ATTORNEY AUCHTER: Objection. Form.
14 Relevance.

15 A. Yes.

16 Q. And how would a device that's writing data
17 to a particular location know what location to
18 write that data to?

19 ATTORNEY AUCHTER: Objection. Form.

20 A. Yeah, that's too vague of a question. It
21 depends on the configuration of the system and
22 what -- what is being written and, you know, how
23 it's architected.

24 Q. Are you familiar with the word "address"
25 in connection with computer memory?

1 **A. Yes.**

2 Q. What does the word "address" mean to you
3 in the context of computer memory?

4 **A. An address is a indicator to a piece of**
5 **memory whereby it is used to write or read to a**
6 **particular location.**

7 Q. And so would one way for a device that's
8 writing data to a particular location to know the
9 location to write the data to, would that be for
10 the device to be told that address to which it
11 should write the data?

12 ATTORNEY AUCHTER: Objection. Form.
13 Relevance. Vague. Ambiguous. Calls for
14 speculation.

15 **A. Can you rephrase that question? I**
16 **apologize.**

17 Q. Would a device be able to write data to a
18 particular location by being told the address of
19 the particular location that it should write the
20 data to?

21 ATTORNEY AUCHTER: Objection. Form.
22 Vague. Ambiguous. Relevance. Calls for
23 speculation.

24 **A. Yes, but it is certainly not the only way.**

25 Q. What other way would a device know where

1 to write data?

2 ATTORNEY AUCHTER: Objection. Form.

3 Vague. Ambiguous. Calls for speculation.

4 Relevance.

5 A. As I describe, or as Nelson teaches in the
6 Nelson patent, data can be written to a FIFO or a
7 dual port memory without needing an address.

8 Q. Can you grab your copy of the '471 patent,
9 please, and let's look at Figure 4.

10 Do you have Figure 4 in front of you?

11 A. I do. It's a very busy diagram here, so
12 if you don't mind just giving me a moment to
13 refresh my memory to this one.

14 Okay.

15 Q. And on the right side of the figure, do
16 you see there's a box labeled "DMA device 120"?

17 A. Yes.

18 Q. To the left of that, do you see that
19 there's a decoder 116 which includes a PHY layer
20 memory 124?

21 A. I do.

22 Q. Is it your understanding that the DMA
23 device writes data to the PHY layer memory 124?

24 A. No.

25 Q. Why do you say no?

1 A. Well, Figure 4 has an arrow going from the
2 PHY layer memory to the DMA device, which would
3 indicate that the DMA device reads from the PHY
4 layer memory or data goes from the PHY layer memory
5 to the DMA device. But the DMA device does not
6 write to the PHY layer memory.

7 Q. Would you agree that Figure 4 shows the
8 DMA device writing to packet buffer memory 122?

9 A. Yes.

10 Q. And Figure 4 shows the DMA device writing
11 to the data link layer 220?

12 A. Yes.

13 Q. And Figure 4 shows the DMA device writing
14 to network layer 206?

15 A. Yes.

16 Q. And Figure 4 shows the DMA device writing
17 to transport layer 204?

18 A. Yes.

19 Q. And Figure 4 shows DMA device 120 writing
20 to application layer 202?

21 A. I agree that that is what Figure 4 shows.

22 Q. Okay. Let's go back to your declaration
23 and turn to paragraph 26.

24 Let me know when you've had a minute to
25 read that.

1 **A. Okay. I've had a read of it.**

2 Q. In paragraph 26, you state that you were
3 asked to apply the claim construction as determined
4 by the court in the related District Court case.
5 Correct?

6 **A. Correct.**

7 Q. Do you agree with the District Court's
8 claim construction?

9 ATTORNEY AUCHTER: Objection. Form.

10 **A. I have no opinion on the District Court's**
11 **construction.**

12 Q. Is there anything about the District
13 Court's claim construction that you believe is
14 incorrect?

15 ATTORNEY AUCHTER: Objection. Form.
16 Relevance.

17 **A. No.**

18 Q. Is there anything about the District
19 Court's claim construction that you believe is
20 ambiguous?

21 ATTORNEY AUCHTER: Objection. Form.
22 Calls for a legal conclusion.

23 **A. I don't have an opinion on that.**

24 Q. Is there anything in the District Court's
25 claim construction that you find confusing?

1 ATTORNEY AUCHTER: Objection. Form.

2 A. No.

3 Q. If we look just above paragraph 26, you
4 quote independent Claim 13 of the '471 patent.

5 Do you see that?

6 A. Yes.

7 Q. Do you see in limitation 13.2 where it
8 refers to "each of said plurality of headers"?

9 A. Yes.

10 Q. And do you see where later in limitation
11 13.2, there's also a reference to "each individual
12 one of said plurality of headers"?

13 Mr. Brooks, did you answer my question?

14 A. I'm sorry. I didn't realize there was a
15 question outstanding.

16 Q. Okay. Yeah. Sorry. I think we had a
17 line drop or maybe a miscommunication.

18 Let me reask my question.

19 A. Okay.

20 Q. Do you see in limitation 13.2 where the
21 claim language recites "each individual one of said
22 plurality of headers"?

23 A. Yes.

24 Q. Is it your understanding that there is a
25 difference between the each of said plurality of

1 headers and the each individual one of said
2 plurality of headers?

3 **A. I believe the court's construction is what**
4 **holds here, and the court's construction says**
5 **there's an each -- in the one -- each of a said**
6 **plurality of headers to a packet buffer memory in**
7 **each individual one of said -- of said plurality of**
8 **headers, each concurrently with each other to a**
9 **respective protocol stack layer memory.**

10 Q. Do both of those "each" phrases refer to
11 the same plurality of headers?

12 **A. So -- yeah. I was not asked to offer an**
13 **opinion on this, so I have no opinion on that.**

14 Q. So looking again at paragraph 26 where
15 you've quoted the District Court's claim
16 construction, do you see where there are two
17 portions numbered 1 and 2?

18 **A. Yes.**

19 Q. Is it your understanding that the
20 concurrently writing as construed by the court
21 would require a header to be written to the packet
22 buffer memory at the same time that the header is
23 being written to a respective protocol layer stack
24 memory?

25 ATTORNEY AUCHTER: Objection. Form.

1 **A. Yes.**

2 Q. And is it your understanding of the
3 District Court's claim construction that two
4 different headers would have to be written to their
5 respective protocol stack layer memories
6 concurrently also?

7 **A. Yes.**

8 Q. And so is it your understanding of the
9 District Court's claim construction that two
10 different headers in a packet must both be written
11 to the packet buffer memory at the same time?

12 ATTORNEY AUCHTER: Objection to form.

13 **A. I apologize. Do you mind repeating that**
14 **question one more time?**

15 Q. Sure.

16 Is it your understanding of the District
17 Court's claim construction that two different
18 headers in a packet must both be written to the
19 packet buffer memory concurrently?

20 **A. I disagree that the court construction**
21 **clarifies that. I think the court's construction**
22 **is silent on that.**

23 Q. So if we have a hypothetical packet that
24 has two headers, we'll say it has a layer 2 header
25 and a layer 3 header -- do you understand that

1 hypothetical so far?

2 **A. I understand your hypothetical.**

3 Q. The District Court's claim construction
4 would require the layer 2 header be written to the
5 packet buffer memory at the same time the layer 2
6 header is written to the protocol stack layer
7 memory. Correct?

8 ATTORNEY AUCHTER: Objection. Form.
9 Calls for speculation. Calls for a legal
10 conclusion.

11 **A. Yes.**

12 Q. And the District Court's claim
13 construction would require that the layer 3 header
14 be written to the packet buffer memory at the same
15 time the layer 3 header is written to the protocol
16 stack layer memory. Correct?

17 ATTORNEY AUCHTER: Same objections.

18 **A. Yes.**

19 Q. And the District Court's claim
20 construction would require that the layer 2 header
21 be written to the layer 2 protocol stack layer
22 memory at the same time that the layer 3 header is
23 being written to the layer 3 protocol stack layer
24 memory. Correct?

25 ATTORNEY AUCHTER: Same objection.

1 **A. Yes.**

2 Q. And so, by implication, does the District
3 Court's claim construction require that the layer 2
4 header be written to the packet buffer memory at
5 the same time that the layer 3 header is being
6 written to the packet buffer memory?

7 ATTORNEY AUCHTER: Same objection.

8 **A. I think the -- the claim construction does**
9 **not explicitly say that. But I understand your**
10 **reasoning.**

11 Q. Do you agree with my reasoning?

12 ATTORNEY AUCHTER: Objection. Form.

13 **A. Yes.**

14 Q. If we go back one page to page 11 of your
15 declaration, at the bottom you have the language of
16 Claim 1 quoted.

17 Do you see that?

18 **A. Yes.**

19 Q. Do you see that limitation 1.2 begins with
20 the words "subsequent to said decoding step"?

21 **A. Yes.**

22 Q. Is it your understanding that, in Claim 1,
23 the concurrently writing step occurs after the
24 decoding step?

25 ATTORNEY AUCHTER: Objection. Form.

1 Calls for a legal conclusion.

2 **A. Yeah, as I stated earlier, I have no**
3 **opinion on subsequently and concurrently in their**
4 **meaning in terms of this patent. So I do not have**
5 **an opinion on that.**

6 Q. Where would a header be in a device after
7 it's decoded but before it's written to a memory?

8 ATTORNEY AUCHTER: Objection. Form.

9 Vague and ambiguous. Calls for speculation.

10 **A. Yeah. That question is just too vague for**
11 **me to understand.**

12 Q. So if we look at the '471 patent, and
13 let's turn to column 6.

14 **A. Okay.**

15 Q. Do you see the paragraph that begins in
16 column 6 around line 32?

17 **A. I do.**

18 Q. Do you want to read the first two
19 sentences for me, please.

20 **A. Do you want me to read them out loud?**

21 Q. Yes, please.

22 **A. "According to an embodiment of the**
23 **invention, the DMA device 120 is configured to**
24 **temporarily store headers from a MAC layer, the LLC**
25 **layer, the network layer, the transport layer, and**

1 **an application layer in a memory internal to the**
2 **DMA device 120. The DMA is a device" -- "the DMA**
3 **device is also configured to temporarily store**
4 **payload data in a memory internal to the DMA device**
5 **120."**

6 Q. And so would you agree that the '471
7 patent contemplates that headers are temporarily
8 stored within the DMA device before they're written
9 to the memory as identified in the claim language?

10 ATTORNEY AUCHTER: Objection. Form.

11 A. **Yes.**

12 Q. Let's turn to column 7 of the '471 patent,
13 and I'd like you to refresh your memory of the
14 paragraph, beginning in column 7 at line 7.

15 You don't need to read it out loud, but
16 you might want to read it to yourself.

17 A. **Okay. I've had a read of it.**

18 Q. So do you agree that the '471 patent
19 contemplates that Ethernet protocol is an example
20 of a data link layer?

21 A. **Can you repeat the question?**

22 Q. I apologize.

23 Do you agree that the '471 patent
24 contemplates that Ethernet protocol is an example
25 of a data link layer protocol?

1 **A. It says, "The data link layer 220 provides**
2 **transmission protocols for transferring data**
3 **between network nodes. Such transmission protocols**
4 **can include an Ethernet protocol."**

5 **So I agree that the data link layer can,**
6 **according to the '471, can include an internet**
7 **protocol.**

8 **Q. Earlier in that paragraph, it also refers**
9 **to a physical layer 212.**

10 **Do you see that?**

11 **A. I do.**

12 **Q. Does the '471 patent in this paragraph**
13 **identify any physical layer protocols?**

14 **A. The final sentence in this paragraph says,**
15 **"Such transmission protocols can include Ethernet**
16 **protocol." The antecedent basis for such**
17 **transmission protocols is unclear and could be**
18 **interpreted to mean the physical layer in sentence**
19 **1.**

20 **Q. Let's look at the next paragraph that**
21 **follows that. So this is beginning around line 19**
22 **of column 7 of the '471 patent.**

23 **A. Okay.**

24 **Q. The first sentence there refers to the**
25 **data link layer potentially being comprised of two**

1 sublayers: a logic link control layer and a media
2 access control layer.

3 Do you see that?

4 **A. I do.**

5 Q. When we were talking about your
6 engineering working where you implemented Ethernet
7 a number of times, have you implemented a logic
8 link control layer?

9 **A. Not to my memory.**

10 Q. But you have implemented a media access
11 control layer. Is that correct?

12 **A. Yes.**

13 Q. I'd like to go back to your declaration.
14 Let's turn to paragraph 28.

15 **A. I'm sorry. Paragraph 28, not page 28?**

16 Q. Yes, paragraph 28.

17 **A. Okay.**

18 Q. So the first sentence of your paragraph 28
19 states that "The petition and Dr. Mir rely solely
20 on the Nelson patent to satisfy the concurrently
21 writing requirement of claims 1 and 13."

22 Do you see that?

23 **A. Yes.**

24 Q. Did you review the petition when preparing
25 your declaration?

1 **A. Yes. I believe I stated that in my**
2 **declaration.**

3 Q. And did you review Dr. Mir's declaration
4 when preparing your declaration?

5 **A. Yes.**

6 Q. So if we skip forward to paragraph 31 of
7 your declaration where you begin to provide a
8 summary of the Nelson patent, do you see that?

9 **A. I do.**

10 Q. And in the first sentence, you state,
11 "The Nelson patent is generally directed to a
12 system implementation for a Fibre Channel switch."
13 Correct?

14 **A. Correct.**

15 Q. In preparing your declaration, did you
16 review the Cornett prior art patent?

17 **A. I reviewed the Cornett patent. I was not**
18 **asked to provide an opinion on Cornett.**

19 Q. Do you recall whether Cornett is directed
20 to an implementation for a Fibre Channel switch?

21 **A. I do not recall.**

22 Q. Let's turn to paragraph 36 of your
23 declaration.

24 **A. Okay. I'm there.**

25 Q. And do you see the last sentence of

1 paragraph 36, you state that "the Nelson patent
2 does not disclose any memory as part of the receive
3 logic circuitry"?

4 **A. Yes, I see that sentence.**

5 Q. Why is the presence or absence of memory
6 in Nelson's receive logic circuitry relevant to the
7 issues, in your opinion?

8 ATTORNEY AUCHTER: Objection to form.

9 **A. The Nelson patent contemplates a mechanism
10 by which Fibre Channel frames are received and the
11 presence of memory there would indicate how the
12 packets are forwarded to the header and frame
13 FIFOs.**

14 Q. And so if Nelson expressly disclosed that
15 there was a memory within the receive logic
16 circuitry, how would that indicate to you that the
17 packets are forwarded to the header and frame
18 FIFOs?

19 ATTORNEY AUCHTER: Objection to form.

20 **A. Yeah, I think it's the lack of memory
21 there that -- or the absence of a memory
22 declaration informs how the packets are forwarded
23 down the line, as I describe in my declaration.**

24 Q. And so what is it about the lack of memory
25 in the receive logic circuitry that influences your

1 understanding about how Nelson's Fibre Channel
2 switch would receive a Fibre Channel frame?

3 ATTORNEY AUCHTER: Objection. Form.

4 A. I address this in paragraph 44 of my
5 declaration where I state, or I quote the Nelson
6 patent that says the received data -- the port
7 snoops on the received data, and as the header is
8 received, the port copies the header to a FIFO,
9 which serves as the header buffer.

10 The lack of memory shows that the header
11 is forwarded to the header FIFO, or copies it to
12 the header FIFO as the data is received, meaning
13 that it is done on a 4-byte boundary as required by
14 Fibre Channel.

15 ATTORNEY AUCHTER: Can I just interject
16 for one second, Mr. Brooks?

17 When we read, we tend to go much faster
18 and it's very hard for the court reporter, who
19 doesn't have what you're reading from in front
20 of her. So if you could slow down.

21 THE WITNESS: Okay. Will do.

22 ATTORNEY AUCHTER: Sorry.

23 Q. And so why is transferring data in 4-byte
24 chunks, why does that matter?

25 A. Because it necessarily means that the

1 plurality of headers cannot be concurrently written
2 with each other. Because the header is 24 bytes,
3 writing them as a 4 -- in 4-byte increments
4 necessarily means that they cannot be written
5 concurrently with each other. If there were even
6 more than one header, and in Nelson's case, there's
7 only one header.

8 Q. So even if Nelson's 24-byte Fibre Channel
9 header was actually two different layer headers, it
10 would be your view that Nelson's approach, as you
11 describe it in paragraph 44, does not show
12 concurrently writing two headers. Is that correct?

13 ATTORNEY AUCHTER: Objection to form.

14 A. Correct. Even if there were two headers,
15 which there are not, the fact that they are written
16 as, and to quote the Nelson patent, as the headers
17 are received -- as the header is received, they are
18 written in a manner such that they could not be
19 written concurrently with one another.

20 Q. So, stated differently, is the problem
21 from your perspective that two headers cannot be
22 received concurrently?

23 ATTORNEY AUCHTER: Objection. Form.

24 A. No, that is not my -- my argument.

25 Q. And so what have I misunderstood, then?

1 ATTORNEY AUCHTER: Objection. Form.

2 Calls for speculation.

3 A. Nelson teaches that the port snoops on the
4 received data, and as the header is received, it
5 pushes -- it copies the header to a FIFO. So the
6 header is written to the FIFO as it is received in
7 4-byte chunks.

8 Q. And so is it your understanding that
9 Nelson's device would receive the first 4 bytes of
10 its Fibre Channel header, it would write those
11 4 bytes to the FIFO, and then it would receive the
12 next 4 bytes of the Fibre Channel header?

13 ATTORNEY AUCHTER: Objection. Form.

14 A. Yes.

15 Q. If there were two different protocol
16 headers in one 4-byte chunk of data, would you
17 agree that Nelson's approach would teach
18 concurrently writing?

19 ATTORNEY AUCHTER: Objection. Form.

20 A. First off, I disagree with the -- the
21 assumption there that there are two headers.
22 Nelson teaches only a single header, which is why
23 he uses the singular header when he states, As the
24 header is received, the port copies the header to a
25 FIFO which serves as the header buffer.

1 Q. So you started your answer with "first
2 off." Did you complete your answer?

3 A. Yes, I completed my answer. There's no
4 second off.

5 Q. Okay.

6 Let's go back to paragraph 40 of your
7 declaration.

8 A. Okay. I am at paragraph 40.

9 Q. And in the first sentence, you reference
10 the optional headers that are part of the Fibre
11 Channel specification. Correct?

12 A. If you don't mind, I'm going to read the
13 entirety of paragraph 40.

14 Okay. Yes. I agree -- sorry. Could you
15 repeat the question?

16 Q. In the first sentence of paragraph 40, you
17 reference the optional parter -- the optional
18 headers that are part of the Fibre Channel
19 specification. Correct?

20 A. That is correct.

21 Q. Would it have been understood by -- to
22 someone reading Nelson that there would be other
23 higher layer protocols within the data field of a
24 Fibre Channel packet?

25 ATTORNEY AUCHTER: Objection. Form.

1 **A. No. Nelson teaches a Fibre Channel switch**
2 **and does not reference any higher layer protocols.**
3 **Only the single header included in Fibre Channel.**

4 Q. To your knowledge, does the Fibre Channel
5 specification contemplate carrying higher layer
6 protocols within Fibre Channel frames?

7 **A. Yeah. I -- yes. I acknowledge as much in**
8 **paragraph 40 where I say the Fibre Channel**
9 **specification provides for optional headers.**

10 Q. Aside from the optional headers that you
11 reference in paragraph 40, to your knowledge, does
12 the Fibre Channel specification contemplate
13 carrying higher layer protocols within a Fibre
14 Channel frame?

15 ATTORNEY AUCHTER: Objection to form.

16 Asked and answered.

17 **A. I don't recall.**

18 Q. If an IP packet was inside a Fibre Channel
19 frame, would you consider the IP packet to be at a
20 higher layer than the Fibre Channel frame?

21 **A. Yes. However, I have no knowledge of IP**
22 **headers residing at Fibre Channel frames.**

23 Q. To be clear, have you ever implemented
24 Fibre Channel?

25 **A. No.**

1 Q. Have you ever worked in any significant
2 degree with Fibre Channel technology?

3 A. Yes.

4 Q. When did you work with Fibre Channel?

5 A. When I worked for Intransa, we were
6 creating storage devices and we needed to -- at the
7 time Fibre Channel was the preeminent storage
8 technology, so we needed to be aware of Fibre
9 Channel as we were implementing our storage
10 solution at Intransa.

11 Q. And so as part of your work for Intransa,
12 you studied Fibre Channel?

13 A. Yes, I think that's fair.

14 Q. When you were reviewing the Nelson patent,
15 did you consider Nelson's disclosure to be limited
16 to the context of Fibre Channel?

17 ATTORNEY AUCHTER: Objection. Form.

18 A. If you'll give me a second. I want to
19 review what I say about Nelson in my declaration.

20 I'm also going to review the Nelson
21 patent.

22 So I state in paragraph 31 of my
23 declaration, "The Nelson patent is generally
24 directed to a system implementation for a Fibre
25 Channel switch."

1 Nelson uses Fibre Channel as the basis for
2 his invention which includes a single header.

3 The -- so I guess to answer your question,
4 I would not consider the invention to be specific
5 to Fibre Channel, but informed by Fibre Channel in
6 that it includes a single header, and also includes
7 elements of Fibre Channel such as receiving the
8 header or forwarding the header as it's received.

9 Q. Do you have a copy of the Nelson patent
10 there with you?

11 A. I do.

12 Q. If you turn to column 1, do you see
13 towards the top of column 1 Nelson sets out the
14 field of the invention?

15 A. I see that, yes.

16 Q. Does the Nelson patent refer to Fibre
17 Channel in describing the field of invention?

18 A. No.

19 Would it help if I read the field of
20 invention?

21 Q. Sure. Why don't you read the field of
22 invention.

23 A. "The invention relates generally to data
24 communication in computer systems, and more
25 particularly to a system and method implemented in

1 connection with packet switching protocols wherein
2 the packet (frame) header information is stored in
3 a buffer separate from the corresponding packet
4 buffer to allow routing decisions to be made based
5 on the header information without reading the
6 packet out of the buffer."

7 Q. Thank you.

8 If you turn to column 8.

9 A. Okay.

10 Q. So Claim 1 of the Nelson patent is in
11 column 8. I don't think we need to read it out
12 loud, but would you agree with me that Claim 1 of
13 the Nelson patent does not refer to Fibre Channel?

14 A. Again, I agree that this does not refer to
15 Fibre Channel in Claim 1, but I will note that it
16 is informed by Fibre Channel by the use of a single
17 header.

18 Q. And if you continue skimming through the
19 rest of column 8, 9, and 10, do any of the claims
20 of the Nelson patent refer to Fibre Channel?

21 A. You'll forgive me if I read these in
22 detail rather than skimming.

23 Yes, I agree that it does not mention
24 Fibre Channel.

25 Q. Was it your understanding that Dr. Mir and

1 Cisco relied on Nelson as disclosing the writing of
2 more than one header?

3 **A. No, that is not my understanding.**

4 Q. And so if we turn to paragraph 40 of your
5 declaration.

6 **A. Okay. I'm on paragraph 40.**

7 Q. So three lines from the bottom of page 23
8 you write that "A POSITA would recognize that the
9 Nelson patent only discloses writing a single
10 header to the header buffer, or header FIFO. A
11 POSITA would therefore recognize that the Nelson
12 patent does not disclose or suggest that multiple
13 headers are written to the header buffer, or header
14 FIFO."

15 Do you see that?

16 **A. I do.**

17 Q. In preparing your declaration and the
18 statements in paragraph 40, did you consider the
19 petition's reliance on other references beyond
20 Nelson in combination with Nelson?

21 ATTORNEY AUCHTER: Objection to form.

22 **A. I considered Nelson. I did not consider**
23 **other in combination with Nelson.**

24 ATTORNEY AUCHTER: Counsel, when we get to
25 a good point, can we take a break, please? It's

1 been a little over an hour.

2 ATTORNEY FOSTER: Sure. We can take a
3 break now if that's good.

4 ATTORNEY AUCHTER: Does that work for you?

5 THE WITNESS: That works for me.

6 ATTORNEY FOSTER: We'll go off the record.

7 THE REPORTER: Off the record at 12:15

8 p.m.

9 (Lunch recess taken from 12:15 p.m.

10 to 1:04 p.m.)

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1 A F T E R N O O N S E S S I O N

2 THE REPORTER: Back on the record at

3 1:04 p.m.

4 BY ATTORNEY FOSTER:

5 Q. Mr. Brooks, welcome back.

6 A. **Thank you.**

7 Q. Did you have a good lunch?

8 A. **It was -- it was fine. It was good to get**
9 **some food in my belly.**

10 Q. Good.

11 Let's pick up with your declaration at
12 paragraph 42.

13 A. **Okay.**

14 Q. Let me know when you're there.

15 A. **Okay. I am there.**

16 Q. And in paragraph 42, you discuss and quote
17 parts of the Fibre Channel specification.

18 Do you see that?

19 A. **Yes, I see that.**

20 Q. And so I want to understand how
21 information would be transmitted and received in
22 accordance with the Fibre Channel specification.

23 The language you quote refers to data
24 being encoded 8 bits at a time into a 10-bit
25 transmission character.

1 Do you see that?

2 **A. I do.**

3 Q. And then it says that the information is
4 sent serially by bit.

5 Do you see that?

6 **A. Yes.**

7 Q. What does it mean to send data serially by
8 bit?

9 **A. That means that on the actual transmission**
10 **medium, either fiber or copper, that 1 bit is sent**
11 **after the other -- I'll say serially. I don't want**
12 **to use "serially" to define serially. But 1 bit is**
13 **sent after another.**

14 Q. And so is that why the next sentence says
15 that the bits are collected 10 at a time?

16 **A. On the receive side, yes.**

17 Q. And so would it be possible to decode the
18 information being transmitted at any smaller group
19 of units other than 10 bits at a time?

20 ATTORNEY AUCHTER: Objection to form.

21 **A. No. 10 bits need to be there to decode**
22 **them.**

23 Q. And then when the 10 bits are decoded, we
24 obtain 8 bits of information. Correct?

25 **A. That is correct.**

1 Q. And so is -- are 8 bits 1 byte?

2 A. Yes.

3 Q. And how much information is 1 bit?

4 A. A bit is either a 0 or a 1. It's -- so it
5 contains two possible values.

6 Q. How does this transmission approach
7 compare with Ethernet, in your experience?

8 ATTORNEY AUCHTER: Objection to form.

9 A. It's fairly similar to Ethernet. Ethernet
10 uses 8b/10b encoding, and data over Ethernet,
11 depending on the speed, is sent serially, similar
12 to Fibre Channel.

13 Q. And so with the minimum unit of data
14 transmission and for Ethernet, would it also be a
15 10-bit transmission unit that corresponds to one
16 8-bit piece of data?

17 ATTORNEY AUCHTER: Objection to form.

18 A. That statement is true for 8b/10b encoded
19 Ethernet.

20 Q. Are there forms of Ethernet that use a
21 different encoding?

22 A. Yes.

23 Q. Do you know what other encodings are used
24 with Ethernet?

25 A. Some of the early forms of Ethernet use no

1 **encoding at all, and some of the more recent ones**
2 **use 64 or 66b encoding.**

3 Q. And so with the 64/66b encoding, does it
4 work generally the same? It's just the number of
5 bits that correspond to a transmission character
6 are different?

7 ATTORNEY AUCHTER: Objection to form.

8 A. **Yes.**

9 Q. So if we turn to your paragraph 44, there
10 you discuss the Nelson patent and its receive
11 logic.

12 Do you see that?

13 A. **I'm going to have a read of paragraph 44.**

14 **Okay. Yes.**

15 Q. And you note there in paragraph 44 that
16 six sequential cycles would be required to store
17 the entire header.

18 Do you see that?

19 A. **I see the paragraph that -- or the**
20 **sentence that says, "For the 24-byte Fibre Channel**
21 **header, six sequential cycles would be required to**
22 **store the entire header in the frame FIFO and the**
23 **header FIFO."**

24 Q. And what is the relevance to your analysis
25 of how many cycles it takes to store a header?

1 **A. Because Fibre Channel operates on a 4-byte**
2 **boundary after decoding. The 24-byte header --**
3 **because 24 is divided by 4 equals 6 -- would take**
4 **six cycles in order to write the header to store**
5 **the entire header in the frame FIFO and the header**
6 **FIFO. So the significance is that the header as**
7 **described in Nelson is stored as the header is**
8 **received, 4 bytes at a time.**

9 Q. In Ethernet, is there something like the
10 4-byte boundary that Fibre Channel has?

11 ATTORNEY AUCHTER: Objection. Form.
12 Vague.

13 **A. Not to my knowledge.**

14 Q. You agree that Nelson would use the six
15 cycles that you refer to, and in each cycle it
16 would be writing a portion of the header to both
17 the frame FIFO and to the header FIFO. Correct?

18 ATTORNEY AUCHTER: Objection. Form.

19 **A. Correct.**

20 Q. And so, in your view, is the shortcoming
21 in Nelson ultimately that Nelson's Fibre Channel
22 disclosure only contemplates having one header?

23 ATTORNEY AUCHTER: Objection. Form.

24 **A. That is one of the shortcomings of Nelson.**

25 Q. What do you mean when you refer to Nelson

1 as having segmented operation?

2 A. Can you point me to where I say that?

3 Q. It's in paragraph 44. You refer to it
4 twice in the portion of the paragraph on page 26.

5 A. Let me just have a read of it here with
6 that in mind.

7 Okay. Could you repeat the question?

8 Q. Yeah. What do you mean when you refer to
9 Nelson as having segmented operation?

10 A. The idea here is that Nelson is writing
11 out the header in segments. So, because it's on a
12 4-byte boundary, a 24-byte header is written in six
13 separate segments, thus constituting a segmented
14 operation.

15 Q. And so if Nelson were writing two
16 different headers during those six cycles, would
17 that correspond to concurrently writing, in your
18 opinion?

19 ATTORNEY AUCHTER: Objection. Form.

20 A. First off, I disagree with the premise of
21 your question. Nelson only discloses a single
22 header, not multiple headers. But even if I were
23 to accept the fact that there are multiple headers
24 being written, then the segmented operation does
25 not meet the claim language of -- of concurrently

1 **writing with respect to one another.**

2 Q. And why would writing two headers in six
3 cycles in a segmented way not correspond to
4 concurrently writing?

5 ATTORNEY AUCHTER: Objection. Form.

6 A. **The headers would be written one after**
7 **another, in such a way that they would not be**
8 **concurrently written. They would be done in**
9 **segments and therefore not concurrently written.**
10 **And, again, I'll just state that, you know, Nelson**
11 **only contemplates a single header, so that this was**
12 **not considered by Nelson and would not be part of**
13 **the teachings of Nelson.**

14 Q. And so is it your understanding that the
15 concurrently writing limitation requires writing
16 the packet headers in a single cycle?

17 ATTORNEY AUCHTER: Objection to form.

18 A. **I did not say that. I say -- said that**
19 **they would have to be written at the same time. I**
20 **did not mention cycles.**

21 Q. Is it possible with any networking
22 technologies that you're aware of for a device to
23 receive two headers concurrently?

24 ATTORNEY AUCHTER: Objection to form.

25 Calls for speculation. Relevance.

1 **A. Yes.**

2 Q. What technology would that be?

3 ATTORNEY AUCHTER: Objection to form.

4 **A. It depends on where in the -- where you**
5 **are looking. But there are certainly mechanisms in**
6 **any protocol standard -- namely, Ethernet --**
7 **whereby at certain points, the headers are put**
8 **together and can be received concurrently.**

9 Q. I believe we discussed earlier you
10 mentioned that Ethernet is a serial communication
11 technology?

12 **A. Yes.**

13 Q. And so data is received over an Ethernet
14 communication link bit by bit?

15 **A. Correct.**

16 Q. Can more than one header fit in a single
17 bit on an Ethernet communication link?

18 **A. No.**

19 Q. So can you explain, or reconcile what
20 seems like an incongruity between your testimony
21 before and your testimony just now about whether
22 two headers can be received concurrently?

23 ATTORNEY AUCHTER: Objection. Form.

24 Argumentative.

25 **A. You did not specify at which layer you**

1 were speaking of.

2 So at higher layers, data is no longer
3 being sent bit by bit. It is done at a physical
4 layer. And so there are possibilities of, at
5 higher layers, multiple headers being received
6 concurrently.

7 Q. Can you grab your copy of the Nelson
8 reference, and let's look at column 5.

9 A. By the Nelson reference, I assume you mean
10 the Nelson patent?

11 Q. That's correct.

12 A. Okay. I have it open to column 5.

13 Q. And do you see there's a parenthetical
14 sentence in column 5, starting at line 25?

15 A. If you don't mind, I'm going to read the
16 entire paragraph here.

17 Okay. I've had a read of it.

18 Q. So how would an engineer have understood
19 Nelson's sentence in column 5, beginning at line
20 25, as relating to the implementation of its
21 receiver circuitry?

22 ATTORNEY AUCHTER: Objection to form.

23 Q. Let me ask that again.

24 How would a header register be used in
25 conjunction with storing headers in RAM?

1 ATTORNEY AUCHTER: Objection to form.

2 A. So what Nelson is teaching here is that
3 when the header is read out of the FIFO, that that
4 sometimes can be a destructive operation, meaning
5 it's no longer held in the FIFO, and therefore the
6 header may be stored in a register to be operated
7 on after it is read from the FIFO.

8 The sentence says, or the sentence
9 starting at line 23 says, "This is because the
10 header in this position needs to be retained after
11 it is read, which is not possible with the
12 destructive FIFO alone."

13 The parenthetical then goes on to say,
14 "The header register may also need to be used in
15 some implementations which store the headers in
16 RAM."

17 So Nelson is merely saying that even in
18 the case of a -- where there's not a FIFO but a
19 RAM, a register may still be necessary.

20 Q. And why would a register be necessary in
21 order for the header to be written to RAM?

22 ATTORNEY AUCHTER: Objection to form.

23 A. That's not what it says. It says the
24 header may be need -- "The header register may need
25 to be used in some implementations which store the

1 headers in RAM."

2 So this is talking about the read side of
3 the RAM and the -- and the register being used on
4 the read side of RAM.

5 Q. The sentence refers to storing headers in
6 RAM. Correct?

7 ATTORNEY AUCHTER: Objection. Form.

8 A. The sentence says that some
9 implementations store the headers in RAM, but the
10 sentence before it says this is because the header
11 in this position needs to be retained after it is
12 read, which is not possible with a destructive
13 FIFO.

14 So the parenthetical is saying that the
15 RAM -- in the case where you're not using a FIFO
16 but a RAM, then a register may still need to be
17 used after reading from the RAM.

18 Q. I don't see what you see with respect to
19 reading data from RAM.

20 What line do you see Nelson is referring
21 to reading data from RAM?

22 ATTORNEY AUCHTER: Objection. Form.

23 A. Line 23 says, "This is because the header
24 in this position needs to be retained after it is
25 read, which is not possible with a destructive FIFO

1 alone."

2 So this -- this paragraph is talking about
3 after it's read from the header buffer.

4 The parenthetical then goes to say, "The
5 header register may also need to be used" -- this
6 is referring to the header register, which is
7 talking about the read side of the header buffer --
8 "in some implementations which store the headers in
9 RAM."

10 I will grant you that this is not
11 particularly artfully written, but there are two
12 different implementations described for the header
13 buffer, a FIFO and a RAM. And the parenthetical is
14 saying that in the case where there's a RAM used
15 for the header buffer, that the -- you may still
16 need a header register when you read from the RAM.

17 Q. Does it say that a header register is
18 required to read from RAM or a header register is
19 required to store into RAM?

20 ATTORNEY AUCHTER: Objection. Form.

21 A. It says, "This is because the header in
22 this position needs to be retained after it is
23 read, which is not possible with a destructive FIFO
24 alone."

25 So this is talking about the read side of

1 **a FIFO, and a destructive FIFO then loses its**
2 **contents after you read it. And so it's necessary**
3 **to hold the header in a register because it is no**
4 **longer available in the FIFO.**

5 Q. In Nelson's embodiments where headers are
6 stored in RAM, would this sentence suggest to you
7 that the headers are read from the header register
8 when they are written into RAM?

9 ATTORNEY AUCHTER: Objection to form.

10 A. **I'm sorry. Could you repeat the question?**

11 Q. You agree that Nelson discloses
12 embodiments that store headers in RAM. Correct?

13 A. **Nelson teaches that there is a header**
14 **buffer and contemplates two implementations of that**
15 **buffer: a FIFO and a RAM.**

16 **So, yes, I agree with that.**

17 Q. So when Nelson is storing headers in RAM,
18 where are they being read from to be written into
19 RAM?

20 ATTORNEY AUCHTER: Objection. Form.

21 A. **The receive logic.**

22 Q. Would it have been obvious to you that
23 within the receive logic it's the header register
24 that's temporarily storing the headers when they
25 are being written to RAM?

1 ATTORNEY AUCHTER: Objection. Form.

2 Facts not in evidence.

3 Also calls for a legal conclusion.

4 A. No. Nelson is silent on the
5 implementation of the receive logic in that regard.

6 Q. So what is your understanding of why
7 Nelson states that the header register is required
8 in order to store headers in RAM?

9 ATTORNEY AUCHTER: Objection. Form.

10 Asked and answered.

11 A. That's not what Nelson says. The sentence
12 says, "The header register may also need to be used
13 in some implementations which store the headers in
14 RAM."

15 So Nelson is saying that the header
16 register on the read side of the header buffer may
17 require a register in the cases both where there's
18 a FIFO, a destructive FIFO, and it may be needed in
19 the case where the header buffer is made from RAM.

20 Q. Why is it required?

21 ATTORNEY AUCHTER: Objection. Form.

22 Assumes facts not in evidence, and misstates
23 prior testimony.

24 Q. I'll rephrase.

25 Why would an engineer have understood

1 Nelson as stating that the header register is
2 needed in some implementations which store headers
3 in RAM?

4 ATTORNEY AUCHTER: Objection. Form.
5 Mischaracterizes prior testimony. Assumes facts
6 not in evidence. Relevance. Asked and
7 answered.

8 A. Let's talk about the destructive FIFO for
9 a second, which is what Nelson is teaching here.

10 In order to operate on the header after
11 it's read from the header buffer, in the case where
12 there's a destructive FIFO, it would need to store
13 that header in a register because the header is no
14 longer available in the FIFO.

15 Nelson then goes on to say, "The header
16 register may also need to be used in some
17 implementations which store the headers in RAM."
18 He says "may." He doesn't say it's required, and
19 says that it -- someone would understand that,
20 depending on how the RAM is implemented, again the
21 header may not be available on the output of the
22 RAM and therefore it must be stored in a register.

23 Q. Do engineers normally consider RAM to be
24 destructive in the same way that Nelson explains
25 that some FIFOs are destructive?

1 ATTORNEY AUCHTER: Objection. Form.

2 Ambiguous. Calls for speculation.

3 **A. It very much depends on the implementation**
4 **of the RAM and the logic around the RAM.**

5 **I would point out that FIFOs are often**
6 **implemented using RAM, so therefore a destructive**
7 **FIFO is made up of RAM. So the answer to the**
8 **question can a RAM be destructive is yes.**

9 Q. Would you agree that Nelson contemplates
10 that the RAM implementation is an alternative to
11 the FIFO implementation?

12 ATTORNEY AUCHTER: Objection. Form.

13 **A. Nelson teaches that there's a RAM -- RAM**
14 **implementation and a FIFO implementation for the**
15 **header FIFO.**

16 Q. And so in an implementation that's storing
17 headers in RAM, it's not storing them in a FIFO per
18 se. Is that correct?

19 ATTORNEY AUCHTER: Objection. Form.

20 **A. A FIFO can be implemented using RAM. What**
21 **Nelson teaches is a FIFO implementation which is**
22 **agnostic to its underlying technology.**

23 **I -- let me walk that back. He teaches**
24 **that there's a FIFO which contains several**
25 **different types of underlying technology in a RAM**

1 **implementation which stores the header.**

2 Q. Let's look at Nelson in column 6.

3 A. **Okay.**

4 Q. Do you see the paragraph beginning at line
5 8?

6 A. **Yes.**

7 Q. Can you read the first sentence of that
8 paragraph.

9 A. **"In another embodiment, dual port RAM can
10 be used to store the header information."**

11 Q. And so would you agree that Nelson is not
12 describing the use of RAM as an example of how to
13 implement the FIFO but as a different embodiment
14 altogether?

15 ATTORNEY AUCHTER: Objection. Form.

16 A. **I agree that in column 6 at line 8, that
17 the dual port RAM implementation described there is
18 different than his FIFO implementation.**

19 Q. So in Nelson, when headers are being
20 written to RAM, where are they coming from?

21 A. **The receive logic.**

22 Q. If we go back to the paragraph we were
23 discussing before in column 5 regarding the FIFO
24 and the header register, would you agree that
25 paragraph is describing the header buffer 34?

1 ATTORNEY AUCHTER: Objection. Form.

2 Ambiguous.

3 A. Yes, I agree that 34 is the reference to
4 the header buffer from Figure 4.

5 Q. And Figure 4 is an illustration of one
6 embodiment disclosed by Nelson. Correct?

7 A. Correct.

8 Q. And more specifically, the Figure 4
9 embodiment is using a FIFO. Correct?

10 ATTORNEY AUCHTER: Objection. Form.

11 A. Figure 4 contains a header FIFO marked as
12 34 and a frame FIFO marked as 30.

13 Q. And Figure 4 does not show a RAM.
14 Correct?

15 ATTORNEY AUCHTER: Objection. Form.

16 A. The word "RAM" does not appear in Figure
17 4, and -- but it does contain a FIFO which can be
18 implemented using RAM technology.

19 Q. Can RAM be implemented as a FIFO?

20 A. No.

21 Q. And so do you understand Nelson's RAM
22 implementation as using a FIFO?

23 ATTORNEY AUCHTER: Objection. Form.

24 A. No.

25 Q. And so in the parenthetical in column 5 at

1 line 25, do you understand that Nelson is talking
2 about its RAM implementations, not its FIFO
3 implementations?

4 ATTORNEY AUCHTER: Objection. Form.
5 Mischaracterizes prior testimony.

6 A. Yes.

7 Q. And so in an implementation that uses RAM
8 to store headers and does not use a FIFO, what is
9 the purpose of having a header register?

10 ATTORNEY AUCHTER: Objection. Form.
11 Assumes facts not in evidence.

12 A. Nelson is silent on that. He says that
13 Nelson -- the -- excuse me. "The header register
14 may also need to be used in some implementations
15 which store [the] headers in RAM." He does not
16 describe why the header register. He just says it
17 may need to be there in some implementations.

18 Q. What is the purpose of the header register
19 in the implementations that do have a FIFO?

20 ATTORNEY AUCHTER: Objection. Form.
21 Calls for speculation.

22 A. The preceding sentence says, "This is
23 because the header in this position needs to be
24 retained after it is read, which is not possible
25 with a destructive FIFO alone."

1 The idea here is that when you read a
2 FIFO, if it is a destructive FIFO, the contents of
3 the FIFO are no longer available. Since the header
4 needs to be operated on after they're no longer
5 available at the FIFO, they are stored in the
6 header register.

7 Q. And so is the idea that Nelson's device
8 needs to first decide where to send a frame, and in
9 order to do that, it needs to look at the header,
10 and then once it has decided where to send the
11 frame, it has to actually send the frame including
12 its header?

13 ATTORNEY AUCHTER: Objection. Form.

14 A. That's a compound question. Can you break
15 that up for me?

16 Q. Does Nelson need to retain a header after
17 it is read from a destructive FIFO because Nelson's
18 device would need to read the header again?

19 ATTORNEY AUCHTER: Objection. Form.

20 A. I suppose the way I would say it is that
21 it needs to use the data in the header after it's
22 read from the FIFO, and therefore it stores it in a
23 register while it is -- so that it can use that
24 header.

25 Q. And so would the purpose of having a

1 header register and an implementation that's
2 storing headers in RAM be to temporarily store the
3 header before it is written to RAM?

4 ATTORNEY AUCHTER: Objection. Form.
5 Calls for speculation.

6 **A. No.**

7 Q. What would the purpose of the header
8 register be in an implementation that stores
9 headers in RAM?

10 ATTORNEY AUCHTER: Objection. Form.
11 Calls for speculation.

12 **A. Exactly the same as it would be on the**
13 **read of the destructive FIFO -- to store the data**
14 **for use after it is read from the RAM.**

15 Q. Let's go back to your declaration. It's
16 paragraph 44, but that paragraph spans a few pages.
17 Can we look at page 27.

18 **A. Okay. I'm on page 27.**

19 Q. So at the top of page 27, you've got a
20 diagram of cascaded flip-flops.

21 Do you see that?

22 **A. I do.**

23 Q. How does this circuit work?

24 **A. Flip-flops are a logic element that take**
25 **the input from the D input and present it on the Q**

1 **output on the edge of a clock pulse.**

2 **So, looking at this diagram, the value**
3 **that is on the signal N will be presented to the**
4 **wire Q0 on the edge of the clock at the bottom.**

5 **The value that is on Q0 will then be put to Q1**
6 **similarly on the edge of a clock.**

7 Q. And so does the box that has a D and a Q
8 and a little triangle in it, is there a term used
9 in engineering for what that box is?

10 A. **That is a flip-flop.**

11 Q. Okay. So does one flip-flop store 1 bit
12 of data?

13 A. **Yes.**

14 Q. And is that storage temporary?

15 ATTORNEY AUCHTER: Objection. Form.

16 A. **Can you define what you mean by**
17 **"temporary"?**

18 Q. You stated that the flip-flop would
19 present the input D at its output Q0 on the edge of
20 a clock. Correct?

21 A. **Correct.**

22 Q. What happens after that?

23 A. **The circuit will remain in a steady state**
24 **until the next edge of the clock.**

25 Q. And is that a rising edge, a falling edge,

1 or either edge?

2 **A. It depends on the implementation of the**
3 **flip-flop. Both rising edge flip-flops, falling**
4 **edge flip-flops, and dual edge flip-flops are**
5 **common in industry.**

6 Q. And so if we call these the left flip-flop
7 and the right flip-flop, since there are two
8 flip-flops, does that help distinguish between them
9 for purposes of our discussion?

10 **A. Yes.**

11 Q. And so initially the left flip-flop has
12 some input D and it has some output Q0, and that Q0
13 output is then the input to the right flip-flop's
14 D. Correct?

15 **A. Correct.**

16 Q. And so before the clock cycles, the left
17 flip-flop might have different values for D and Q0.
18 Correct?

19 **A. Yeah. Yes.**

20 Q. And then when the clock edge occurs, the
21 left flip-flop will take its input value D, and
22 that will now be its output value Q0. Correct?

23 **A. Correct.**

24 Q. And so then the left flip-flop will no
25 longer have whatever Q0 output it previously had;

1 it now has the input value D as its Q0 output?

2 **A. Correct.**

3 Q. And so on the edge of a clock, the left
4 flip-flop has lost whatever information it had been
5 storing about what the Q0 value was before the
6 clock edge. Is that correct?

7 ATTORNEY AUCHTER: Objection. Form.

8 **A. Correct. It -- with these cascaded**
9 **flip-flops, that value will now be on Q1.**

10 Q. Would you say that the left flip-flop has
11 written 1 bit of data to the right flip-flop?

12 **A. I'm not sure I would use the word "right."**
13 **But, yes, it has transferred the value of Q0 to Q1.**

14 Q. What, in your mind, is the difference
15 between writing data to a flip-flop and
16 transferring data to a flip-flop?

17 ATTORNEY AUCHTER: Objection. Form.

18 **A. Writing sort of indicates the -- the --**
19 **it's from the perspective of what is sending the**
20 **data. So it -- that's a little different of a**
21 **meaning than -- it -- I -- it's roughly the same as**
22 **what we're talking about here. But, yes, the data**
23 **is -- from Q0 is transferred to Q1.**

24 Q. Were you aware of the technology for
25 cascaded flip-flops before you began working on

1 this case?

2 A. Yes.

3 Q. Did you learn about cascaded flip-flops in
4 undergrad?

5 A. Yes.

6 Q. And the pictures that you show, you -- you
7 borrowed these images from lecture notes for a
8 class at the University of Washington. Correct?

9 A. Correct.

10 Q. Do you know if that course is intended for
11 undergraduate students?

12 A. The course is a 400-level class. So, yes,
13 I would take that to be an undergraduate class.

14 Q. If we look at the shift register diagram
15 that you have at the bottom of page 27, there are
16 four output lines.

17 Do you see those, labeled "out 1" through
18 "out 4"?

19 A. Yes.

20 Q. Would those output lines allow the values
21 in this shift register to be read nondestructively?

22 A. Yes.

23 Q. And so could all four outputs be read in a
24 single clock cycle as long as the clock line at the
25 bottom of the diagram is not pulsed?

1 ATTORNEY AUCHTER: Objection. Form.

2 A. Yes.

3 Q. And if we added more flip-flops to this
4 shift register, would it be able to store all of
5 the bits of a Fibre Channel header?

6 A. Yes.

7 Q. And then would it be possible to read the
8 entirety of the Fibre Channel header in one clock
9 cycle?

10 A. That is possible.

11 Q. Is it your understanding that Nelson's
12 header register would be a shift register?

13 A. Are you referring to the header register
14 talked about in line 25 of column 5?

15 Q. Yes.

16 A. No.

17 Q. Is your understanding that Nelson's FIFO
18 would be implemented as a shift register?

19 ATTORNEY AUCHTER: Objection. Form.

20 A. As we discussed earlier, a FIFO can be
21 implemented using different underlying
22 technologies. One such technology could be
23 cascaded flip-flops, but it does not require a use
24 of cascaded flip-flops for implementing a FIFO.

25 Q. And as we also discussed, Nelson

1 contemplates an embodiment that uses dual port RAM.

2 Correct?

3 A. Yes.

4 Q. What is dual port RAM?

5 A. Well, RAM is a random access memory. A
6 dual port RAM is -- it has two ports whereby you
7 can read from two different positions
8 simultaneously or write to two different
9 positions -- write to two different positions
10 simultaneously.

11 Q. Are you familiar with RAM that is a quad
12 port RAM?

13 A. I have never used quad port RAM.

14 Q. Would you expect that quad port RAM would
15 be able to have four ports and so would be able to
16 perform four read or write transactions
17 simultaneously?

18 ATTORNEY AUCHTER: Objection. Form.

19 Calls for speculation. Relevance.

20 A. Yeah, I -- I would -- I have never used
21 quad port RAM, so I would be reluctant to speculate
22 about the way quad port RAM operates.

23 Q. Are you familiar with what a quadrilateral
24 is?

25 A. Yes.

1 ATTORNEY AUCHTER: Objection. Form.

2 Relevance.

3 Q. What is a quadrilateral?

4 A. **A polygon that has four sides.**

5 Q. And is there a relationship between the
6 name "quadrilateral" and the fact that it has four
7 sides?

8 A. **Yes.**

9 Q. Is that relationship related to the first
10 four letters of the word "quadrilateral"?

11 A. **Yes.**

12 Q. Does the presence of the word "quad" in
13 the phrase "quad port RAM" inform your
14 understanding of what quad port RAM would be?

15 ATTORNEY AUCHTER: Objection. Form.

16 A. **Certainly the word "quad" means that there**
17 **are four. I would be reluctant to speculate the**
18 **way a quad port RAM operates without having --**
19 **never having used one before. My concern is that**
20 **underlying RAM technologies have limitations in**
21 **terms of reading and writing, and the quad may not**
22 **operate in the same way that a dual port RAM might**
23 **operate.**

24 THE WITNESS: We've been going about an
25 hour. Can we take another break?

1 ATTORNEY FOSTER: Sure.

2 THE WITNESS: 10 minutes or so?

3 ATTORNEY FOSTER: Let's do 15.

4 THE WITNESS: Okay.

5 ATTORNEY AUCHTER: It's 2:05, so 2:20.

6 ATTORNEY FOSTER: Maybe 12:20 -- 2:20 your
7 time?

8 THE WITNESS: Sounds good.

9 THE REPORTER: Off the record at 2:03.

10 (Recess taken from 2:03 p.m.
11 to 2:24 p.m.)

12 THE REPORTER: Okay. Back on the record
13 at 2:24 p.m.

14 BY ATTORNEY FOSTER:

15 Q. Mr. Brooks, during any of the breaks
16 today, did you discuss any of your testimony or the
17 subject matter of this case with counsel?

18 A. No.

19 Q. Okay.

20 When we broke off, we were talking about
21 Nelson's design and some of its embodiments that
22 use RAM to store headers.

23 Is it your understanding that in Nelson's
24 design, when it's storing headers in RAM, that it
25 would write the headers to RAM in 4-byte segments

1 just like you described with respect to the FIFO
2 implementation?

3 A. Yes. Nelson describes, and I quote, in my
4 paragraph 44, that the port snoops on the received
5 data and as the header is received, the port copies
6 the header to a FIFO which serves as the header
7 buffer.

8 So it would be the same way with the dual
9 port RAM in place of a FIFO. As the header is
10 received, it is written to the RAM.

11 Q. And so Nelson's RAM implementation would
12 still have the segmented operation and, in your
13 opinion, be different than the concurrently writing
14 process claimed in the '471 patent?

15 A. Yes.

16 Q. I'd like to go back to Figure 4 of the
17 '471 patent. We discussed this a little bit
18 earlier.

19 Can you go back to that figure, please.

20 A. Okay. I'm looking at Figure 4 of the
21 '471.

22 Q. And as we discussed before, this shows
23 that the DMA device writes headers to a number of
24 different memories. Correct?

25 A. Correct.

1 Q. Within the box labeled "DMA device 120,"
2 do you see underneath that it has in parentheses
3 "dst addr, length"?

4 A. Yes.

5 Q. Would you agree with me that that's
6 understood to refer to a destination address and a
7 length?

8 A. Certainly "length" means length, yeah.

9 "Dst addr" is destination address.

10 Q. And so the DMA device is using the
11 destination address and the length to know where
12 and how much to write to the different memories.
13 Is that correct?

14 ATTORNEY AUCHTER: Objection. Form.

15 Q. I'll rephrase.

16 How is the DMA device using the
17 destination address and length?

18 ATTORNEY AUCHTER: Same objection.

19 A. The DMA device is writing the data to the
20 packet buffer memory 122 and the various protocol
21 stack layer memories on the left-hand side.

22 The drawing is silent on how destination
23 address and/or length is actually used there,
24 whether it's both are used, one or the other is
25 used, or none of them are used. So it is silent on

1 **that. It just merely lists them there.**

2 Q. If we look at column 5 in the paragraph.

3 A. **Of the '471 patent?**

4 Q. Yeah, paragraph 5 of the '471 patent. In
5 column 5, the paragraph beginning at line 37.

6 A. **Yes, I see that.**

7 Q. And you see that it refers to programming
8 the DMA device to perform an action using things
9 including an address for a source memory device, an
10 address for a destination memory device, and a
11 memory length?

12 ATTORNEY AUCHTER: Objection. Form.

13 A. **I see where it says that, yes.**

14 Q. And so are those parameters like the
15 source address, destination address, and length,
16 are those used by the DMA device to know what
17 information to write and where to write it?

18 ATTORNEY AUCHTER: Objection. Form.

19 A. **So those parameters are one embodiment
20 that this -- the '471 patent considers in terms of
21 what constitutes a DMA engine. On line 34, it
22 says, "The general purpose of the DMA device is to
23 allow peripheral devices to read and write data
24 without involving a CPU." And then goes on to
25 describe those parameters as a -- one possible**

1 **embodiment.**

2 Q. And so in that example embodiment, the DMA
3 device would, for example, be told a destination
4 address within the data link layer and a length for
5 the data link layer protocol header, and it would
6 use that information to write the data link layer
7 header to the data link layer protocol layer stack
8 memory. Is that correct?

9 ATTORNEY AUCHTER: Objection. Form.

10 A. **Sorry. That was a lot.**

11 **Would you mind repeating that question?**

12 Q. Apologies that, yeah, some of the terms
13 with this patent get a bit wordy.

14 A. **I agree.**

15 Q. Do you agree that the DMA device 120 would
16 write the data link layer protocol header to the
17 data link layer?

18 A. **The data -- I guess the question -- that**
19 **question doesn't make sense to me. Because you**
20 **cannot write to a data link layer. A layer is a**
21 **networking concept that you wouldn't write a header**
22 **to.**

23 Q. Apologies. I misspoke. Now I'm tripping
24 over the words.

25 A. **Yeah.**

1 Q. All right. You agree that DMA device 120
2 writes a MAC layer to the MAC layer memory.
3 Correct?

4 ATTORNEY AUCHTER: Objection. Form.

5 A. Yes, I agree with that.

6 Q. Are MAC layer headers always the same
7 length?

8 ATTORNEY AUCHTER: Objection. Form.

9 A. There is always a destination address, a
10 source address, and an Ethernet type in a MAC layer
11 header, which are always the same length.

12 Q. Could a MAC layer header have a VLAN tag?

13 A. Yes.

14 Q. Would the VLAN tag make the MAC layer
15 header longer than it would be if it did not have a
16 VLAN tag?

17 A. Yes.

18 Q. And you've worked with internet protocol.
19 Correct?

20 A. I have, yes.

21 Q. And internet protocol has optional headers
22 as part of its standard. Correct?

23 ATTORNEY AUCHTER: Objection. Form.

24 A. I have never worked with optional headers
25 as part of IP protocol, or IP.

1 Q. Okay. But it -- at a minimum, with
2 respect to the MAC layer, you agree that a MAC
3 layer header may vary in size from packet to
4 packet?

5 ATTORNEY AUCHTER: Objection. Form.

6 A. I agree that there is such a thing as a
7 VLAN header. The VLAN field always comes in the
8 same place and is always the same length when it is
9 included. I view VLAN as somewhat of a space
10 between layer 2 and layer 3.

11 But, yes, there can be a VLAN, which is
12 always the same size and same position within
13 the -- a Ethernet frame.

14 Q. And so would the starting location of an
15 IP header and an Ethernet frame be different
16 depending on whether that Ethernet frame had a VLAN
17 tag or did not have a VLAN tag?

18 ATTORNEY AUCHTER: Objection to form.

19 A. It depends on the implementation and
20 whether or not VLAN tag is included as being
21 written. It also depends upon how the logic
22 handles writing to the different memories.

23 Q. Would the DMA device need to be told
24 whether there was or was not a VLAN tag in order to
25 properly write the portions of the packet headers

1 to their respective memories?

2 ATTORNEY AUCHTER: Objection. Form.

3 Calls for speculation. Relevance.

4 A. The DMA engine would know that
5 information, yes.

6 Q. Would the DMA device determine that itself
7 or would it be told?

8 ATTORNEY AUCHTER: Objection. Form.

9 A. It depends on its implementation. It
10 could be told by a lower layer or it could be --
11 figure it out for itself.

12 Q. And so whether it was the DMA device or
13 some other component within the '471 patent's
14 egress and user node, how would the device know
15 where the boundaries between different protocol
16 layer headers are in the packet?

17 ATTORNEY AUCHTER: Objection. Form.

18 A. That is a standard. It is -- so the DMA
19 engine or an external device would use the
20 standard -- networking standard to figure that
21 information out.

22 Q. In a packet, do lower layer protocol
23 headers generally come before higher layer protocol
24 headers?

25 ATTORNEY AUCHTER: Objection. Form.

1 **A. Can you describe what you mean by**
2 **"before"?**

3 Q. When a packet is received over a network,
4 what would be the first part of the packet that is
5 received?

6 **A. It depends upon the standard that is going**
7 **over the network. For example, in Nelson, it**
8 **describes the SOF as the first part of the packet**
9 **that is received over the network. That's --**

10 Q. You are familiar with -- sorry. I'll let
11 you finish.

12 **A. Yeah, sorry. That was -- that's for Fibre**
13 **Channel.**

14 Q. You are also familiar with Ethernet and
15 internet protocol for an IP packet transmitted over
16 a network using Ethernet.

17 What would be at the beginning of the
18 packet as received?

19 **A. Since you mentioned Ethernet, I'll**
20 **describe it from the layer 2 up. The first thing**
21 **that is received is the destination address of the**
22 **layer 2 or the source -- I forget which one -- but**
23 **the destination and the source address are the**
24 **first two things that are first in an Ethernet**
25 **packet.**

1 Q. And those are part of the MAC layer
2 header. Correct?

3 A. Those are part of the Ethernet header,
4 yes.

5 Q. And so at least, as you said, starting at
6 layer 2, the first part of the packet that would be
7 received would be the MAC layer header. Correct?

8 A. Correct.

9 Q. And then after the MAC layer header is
10 received, then the IP layer header would be
11 received?

12 ATTORNEY AUCHTER: Objection. Form.

13 A. Yes.

14 Q. And if the packet was, for example, a TCP
15 packet, then the TCP header would be received after
16 the IP layer header. Correct?

17 A. Correct.

18 Q. If the MAC layer header can be different
19 sizes or lengths -- scratch that. Let me -- let me
20 reask.

21 If the MAC layer header can be one of
22 several lengths, how would the egress end user node
23 determine where the IP layer header begins?

24 A. That is specified in a standard. So the
25 standard -- the logic would use the standard to

1 **figure out where the IP header begins.**

2 Q. And the egress end user node would need to
3 determine where the IP layer header begins before
4 it can write the IP layer header to the network
5 layer protocol header memory. Correct?

6 A. **Yes.**

7 Q. And the same thing would be true for the
8 TCP header being written to the TCP -- or -- I'm
9 sorry.

10 The same thing would be true for the TCP
11 header being written to the transport layer header
12 memory. Correct?

13 A. **Yes. Those are all standardized, and**
14 **therefore they would know exactly where they are**
15 **and where they would need to go based on that**
16 **standard.**

17 Q. And so because the '471 claims describe
18 concurrently writing the different protocol headers
19 to their respective protocol layer header memories,
20 do you agree that those boundaries between where
21 the layers are must be identified before any of
22 them can be written in -- under the court's claim
23 construction?

24 ATTORNEY AUCHTER: Objection. Form.

25 A. **Yeah. Could you repeat that question?**

1 Q. Do you agree that the boundaries between
2 protocol layers within a received packet need to be
3 identified before the headers can be written to the
4 respective header memories under the court's claim
5 construction?

6 ATTORNEY AUCHTER: Objection. Form.
7 Relevance.

8 A. **I agree that the headers need to be**
9 **extracted appropriately according to the standard**
10 **before they can be written to the head -- to the**
11 **prospective protocol layer memories.**

12 Q. And if we look in the '471 patent in
13 column 8 --

14 A. **Okay.**

15 Q. -- around line 15, the patent refers to
16 two standards bodies.

17 Do you see that?

18 A. **Yeah. Let me just have a read of this,**
19 **around it.**

20 **Okay. Yes, I see that.**

21 Q. Are you familiar with the Internet
22 Engineering Task Force?

23 A. **I have heard of the engineering -- of the**
24 **Internet Engineering Task Force. I have never**
25 **worked with them.**

1 Q. To your knowledge, have you ever referred
2 to any of their standards?

3 A. I don't recall.

4 Q. Have you heard of the Institute of
5 Electrical and Electronics Engineers?

6 A. Yes.

7 Q. To your knowledge, have you ever referred
8 to any of the standards from the IEEE?

9 A. Yes.

10 Q. Do you know what the IEEE standard for
11 local and metropolitan area networks is?

12 A. Not off the top of my head.

13 Q. At the beginning of that same paragraph,
14 at the top of '471 patent column 8, do you see that
15 it refers to a physical layer protocol header 304?

16 A. Yes, I see that.

17 Q. And if we look again -- I believe we
18 discussed this -- the physical layer header is not
19 written by the DMA device in the embodiment of
20 Figure 4. Is that correct?

21 A. Let me double-check Figure 4.

22 Correct.

23 ATTORNEY FOSTER: All right. Why don't we
24 take a quick 10-minute break.

25 THE WITNESS: Okey-doke.

1 THE REPORTER: Off the record at

2 2:50 p.m.

3 (Recess taken from 2:50 p.m.

4 to 2:59 p.m.)

5 THE REPORTER: All right. Back on the

6 record at 2:59 p.m.

7 BY ATTORNEY FOSTER:

8 Q. Mr. Brooks, in paragraph 2 of your
9 declaration, you state that you're being
10 compensated at a rate of \$200 per hour. Is that
11 correct?

12 A. That is correct.

13 Q. Is that the amount that Lionra is paying
14 RMB, or the amount that RMB is paying NOW, or the
15 amount that NOW is paying you?

16 A. That is the amount that RMB is paying NOW
17 and NOW is paying me. I do not know what Lionra is
18 paying RMB.

19 Q. Do you know why Lionra engaged you through
20 RMB?

21 A. I have a close working relationship with
22 RMB and do most of my work through RMB. So that is
23 the reason why Lionra engaged me through RMB.

24 ATTORNEY FOSTER: Okay. No further
25 questions. Pass the witness.

1 ATTORNEY AUCHTER: Okay. Can we take a
2 few-minute break. Say 10 minutes should be
3 enough. And then we'll come back on the record
4 and determine what, if any, redirect we have.

5 ATTORNEY FOSTER: Okay.

6 ATTORNEY AUCHTER: Okay. Thank you.

7 THE REPORTER: Off the record at
8 3:01 p.m.

9 (Recess taken from 3:01 p.m.
10 to 3:12 p.m.)

11 THE REPORTER: Back on the record at
12 3:13 p.m.

13 ATTORNEY AUCHTER: Thank you. I just have
14 a few questions for Mr. Brooks.

15 EXAMINATION

16 BY ATTORNEY AUCHTER:

17 Q. Mr. Brooks, does the DMA engine of the
18 '471 patent concurrently write a plurality of
19 headers to respective protocol layers?

20 **A. Yes.**

21 Q. And how does the DMA engine in the '471
22 patent accomplish concurrently writing a plurality
23 of headers to respective protocol layers?

24 A. If you look at Figure 4, there is a memory
25 in the decoder where the headers are gathered, and

1 **then the DMA device takes the headers as they come**
2 **through the decoder and writes them concurrently**
3 **with one another to the packet buffer memory and**
4 **the respective protocol layer memories.**

5 Q. And would a person of ordinary skill in
6 the art at the time of the invention of the '471
7 patent consider Nelson to disclose concurrently
8 writing a plurality of headers?

9 A. **No.**

10 Q. Why not?

11 A. **The -- for two reasons. Nelson**
12 **contemplates only a single header; therefore, a**
13 **plurality of headers cannot be written.**

14 **Secondly, Nelson discloses writing the**
15 **header as it is received and therefore cannot write**
16 **the -- in a -- any headers concurrently with one**
17 **another, because it's written -- it's written as**
18 **it's received.**

19 ATTORNEY AUCHTER: Thank you. I have no
20 further questions.

21 Mr. Foster?

22 EXAMINATION

23 BY ATTORNEY FOSTER:

24 Q. Mr. Brooks, you just testified that the
25 '471 patent contemplates performing the concurrent

1 writing process by writing headers as they come
2 through the decoder.

3 Did I understand your testimony correctly?

4 ATTORNEY AUCHTER: Objection. Form.

5 **A. Packets are received through the decoder**
6 **into the DMA device. The DMA device then writes**
7 **the headers concurrently to packet buffer memory**
8 **and to the respective protocol layer memories.**

9 Q. So is it your understanding of the '471
10 embodiment in Figure 4 that the MAC layer header is
11 written to the MAC layer header memory as the MAC
12 header comes through the decoder?

13 **A. No. The -- the '471 is silent on that.**
14 **It's -- well, let me say this. The '471 says that**
15 **the headers come in through the decoder and**
16 **subsequent to the decoding step are written**
17 **concurrently by the DMA device to the transport**
18 **layer memories and the packet buffer memory.**

19 Q. So do you agree that the '471 patent does
20 not contemplate writing the headers as they come
21 through the decoder but instead after they are
22 decoded?

23 ATTORNEY AUCHTER: Objection to form.

24 **A. I have no opinion on that.**

25 Q. I'm just trying to understand your

1 testimony where you said, "The DMA device takes the
2 headers as they come through the decoder."

3 And I'm just trying to understand whether
4 you potentially misspoke or if I misunderstood your
5 testimony.

6 **A. I misspoke.**

7 ATTORNEY FOSTER: No further questions.

8 ATTORNEY AUCHTER: No further questions.

9 THE REPORTER: Okay. That concludes
10 today's deposition. We are going off the record
11 at 3:17 p.m.

12 Would counsel like a rough draft?

13 ATTORNEY FOSTER: Yes, please.

14 ATTORNEY AUCHTER: Yes.

15 THE REPORTER: I'm sorry, Robert. Did you
16 say "yes" or "no"?

17 ATTORNEY AUCHTER: I said "yes."

18 THE REPORTER: You said "yes." Okay.

19 ATTORNEY AUCHTER: Thank you very much.

20 ATTORNEY FOSTER: Thank you.

21 THE REPORTER: Have a good day, everybody.

22 (Witness excused and deposition concluded
23 at 3:17 p.m.)
24
25

1 J U R A T

2

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

8 Page Line Correction

9

10

11

12

13

14

15

16

17 THOMAS BROOKS

18

19

20 Sworn to and subscribed before me this _____

21 day of _____, 2025.

22

23

24 Notary Public/Justice of the Peace

25 My commission expires:

1 CERTIFICATE OF REPORTER

2

3 I, Deanna J. Dean, Registered Diplomate
4 Reporter, Certified Realtime Reporter, and New
5 Hampshire licensed court reporter, the officer
6 before whom the proceedings were taken, do hereby
7 certify that the foregoing transcript is a true and
8 accurate record of these proceedings; that said
9 proceedings were taken in Stenotype note by me on
10 Tuesday, August 26, 2025, commencing at 10:01 a.m.
11 and ending at 3:17 p.m. EDT.

12 I further certify that present on behalf of
13 Party Cisco Systems Inc. was Theodore Foster of
14 Haynes Boone, LLP, and on behalf of Party Lionra
15 Technologies Limited were Robert A. Auchter of
16 Auchter PLLC and John Petrsoric of BC Law Group.

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

22 Dated this 3rd day of September, 2025, at
23 Hillsborough County in the State of New Hampshire.

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