

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

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CISCO SYSTEMS, INC.,

Petitioner,

v. Case No. IPR2023-00607

NETSOCKET, INC.,

Patent Owner.

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DEPOSITION OF

DR. HENRY H. HOUH

VIA ZOOM VIDEOCONFERENCE

January 3, 2024

9:00 a.m.

* * *

Deposition of Dr. Henry H. Houh held
virtually via Zoom Teleconference, hosted
from Veritext Legal Solutions, pursuant to
notice, before Maureen Ratto, Certified
Court Reporter, License No. XI01165,
Registered Professional Reporter, License
No. 817125, and Notary Public.

* * *

A P P E A R A N C E S:

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BY: JULIAN PYMENTO, ESQ.

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1 DR. HENRY H. HOUH, having been first
2 duly sworn according to law by the
3 Officer, testifies as follows:

4 EXAMINATION BY MR. PYMENTO:

5 Q. Good morning. Could you please
6 state your full name for the record?

7 A. My name is Henry Houh. That's
8 spelled H-o-u-h.

9 Q. So I'm Julian Pymonto. I'm
10 counsel for NetSocket Inc. in this
11 proceeding and I'll be taking your
12 deposition today.

13 Have you had your deposition
14 taken before?

15 A. Yes.

16 Q. Approximately how many times?

17 A. I've lost count, but maybe 120
18 or more.

19 Q. In what contexts were you
20 deposed previously?

21 A. It's typically related, they're
22 all related to my work as a -- as an expert
23 witness.

24 Q. Is that a mixture of District
25 Court cases and IPR proceedings?

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A. Yes, that's right. And ITC trials and I've done a few state court trials, and the Canadian case as well.

Q. So I'll just go briefly over the ground rules. I'll basically just be asking you questions, you'll be giving me answers. Do you understand that?

A. Yes.

Q. You're required to answer my questions truthfully and fully. If you don't understand any of my questions, just please ask me to rephrase it and I'll be happy to do that. Do you understand that?

A. Yes. Sure. Thank you.

Q. And if you do provide me with an answer, I'll assume that you understood my question. Do you understand?

A. Yes.

Q. I also need verbal answers so the head nod or a-hums don't show up on the record, so for the court reporter we'll minimize that. Is that okay?

A. Yes. I'll do my best.

Q. And I'll typically take breaks

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about once an hour, but if you need a break at any time prior to that hour mark, please let me know. We can, you know, pretty easily go off the record for a five minute bathroom break or coffee break or whatnot.

The only thing that I request is that if there is a question pending, that we get an answer on the record before we take that break. Is that okay?

A. Yes. That sounds great. Thank you.

Q. Dr. Houh, is there any reason that you can't testify truthfully today?

A. No.

Q. Have you taken any drugs or alcohol that could impair your ability to think today?

A. No.

Q. Where are you located right now physically?

A. I am in my home in Lexington, Massachusetts.

Q. Is there anyone in the room with you?

1 HENRY H. HOUH

2 A. No.

3 Q. And if that changes, could you
4 please let me know?

5 A. Sure.

6 Q. What programs do you have
7 currently running on your computer, aside
8 from this Zoom meeting?

9 A. I have a browser, set of
10 browser windows up, yeah. So Chrome is the
11 only -- oh, sorry. I have a PDF open but
12 I'll close that now, a PDF viewer.

13 Q. Do you have any communications
14 programs up, such as Outlook or any email
15 program or chat program?

16 A. I do, but I can close those
17 windows now.

18 Q. Yeah, please, if you don't
19 mind. Actually, the PDF viewer would be
20 useful, if you have PDFs or you prefer
21 using PDFs of the stuff that's on the PTAB
22 record in this case, you know, I'm totally
23 okay with that, as long as it's not
24 annotated or if you have physical copies of
25 the references for the prior art, the

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2 patent, I'm happy with that as well, as
3 long as it's not annotated.

4 A. Okay. I do have some electronic
5 copies and I'm also logged in on the
6 browser for the File Share Egnyte site or
7 whatever that is and I do have some
8 physical copies of my report and some of
9 the references in the patent.

10 Q. Awesome. And if it's more
11 helpful for you to reference those as I'm
12 asking the questions, that's totally okay.

13 A. Great. Sounds good. Thank you.

14 Q. I'm just going to read off the
15 names of the exhibits just for the record.

16 The first document which I
17 named Exhibit 1 is U.S. Patent 7,190,698
18 which is the subject patent in this
19 proceeding.

20 (Exhibit 1, U.S. Patent
21 7,190,698 was received and marked on
22 this date for identification.)

23 Q. Exhibit 2 is your declaration
24 that was submitted in this proceeding,
25 which is also called Exhibit 1003. I'll

1 HENRY H. HOUH

2 probably just refer to it as your
3 declaration throughout the deposition.

4 (Exhibit 2, Declaration of Dr.
5 Henry Houh was received and marked
6 on this date for identification.)

7 Q. Exhibit 3 is your CV in this
8 proceeding, also on the PTAB record as
9 Exhibit 1004.

10 (Exhibit 3, Curriculum Vitae of
11 Dr. Henry Houh was received and
12 marked on this date for
13 identification.)

14 Q. Exhibit 4 is an article
15 Internet QoS, a Big Picture. It's published
16 by IEEE in 1999 also called Xiao Exhibit
17 1005 in this proceeding.

18 (Exhibit 4, 1999 IEEE article
19 entitled Internet QoS, a Big Picture
20 was received and marked on this date
21 for identification.)

22 Q. Exhibit 5 is U.S. Patent
23 6,678,264 to Gibson, which I'll refer to as
24 Gibson, and also called Exhibit 1006 in
25 this proceeding.

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(Exhibit 5, U.S. Patent
6,678,264 was received and marked on
this date for identification.)

Q. Exhibit 6 is another IEEE paper
titled An Agent-Based Architecture For
Advance Reservations also called Schelen-1
or Exhibit 1032 in this proceeding.

(Exhibit 6, IEEE paper titled
An Agent-Based Architecture For
Advance Reservations was received
and marked on this date for
identification.)

Q. Exhibit 7 is a paper from the
Journal of High Speed Networks titled
Resource Sharing and Advance Reservation
Agents, also called Schelen-2 or Exhibit
1007 in this proceeding.

(Exhibit 7, paper from the
Journal of High Speed Networks
titled Resource Sharing and Advance
Reservation Agents was received and
marked on this date for
identification.)

Q. And last, I marked the

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2 Institution decision in this proceeding,
3 which will be Exhibit 8 or also called
4 Paper No. 11 or the Institution decision.

5 (Exhibit 8, PTAB decision Date:
6 September 26, 2023 was received and
7 marked on this date for
8 identification.)

9 Q. Dr. Houh, I'd like you to open
10 your declaration in this proceedings. Let
11 me know when you have it open.

12 A. It's being slow to load on the
13 File Share, so I'll just pull up a local
14 copy I have that's clean.

15 Q. Sounds good.

16 A. And I have a paper copy in
17 front of me too. So I do have it up now.

18 Q. So sitting here today, do you
19 believe that you considered any other
20 materials, aside from the documents cited
21 in paragraph 4 of your declaration?

22 A. I mean, in paragraph 4, did you
23 say?

24 Q. Paragraph 4.

25 A. I mean, I did -- I did -- what

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2 I would have considered includes these
3 documents, but I've considered my own
4 knowledge and experience and any additional
5 material cited here that aren't listed in
6 paragraph 4.

7 Q. The additional material cited
8 that is not listed in paragraph 4, did you
9 cite those throughout the rest of your
10 declaration?

11 A. I would hope I did. If there
12 was another reference that I might have
13 relied on, for example, background support
14 and whatnot, I believe they may have been
15 cited in the body of the declaration but I
16 mean, the declaration should stand for
17 itself. I hope I got everything in there
18 that I did consider.

19 Q. So I marked Exhibit 8 as the
20 decision granting institution of this case.

21 Have you reviewed that decision
22 prior to this deposition?

23 A. Yes.

24 Q. About how much time did you
25 spend preparing for this deposition?

1 HENRY H. HOUH

2 A. Probably on the order of six to
3 eight hours, give or take, maybe a few
4 more.

5 Q. When do you first recall being
6 involved in this case?

7 A. I mean, I don't have a
8 recollection of the exact time but at some
9 point before I submitted this declaration.

10 Q. Is that about a year -- a
11 couple months before submitting the
12 declaration?

13 A. It could have been around that
14 time. I don't remember for sure.

15 Q. About how much time did you
16 spend preparing the declaration?

17 A. I don't remember that offhand
18 either.

19 Q. Would you consider it to be
20 more than 10 hours?

21 A. Probably, yes.

22 Q. Would you consider the time
23 spent preparing the declaration more than
24 20 hours?

25 A. It could have been, but I don't

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2 remember exactly how many, off the top of
3 my head.

4 Q. Did you communicate with anyone
5 in preparation for your deposition today?

6 A. Yes.

7 Q. Who did you communicate with?

8 A. It was Gregory.

9 Q. Is there anyone else that you
10 communicated in preparation for the
11 deposition today?

12 A. No.

13 Q. Did you communicate with anyone
14 at Cisco directly in preparing your
15 declaration?

16 A. No.

17 Q. Do you mind just taking a quick
18 look at your CV, which I've marked as
19 Exhibit 3, and let me know if you still
20 think the CV is accurate?

21 A. Well, I mean there have been
22 some changes since I submitted it but it
23 would have been accurate at the time.

24 Q. Do you mind briefly going over
25 what those changes might be?

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2 A. Sure. Let's see. Starting out
3 with the Background and my Education, the
4 MITx section says that I expected receiving
5 a MicroMasters Certificate in 2023 but I
6 did not. I still haven't finished the fifth
7 class. I've just been too busy to even
8 start it. So I've still just got four or
9 five required courses completed.

10 I've added a number of
11 different cases to the -- to the -- my
12 Trials Testimony and Deposition section
13 since this was submitted.

14 Under the Leadership Activities
15 and Interest sections, I was actually named
16 and joined the board of the Discovery
17 Museum, which is listed on being in the
18 Science and Technology Advisory Council but
19 last year I did join the board.

20 There's a group called Tau Beta
21 Pi, which I also joined -- I've become an
22 executive counselor as of two days ago.

23 I'm serving a three-year term there, which
24 is -- it's also the same as the board.

25 I joined a few more symphonies.

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2 I joined the Parallel Chamber Orchestra and
3 the River Symphony Orchestra.

4 That's all I can think of off
5 the top of my head that I know I've added
6 to more recent versions of my CV.

7 Q. Thank you for that. That's
8 actually really cool about the symphony
9 thing, just on a personal note.

10 For your experience, on the
11 first item, the BlocksCAD, Inc. do you see
12 that listed on the first page of the CV?

13 A. Yes.

14 Q. Did this job relate to network
15 communication systems?

16 A. No, not directly.

17 Q. For the second item on the
18 experience, H3XL Inc. doing business as
19 Einstein's Workshop, was that job -- is
20 that job related to network communication
21 systems?

22 A. Not directly but when I set up
23 that business, I set up all the networking
24 at the physical location and set up all the
25 -- all the communications, including

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2 telephone and data network and whatnot.

3 Q. And going down on page 2 to
4 Eons, as a Chief Technology Officer, did
5 that job relate to network communication
6 systems?

7 A. Not directly, no.

8 Q. And for the next item, BBN
9 Technologies, did that -- did your jobs at
10 that company relate to network
11 communication systems?

12 A. Yes, in part, they did.

13 Q. Could you explain how it
14 related to network communication systems?

15 A. So I was part of a group that
16 was working on commercializing the various
17 technology produced in various research
18 projects that BBN was contracted for, and
19 BBN had a large networking division.
20 Because BBN is one of the original
21 companies that got the very first contract
22 for building the ARPANET and in fact built
23 the first I think they called it an IMP
24 back then, it was basically a router today,
25 for routing data and they actually -- you

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2 know, the engineers at BBN actually, you
3 know, made the first connections to connect
4 computers together as part of the ARPANET
5 and invented things like email between
6 computers. So because of that, BBN
7 remained very active in performing
8 networking research.

9 So I was involved in examining
10 all sorts of networking projects within
11 BBN's history to see and to focus on
12 whether some of them may be
13 commercializable technology.

14 So way back when, when BBN
15 invented the router and invented email, you
16 know, other people commercialized all those
17 devices and BBN, you know, laid the
18 groundwork but didn't actually form any
19 companies to -- to make or manufacture
20 those devices.

21 So the idea was when BBN was
22 spun out from Verizon, a venture capitalist
23 who purchased it, and then created the
24 group which I joined right after the
25 spinout, the idea was to figure out what

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2 kind of technologies within BBN's portfolio
3 could turn into -- could be the basis for
4 creating an internal startup or a spinout
5 company. So I was involved in -- in
6 working with many of the researchers and
7 understanding the technologies, including
8 all the networking research projects BBN
9 had.

10 Q. Were some of the networking
11 research projects that BBN had relate to
12 MPLS or DiffServ systems?

13 A. I mean, I can't recall
14 specifically but certainly, you know, BBN
15 had done some work on that, I believe, in
16 the past and the networking group focused
17 on a lot of different networking issues,
18 including things like a quality of service.

19 Q. On page 3 of your CV, on the
20 top, did your job at PodZinger Inc. relate
21 to network communication systems?

22 A. In a sense, yes. I mean, I was
23 responsible for setting up all the back end
24 website, deploying it. We deployed it in an
25 internal data center and then I think we

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1 moved it offsite to an offsite datacenter.
2 So I was responsible for siting all of our
3 servers. We had dozens of servers for our
4 system.
5

6 Q. Did your job at -- as
7 Entrepreneur-in-Residence at Commonwealth
8 Capital involve network communication
9 systems?

10 A. I mean, not really there. That
11 was more exploratory in terms of finding a
12 startup or come up with a startup idea.

13 Q. And did your jobs at Empirix,
14 Inc./Teradyne, Inc. involve network
15 communication systems?

16 A. In part, yes. Probably --

17 Q. Could you, -- I'm sorry.

18 A. Oh, I'm sorry. "Probably in
19 large part" is what I added at the end.

20 Q. Could you describe how these
21 jobs related to network communication
22 systems?

23 A. So I worked on a number of
24 different projects while I was at Empirix.
25 One of them was for the infrastructure test

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group and I created a product for -- for them that was a network test platform called Packet Sphere, and in Packet Sphere it was basically -- the idea was that we could emulate network behavior in the lab over long distances.

So, for example, if you have an application you're trying to test, let's say like a, you know, a realtime, like, streaming video or voice application, it would be kind of difficult, the parts of the system that involved long delays or jitter in the network or loss, because it's difficult to recreate those situations in the lab environment. And so I created a device that we -- a platform on which one of the applications we could load to run was what we called the network emulator, which would emulate the characteristics of a long-haul network, including delay that could be dialed in, variable jitter between packets that could be dialed in, like a range of jitter. And packet loss, and actually it could also introduce packet

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reordering to the packets that flow through our system.

So in that way, people who developed these applications like -- like I mentioned earlier, could test them against -- against real-world-like conditions without going out into the real world and, you know, deploying a worldwide internet as part of a test lab. So our device allowed that emulation.

And then it was also designed to -- the idea was that the software on these devices we used a new novel type of networking ship, which was software programmable for very high-speed operations, line rate operations. So the idea was that we could also then do other test functions, like generate a myriad of traffic, for example, a bunch of web users hitting the website, or a bunch of people doing downloads or phone calls or video streams.

That was the idea of that test platform. So you didn't need to have set

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2 up, you know, a lab with hundreds or --
3 hundreds or more, you know, client
4 computers or phone systems generating calls
5 or video streams or IP or web requests and
6 whatnot. So that was that platform.

7 Also then I worked on a web
8 test software system that was for load and
9 functional testing. So in that sense we had
10 -- we offered a service where we would go
11 out -- customers could either purchase the
12 product and run it themselves or engage our
13 professional services team to do functional
14 load testing for them. In that case we
15 would run our software over the data
16 network and hit a customer's website and
17 test it functionally and for load.

18 Let's see. So I think -- I
19 think those parts definitely involve
20 networking and networking communications
21 and networking technology.

22 Q. Did either of those networking
23 test platforms or web test software systems
24 relate or use MPLS or DiffServ
25 architectures?

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2 A. Not directly as part of the
3 product. I mean, it would have in an
4 ancillary sense if the underlying network
5 needs but we didn't test the MPLS portion
6 of the network.

7 Q. And at the bottom of page 3 of
8 your CV, did your jobs at 3Com
9 Corporation/NBX Corporation relate to
10 network communication systems?

11 A. Yes. The whole system that we
12 built was a business telephone system that
13 ran over a data network and I -- it could
14 run both locally and then I actually built
15 the prototypes to have it run over an IP
16 network, and a VPNs and things like that.
17 And so I also enabled the systems to
18 integrate with various quality of service,
19 including DiffServ.

20 Q. Were the systems that you
21 created and the prototype also operable
22 with MPLS?

23 A. Not directly, but it could run
24 over a network that utilized MPLS.

25 Q. You mention a few patents

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2 related to Voice over IP technology in
3 paragraph 26 of your declaration, correct?

4 A. Yeah, I do mention some patents
5 and patent applications in that paragraph.

6 Q. And on PDF page 5 of your CV
7 you list several other patents, correct,
8 pages 5 and 6 of your CV?

9 A. Yes.

10 Q. Is there a reason you
11 highlighted only the Voice over IP
12 technology patents and patent applications
13 in your declaration?

14 A. I was merely highlighting a few
15 that I thought were more related to
16 networking than some of the others.

17 Q. Let's turn to paragraph 28 of
18 your declaration, and let me know when
19 you're there.

20 A. Okay. I'm here.

21 Q. Do you see where it says --
22 where you wrote, "Such a POSITA would have
23 a bachelor's degree in computer science,
24 computer engineering, electrical
25 engineering or equivalence training and

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2 approximately two years of experience
3 working in the field of network
4 communications?"

5 A. Yes.

6 Q. Would your definition of a
7 POSITA include two years of experience
8 working in any specific subset of network
9 communications or network communications,
10 generally?

11 A. I mean, it -- it -- it's what I
12 say which is in the field of network
13 communication.

14 Q. How did you arrive at this
15 understanding of a POSITA?

16 A. I mean, I considered the
17 patent, its specification, the -- the art
18 in which it's in, various people that I've
19 worked in at various levels of skill in my
20 own career, things like that.

21 Yeah. I mean, I do say some of
22 this in paragraph 27, which are "the level
23 of education, experience of persons working
24 in the field at the time of the invention,
25 the sophistication of the technologies, and

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the types of problems encountered in the field and the prior art solutions to those problems."

Q. Other than you, was anyone else involved in the preparation of your declaration?

A. The attorneys were involved.

Q. Without disclosing the substance of any communication with those attorneys, could you describe the attorneys' contribution to the declaration?

MR. HUH: Objection, form.

A. You know, these things are typically -- are a collaborative effort. I write parts, there are edits that get made by various, you know, attorneys and at the end, you know, I sign -- I review carefully everything that I've written that have been contributed by others, and I sign the declaration.

Q. In your opinion, are the lawyers that you collaborated with persons of skill in the art?

A. Well, I review and I insure

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2 that the declaration is -- is written from
3 the perspective of a person of ordinary
4 skill in the art, and so -- and that's part
5 of -- you know, so that's where I write --
6 you know, write my opinions from that
7 person's perspective about the
8 patentability of the various challenged
9 claims and the analysis of the prior art,
10 and anything that I review I insure that
11 that it conforms to that perspective.

12 So the -- the opinions are mine
13 in this declaration, and they are taken
14 from a person of ordinary skill in the
15 art's perspective in terms of their level
16 of skill and the kind of analysis that they
17 would do.

18 Q. The attorneys at Haynes Boone
19 retained you to provide an obviousness
20 opinion in this proceeding, correct?

21 MR. HUH: Objection, form.

22 A. I mean, I don't think that's
23 the objective when I'm brought on. You
24 know, I'm asked to do the analysis and give
25 my opinions as to the obviousness and

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2 unpatentability of the challenged claims,
3 if -- if that's the case.

4 Q. In paragraph 2 of your
5 declaration you mention that you were being
6 paid at your standard hourly rate for the
7 opinions you provide in this declaration,
8 correct?

9 A. Yes.

10 Q. How much is that standard
11 hourly rate to provide your opinions?

12 A. Well, it depends on exactly
13 when we signed the -- when I was retained,
14 but it could be around 680.

15 Q. Do you provide an opinion
16 regarding anticipation in your declaration?

17 A. No, I don't believe I do.

18 Q. Would you tell me how the prior
19 art references were located in this
20 proceeding?

21 A. I don't recall exactly for this
22 case, but likely some were provided by the
23 attorneys.

24 Q. Do you recall if Xiao was
25 located by you?

1 HENRY H. HOUH

2 A. Yeah, I can't remember. I
3 can't remember.

4 Q. Do you recall if Gibson was
5 located by you?

6 A. I don't have a specific memory
7 one way or the other.

8 Q. Do you recall if Schelen-1 was
9 located by you?

10 A. That one is Exhibit 1032 to the
11 IPR?

12 Q. Correct.

13 A. I mean, I don't -- I don't
14 recall one way or the other for sure.

15 Q. And do you recall if Schelen-2
16 was located by you, that's Exhibit 1007?

17 A. I mean, I don't recall one way
18 or the other for sure.

19 Q. Did you personally conduct a
20 search for any other prior art documents
21 that are not cited in this declaration?

22 A. I don't recall for this
23 particular case. I do a lot of cases and
24 sometimes I do searches and sometimes I
25 don't. I just don't remember what happened

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2 in this case.

3 Q. By your definition of POSITA in
4 your declaration, would you have considered
5 yourself to be a POSITA in the year 2000?

6 A. Yes, I would have.

7 Q. Were you familiar with the
8 references of Xiao, Gibson, Schelen-1 or
9 Schelen-2 in 2000?

10 A. I don't remember back then. I
11 mean, it's possible I may have come across
12 these in my research for my thesis, but I'm
13 not -- I'm not sure. Not all of them. I
14 don't think I was aware of all of them, but
15 it's possible that I have -- may have come
16 across one or more. I mean, I was working
17 in the field of label switching and the
18 quality of service for my thesis.

19 Q. In your opinion, would a person
20 of ordinary skill in the art around the
21 year 2000 be up-to-date on IEEE or journal
22 articles on MPLS?

23 MR. HUH: Objection, form.

24 A. I mean, I think the
25 hypothetical person of prior art would have

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2 -- would have known about various fields in
3 the background and -- and had access to all
4 the public materials available.

5 So hypothetically I understand
6 that, that the hypothetical person, a
7 POSITA, would have and certainly I think
8 IEEE has a number of reputable networking
9 articles and I may have been published
10 myself in IEEE Network, which I think one
11 of the references was published in, and
12 they had a number of other journals as
13 well.

14 Q. In your opinion, would a person
15 of ordinary skill in the art around the
16 year 2000 be up-to-date on IEEE or journal
17 articles regarding DiffServ?

18 A. Well, I mean, DiffServ was a
19 very commonly discussed technology in
20 networking at the time. So I think it
21 certainly would have been part of a body of
22 prior art that the hypothetical POSITA
23 would have known how to access, a public
24 body of prior art.

25 Q. Let's turn to the Xiao article.

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HENRY H. HOUH

At around the year 2000, did you know or had you had heard of Mr. Xipeng Xiao or Mr. Lionel Ni, the authors of the Xiao article?

A. I can't remember specifically one way or the other back from that time.

Q. In your opinion were Mr. Xiao or Mr. Ni persons of skill in the art at the time this article was published?

MR. HUH: Objection, form.

A. I mean, I don't think I have a written opinion about that in my -- in my declaration.

Q. Does the Xiao article mention Schelen?

(Deponent reviews the document.)

A. I am just taking a look now, but based on what I'm seeing now, I don't see Schelen's name referenced or in the references and I didn't find his name used in the text, if my search capabilities were correct.

Q. Does the Xiao article mention

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2 Gibson?

3 (Deponent reviews the
4 document.)

5 A. I don't see that name used in
6 the list shown in the references, based on
7 my review right now.

8 Q. Let's turn to the Gibson
9 reference.

10 As of 2000, did you know or
11 have heard of Mr. Mark Gibson, the named
12 inventor on the Gibson patent?

13 A. I mean, I don't believe so but
14 I certainly had heard of Nortel Networks.
15 That's the name of a company that
16 Mr. Gibson assigned his patent to.

17 Q. Does the Gibson patent mention
18 Schelen?

19 A. I don't see Schelen listed in
20 the references cited section of the patent,
21 and I -- I did a quick search and if my
22 search capabilities worked correctly, I
23 didn't find Schelen's name.

24 Q. Does the Gibson patent mention
25 Xiao?

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2 A. I don't see Xiao listed in the
3 reference cited section of the Gibson
4 patent. And I searched for Xiao, I didn't
5 find that in my search either.

6 Q. So we're coming up on about 50
7 minutes. Before I move on to the next
8 topic, maybe now is a good time to take a
9 break. Does ten minutes sound okay?

10 A. Sure. Works for me.

11 (Recess is taken.)

12 Q. All right. Dr. Houh, let's turn
13 to the Xiao reference.

14 A. Okay.

15 Q. Figure 4 on PDF page 6 of Xiao
16 shows a bandwidth broker in each of
17 Customer Network 1, Customer Network 2 and
18 Internet Service Provider 1, correct?

19 A. Did you say Figure 4 at the
20 beginning of that question?

21 Q. Yes.

22 A. I mean, Figure 4 does use the
23 labels CN1-BB, CN1-BB, I think that
24 probably should be ISP1-BB and CN2-BB,
25 which I -- which Xiao -- with respect to

1 HENRY H. HOUH

2 the discussion about -- about Figures 3 and
3 4, does refer and in the discussion it does
4 talk about them being bandwidth brokers.

5 Q. Let's turn to Figure 5 on the
6 following page. Let me know when you're
7 there.

8 A. Okay.

9 Q. Figure 5 shows a bandwidth
10 broker in the customer network marked CN-1
11 and the customer network mark CN-2,
12 correct?

13 A. Yeah, I see that in Figure 5.

14 Q. Does Figure 5 show a bandwidth
15 broker in Internet Service Provider 1?

16 A. So this is a different example
17 than -- than examples for Figures 3 and
18 discussion with Figure 4.

19 In fact, it says in Xiao, on
20 page 7, the right column, about halfway
21 down, this is giving a different example of
22 "without bandwidth brokers in the ISP
23 networks the signalling process for dynamic
24 SLAs or service level agreements is
25 slightly different from the one described

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2 earlier."

3 So this is describing a
4 different example from the one where there
5 are bandwidth brokers in the ISP.

6 Q. So the example shown in Figure
7 5 does not show a bandwidth broker in
8 Internet Service Provider 1, correct?

9 A. That's what the discussion of
10 Figure 5 is -- is saying. This is the case
11 where there is not a bandwidth broker in
12 the ISP but there are clearly examples
13 earlier where there are bandwidth brokers
14 in the ISP in Xiao.

15 Q. And Figure 5 of Xiao shows a
16 MPLS-based architecture, correct?

17 A. Well, the discussion doesn't
18 include the discussion of label switch
19 paths, the discussion of Figure 5.

20 Q. Do you see the label underneath
21 Figure 5 that says, "The signalling process
22 of dynamic premium service in a MPLS-based
23 architecture"?

24 A. Yes.

25 Q. So Figure 5 shows a MPLS-based

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2 architecture, right?

3 A. This is an example of one, one
4 such MPLS-based architecture that's being
5 discussed in the paper.

6 Q. Could you turn to PDF page 3 of
7 Xiao? Let me know when you're there.

8 A. Page 3, yes.

9 Q. Do you see the heading
10 Differentiated Services?

11 A. Yes.

12 Q. And under that heading do you
13 see that Xiao abbreviates Differentiated
14 Services as DS?

15 A. Yes.

16 Q. Differentiated Services is also
17 referred to as DiffServ, correct?

18 A. Yes.

19 Q. Figures 2 to 4 are described
20 under this heading of Differentiated
21 Services, correct?

22 A. That does appear to be the case
23 in this discussion of -- in that section in
24 Xiao.

25 Q. Is it your understanding that

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2 Figures 2 to 4 describe examples of
3 DiffServ-based architecture?

4 (Deponent reviews the
5 document.)

6 A. Could you repeat the question,
7 please?

8 Q. Sure. Is it your understanding
9 that Figures 2 to 4 describe examples of
10 DiffServ-based architecture?

11 A. Well, I think those figures do
12 appear in the section with the heading, you
13 know, in the section Differentiated
14 Services.

15 Q. Therefore, is it your
16 understanding that Figures 2 to 4 describe
17 examples of DiffServ-based architecture
18 since they appear in this section with the
19 heading Differentiated Services?

20 A. I mean, while they're
21 discussing some processes, generally, and I
22 think they are in the context of the
23 section with the main -- with a higher
24 level heading Differentiated Services, and
25 they're giving examples of certain things

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2 that happen.

3 Q. Could you please turn to Xiao
4 page 7?

5 A. Yes. Sure.

6 Q. Do you see the steps 1 through
7 10, starting on PDF page 7, and then going
8 on to the left column of page 8?

9 A. Yes.

10 Q. Are these steps referring to
11 the MPLS system example of Figure 5?

12 A. This is -- this is in the
13 section MPLS, but I do want to note that
14 the paragraph prior to the paragraph in
15 which those numbered items are in says that
16 the last sentence or the second to last
17 sentence in that paragraph, "Therefore, BBs
18 may not be needed in MPLS-based ISP
19 networks." But that suggests, that they --
20 it doesn't say that they're not or must not
21 be used, it just says they may not be
22 needed, which also suggests that they could
23 be present as well in -- in MPLS ISP-based
24 networks. And this example is giving a
25 description of what may happen in the case

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2 that the MPLS network does not have a
3 bandwidth broker, but certainly it could.
4 And in that case I think the usage of
5 bandwidth brokers and ISPs would be
6 understood as it works as described
7 previously.

8 Q. So in this particular example
9 shown in Figure 5, are steps 1 to 10
10 related to that Figure 5?

11 A. Yes. The paragraph says, "For a
12 process slightly different than the one
13 described earlier, in the case where a
14 bandwidth broker may not be needed in an
15 ISP network", it gives this example but a
16 person of ordinary skill would understand
17 that. That's the case where it's not
18 needed. But the case where it is present
19 would work similarly to what was already
20 described.

21 This is describing an example
22 of when there isn't a bandwidth broker in
23 an ISP network, and that is the context
24 Figure 5 is in, and the description.

25 Q. In step 1 Host S refers to the

1 HENRY H. HOUH

2 host of the source network in Figure 5,
3 correct?

4 A. It refers to a particular host
5 that is depicted in Customer Network 1,
6 which Host S is the source.

7 Q. I'm just going to pose a couple
8 of hypotheticals.

9 The first hypothetical is that
10 if admission control among bandwidth
11 brokers is based on provided traffic
12 descriptions in an admission request, is
13 the quality of service from the source
14 network to a destination network
15 necessarily predefined?

16 MR. HUH: Objection, form.

17 A. Sorry, that was a long
18 question. I don't remember everything, all
19 the conditions. Can you break it down?

20 Q. I'll try and break it down.

21 So if admission control among
22 bandwidth brokers is based on providing
23 traffic descriptions in an admission
24 request, is the quality of service, the
25 QoS, from the source network to a

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destination network necessarily predefined?

MR. HUH: Objection, form.

A. Sorry. Could you say that again, please?

Q. Sure. If admission control among bandwidth brokers is based on provided traffic descriptions in an admission request, is the quality of service from the source to destination network necessarily predefined?

MR. HUH: Objection, form.

A. What are the characteristics and what is -- what is the actual request?

Q. It's a request for admission control, and it includes traffic descriptions such that it's requesting certain bandwidth and other things that a bandwidth broker would use.

MR. HUH: Objection, form.

Q. So, therefore, would the quality of service in such a system necessarily be predefined?

MR. HUH: Objection, form.

A. I mean, aren't you just saying

1 HENRY H. HOUH

2 now you're defining the bandwidth?

3 Q. So the question is, if I have
4 admission control that is based on provided
5 traffic descriptions in the admission
6 request, is the quality of service
7 predefined?

8 MR. HUH: Objection, form.

9 A. In your hypothetical is -- is
10 the mere description what the -- what would
11 be actually offered and guaranteed?

12 Q. Does a traffic description in
13 an admission request have to be what is
14 actually offered and guaranteed in order to
15 have a predefined quality of service?

16 MR. HUH: Objection, form.

17 A. I mean, you can -- you can say
18 what you expect to send but the point of a
19 -- of -- I mean, this example isn't like --
20 you know what I considered about this is
21 what was described in the prior art and my
22 analysis about the prior art. Those things
23 are things that a person of ordinary skill
24 would recognize are predefined quality of
25 service characteristics.

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2 For example, in Xiao, Xiao
3 explains that there is a premium service
4 which provides low delay and low jitter
5 service for customers that generate fixed
6 peak rate traffic and that the ISP
7 guarantees that contracted bandwidth will
8 be available when the traffic is sent. So
9 that's an example of Xiao explaining a
10 predefined quality of service
11 characteristic.

12 Your example is slightly
13 different, because you're not saying that
14 there is actually a guarantee, or I'm not
15 even sure what you're saying is what's
16 requested. You're just saying that happens
17 to be the characteristic.

18 Q. Let's turn to Schelen-1, so
19 that's Exhibit 1032, PDF -- it's not PDF
20 page, it's page 452. That's actually page
21 2, PDF page 2.

22 A. Okay.

23 Q. On the second column, the
24 second full paragraph and the third
25 sentence in that second full paragraph

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2 starting with "Such reservation agents", do
3 you see that?

4 A. Yes.

5 Q. So it says, "Such reservation
6 agents advertise themselves periodically on
7 a well known multicast address giving their
8 identity and which routing domain (AS) they
9 are responsible for. By listening to this
10 well known multicast address, each top
11 level agent will know the existence of all
12 other top level agents." Do you see that?

13 A. Yes.

14 Q. In your declaration, it is your
15 understanding that Schelen-1's reservation
16 agent corresponds to the claimed bandwidth
17 broker, correct?

18 A. I mean, in my -- in my
19 analysis, for example, in paragraph 162, I
20 am making that analogy, which is that it's
21 the reservation agent that's the bandwidth
22 broker of the claim, like, for example, in
23 paragraph 162. I do this numerous other
24 places as well.

25 Q. If, based on what we read from

1 HENRY H. HOUH

2 Schelen-1, if each top level agent knows of
3 the other top agents, does it imply they
4 collectively contribute to determining the
5 different domains involved for a request to
6 reach a destination network?

7 MR. HUH: Objection, form.

8 A. Are you asking about something
9 I said in my declaration?

10 Q. Yes. It's where you cite to
11 Schelen-1, PDF page 2, which we just read
12 earlier.

13 A. I can look for that. Can you
14 direct me to where you're looking at?

15 Q. Sure. It's page 106 to 107 of
16 your declaration, paragraph 213. Let me
17 know when you're there.

18 A. Okay. I'm there.

19 Q. So in the segment that you
20 excerpted from Schelen-1 there is an
21 underline under the section, "By listening
22 to this well known multicast address, each
23 top level agent (bandwidth broker) will
24 know the existence of all other top level
25 agents (bandwidth brokers)." Do you see

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2 that?

3 A. Yes.

4 Q. So if each top level agent
5 knows of the other top level agents in
6 Schelen-1, is it implied that they
7 collectively contribute to determining the
8 different domains involved for a request to
9 reach a destination network?

10 MR. HUH: Objection, form.

11 (Deponent reviews the
12 document.)

13 A. I think what I'm saying here is
14 that, you know, first of all, this is --
15 this is to the extent that Xiao's teaching
16 are insufficient for the claim element 1.2,
17 that Schelen is disclosing how the
18 reservation agents or the bandwidth brokers
19 advertise themselves and, therefore, anyone
20 listening to the multicast -- on a
21 multicast address and by listening to that
22 each top level agent will find out or know
23 about the existence of all the other
24 agents. And that's -- and that's -- this
25 information about bandwidth brokers of all

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other domains is used to reserve bandwidth towards the destination. And the abstract of Schelen-1 talks about that and that a POSITA would have understood that because the bandwidth brokers advertise their identities in the domain that they are responsible for, any other bandwidth broker listening on the well known multicast address establishes all of the different domains involved to reach a given destination.

I think this is also setting up for I think the next -- the next element 3, where there is actually some passing of requests directly or indirectly to all the bandwidth brokers of the involved domains.

And so -- so what I'm saying is that, in view of what Schelen-1 is disclosing, it would have been obvious to a POSITA for each of the bandwidth brokers associated with Xiao's domains to communicate via multicast address, and that would allow for each bandwidth broker to establish the existence of all other

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2 bandwidth brokers and their respected
3 domains.

4 And so then the customer domain
5 bandwidth broker in Xiao, the CN-1-BB would
6 become aware of the involved bandwidth
7 brokers or the other ISPs or the other CN-2
8 network, and which ISP domains they're
9 responsible for.

10 So that's what I go on to say
11 here but, yeah, that -- that is -- that is
12 why I'm relying on that excerpt from
13 Schelen.

14 Q. So is it your understanding
15 that the top level agents in Schelen work
16 together to determine the different domains
17 involved for a request to reach a
18 destination network?

19 MR. HUH: Objection, form.

20 A. That's -- that's slightly
21 different than what I'm saying.

22 What I'm saying is the agents
23 are aware of -- in Schelen or the bandwidth
24 brokers, the equivalent -- are aware of all
25 the other bandwidth brokers. So when it

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2 needs to find -- it can use this
3 information -- let's see -- about all the
4 other bandwidth brokers to reserve
5 bandwidth towards the destination.

6 So you're asking about a
7 different process. This is about the
8 process of discovery, where Schelen
9 actually knows about all the other domains
10 and the bandwidth brokers of the other
11 domains, it can use this information. It
12 doesn't mean that they're participating in
13 the way that your question is directed to.

14 Q. So is it your understanding
15 that this process of discovery is different
16 from the process of actually requesting to
17 reach or -- scratch that.

18 Is it your understanding that
19 the process of discovery of other top level
20 agents is different than the process of
21 determining the domains involved for a
22 request to reach a destination network?

23 MR. HUH: Objection, form.

24 A. Well, I think by definition
25 your description of the processes are

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2 different. And, you know, in your question
3 you describe different -- two different
4 things. And Schelen is describing, you
5 know, one, the ability for the reservation
6 agents or bandwidth brokers to know and
7 find out about all the other domains and
8 the bandwidth brokers. That's -- that is
9 different than actually passing a request
10 to bandwidth brokers of the involved
11 domains regarding, you know, any sort of
12 setup request, because you would need the
13 information, you know, of all the other
14 domains in order to pass the request to the
15 appropriate domains.

16 Q. Would you turn to bottom of
17 your declaration, bottom of page 108 in
18 your declaration?

19 A. Okay.

20 Q. This is the discussion of the
21 claim limitation, "BBA directly or
22 indirectly passes requests to all bandwidth
23 brokers of the involved domains regarding a
24 VLL of the predefined QoS from ingress to
25 egress of each domain." Do you see that?

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2 A. Yes.

3 Q. What is your general
4 understanding of the term "ingress to
5 egress of each domain"?

6 MR. HUH: Objection, form.

7 A. So I think a POSITA's
8 understanding of that would include the
9 examples that I'm showing from the prior
10 art. For example, if you look at paragraph
11 225, I talk about how "Xiao's PATH message
12 request from the source host asks for
13 premium service". And then I go on, I'll
14 skip a bunch of stuff but "because since
15 the steps are repeated for each domain, it
16 is obvious that each bandwidth broker is
17 managing bandwidth allocation for the
18 portion of the communication path passing
19 through the bandwidth broker's own domain,
20 i.e., from ingress to egress."

21 So that's an example in Xiao of
22 what a person of ordinary skill would
23 understand is an example of the ingress to
24 egress, as claimed.

25 Q. Based on your experience, is it

1 HENRY H. HOUH

2 your understanding that the ingress and
3 egress of the domain is generally a router?

4 MR. HUH: Objection, form.

5 Hey, Julian, after this question,
6 I'd like to take ten minutes. I've
7 got to answer a phone call.

8 MR. PYMENTO: No problem.

9 A. Well, in the example of Xiao
10 that I'm analyzing, the devices on the
11 boundary are labeled, you know, BR-1, 2, et
12 cetera and it is described within Xiao for
13 the analysis of Xiao that I did in that
14 example as a boundary router.

15 MR. PYMENTO: All right. Let's
16 take that ten minute break, if
17 that's okay with you.

18 MR. HUH: Yes. Thank you.

19 (Recess is taken.)

20 Q. Dr. Houh, in your experience,
21 have you worked with systems that perform
22 LSP setup?

23 A. I have. I've actually designed
24 systems that include setting up a path
25 through a network using a series of label

1 HENRY H. HOUH

2 mappings.

3 Q. Is it possible to perform LSP
4 setup using node links of predetermined
5 capacity?

6 MR. HUH: Objection, form.

7 A. I'm not really sure I
8 understand your question.

9 Q. Could you turn to column 3 of
10 Gibson, lines, line 23 or so?

11 A. Okay.

12 Q. You see where it says,
13 "Preferably said communications network
14 comprises a plurality of nodes connected
15 together by links and said method further
16 comprises the step of configuring the
17 communications network such that the links
18 between a first plurality of nodes are of a
19 predetermined capacity, such that in use
20 each of said links between the first
21 plurality of nodes is capable of sustaining
22 a plurality of separate communication
23 sessions?"

24 A. Well, I see that.

25 Q. In the communications network

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described in that section of Gibson, is it
possible to perform LSP setup?
(Deponent reviews the
document.)

A. I mean, I do refer to that
section in paragraph 278 of my declaration,
directed to a slightly different issue
though.

I mean, I cite to that section
and it's -- it's because it would have been
obvious to a POSITA for the admission
manager to pass a plurality of requests, to
set up a plurality of new LSP routes when
sustaining a plurality of separate
communication sessions. And so the request
for new label switch paths pass to the
administrative server and connection
manager render obvious passing resource
requests.

Q. So it is possible to perform
LSP setup in a network where there are no
links of predetermined capacity, as in
Gibson, correct?

A. I mean, you know, my analysis

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is directed at something else, but I don't

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see why you can't send a link to send

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information.

5

Q. If a MPLS network uses a

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constrained set of paths between routers,

7

an advantage of such a system is the

8

reduction in the total topology information

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needed to route across the network,

10

correct?

11

MR. HUH: Objection, form.

12

A. Well, Gibson says in column 3,

13

"By provisioning the communication network

14

in this way, high capacity routes which act

15

as motorways are created. By using these

16

high capacity routes, the topology

17

information required to implement the

18

method is reduced. This simplifies the

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method and makes it faster to operate."

20

Q. In your opinion is such a MPLS

21

network with a constrained set of paths

22

between routers compatible with label

23

switched path setup?

24

MR. HUH: Objection, form.

25

A. I think you're talking about

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two different things in two different places. I mean, certainly when you use -- when you set up a label path the traffic you send on the path do kind of go through the path, and it looks like -- it looks like a single hop, even though it may traverse a number of label switch routers. But if you're talking about setting up the paths, there, you know, there are other -- other protocols used to set up paths among intermediate devices.

So it's not that things are incompatible, it's just that they're done differently at different control versus data.

Q. Do you mind turning to column 6 of Gibson, line 6?

A. Okay.

Q. Do you see where it says, "By using a constrained set of paths between the routers that comprise the MPLS network, the set of routes is constrained to reduce the total topology information needed to route across the network"?

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2 A. Yes.

3 Q. Is it your understanding that
4 this section of Gibson also describes a
5 system which performs LSP setup?

6 A. Again, I think you're confusing
7 things. So there are the paths that are set
8 up, which then do reduce the set of routes
9 needed because a label switch path looks
10 like just one hop. But in order to set up
11 those paths there's control which isn't --
12 you know, for example, in a system that I
13 helped design and build I had a separate
14 control connection to each, each device
15 which needed to have their mapping tables
16 changed, and I would use those to configure
17 our devices. But then when you -- when you
18 input a specific packet or frame at an
19 input with a specific label, it would just
20 go all the way to its designated endpoint
21 on the other side. So we had a control, a
22 separate set of control connections. So
23 these things are not incompatible.

24 I'm not sure what your question
25 is getting at but you're asking two

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2 questions at different -- different parts.
3 It doesn't make sense the way you're
4 putting your question together.

5 Q. Could you turn to column 8
6 lines 49 of Gibson?

7 A. Yes.

8 Q. Do you see where it says, "The
9 administrative server at 35 has a COPS
10 interface to all the admission managers at
11 the edge of the network. The interface is
12 used by those admission managers to request
13 new high capacity label switch paths across
14 the MPLS network or to request a change in
15 the capacity of an existing LSP??"

16 A. Yes, I see that.

17 Q. Is it your understanding that
18 this section of Gibson describes admission
19 managers that request LSPs from an
20 administrative server?

21 A. Could you repeat your question,
22 please?

23 Q. Sure. Is it your understanding
24 from this section of Gibson -- scratch
25 that.

1 HENRY H. HOUH

2 Is it your understanding that
3 this section of Gibson describes admission
4 managers that request LSPs from an
5 administrative server?

6 (Deponent reviews the
7 document.)

8 A. I mean, if you look at the next
9 paragraph it talks about Figure 2 and it
10 talks about the process of requesting a new
11 label switch path and it says that "Either
12 an endpoint 10 or an admission manager 35
13 issues a request for a new route between
14 two abstract nodes 12, 13 in the MPLS
15 network. This is responded to by the
16 administrative server with the excepting
17 situation being illustrated in Figure 2.
18 The administrative server now signals to
19 one of the specified abstract nodes AN1, 12
20 that it should set up a path to the other
21 abstract node AN2, 13. In the case that
22 the other abstract nodes represent a group
23 of label switch routers, the administrative
24 server specifies a particular label, switch
25 router, within each abstract node."

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2 And that's what -- that's what
3 -- that's how this reference is further
4 described in that process.

5 Q. So this section in Figure 2
6 show an admission manager requests LSPs
7 from an administrative server, correct?

8 A. Well, it says either an end
9 point or admission manager issues a
10 request, and that -- that in this example
11 this is responded to by the administrative
12 server, but it does so by further
13 signalling other devices.

14 Q. In your understanding, does
15 Gibson's administrative server correspond
16 to a particular domain or multiple domains?

17 (Deponent reviews the
18 document.)

19 A. So if you look at Gibson in
20 column 8, line 22 to 24, it talks about
21 that "an Administrative Server 35 may take
22 the form of multiple servers that
23 administer their local area." And it is --
24 it is also pictured as a single entity in
25 Figure 1, but it can take a form of

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2 multiple servers, but it uses the term
3 "local area". And I think if you look at
4 clouds 15 and 16 in Figure 1, those are
5 local areas.

6 So I think it's -- it's that
7 the local areas are -- represented by the
8 clouds are part of the same domain and thus
9 operate in the same domain. And that's part
10 of what Gibson is teaching.

11 Q. Could you turn to paragraph 266
12 of your declaration?

13 A. Okay.

14 Q. Based on this paragraph it is
15 your opinion that Gibson's connection
16 manager performs admission control
17 including determining if it has resources
18 to allow a new session, correct?

19 MR. HUH: Objection, form.

20 A. I mean, I'm saying in paragraph
21 266 that, "The connection manager also
22 performs admission control, including
23 determining if it has resources to allow a
24 new session. And if so, making a temporary
25 reservation for the session, else denying

1 HENRY H. HOUH

2 the session and sending an error message."

3 And it goes on to say that, "If
4 all of the connection managers along the
5 path have sufficient resources, then the
6 connection manager converts its temporary
7 reservation for the requested communication
8 session into a permanent reservation."

9 Q. Is it your understanding that
10 the claimed intradomain bandwidth broker
11 corresponds to one domain?

12 A. I mean, the claims require what
13 they say they require, which is if you look
14 at the last -- if you look at line 29 of
15 column 10 of the patent, of the '698
16 patent, it introduces the term "at least
17 one intradomain, wherein, each intradomain
18 broker is responsible for admission control
19 and label switch paths."

20 So the claim says that there is
21 at least one intradomain broker. It uses
22 the label 1DB there, "wherein each
23 intradomain broker of the one or more." So
24 the claim says there is at least one
25 intradomain broker.

1 HENRY H. HOUH

2 Q. What is your understanding of
3 the term "intradomain"?

4 A. Well, I think that would be
5 understood in the plain and ordinary
6 meaning of that term, where "intra" refers
7 to within, and I think that's included in
8 the plain and ordinary meaning.

9 Q. In MPLS systems resources are
10 reserved through admission requests from a
11 source network, correct?

12 MR. HUH: Objection, form.

13 A. Sorry. Can you repeat the
14 question, please?

15 Q. In MPLS systems resources are
16 reserved through admission requests from a
17 source network, correct?

18 MR. HUH: Objection, form.

19 (Deponent reviews the
20 document.)

21 A. I mean, if you look at the
22 references that I've analyzed, for example,
23 in Gibson, I talk about that in starting
24 around paragraph 275 of my declaration,
25 where there is an interface used by

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2 admission managers to request new high
3 capacity label switch paths but also we
4 looked at another portion of Gibson, which
5 I also cited I think in my declaration
6 somewhere, about how the process of
7 requesting a new LSP, and that's in column
8 8, starting around line 55, and that either
9 an endpoint 10 or the admission manager 35
10 issues a request for a new route between
11 two abstract nodes in the MPLS network.

12 So I mean, that's what the
13 Gibson references, describes this
14 requesting a new label switch path and it's
15 done either at endpoint or an admission
16 issues a request, which is consistent,
17 again, with what I -- the citation that I
18 have in paragraph 275 as well.

19 Q. And those admission requests
20 from either the endpoint or an admission
21 manager reserve resources, correct?

22 A. Sorry. What were the two things
23 you said, reserve -- could you repeat that,
24 please?

25 Q. You mentioned that admission

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2 requests can originate from either an
3 endpoint or an admission manager, at least
4 in Gibson. And those admission requests,
5 do they reserve resources?

6 MR. HUH: Objection, form.

7 A. Yeah, I don't think I used the
8 word "admission request" in my answer.

9 I was talking about how Gibson
10 is describing an interface that is used by
11 endpoints or admission managers to issue
12 requests for a new route between a new
13 route basically in the MPLS network. And I
14 do think -- yeah, hold on a second. I am
15 saying that the -- well, hold on.

16 Yeah, and that portion that I
17 just directed you to I did find citations
18 within my declaration there as well. I
19 think -- is this one of them? I just saw
20 it. But I did see that, that one section
21 cited to.

22 So I am discussing how the
23 endpoints or the -- or the admission
24 managers issue a request for a new route in
25 the MPLS network.

1 HENRY H. HOUH

2 Q. Do you mind turning to
3 paragraph 69 of your declaration?

4 A. Okay.

5 Q. You see where it says,
6 "Schelen-2 explains that 'an admission
7 request can be directed to any agent, e.g.,
8 an agent that manages a user's account.
9 Each reservation request contains a
10 bandwidth to be reserved, a source and a
11 destination address.'"

12 A. Yes, I see that.

13 Q. Is it your understanding that
14 the admission request from the first quote
15 is the same as the reservation request from
16 the second quote?

17 A. Well, I mean Schelen-2 talks
18 about admission requests and reservation
19 requests in slightly different ways, in
20 that there are a number of places Schelen-2
21 is talking about end-to-end admission
22 requests.

23 So you have an end-to-end
24 admission request, but Schelen is talking
25 about how an agent cannot perform -- this

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1
2 is page 3 of Exhibit 10 -- I don't want to
3 use the wrong exhibit number, of the
4 Schelen-2 reference, it's at the bottom of
5 section 2.1, "An agent cannot perform
6 admission control beyond its domain.
7 Therefore, if the destination is outside
8 the agent's domain it must request a
9 reservation with a neighboring agent giving
10 the edge point where the traffic will cross
11 the border as a source address of the
12 reservation. Without distinguishing
13 between reservations to different
14 destinations, it would be impossible for
15 agents to grant reservations to other
16 domains. That is because there is no way to
17 make sure that there are sufficient
18 reservations along any path in other
19 domains further downstream."

20 So, you know, if you're making
21 an end-to-end admission request that spans
22 multiple domains, it could be that the
23 domain you make it -- the agent that
24 manages the account that you make the
25 request to can't know by just consulting

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one domain.

So it actually talks about at the top of 2.1, section 2.1, each agent sets up reservations between any two points in the network by invoking other agents. So they're slightly different.

They're directed to the same process, but I think Schelen-2 is talking about an admission request more in the end-to-end style, like, but then reservations are now broken down and may be made with different source addresses than the overall admission request was made. Because if it spans multiple domains, Schelen, in some examples at least, talk about how there is a new reservation request made to a neighboring agent with the source address for the reservation to be the edge point where the traffic will cross the borders, as opposed to the original source in the admission request.

So they're -- they're directed towards the same process of setting up the path, but I think the discussion is

1 HENRY H. HOUH

2 slightly different with respect to when
3 it's using admission request versus
4 reservation request.

5 Q. Could you turn to page 6 of
6 Schelen-2, that's Exhibit 1007? There's a
7 title that says Admission Control For
8 Immediate and Advance Reservations. Let me
9 know if you see that.

10 A. Yes, I can see that. Although,
11 I just want to point out I think there's a
12 difference between -- I think you're
13 referring to Exhibit 107 at the bottom
14 here.

15 Q. A-hum.

16 A. But I think these exhibits to
17 the deposition are slightly different, off
18 by one or something. I don't know. I don't
19 know if the exhibit number you're referring
20 to is different. I'm trying to figure that
21 out now. I just don't want there to be any
22 confusion. That's why I try to avoid using
23 exhibit numbers.

24 Q. Yes. Exhibit 1007 at the bottom
25 of the page, if that makes more sense.

1 HENRY H. HOUH

2 A. Yeah. Sure. I did note that
3 like at the beginning in the upload folder
4 the exhibits to the deposition are slightly
5 different.

6 Q. Yes.

7 A. I just don't want to cause
8 confusion.

9 Q. Gotcha. It seems you're on the
10 right document.

11 A. Okay.

12 Q. So on page 6 do you see the
13 title Admission Control For Immediate and
14 Advance Reservations?

15 A. Yes.

16 Q. Is that title referring to
17 admission requests or reservation requests?

18 MR. HUH: Objection, form.

19 A. Well, this section uses both
20 phrases, admission request and reservation
21 requests and, again, they're somewhat
22 related.

23 So in this section they're
24 talking -- for example, they talked about
25 reservation requests, the first sentence of

1 HENRY H. HOUH

2 3.2, and then the first -- the second line
3 of 3.4 talks about new admission requests
4 and the middle of the first paragraph of
5 3.5 talks about admission requests too. So
6 I think this section is -- uses both
7 phrases in its discussion, reservation
8 request and admission request.

9 Q. Is it your understanding from
10 Schelen-2 that resource requests can be
11 immediate requests or requests made in
12 advance -- scratch that.

13 What I meant to say is, is it
14 your understanding from Schelen-2 that
15 reservation requests can be immediate
16 requests or requests made in advance?

17 MR. HUH: Objection, form.

18 A. I mean the Schelen-2
19 references, for example, at the bottom of
20 the first paragraph under the main section
21 3 heading it talks -- it says that, "We
22 have the architectural freedom of locating
23 the admission control for immediate and
24 advance reservations at separate places in
25 the network without suffering undue

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2 communication overhead."

3 So it's just saying that -- I
4 mean, it's saying that there are both
5 immediate reservations and advance
6 reservations but those two different types
7 of reservations may be handled at one place
8 or at different places.

9 Q. Based on your understanding of
10 Schelen-2, does a reserved resource
11 necessarily imply that a resource is used?

12 A. I mean, Schelen in 3.1, the
13 second paragraph talks about how, "The
14 metrics used in measurement-based admission
15 control involve also measurements of used
16 resources. Such a scheme can detect
17 reserved resources that are not utilized
18 and grant those resources to other
19 requests. The benefit of measurement-based
20 admission control is better resource
21 utilization. On the other hand, there is no
22 guarantee that reserved resources are
23 available when needed. The scheme may also"
24 -- I think this is talking about other
25 measurement methods, but they talk -- but

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2 in -- it goes on to say that, "In our agent
3 scheme we use only parameter-based
4 admission control for a number of reasons."

5 So I think what it's saying
6 generally is that, you know, there are
7 other measurement methods that may grant
8 unused resources to other -- to other
9 requests but that may be bad because it
10 then -- the unused resources become like,
11 say bandwidth wasn't being used now but is
12 being used in the future. But I think what
13 it's generally saying is that, you know --
14 like, if I make a reservation at a
15 restaurant, I might not show up, or I might
16 make a reservation for 12 but 11 people
17 show up, and so I'm not using the full
18 reservation.

19 I don't think -- I don't think
20 Schelen is implying that -- that every
21 request generates the full reservation, the
22 full requested data for the entire time of
23 any request. I don't -- I don't think -- I
24 haven't seen in Schelen-2 where it's saying
25 that.

1 HENRY H. HOUH

2 Q. You mentioned earlier that you
3 reviewed the Institution decision which I
4 marked as Exhibit 8 prior to this
5 deposition.

6 Based on reviewing that
7 decision, did you want to revise anything
8 in your declaration?

9 A. Not at this time, no. I
10 wouldn't revise anything or change anything
11 anyway. Nothing, nothing I saw in the
12 Institution decision changed any of my
13 opinions.

14 MR. PYMENTO: I do not have any
15 further questions. Thanks for your
16 time, Dr. Houh.

17 THE WITNESS: Thank you very
18 much.

19 MR. HUH: No questions from
20 Petitioner. Thank you.

21 THE WITNESS: Great. Thank
22 you.

23 (The proceedings were adjourned
24 at 12:20 p.m.)
25

C E R T I F I C A T E

I, MAUREEN M. RATTO, a
Registered Professional Reporter, do
hereby certify that prior to the
commencement of the examination, DR.
HENRY H. HOUH was sworn by me to testify
the truth, the whole truth and nothing
but the truth.

I DO FURTHER CERTIFY that the
foregoing is a true and accurate
transcript of the proceedings as taken
stenographically by and before me at the
time, place and on the date hereinbefore
set forth.

I DO FURTHER CERTIFY that I am
neither a relative nor employee nor
attorney nor counsel of any of the
parties to this action, and that I am
neither a relative nor employee of such
attorney or counsel, and that I am not
financially interested in this action.



MAUREEN M. RATTO, RPR

License No. 817125

I N D E X

WITNESS: DR. HENRY H. HOUH 4

EXAMINATION BY MR. PYMENTO 4

E X H I B I T S

Exhibit 1, U.S. Patent 7,190,698 8

Exhibit 2, Declaration of Dr. 9

Henry Houh

Exhibit 3, Curriculum Vitae of 9

Dr. Henry Houh

Exhibit 4, 1999 IEEE article 9

entitled Internet QoS, a Big

Picture

Exhibit 5, U.S. Patent 6,678,264 10

Exhibit 6, IEEE paper titled An 10

Agent-Based Architecture For

Advance Reservations

Exhibit 7, paper from the Journal 10

of High Speed Networks titled

Resource Sharing and Advance

Reservation Agents

Exhibit 8, PTAB decision Date: 11

September 26, 2023

J U R A T

I do hereby certify that I have
read the foregoing transcript of my
deposition.

DR. HENRY H. HOUH

Subscribed and sworn to before me
this _____ day of _____, 2024.

a Notary Public of
the State of _____

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