In the Matter Of:

AYLO FREESITES LTD. v

DISH TECHNOLOGIES L.L.C.

DR. HENRY HOUH

July 09, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR2024-00043

U.S. Patent No. 11,677,798

AYLO FREESITES LTD.,

Petitioner,

vs.

DISH TECHNOLOGIES L.L.C.,

Patent Owner.

REMOTE VIDEOTAPED DEPOSITION OF

DR. HENRY HOUH

Tuesday, July 9, 2024

10:02 a.m. (EDT)

Reported By:

Joan Ferrara, RMR, FCRR

Job No. 2024-946453

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2 July 9, 2024
3 10:02 a.m. (EDT)
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7 Videotaped Deposition of DR. HENRY HOUH,
8 held remotely via Zoom, before Joan Ferrara,
9 a Registered Merit Reporter, Federal
10 Certified Realtime Reporter and Notary
11 Public.
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REMOTE APPEARANCES:

ON BEHALF OF PETITIONER:
VENABLE
151 West 42nd Street
New York, New York 10036
BY: IAN G. PAQUETTE, ESQ.
PHILIP SHENG, ESQ.

ON BEHALF OF PATENT OWNER:
BAKER BOTTS L.L.P.
700 K Street N.W.
Washington, DC 20001
BY: ELIOT D. WILLIAMS, ESQ.
JAMIE R. LYNN, ESQ.
ANDREW WILSON, ESQ.
PARKER HANCOCK, ESQ.
THOMAS CARTER, ESQ.

ALSO PRESENT:
JOSHUA CLARKE, Videographer
JOSEPH EDELL, In-House, DISH

---------- I N D E X ----------

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	MR. PAQUETTE	228

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(REPORTER'S NOTE: All quotations from exhibits are reflected in the manner in which they were read into the record and do not necessarily denote an exact quote from the document.)

THE VIDEOGRAPHER: We are now on the record on July 9, 2024, at approximately 10:02 a.m. Eastern Time, for the remote video deposition of Dr. Henry Houh in the matter of Aylo Freesites Ltd., Petitioner, versus DISH Technologies LLC.

My name is Joshua Clarke and I am the videographer on behalf of Lexitas.

So starting with Mr. Williams, will all counsel please introduce themselves and who they represent.

MR. WILLIAMS: Eliot Williams, of Baker Botts, for the Patent Owner.

MR. PAQUETTE: Ian Paquette, for Aylo Freesites, Petitioner.

Also with me, I have Philip Sheng, co-counsel.

MR. WILLIAMS: Let me see, check the attendee list to see who is here.

Thomas Carter, Andrew Wilson, Jamie Lynn and Parker Hancock are also with Baker Botts and are attending.

Joseph Edell is in-house counsel for DISH and he is attending, and I

1 think that's everyone from our side.
2 THE VIDEOGRAPHER: Now would the
3 court reporter please swear in the
4 witness.
5 DR. HENRY HOUH,
6 called as a witness, having been duly
7 sworn by a Notary Public, was examined
8 and testified as follows:
9 EXAMINATION BY
10 MR. WILLIAMS:
11 Q. Good morning, Dr. Houh.
12 Looking at your CV, it appears
13 you've been deposed over 50 times. Does that
14 sound correct?
15 A. Yes, definitely over 50 times.
16 Q. Okay. Any reason you can't
17 testify truthfully or accurately today?
18 A. No.
19 Q. Okay. Do you have any questions
20 about today's procedure?
21 A. I don't think so. Not right now.
22 Q. Okay. Super.
23 Let me ask you about your
24 involvement in these IPRs.
25 So you've provided declaration

1 testimony in a group of IPRs that you're being
2 deposed about in this case.
3 Does that sound correct to you.
4 A. Yes. That's my understanding.
5 Q. And in total then, you've written
6 five declarations regarding the patents
7 that are being contested in these IPRs, is
8 that right?
9 A. Yeah, for these cases, I
10 submitted one declaration per case. So I
11 think that's five cases is my
12 understanding.
13 Q. Okay.
14 A. That this deposition is about.
15 Q. Okay. Super.
16 Can you describe for me what you did
17 to prepare for today's deposition without
18 revealing any communications with counsel?
19 A. I met with the attorneys and I
20 reviewed a number of documents.
21 Q. And how many meetings did you
22 have with the attorneys to prepare for
23 today's deposition?
24 A. I think it was at least three.
25 Q. Okay. And over what period of

time are we talking about? Was this within the last week or more than that?

A. Within the last week.

Q. Okay. About how many hours did you meet in total?

A. Maybe five hours-ish, give or take a few. Probably not take a few, but probably five hours around. Maybe a few more.

Q. Okay. And other than those meetings, did you do anything else to prepare for today's deposition?

A. I reviewed a number of documents.

Q. And what documents are you referring to? You're talking about your declarations and the exhibits in this case, or something else?

A. The prior art references, the patents and my declarations.

Q. All right. Anything else you recall reviewing in preparation for today's deposition?

A. Not that I can think of at the moment.

Q. Okay. I have given you -- let me

ask you about the setup you have today. You're in front of a computer screen, is that right?

A. Two, two screens.

Q. Okay. Can you tell me what you see on the two screens?

A. I have the Zoom window on an external monitor attached to my laptop, and then on the laptop I have the folder of deposition exhibits open on this desktop. That's all. That's the only window I have open.

Q. Okay. And is one of those exhibits labeled Exhibit 1003?

A. Yes.

Q. Can you open that one and tell me if you recognize it.

A. This is the declaration I submitted for the '138 Patent case, the IPR 2024-00044.

Q. Okay. You call that the '138 Patent. The full number, for the record, is 11,470,138, correct?

A. Yes.

Q. And if I call that the '138

Patent, you'll know what I'm talking about then, is that right?

A. Yes.

Q. Okay, great.

And this is one of the five declarations you prepared for these IPRs, correct?

A. It's one of the five I've submitted, yes.

Q. Okay. I'll just ask you to verify that that's your signature on page 77 of the document.

A. Yes.

Q. Okay. And then after your signature page, there's an Exhibit A. Can you describe for me what that is?

A. That appears -- that's a copy of my CV that was probably current at the time this was submitted.

Q. Okay. And that was in October of 2023, is that right?

A. Yes.

Q. Okay. I'll just ask you a few questions about your CV then.

You have an address there in

Lexington, Massachusetts. Is that where you normally reside?

A. Yes.

Q. Okay. The -- and the CV is accurate or was accurate at the time, correct?

A. Should be, yes.

Q. Okay. The first item on your experience has Houh Consulting Incorporated. Can you explain what that is?

A. So that's the company that I work for. It's really just me.

Q. And it says you're a technical consultant in various technologies, is that right?

A. Yes.

Q. One of them you have listed is media streaming and voice over IP, is that right?

A. Yes -- well, I would say they're two things. I guess I'm missing a comma after media stream.

Q. That's what I wanted to ask you. Okay, that's two things. That's a fine.

So media streaming is separate from voice over IP, correct?

A. That was the intention, yes.

Q. Okay. And can you describe generally what you mean by you're being a consultant in media streaming? What does media streaming mean in that context?

A. I mean, I guess it means what it says generally, which is I've done a lot of video in my careers, starting in grad school in the early to mid '90s. You know, we early on had presented video demonstrations that were initiated through a website and it was one of the first, you know, hundred or couple of hundred websites ever set up, and we put our groups of video demos online, and that was the start. And now I do work for a number of other media streaming and video, online video companies.

Q. Just going back to that first example that you mentioned of a website with a video, what time period are we talking about?

A. I think we had demos in early

1994, if not -- yeah, early '94 we, I think I set up the website in late 1993. And then the video demos were put online shortly thereafter because we already had them within our group running on our group's computers at that time.

Q. Okay.

A. Yeah.

Q. And this was when you were at MIT?

A. Yes. I was in grad school and was that the focus of our group's research, was digital video over a high-speed LAN that we built all the components for, including the video capture devices. And I wrote -- and I built some devices to interface to the high-speed network, which was also of art design, both the interface card, which was my design, and the network, which was the group's design. And I wrote a bunch of software to get the data from the networking to the computer and other people wrote software about processing video.

So, we had all these demos

already. So shortly after I set up the first website for our group, we were able to put -- collectively, as a group, put our video demos online.

Q. And that would then have allowed users from a client computer to access those videos, is that right?

A. Yeah. This was before there were plug-ins. So if you had the right of the software, you could actually follow our instructions and get the video from our cameras onto your desktop.

Q. Okay, maybe -- sorry, I think I made a wrong assumption there.

So this demo you're talking about would have been streaming a live video?

A. It would have pulled live video. The quality wasn't that great back then as, you know, it was early '90s, but you could actually see a live camera feed. And if you made it small enough, you probably could get it to be, you know, actually reasonable quality -- reasonable frame rate, that is if you shrunk the video window itself small enough.

But within our group, we could do full resolution, standard definition video live throughout our high-speed network for the computers that were directly attached to it. It's just that once you got off our high-speed network, then it slowed down.

Q. I see, okay.

So would the demos that you're talking about have all been live videos or would some of them have been pre-recorded videos?

A. Some were live. So I had a camera in my office. You could select a number of the live cameras that were basically in different offices to watch us live. I mean, we were just sitting there at the computers mostly. But we also had pre-recorded demos.

For example, we recorded a number of different -- we recorded monologues off of late night TV from like, I think back then it was David Letterman and Jay Leno. We recorded CNN News at the top of every half hour, the headline news. And you could actually -- those demos were

1 available also to watch.
2 So, you could watch the latest
3 CNN that we had recorded -- or we kept, I
4 don't remember how long, a few days or
5 week's worth of monologues. And one of the
6 demonstrations we had -- this might not
7 have been right when we launched it, but
8 you know, this is one that we eventually
9 had because an undergraduate wrote this
10 demo. He called the joke browser, and it
11 would automatically segment the monologues
12 to Jay Leno and David Letterman into
13 individual jokes and then you could
14 search -- you could search them by, because
15 we actually captured the closed captions,
16 so you could find all the jokes where Bill
17 Clinton was mentioned and receive just a --
18 you get effectively a playlist with them
19 all queued up of just the Bill Clinton
20 jokes. So that was called the joke
21 browser.
22 And we had a number of other demos.
23 The CNN demo was simply the segmented CNN
24 sections. So, you know, there was headline
25 news and sports and finance all broken out

1 automatically segmented by our system. So you
2 could just jump to the finances and watch just
3 the financial report part of the news.
4 So those were the kinds of demos we
5 had. We recorded a few other things, too. I
6 don't remember the full set of items we
7 recorded. But there were maybe a few other
8 shows like Wild World of Sports or something
9 like that.
10 Q. What was the name of the group
11 that you're referring to?
12 A. That group was called the
13 Telemedia Network and Systems Group.
14 Q. Okay. I just want to go back to
15 something you said.
16 In talking about the joke server,
17 you said that there were segmenting performed
18 on the video. Can you just explain what you
19 mean by segmented?
20 A. Well, like during the monologues,
21 there was a, you know, Letterman tells a
22 series of jokes. And then I think -- I'm
23 not sure who recognized this, but they
24 actually put "Laughter" in the caption
25 track. You know, it says "Laughter."

1 So I think the undergraduate, he
2 actually won the best undergrad thesis
3 prize for his thesis this year, which
4 was -- that year, on this topic with the
5 joke browser. But he realized that, and I
6 think he was the one, I'm not sure, and he
7 basically snipped the video at those
8 boundaries where it said "Laughter" in the
9 track. So then you could get all the
10 different jokes because people -- if people
11 laughed after every joke, then the laughter
12 is the boundary between the jokes.
13 So I think that's how he did it.
14 And then he was able to save -- I can't
15 remember if he saved each joke or we -- there
16 were markers were used in the video, I don't
17 remember exactly how he did it, but you could
18 then bring up a browser -- so we had a
19 software environment where you could code
20 using high-level language and put together a
21 screen with, you know, buttons on it for
22 playing and a panel listing different segments
23 to play.
24 And he wrote a specific one for the
25 joke browser. A specific application, which

he called the joke browser. And then you could play just the jokes and they would be pre-segmented using his algorithms.

And so I think that's -- did that answer your question?

Q. I think so. So as I understood, this segmenting in that context means to take the whole monologue and break it up into pieces based on some division, is that correct?

A. Yes. But I don't know actually how he, if he saved them as individual files or it was just a marker into a long video.

Q. I understand.

Thinking back to this time period when you were working on this project, how was -- was there a particular standard to which your videos were encoded?

MR. PAQUETTE: Objection. Form.

A. So actually, I just want to be clear. I know the word "segment" is used in some of these patents. I'm not really indicating that that's how they should be understood. I'm just trying to describe,

you know, what he did.

I don't -- I think we encoded it as some form of digital video that I don't think was compressed because we weren't really concerned about the compression at that point.

So I don't remember exactly, but I think it was really what we thought of as just captured digital video without compression.

I had written part of a video encoder for -- but we didn't actually use that, I don't think, in our system.

Q. So when you used the word "encoder," does that imply to you that the video has been compressed in some way?

A. Well, I mean, it could, certainly, as an example, of what encoding is.

Q. Okay. The uncompressed digital video format that you recall using in this project, was that video encoded or not encoded?

A. Well, I would say, you know, the video is this analog, you know -- I think we got analog video feeds from a satellite box. And so I think, you know, we had to

1 convert them into digital format. You
2 know, it was the hardware that my office
3 built that took in basically an analog TV
4 signal and output digital.
5 So I think that's a form -- that
6 would be an example of a form of encoding
7 there.
8 Q. Okay. Now, just getting back to
9 this word "media," the idea of media
10 streaming that I asked you about a few
11 moments ago and you gave -- I think when I
12 asked you about this you gave this as an
13 example of your experience with media
14 streaming -- is that right? Would you
15 describe that project as being an example
16 of media streaming?
17 A. Yeah, I think it would have been
18 an example. We had live feeds from either
19 cameras or the satellite dish which we
20 could record, but we could also put up a
21 window -- there was an application written
22 in our language that you could just put up
23 a live window from any of our camera inputs
24 on to any computer in our group. And then,
25 if you had the right software on the web,

if you followed our directions, you could put the window up on a user's screen.

And people did that. We got e-mail from all over, probably the world, people having watched our demos.

Q. Okay. So certainly, I think as I understood your answer, the live video feeds you would say qualify as media streaming at the time in 1994. Do I have that right?

A. Yeah, I think that would be an example. We would stream, you know, recorded programs as well. Because people -- it was -- it was individualized for the user who was browsing our videos. So it wasn't like you were joining a broadcast and just getting, you know, like tuning to a channel -- well, but -- yeah, so people could control individually and pause and scrub back and forth within the video on their individual browser independently of everyone else's.

I mean, that's just an example of what we did. I'm not saying that's necessary for streaming. But, you know, we had that

kind of browser.

Q. Sure. That makes sense.

So, you know, in terms of the way you used media streaming, it would include sending pre-recorded video as well as live video, correct?

A. Well, in a sense that they were coming off our disks and, you know, across the internet to whatever user had started our demo.

Q. We don't need to spend a lot of time on this, but I just want to make sure I understood a few more things about this example you're describing.

So you said that end users could kind of select which videos they wanted to view. Would that have required the special software that you described earlier?

A. Yes, because there wasn't a video player embedded in the browser at the time yet.

Q. Okay.

A. Or I don't think plug-ins were available really.

Q. So can you just explain to me

what this software is that a user would need in order to access these videos from outside your internal high-speed network?

A. Yeah. They need to be running an X Windows server. By the way, an X Windows -- the word server is mis -- is backwards from everyone else's. Basically a client that can put up X Windows.

Q. I understand. Okay.

And that was -- an X Windows client was a software that was available from places other than your group at the time, correct?

A. Yes. I think there were commercial versions of the X Windows -- well, I'll say X Windows server, but it's really -- it's like people think of it -- you would think of it as a client today, not a -- there are technical reasons why they call it a server, but it's backwards from everyone else.

Q. Okay. I understand.

A. If you had the software, you could put up an X Windows of our demos on your screen. And that was something that was typically available on Unix or Linux

1 distributions as the main window system,
2 like Windows is today or Mac OS has a
3 windowing system. It was basically the
4 Unix system.
5 And so, most people who had Unix
6 systems that ran kind of GUI, graphical
7 system on top of Unix would have had
8 X Windows. And early in the web, you know,
9 that's a lot of what people used.
10 But there were X Windows software
11 you could buy for PCs. Actually, I'm not sure
12 at what time frame. I know during the time
13 that we were there, we had versions of
14 X Windows on PCs, but I don't remember the
15 exact timeframe that they were available; on
16 the PC, that is. They were available on Unix
17 systems at the time.
18 Q. The demos that you're talking
19 about within your group, were these meant
20 to be commercialized or was this purely for
21 research purposes?
22 A. It was purely for research
23 purposes.
24 Q. Did you at some point, either
25 before or -- I'm sorry, let me reask, let

me withdraw the question.

Did you at some point become involved in attempting to commercialize any type of media streaming technology?

A. No, I did not at that time. Actually, I did work to commercialize kind of web -- you know, while I was in grad school, I started a company to do targeted advertising and recruiting online.

But no, I never made an effort to commercialize the group's research.

Q. Okay, yeah -- yeah, maybe I want to make clear. I'm trying to expand beyond what you were doing during your graduate program.

At any point in your career, were you involved in commercializing media streaming technologies?

A. Well, I was involved in a video search start-up at one point, but we weren't commercializing the underlying technology. We leveraged what was commercially available and we provided a set of -- we set up a number of servers to stream video, video search results that we

had indexed.

So we did -- I wouldn't say that's commercializing the underlying technology, but I think it was a company directed towards, you know, search results that are video/audio.

Q. Are you referring there to Podzinger or to something else?

A. Yeah, it was initially called Podzinger and then later it changed its name to, I think EveryZing, and then I don't remember what the names that they had after that.

Q. What period of time were you involved in that, with that company?

A. Sorry, could you repeat that, please?

Q. At what period of time was it that you were involved with that company?

A. I think around 2006.

Q. Okay. So was that company involved in actually streaming video or was it just indexing video that was stored somewhere else?

A. Well, part of our indexing

1 process, we actually stored a small copy of
2 the video that we actually would stream as
3 part of search results.
4 So we had video streaming software
5 which we, I think, acquired commercially to
6 serve up those results.
7 Q. So would users be able to then
8 watch -- okay, back up.
9 Can you describe for me what the
10 essence of that company was?
11 A. Yeah. So what we did was we took
12 video and audio assets -- first of all, we
13 have a demo site that we scraped, we
14 searched for podcasts and video podcasts.
15 We started out with podcasts, hence the
16 name Podzinger, and we indexed those to --
17 and the way we did that was we -- BVN,
18 which was where we started this start-up
19 before we spun it out and raised some
20 external capital, was well known for and
21 had a lot of research in speech
22 recognition. I think they may have been
23 the first to apply neural networks to the
24 problem, which is what all AI is today.
25 But they had the best large language

1 speaker independent speech recognition at the
2 time. And so, we took that and we basically,
3 you know, sucked down these podcasts and
4 video. And then we generated a transcript, we
5 called it a pseudo transcript because the
6 accuracy wasn't that great. It was, you know,
7 80 to 90 percentage points, which is not great
8 for -- we didn't think it was great, but it
9 was good enough to be able to then generate
10 the pseudo transcript and use the text of the
11 spoken words in video or audio podcast to
12 generate -- to use in generating a search
13 index. So now you could search for words that
14 were spoken inside video.
15 And then the business model
16 became -- we would sell the system to media
17 companies looking to process their video
18 assets to what we would say unlock the
19 searchability of them. Because prior to that,
20 you know, a news organization might write a
21 short blurb about what a video might be and
22 they had many, many, many hours of archived
23 videos. So our selling point was now you can
24 unlock them, have them searchable, and then,
25 you know, make, you know, monetize them

1 through providing them online and with
2 advertisements. And so that was kind of the
3 business model of the spinout company.
4 And actually we ended up selling, I
5 think, to companies including mobile major
6 networks, ABC, NBC, CBS as well as companies
7 like ESPN and Disney.
8 I don't remember the full list. I
9 think those were companies, if I recall
10 correctly, that we actually sold the system
11 to.
12 Q. Right, okay. So the business
13 model wasn't to stream directly to an end
14 user that was trying to do searches then,
15 that you were just trying to sell a
16 solution to the content providers
17 themselves?
18 A. Right, but the demonstration site
19 we had was basically actually, you know,
20 collecting podcast, audio and video, and
21 actually streaming the results.
22 So what was unique about our -- we
23 had a demo page where, when you did the
24 search, you know, you'd see -- if you see --
25 like Google, if you do a search you see a list

of search results. Well, we'd have a little video player right next to every search result.

And then each of the words that came up, you could click on it, each word, and jump to exactly the location in the video where that word was spoken. So you can use it to jump into the video and to hear, you know, from the exact point the word was spoken for each word that came up in the search result.

So we -- and that's part of the reason we had the small, you know, thumbnail-sized video, you know, that we actually stored on our site. So you could actually interact with that video with what we call the jump-to feature in the transcript.

Q. Do you recall in that demo whether the video was compressed?

A. I think we used whatever -- I don't remember what server we ended up using. We got a commercial office site. So whatever -- I think it was compressed. I don't know exactly what standard server system we have used.

Q. Okay. And then what about on the

1 client side, would the client need any
2 special software to view that video?
3 A. I don't remember exactly, but it
4 was worked on a lot of systems back then.
5 So it may have either used a plug-in that
6 most people probably had, it might have
7 been Flash or something like that -- it
8 might have been Flash. So we weren't as
9 concerned about -- and people at that time
10 were downloading and installing these extra
11 client plug-ins.
12 Q. Okay. Let me ask you a few
13 questions about your kind of work in this
14 case.
15 Do you recall when you first got
16 contacted about these IPRs?
17 A. I don't remember the exact
18 timing.
19 Q. And what was the process you
20 used -- well, generally, what was the
21 process you used in these cases to prepare
22 your declaration?
23 A. Well, I mean generally usually,
24 you know, I review the patents. I have
25 discussion with the attorneys. I may

1 sometimes search for prior art or I'm
2 provided with prior art, I review that.
3 Have further discussions. And then a draft
4 will be generated and a final declaration
5 will be submitted.
6 Q. In this case, do you recall
7 whether you did any prior art searching?
8 A. I don't recall exactly, but I
9 don't think I did much for this case.
10 Q. Okay. I guess we need to be
11 careful. When we talk about "this case,"
12 we're talking about, in general, the five
13 IPRs that we're here to talk about today.
14 Is that what you mean by "this case"?
15 A. Yes. I should have been more
16 clear about that, but yeah.
17 Q. I think I probably should have
18 been more clear about that.
19 I'm just trying to think of what the
20 best way to tackle that is so that we are
21 clear about what we're talking about.
22 I think one thing I should do is
23 probably mark all of your other
24 declarations -- not mark, but put into chat
25 all of your other declarations so we can sort

of get a clear terminology down so we're not confusing the record.

MR. WILLIAMS: I'm going to put into chat now a few other exhibits that I'll ask you just to download, Dr. Houh.

Okay. I think I've got them all into the chat now.

Q. Just let me know when you've got those downloaded.

A. Okay, I have them all downloaded now.

Q. Okay. So we previously looked at Exhibit 1003 related to patent, the '138 Patent, correct, okay.

So the next one I'm going to ask you to look at is Exhibit 1003 relating to the '554 Patent. Let me know when you see that.

A. Okay, I have that one open.

Q. And this relates to IPR No. 2024-00045, correct?

A. Yes.

Q. Okay. And that's your signature there towards the bottom of page 74, correct?

A. Yes.
Q. Okay. And if I use the '554 Patent, you'll know that I'm referring to the Patent No. That you're discussing in this declaration, correct?
A. Yes, sure.
Q. Okay. Next I'll ask you to look at the declaration relating to the '555 Patent.
A. Okay, I have that open.
Q. And that's relating to Patent No. 1,0469,555, correct?
A. Yes.
Q. And the IPR number there is 2024-000146, is that right?
A. Yes.
Q. And again, that's your signature on page 77, is that correct?
A. Yes.
Q. And then if you can open the declaration relating to the '680 Patent. Let me know when you have that.
A. Yes.
Q. And the patent you're analyzing there is 10,951,680, correct?

A. Yes.
Q. And the IPR number is 2024-00046, is that right?
A. Yes.
Q. And that's your signature appearing on page 77, is that correct?
A. Yes.
Q. Okay. And one more, if you open the '798 declaration.
A. Okay.
Q. And that relates to Patent 11,677,798, correct?
A. Yes.
Q. And the IPR number is 2024-00043, is that correct?
A. Yes.
Q. And that's your signature on page 82, is that right?
A. Yes.
Q. So I think I've now shown you all of the declarations you've submitted in these institute IPRs, is that right?
A. Yes, I think so.
Q. Okay. I'm just going to ask you a general process.

So did you prepare all five of these declarations around the same time period?

A. I think one of them is dated a week and a half later, but I mean, they're all from approximately the same time. So I think I was probably working them around the same time, working on them around the same time.

Q. Okay. And do you recall approximately how much time you spent from when you were first engaged for these matters until you finished these declarations?

A. I wouldn't be able to come up with an estimate. It's hard. I wouldn't remember. I don't remember.

Q. And you don't remember how far before October 2023 you were first engaged, is that right?

A. For these IPRs, I don't remember exactly when that process got kicked off for these IPRs.

Q. Okay. So it could have been a month before, it could have been six months before, you're not sure, is that right?

MR. PAQUETTE: Objection. Form.
A. With respect to these IPRs, I just don't remember exactly when and what time frame I got started on preparing the declaration for these IPRs.
Q. Prior to your work on the declarations for these IPRs, were you familiar with any of the five patents that you analyzed, any of the five DISH Technologies patents that you analyzed in these declarations?
MR. PAQUETTE: Objection. Form.
A. I think I probably was, but I don't remember specifically which ones.
Q. And do you remember in what context you had some familiarity with those DISH patents?
A. I think I previously submitted some re-examination declarations for -- some of these are similar patents.
Q. Can you just explain what that project was that you're alluding to? When you say re-examination, can you just explain what you mean by re-examination?
A. Well, I think -- my memory is not

great, but these patents may have been challenged in a re-examination, or some of them or some related patents that I think I worked on preparing a report.

There's another -- well, I mean, I'm not an attorney, but I think there's another process by which some patents could be challenged. That's known as an ex parte re-examination.

So if my memory serves me correctly here, I think I worked on -- I'm not sure actually. I don't remember. There's a lot of -- I'm not sure. There may have been another case. I don't remember.

Q. Do you remember who you were working -- who you were retained by for that work?

A. I think it was the same law firm, you know, this law firm.

Q. Okay. And do you think it was for the same client? Was it for Aylo?

A. It was a precursor company to Aylo, but it may have been a different patent owner. Yeah, I don't remember exactly. There's a lot of -- I've done at

1 least a few cases. I may be mixing them up
2 here with respect to the re-examination.
3 Q. That's fine. I just wanted to
4 make sure I understood that answer.
5 There are -- you're saying you've
6 done work for some, for various
7 re-examinations, and you're not sure if you're
8 remembering correctly whether any of those
9 related to DISH patents? Is that what you're
10 saying?
11 A. Yeah, I can't remember off the
12 top of my head whether that's the case or
13 it was a different patent owner, patents.
14 But I know at some point I worked on them
15 with this client, this law firm.
16 Q. Okay. And so you know that for
17 this law firm that you're working with on
18 these IPRs, you also worked with them on
19 some, one or more ex parte re-exams, is
20 that right?
21 A. Yes, but I just don't remember.
22 I'm sorry now, I may be mixing up the
23 patent owner in those two cases, but I know
24 I had worked previously on some re-exams
25 for this law firm and the client.

Q. Okay. I understand.
Do you recall approximately when that work was?
A. Sometime before working on these IPRs. I don't know how long before.
MR. PAQUETTE: Eliot, I can represent that that was for a completely different patent owner. So if you want to continue with this -- I don't want you to keep going down this road if, you know, you want to switch gears.
MR. WILLIAMS: Okay. Thank you.
Q. So now let me go back to the original question that got us kind of going down this particular line of questioning, which is, you know, prior to these IPRs, do you have a recollection of being familiar with any of these DISH patents that are challenged in the declarations we just looked at?
A. I mean, I don't remember when I first saw these patents with respect to the timing of getting the IPR process kicked off.

Q. Okay. But do you recall whether or not you were familiar with these patents prior to being engaged to work on these IPRs?

A. I don't -- I just don't remember, one way or the other, whether the IPR -- the start of the IPR was the first time I saw these or I may have seen them before. I just don't remember.

Q. Do you know how many times you've given testimony in any proceedings adverse to DISH?

A. Well, there was one court case, at least. I don't remember if that was the first one, but I think it may have been. That went to trial maybe last year or the year before.

Q. And do you remember who the other -- who the party was you were engaged by for that trial?

A. Well, it was -- there was a law firm named Beus-Gilbert, and I think the company was Clearplay.

Q. Okay. So you're not sure if there was any other work you did adverse to

DISH before that Clearplay trial then, is that correct?

A. Yeah, I can't remember if there was any, but that may have been the first time.

Q. Okay. And then after that, do you remember any other cases besides these IPRs where you testified adverse to DISH?

A. Well, I mean, I can't think of any others at the moment, but I mean, it's possible that there are, but I just don't remember them right now.

Q. Do you recall ever being engaged by Peleton to testify in connection with an ITC action?

A. I don't remember an ITC action, but I remember some IPRs that I worked on on behalf of Peleton, but I don't know -- I don't -- I didn't think they were DISH patents.

Q. What was the subject matter of those patents, if you recall?

MR. PAQUETTE: Objection. Scope.

A. I think it was both -- it was some of -- I think there was part of the

case was some of Peleton's patents, and the other part of the case was some of other patent owner's patents. Might have been like Echelon or something like that.

There were some features related to the user interface and meter boards. I think that was one of them. I can't remember everything as I sit here right now. It was a few years ago at least. But I don't think DISH was involved in any of, you know, the IPRs that I worked on.

MR. WILLIAMS: Okay. Why don't we take a short 5 or 10-minute break here, go off the record.

THE VIDEOGRAPHER: The time is 10:55 a.m. and we are going off the record.

(Recess taken from 10:55 a.m. to 11:03 a.m. EDT)

THE VIDEOGRAPHER: The time is 11:03 a.m. and we are back on the record.

BY MR. WILLIAMS:

Q. Dr. Houh, did you discuss the substance of your testimony with anyone

during the break?

A. I was just reminded about the re-exams for a different client.

Q. Okay. Is there anything in your prior answers you wanted to correct based on that?

A. No, no. But I was having a difficult time remembering exactly, but now I was reminded about that.

Q. Okay. So let me just, to make sure I understood then, the work on the re-exams. Have any of your prior re-examination projects involved any of the DISH patents?

A. No. They were for a different patent owner, with the same attorneys. That's why I was confused.

Q. And in those cases, you were testifying to the Patent Office on behalf of the patent owner, is that right?

A. No, on behalf of the petitioner.

Q. Okay. So you were testifying on behalf of the person challenging the patents -- on behalf of the entity that was challenging the patents, is that correct?

A. Yes.
Q. Okay. Did those patents relate to streaming media?
A. I think they had similarities to streaming media and navigating through videos and whatnot.
Q. Let me ask you to pull up the declaration you submitted in the '138 Patent IPR.
A. Okay.
Q. And we'll start at paragraph 21.
A. Okay.
Q. And first, just to make sure we're looking at the same thing, the top of that page says IPR 2024-00044, correct?
A. Yes.
Q. Okay. Super.
This paragraph 21 lists materials considered in your evaluation of the '138 Patent, correct?
A. Yes, these were part of the materials that I reviewed.
Q. Okay. Is there anything that you considered in your evaluation of the '138 Patent that isn't identified here?

A. Just looking at this now, it looks fairly complete. I'm not sure. I mean, sometimes I may cite something in the body of the declaration that somehow doesn't end up on this list. But to the extent that's not the case, this should be a full list.

Q. Okay. Let me ask you, having looked at this list now, do you recall whether in preparing your analysis in these IPRs you did any prior art searching to locate any of these materials?

A. I mean, I don't think so, but I'm not totally sure that I didn't do any.

Q. In paragraph 24, you say you don't have a recollection of having contact with DISH, Sling or the named inventors of the '138 Patent.

Do you see that?

A. Yes.

Q. And the named inventors on the '138 Patent are David Brueck, Mark Hurst Andrew Major. You don't recall any interaction with any of those three individuals, is that right?

A. That's right.
Q. Do you know if you ever heard of any of those individuals prior to your work on this matter?
A. I don't think I have, no.
Q. What about EchoStar, have you had any interactions with individuals at EchoStar?
A. I mean, I can't think of any as I sit here. I mean, it's possible that I have friends that I -- worked for them, but nothing would have been for my work. It would just have been if I was talking to them.
There may be some people that I have talked to that I don't know about where they work, but they may have worked for these companies. But it wouldn't have been for the purposes of any of these -- any of my professional work.
Q. Okay. I don't think I asked you this before, but you may have explained this in one of your prior answers, but let me just verify that it's true.
So for all five of the declarations

that you signed in these IPRs, is it fair to say that you reviewed all of them thoroughly before you signed them?

A. Yes.

Q. Okay. And they reflect your opinions, is that correct?

A. Yes.

Q. In the course of preparing for the deposition, you reviewed all of them again, correct?

A. I mean, they're very similar, so I reviewed a few of them, but I didn't -- I tried to compare differences between some of them quickly, but I did take a look through or tried to take a look through all of them. Again, they're all very similar.

Q. Okay. That's fair.

My follow-up question to that would be, in the course of kind of trying to compare the differences, did you identify any?

MR. PAQUETTE: Objection. Form.

A. I mean yes, there are slight differences. I don't remember them all. That's why it's good to have them all in front of me here.

Q. Okay. And in the course of the review you did for preparing for today's deposition, did you notice anything in these declarations that you believed was incorrect or needed to be clarified?

A. No.

Q. Okay. Just going back to that paragraph 21.

A. Okay.

Q. Were there any materials that you wanted access to, but weren't allowed -- weren't able to get access to in preparing your declarations?

A. I don't think so.

Q. You have a legal standard section that begins with paragraph 26.

Do you see that?

A. Yes.

Q. I think you already said, you don't have any legal training in intellectual property law, is that correct?

A. Not any formal training through going to law school or anything, no. I've never done that.

Q. So in terms of the legal

standards you're applying, is it fair to say you're relying on counsel to provide that information to you?

A. Typically, they tell me what the law is and how it's applied, and that's what this legal standard sections are for.

Q. I'm going to ask you about paragraph 32 for a moment. Let me know when you see that paragraph.

A. Okay, I'm there.

Q. And I'll just read a little bit of it: As petitioner's counsel has informed me that in considering obviousness, it is important not to determine obviousness using the benefit of hindsight derived from the patent being considered.

Do you see that portion of the sentence I just read?

A. Yes.

Q. Can you describe for me what, if anything, you did to avoid using hindsight in considering obviousness in these cases?

A. Well, I mean, what I understand is, you know, if there are two references

that are, in combination, render something obvious, I look at the motivations that a reasonable POSITA at the time of the invention would want to take features from one or combine them or, you know, look to another patent for features.

And those motivations may be, you know, things like it produced a better system, easier-to-use system, it's cheaper -- I mean, there are a number of things that I understand, I typically talk about for why a POSITA would be motivated to combine items.

I don't look at the patent to provide the motivation or I don't use the patent as a roadmap, as I understand attorneys like to say sometimes, to come up with the invention. I look at it purely from a person of ordinary skill and why they may have been motivated to combine different references or different references.

Q. Let's talk more about that person of ordinary skill you mentioned.

So in paragraph 41 you have a paragraph under the heading: Level of

Ordinary Skill in the Art.

Do you see that?

A. Sorry, what was the paragraph number again, please?

Q. 41. Sorry, I'm on the wrong one. Give me one second.

A. Yeah, I do not see that.

Q. Give me one second. I'll be there. All right. I'm on paragraph 45.

A. Okay, yes. That is under the heading: Level of Ordinary Skill in the Art.

Q. And is that paragraph describing the characteristics that person of ordinary skill that you were just referring to?

A. That's what I'm setting forth here and that's what my opinion is about that level of ordinary skill.

I understand there's some disagreement about it, but this is what I've written.

Q. Okay. So talking about this person, first of all, just to be clear, and this is referred to in the paragraph just above paragraph 45, we're looking at the

1 question of the person of ordinary skill in
2 the art as of around April of 2004,
3 correct?
4 A. Yes, that's the priority date
5 that I assumed for the purposes of my
6 analysis.
7 Q. Okay. And so in your view, the
8 person of ordinary skill in the art in 2004
9 would have had a BS degree in computer
10 science or electrical engineering or
11 comparable degree and two years of
12 practical experience in network or
13 streaming media or alternatively they could
14 have had maybe more formal education, is
15 that right?
16 MR. PAQUETTE: Objection. Form.
17 A. I mean, I wouldn't disagree with
18 what you say, but you didn't read it
19 exactly. But I think it captured most of
20 what I say here.
21 Q. Can you explain a little bit
22 about why in your view networking would be
23 a substitute for streaming media
24 experience?
25 MR. PAQUETTE: Objection. Form.

Q. Okay. Let me withdraw the question.

I'll ask you a slightly different question.

Is it true that in your view networking experience would be a substitute for streaming media experience in assessing the level of ordinary skill in the art in this case?

A. Well, I do say it's either networking or streaming media. So I think if you have two years of experience in networking, that's okay. And if you have two years of experience in streaming media, that's okay, too.

Q. So in your view, do you think that someone with no streaming media, no practical experience in streaming media would still qualify as a person of ordinary skill in the art as long as they had at least two years of networking experience?

A. I mean, there's lots of ways to meet the level of POSITA. You know, a higher level education or a specific skill might make up for lack of experience in any

of these areas. So, you know, so there's alternatives to this and I think this is what I'm saying, this is what my opinion is about what the level of ordinary skill is.

Q. In 2004, would a BS degree in computer science or electrical engineering have included educational experience in streaming media?

A. I mean, there very well may be some curriculums across the U.S. and accredited colleges that have some element of that. But computer science and -- or electrical engineering, they're foundational, so they teach you how to think about issues. So I think that's part of the requirement that I have set forth here.

But still, a higher level of education or specific skill might make up for less experience. But, you know, a lot of what's listed here would certainly provide a foundation for a lot of the concepts discussed in these patents.

Q. Okay. So let me -- I think I understand what you're saying. I guess

what I want to know is, is it possible in your view that someone could have had no educational and no practical experience with streaming media in 2004 and still qualify as a person of ordinary skill in the art at that time?

A. Sorry, could you repeat as to what they're lacking again, please?

Q. Sure. I'll reask the question.

Is it possible that someone who in 2004 had no educational and no practical experience with streaming media would still qualify as a person of ordinary skill in the art, in your view?

A. If someone has a requisite experience that made up for the lack of those, then -- and it was sufficient, I suppose, but I'm not sure exactly which -- I mean, a POSITA is kind of a -- already a hypothetical person because they have a lot of knowledge that any real person might not, you know, have in their head.

But this is laying out some educational requirements in certain areas, which I think are -- that's what my opinion

is, that this person would be the POSITA from the point of view of being able to look at these patents and making use of what's described here.

So if they achieve a certain level based on pure experience alone, even if they didn't have, you know, a degree or any work in streaming media, but they have sufficient experience that allows them to make and use the invention, I suppose.

But I haven't really -- I mean, that's a hypothetical situation. It's not really what I'm considering about, like what other random person off the street might actually qualify. I'm just trying to lay out the qualifications for a POSITA as I see it for the purposes of these matters.

Q. As of 2004, you personally have the requisite experience that you lay out here in paragraph 45?

A. Yes. I was at least that level as of the priority date.

Q. At least that level.

I mean, as of that date, as of 2004, you would have had -- would you have had more

1 than this requisite amount of experience?
2 A. Well, I did. I already had my
3 Ph.D. at that time and I worked in -- you
4 know, I spent more than two years working
5 on my Ph.D., which involved, you know,
6 streaming media and networking. So I
7 think, yes, I had more. But I'd look at --
8 I'd do my analysis from this point of view
9 for -- with respect to a POSITA.
10 So, that's the viewpoint from
11 which I render my opinions, not the fact
12 that I have more experience. It's from the
13 level, point of view of this POSITA.
14 Q. So what was the process you used
15 to kind of isolate that additional
16 expertise that you had from the level of
17 expertise that a person of ordinary skill
18 would have had in doing your analysis in
19 this case?
20 A. Well, so, you know, I can look
21 back at my experience as to where I was
22 when I had acquired, you know, a bachelor's
23 and a few years of experience. And I've
24 worked with other people that at various
25 levels, including probably at this level in

my past. So, I mean, that's part of how I approach it.

So I mean, I understand that, you know, things that are obvious to someone with less experience may be more obvious to people of more -- that is, I suppose -- but I don't -- but this is the point of view I take in terms of the obviousness opinions and not my level of experience, which is, exceeds, you know, at that time the level of the POSITA that's stated here.

So I do my analysis from the perspective of this POSITA, even for my obviousness opinions. Because I do consider both people I've worked with and myself having two years of experience.

But then I also consider what was happening in 2004 timeframe of the priority date as opposed to when I acquired the level of experience was probably in the mid '90s. So, I mean, there's a lot of ways I -- I mean, but with respect to all my analysis, it's from this POSITA's point of view at the time of the invention, or as of the priority date.

Q. Okay. You mentioned your Ph.D.

as being at the research you were doing for your Ph.D. as being streaming media. What was the subject of your Ph.D.?

A. Well, it was called: Designing networks for tomorrow's traffic. And what I looked at was efficient ways to route data in a network that were more efficient than what was around at the time, which included analyzing streaming media flows and video flows on the network and kind of, you know -- I don't say I make predictions, but I realized that video was going to be a bigger part of the traffic in future networks, both audio and video.

And so the proposals that I set forth about what would be the most efficient way or, you know, more efficient ways of routing data included the consideration that more data in the future would be of, you know, streaming audio or video or -- yeah.

Q. And could you just expand a little bit more and explain to me then how the fact that there would be more streaming media data would impact in your view the

1 best way to efficiently route that traffic?
2 A. Yeah. So what I looked at was --
3 and the focus, part of the focus of my
4 thesis was looking at data flows in the
5 network. And, you know, the old way of
6 performing routing was to do what's known
7 as a longest prefix match lookup at every
8 router on the destination IP address of a
9 patent. And that's kind of an expensive
10 operation because of this longest prefix
11 match.
12 So a routing table may have broad
13 general entries, some more -- some mid-level
14 hierarchal entries, and some very detailed
15 entries. But the best route would be the one
16 that best matches -- has the longest prefix of
17 bits matched to the destination IP address.
18 So you actually have to do -- there
19 could be multiple entries returned from a
20 routing table, but then you have to take the
21 one that matches the longest amount of the
22 prefix of the IP address, destination IP
23 address.
24 And so it's kind of an expensive
25 operation that routers used to do for every

single packet. And what I looked at was labeling at the edge of the network a packet, so that routing look-ups could be performed based on the label that was placed on the packet instead of the whole IP address and doing a longest prefix match at every single router.

By the way, this wasn't my invention. This is what people were talking about. But what I wanted to see was what's the best way of classifying packets at the edge of the network and how much work would you save, and how much more efficient is the label switching depending on how you label the packets.

And so I look at a number of different ways of labeling the packets.

And effectively, the longer -- the more packets in a flow, the determination of how to label a flow becomes cheaper. It gets amortized over more packets. So if there are more packets in a flow, like in an audio conversation or in a video stream, then you save a lot more in routing capacity because there's a lot more packets.

1 Part of my thesis was looking at how
2 much more efficient these label methods were
3 based on how you would label it. Would you
4 label it based on just the destination IP
5 address, the destination IP address and port
6 number, a combination of source and
7 destination addresses or ports. So I looked
8 at all these things in my thesis.
9 And, you know, recognizing that
10 there would be more flows for longer in, you
11 know, miles network, you know, it was pretty
12 clear that these label-switching methods were
13 the way to go, to start with. And so I was
14 trying to propose, you know, what's the best
15 way of determining how you label them, is
16 it -- you know, what combination of data in
17 the packet would be most efficient.
18 So that was really a large part of
19 the analysis I did for my thesis. Added to
20 that's -- I don't think it was known back
21 then, but today there's this thing called
22 multi-protocol label switching, which is
23 effectively what I analyzed for my thesis.
24 Again, not that I invented it. It was just
25 how much more efficient -- it was clear that

it was more efficient, but is it 100 times faster, 10 times faster, that kind of thing.

Q. Okay. Let me -- thanks for that. Let me go back now to your declaration in the '044 Patent -- I'm sorry, for the '138 Patent, and talk a little bit about claim construction. So this is at paragraph 46 is where that begins.

Do you see that?

A. Yes.

Q. In paragraph 47, you say you've applied the ordinary and customary meaning of claims when read in light of the '138 Patent and the prosecution history of the '138 Patent is understood by a POSITA at the time of the invention, is that right?

A. That's what I say in 47, yes.

Q. And is that what you did in your analysis?

A. It is what I did, but I think there's further discussion, but I normally apply the plain and ordinary meaning as understood by a POSITA at the time of the invention. And that's what I try to do, yes.

Q. Okay. Let's look at the next paragraph then, 48.

Right in the middle of that paragraph you say: I understand that in the ITC investigation between patent owner and iFit asserting family members of the '138 Patent, the chief administrative law judge, ALJ, construed streamlet as any size portion of the content file.

Do you see that?

A. Yes.

Q. Is that the definition of streamlet that you applied in these declarations?

A. Well, I applied the plain and ordinary meaning. The point here is I understand what the -- in this ITC case what the judge, how the judge construed streamlet. But, I mean, for the purposes of my declaration, I don't think it, you know, is impacted by this, one way or the other, because I think what I applied is -- I think if you look at the prior art, I believe it just -- it doesn't actually matter, but I applied the plain and

ordinary meaning.

Q. So in your view, does the plain and ordinary meaning differ from that construction that's quoted in the sentence I just read?

A. I mean, I don't think it matters for the purposes of the prior art that I applied here, but I hadn't considered the full boundaries of both in detail with respect to the -- but I'm just laying out that I understand that there was a construction for streamlet in this ITC case, but it -- I mean, I think you can see it, if you read the detailed analysis, it doesn't -- it doesn't matter if there's any difference between that. It's just that I'm saying here that this is what I understand, is that there was a construction.

But I don't think -- I'm not aware of any dispute of how I applied it doesn't somehow meet the ALJ's construction in the ITC case versus plain and ordinary meaning.

So there's no dispute. I don't

1 understand that there is any reason necessary
2 to do claim construction.
3 Q. Sorry, you said "there's no
4 dispute." Can you just explain what you
5 mean when you say "there's no dispute"?
6 A. Yeah. I don't think that the
7 patent owner has disputed whether or not
8 this prior art doesn't meet -- that somehow
9 it doesn't meet the ALJ's definition of
10 streamlet.
11 So, I guess that's what I mean by
12 there's -- I don't recall that from -- that
13 they're disputing somehow that I should
14 have used this construction and that the
15 prior art in the petitions doesn't meet
16 this construction.
17 Q. Okay. What about the next
18 paragraph where you talk about the term
19 "virtual timeline"?
20 Do you see that?
21 A. Yes.
22 Q. You say that in your opinion the
23 term "virtual timeline" may require
24 construction.
25 What did you mean by that?

A. Well, it's possible that there may be a dispute about this. But what I did was I analyzed the prior art under both -- under this construction -- under this situation of virtual timeline. And you can look at the virtual timeline sections to see where there's an argument. And to the extent that the virtual timeline is construed this way, I have more analysis.

So I think -- I'm not proposing this, I think everything is plain and ordinary meaning. But to the extent it may arise as a dispute, I tried to analyze or provide alternative analysis to the extent that virtual timeline would have been construed in the manner here.

Q. Let me ask you to turn to paragraph 54 of your declaration.

A. Okay.

Q. Here you refer to a reference called Ogdon, is that right?

A. Yes.

Q. Okay. Is that one of the references you downloaded before the

deposition began?
A. Yes.
Q. Could you just open that for me?
A. Okay.
Q. All right. So the document you just opened has an exhibit number at the bottom and it's exhibit, Aylo Exhibit 1004, is that correct?
A. Yes.
Q. The first named inventor at the top is Ogdon, Robert Ogdon, is that right?
A. Yes.
Q. This reference is one that you've analyzed in all five of your declarations, is that right?
A. Yes.
Q. So when you used the word Ogdon in all five declaration, you're referring to this prior art reference, is that right?
A. Yes.
Q. Okay. We'll try to use that term as well.
Let me ask you now actually to go to paragraph 60, which appears under a heading Analogous Art.

Do you see that?
A. Yes.
Q. Okay. And the first sentence of that paragraph says that: Each prior art reference is analogous art to the claimed invention in the '138 Patent.
Is that right?
A. Yes.
Q. Okay. So that includes Ogdon. So it's your view that Ogdon is analogous art to the claimed invention of the '138 Patent, correct?
A. Yes.
Q. Okay. What is your understanding of what that means, to be analogous art?
MR. PAQUETTE: Objection. Form.
A. I mean, I think it means what it says. I go on in this paragraph to say: Each is in the same field of endeavor of client server media streaming, and more specifically streaming by a client from a server, including having the data stream segmented into a plurality of streamlets at the server side, wherein the client requests the streamlets from the server and

1 plays out the media.
2 Q. So in your view then -- well, let
3 me ask you about what you just read.
4 When you say "media streaming" there
5 in that sentence, what are you talking about?
6 A. Well, I'm talking about things
7 that the patents and these references are
8 talking about. It's a term, "media."
9 Media includes a lot of different things.
10 And things like Ogdon talk about presenting
11 video, and that's certainly meets
12 qualifications. And Ogdon talks about
13 presenting and making these live
14 presentations and recorded presentations as
15 well that are delivered to the users as the
16 users are reviewing a presentation or a
17 video presentation.
18 Q. So just turning to Ogdon for a
19 moment then, does Ogdon ever use the word
20 "stream" in relation to video?
21 A. Well, I'm searching Ogdon and I
22 found the word "stream" four times.
23 Hopefully, the index is correct.
24 Sometimes, you know, the characters may be
25 misidentified. But in each of these four

that I found, it talks about audio files stream and audio, live streaming of an audio file, realtime audio stream. But elsewhere it does talk about video can be what's presented as well.

So, it's -- those four parts don't use stream with, explicitly with respect to video, but that's what Ogdon is teaching. But it's also teaching that presentations can be video presentations as well.

Q. Okay. Other than the fact that Ogdon mentions video, is there any other basis for your conclusion that Ogdon teaches video streaming?

MR. PAQUETTE: Objection. Form.

A. Well, I mean, I'm using the word media streaming in the analogous art section. I think audio is certainly included as media. But no, I think Ogdon is teaching that these video presentations can be streamed just like the audio is part of the presentation that is streamed. So Ogdon is teaching about that its presentations can be streamed, that include

video presentations.

Q. So while we're on Ogdon, let me just talk a little bit about how this system works so I understand how you view Ogdon's disclosures.

Does Ogdon describe in your view replacing video content at one quality level with video content at a different quality level?

MR. PAQUETTE: Objection. Form.

A. Well, Ogdon says a number of things about this, which is that -- and I cite to some of these in my declaration.

But if you look in paragraph 68 on the second page of that paragraph, it talks about how -- Ogdon is talking about how corresponding segments or subcollections thereof in different versions are the -- and only some of these are directly quoted from Ogdon -- but are the same such that -- and then there's a quote: Any of the corresponding alternative segments or subcollections thereof, from different versions, can be presented as a replacement for another such

1 corresponding segment or subcollection
2 during the presentation.
3 And then it talks about in paragraph
4 73, it's the same quote from Ogdon.
5 And 74 is kind of summarizing, or
6 actually it's additionally, making additional
7 point: Ogdon states that each corresponding
8 segment at various versions should serve as a
9 replacement for one another and that the
10 durations are approximately the same
11 presentation duration.
12 But then it goes on to say that: A
13 POSITA would have understood that this
14 teaching of approximately the same duration,
15 not to be limited to only durations that are
16 close but not exactly the same, but rather
17 encompass durations that are either the same
18 or approximately the same, especially given
19 additional evidence from Ogdon's provisional
20 application and file history as discussed
21 below.
22 So, I mean, I discuss this issue at
23 various locations in my declaration.
24 Q. Is that the end of your answer?
25 I want to make sure you're done.

A. Yes.

Q. So none of those sections you just directed me to talk about replacing video with a different video quality level, correct?

MR. PAQUETTE: Objection. Form.

A. Well, I mean, there's other analysis about that in my declaration. So if you want to point me to such, we can talk about it or if you want me to just look for what I've said there. But it is -- that is generally -- that is -- I'm saying this is what Ogdon is teaching. And that's laid out in my declaration.

Q. Yeah. Well, the section is right. So the question I asked you was about Ogdon and you found me some portions from your declaration where you quote Ogdon, and I'm trying to figure out, is there any other portion of Ogdon you would point me to that describes replacing video at one quality level with video at a different quality level?

MR. PAQUETTE: Objection. Form.

I'm not sure if there was a question.

A. So if you look at paragraph 69, I talk about how Ogdon further discloses that each group comprises at least first and second streamlets, which are segments, because Ogdon teaches plural ordered segments, and that each of the streamlet segments correspond to a portion of the video because Ogdon discloses that each "subcollection of segments, i.e. presentation elements, are ordered according to their presentation sequence," and that the presentation is an ordered series of presentation segments.

And then I also cite to Claim 21 which says: There are subcollections of one or more segments. Each subcollection having a presentation order.

And also Figure 2C, at Step 508, that says: Next collection of one or more (video) segments.

So all this put together, Ogdon is teaching that the segments can be -- that there's a collection of video segments and that the segments are ordered. And Ogdon does teach -- let me find where this is about the

network bandwidth.

Yes, Ogdon -- let's see, in paragraph 64, I talk about how the second part of the page, there's a citation to the second line to Ogdon that says: Several variations of presentation content can be provided to clients based on the available bandwidth.

And then Ogdon goes on to say that: Alternative segment collections that are smaller.

And so this is discussing different variations of the video segment part of the presentation and that the presentation is an ordered sequence of video segments.

So I think I've discussed all of -- I think I got everything that you asked about in your question. But it's all in my declaration. Like I talk about all those elements you asked about.

Q. Sorry, what was your reading on paragraph 64 at the end there? I was just trying to find that.

A. It's on the second page of the paragraph. It's at the top of the next page. It's page 39 of the PDF file and

it's page 34 on the bottom. And this is the 00044 case.

Q. Yeah, I see it now, the bolded language: Several variations of presentation content. That's what you're referring to?

A. Yes.

Q. Okay.

A. I mean, that's one of the things I was referring to. And, you know, taken all together, I think that addressed -- I think I got everything that you asked about in your question. But certainly I think my declaration is what it is, I'm pretty sure I discuss all those things in my declaration.

Q. While we're on this paragraph 64 for a moment, the very last line is a citation line to an exhibit number that I can't find. I'm assuming that's supposed to be a citation to Exhibit 1007, but do you know if that's what that's supposed to be? I'll tell you that 1007 there is a reference called Chang.

A. I mean, that could be right. It

1 looks like it's just missing a "1" there.
2 But I would double-check. I mean, I don't
3 have these references memorized.
4 Q. Let me just put Chang into the
5 chat for you. Why don't you download that
6 and open it and let me know if that's the
7 reference you're citing to there.
8 A. Yes, that would be the reference,
9 that's right. Sorry, there's a typo there.
10 It should have a "1" in there, 1,007.
11 I don't know if this typo is in all
12 of the other ones, but it may be.
13 Q. That's fine. I think we can sort
14 that out. I just want to verify that
15 that's what you were intending to rely on
16 for that sentence?
17 A. Yeah.
18 Q. Okay. Just going back to the
19 answer you were giving when you quoted that
20 bolded language, so none of those sections
21 from Ogdon with the possible exception of
22 that Figure 2C that you cited seems to say
23 that those different segments that are
24 replacements for each other are the same
25 video and coded at a different quality

level.

So is it your view that that's what Ogdon is teaching?

MR. PAQUETTE: Objection to form.

A. I mean, I think that is what Ogdon is teaching, you know, taken as a whole and considering all the different things that Ogdon says. It may not explicitly say it exactly with all those, you know, in one sentence, but it's teaching all the parts of that as part of what the -- of what Ogdon overall is teaching.

So, it's talking about different encoded levels based on different bandwidths. It even says that two different users watching the same presentation may have different bandwidths and may be presented with different versions. It talks about how the video, the presentation could be video, how the different -- there would be replacement segments for encoded at a different level.

I mean, put all together, this is what Ogdon is teaching. So -- and if you're

1 asking does it say it all in one sentence
2 somewhere, I don't think it needs to have it
3 in order for Ogdon to teach it, because
4 overall it is what it's teaching. That's what
5 Ogdon's, you know, overall teaching.
6 And to the extent that -- you know,
7 there is this other reference Allen, to the
8 extent that Ogdon isn't already teaching
9 different bandwidth encodings for video, Allen
10 provides some explicit encoding bitrates for
11 its media content. And that's in my
12 declaration, too. I'm just point you there,
13 to what I said there.
14 Q. So let me just go back to the
15 figure that you cited, which is -- so I
16 think you're reading from paragraph 69,
17 which goes -- you're reading from the
18 bottom of page 37 and over to the top of
19 page 38, there's a reference to Figure 2C
20 where you have a quote: Step 508 next
21 collection of one or more video segments.
22 Do you see that?
23 A. Yes. Yes, I see that.
24 Q. Okay. That is one of the
25 citations you gave me in your last series

of answers, is that right?

A. Yes. That's not the only place I talk about video, but that is one I explicitly mentioned in one of my previous answers.

Q. So is that Step 508 that you point to there, is that a step being performed on the client?

A. You're asking about Step 508? Step 508 in Figure 2C is talking about what the host 200 sends, one or more commands to the client presentation software at each client node indicating, A, the next collection of one or more video segments from one or more presentation versions for presenting at the client node.

So I would say my point there is to say how they're video segments. But it's part of a step where this is the host informing, indicating to the client that there is a next collection of one or more video segments.

But the purpose of the citation was to say that the segments are video as well. And that's just one of the quotes that I have about how a presentation can be video that I

take from Ogdon, that Ogdon is teaching.

So that particular Step 508 is talking about the host sending information to the client. So the client is certainly involved in that step. But it's the host sending one or more commands to the client indicating the next collection of one or more video segments.

Q. So can you turn to Ogdon -- I'm going to use column and line numbers. So the numbers across the top of each column are the column numbers I'm going to be talking about. So if you turn to column 2, then the line numbers run down the middle of the page, and I'm looking at around -- oh, start at that paragraph beginning line 36.

A. Okay, I see it.

Q. Okay. And this is a portion of Ogdon you're familiar with, correct? You've cited to some of this in your declaration, I believe, is that right?

A. Yes. I think so, but you know, the declaration cites to what it cites to. Cite somewhere around here too.

Q. That's fine. I was just going to say, if you're not familiar with it, feel free to take some time to read it to yourself.

When you get down to around line 55, it reads: Thus, it is an aspect of the present invention to provide corresponding alternative segments or subcollections thereof having substantially different network transmission requirements so that corresponding alternative segments, or subcollections thereof, can be substituted for one another depending on the performance of the communication network.

Do you see that?

A. Yes, and I'm pretty sure I cited to that in my declaration.

Q. Yes, I think you did as well.

Now, the next sentence reads: For example, the segments (subcollections) of a first version of a presentation may require a network transmission rate sufficient for realtime or animated video, and the segments for another version of the presentation may only require a transmission rate sufficient

for graphic slides.

Do you see that?

A. Yes, I do.

Q. Okay. First question about that is how did you -- what's your understanding of what Ogdon is referring to when he talks about graphic slides?

A. Well, first of all, you know, this is just one example from Ogdon. So it's just giving the example of things that are presentation bandwidths.

But I think it would have been understood that, you know, different video quality encodings are part of -- would have been included in different quality presentation segments requiring different performance of the network.

So one example here of seeing graphic slides, that appears to be the first place that Ogdon is mentioning graphic slides, but I think it would have been understood by a POSITA that a graphic slide might include an image with some graphics on it. That's part of a slide presentation, which most people call, you know, the version of presentation

with just slides or -- well, I guess PowerPoint I think uses the term slide.

But Ogdon is teaching more than this. This is just an example. Ogdon is teaching that the presentation should also be video, and I cite to those portions elsewhere.

So this is just one example wherein the example of something that's low bandwidth or transmission rate that would understood to be low is just a slide, a graphic slide. But Ogdon, I believe, is -- you know, if you look at my declaration -- is teaching that different network bandwidths can be, I think, different video encoding, and certainly combined with Allen is teaching explicit video encoding rates.

Q. Okay.

A. Encoding rates for the media.

Q. Sorry, I didn't mean to interrupt you.

A. No. I'm sorry. I sometimes think of something immediately after I finish. But I appreciate you waiting certain other times for me to finish.

Q. So I understood your last answer,

but let me just make sure we're on the same page with respect to this sentence then.

So as I understand this sentence, what he's describing is the possibility that a user would have sufficient bandwidth in which case they would get realtime or animated video, but then there would be another user with insufficient bandwidth for that, and so instead they would get graphic slides.

Is that how you read that sentence as well?

A. Well, in this one example that's here. But there are other things that would be understood by a person of ordinary skill. This is certainly an explicit example of a user receiving a graphic slide and another user receiving realtime animated video.

MR. WILLIAMS: Okay. Let's go off the record for a second.

THE VIDEOGRAPHER: The time is 12:07 p.m. and we are going off the record.

(Recess taken from 12:07 p.m. to 12:11 p.m. EDT)

THE VIDEOGRAPHER: The time is 12:11 p.m. and we are back on the record.

BY MR. WILLIAMS:

Q. I don't remember if I asked you this, so let me -- I apologize if I did.

Before working on this case, were you familiar with either of the inventors on this Ogdon patent, Robert Ogdon or Frank Johnson?

A. I don't think I was, but it's hard to be sure.

Q. What about the Assignee, MSHOW, were you familiar with that company?

A. Yeah, I don't think I knew about that company either. That's the Ogdon, right?

Q. Yeah, I'm looking at Ogdon Exhibit 1004.

A. Yeah, I don't think I had heard of them, but it's hard to be sure.

Q. Okay. If you turn to Ogdon column 3.

A. Okay.

Q. So starting around line 37, there

is a sentence that begins: Thus it is an aspect of.

Do you see that?

A. Yes.

Q. Okay. If you can just read that portion from there to the end of that paragraph around line 62 and let me know when you're done.

(Pause.)

A. Okay.

Q. So let me ask you in particular about what's described there as the third client towards the end of that section.

Do you see that reference to the third client?

A. Yes.

Q. Okay. So as I understand what Ogdon is saying there is the third client begins the sequence by being presented with the same first segment of the presentation that the first client was receiving, but then because of a change in network transmission parameters, they then see an alternative segment that the first client did not see during the second segment

1 period.
2 Do I have that right? Is that
3 what's going on here?
4 MR. PAQUETTE: Objection. Form.
5 Q. If not, can you just explain
6 what's going on here with this third
7 client?
8 A. I'm not sure how -- it doesn't
9 mention anything about what the first
10 client sees. But it is -- so, first of
11 all, it's talking about a situation where
12 there may be different content servers and
13 versions of the presentation. And it's
14 giving a lot of alternatives at the very
15 top where you can switch between content
16 servers and/or versions.
17 And it's just giving a few examples
18 here of switching between versions and also
19 switching between content servers and maybe
20 even switching between a version and a content
21 server at the same time.
22 And I think if you look at what the
23 third client is -- it is getting the first
24 segment via the first content server, but then
25 switches to a different version from a

1 different server, experiences the
2 corresponding slideshow alternative to the
3 second segment from the third content web
4 server.
5 So I guess it is experiencing the
6 first segment synchronously with the -- a
7 first client may experience a presentation as
8 an -- this is line 44 -- 45 -- presented in
9 full animation where the first of the order
10 segments is obtained from a first content web
11 server.
12 So this is just an example that
13 appears to have, you know, the first
14 content -- first version on the first server
15 and a different version on a third content web
16 server. But it is teaching that it could just
17 be one server that has all different versions.
18 It could be, you know, a different version on
19 each different server. I mean, it's teaching
20 a lot of combinations. And this is an example
21 where it's experiencing the first segment
22 synchronously with the other users from the
23 first server and it's the first segment, which
24 is I think the same first segment as being
25 discussed as what the first client may be

1 receiving.
2 And then the second segment would be
3 a different one, whereas in the first one the
4 first client is receiving the first and second
5 segments in full animation, where the first is
6 at least obtained from the first web server
7 and the second is obtained from a second web
8 server. So this is just a few examples of the
9 many combinations that Ogdon is teaching.
10 So it is -- it's -- there are a lot
11 of combinations. These are just a few
12 examples. But it doesn't have to enumerate
13 every possible example to teach different
14 variations. It's just enumerating a few of
15 the combinations of what it's teaching.
16 Q. So in this example that you were
17 just reading from, what are the different
18 versions that Ogdon is talking about?
19 A. Well, it is talking about a full
20 animation version that is the first -- and
21 again, these are just examples -- that --
22 so that's one -- the first and second
23 segments presented the first client are in
24 full animation.
25 Then there is a slideshow format

from a third content web server -- this is around line 53-4-ish -- that a second client may experience presentation in the slideshow format where the initial two segments presented are corresponding alternative segments to the first and second segments presented.

So this is just one example where the alternative to full animation is a slideshow.

Q. So is the -- is it your understanding then that the full animation there is talking about a slideshow with full animations and the second version is a slideshow that just has static slides?

A. Well, it's using the phrase "animation," but it does talk about how multimedia elements can include, you know, audio image, animations or video.

Yeah, if you look at column 3, line 5: Such a multimedia element plays over a section, period of time, and can be as simple as a single image or complex as a combination of images, audio, animation and video.

So it does talk about video as what

can be in segments, but in this example that we're looking at, this is just one example and it's saying that it's full animation.

But Ogdon is teaching that these segments can also just, you know, be video.

Q. Yeah. So the section you read at the top of column 3 -- that was at line 8, was it?

A. Yeah, I think that's around there, yes.

Q. So those are examples Ogdon gives of what he calls multimedia data, correct?

A. For multimedia elements -- or yes, multimedia -- he talks about HTML multimedia data and how multimedia elements, such a multimedia element plays over a second period of time.

Q. Yeah. And in both of those cases, so in line 5 and line 8, he says "animation or video" in line 5, and he says "animation and video" in line 8.

It's the difference between those terms as a POSITA would have understood it reading Ogdon?

A. What's the difference between

"or" and "and," is that what you're asking?

Q. No, sorry. What's the difference between animation and video as Ogdon is using them in this paragraph?

A. Well, I mean, there are things such as like an animated GIF file, G-I-F, was an example of some things that could be animated, like short images embedded in a web page that have animations in them that are -- but I've seen animated GIFs that are essentially videos.

So, I mean, maybe -- you know, and you can imagine, like if you're videotaping a presentation of someone doing a slide, a slide might be sitting there or it might have like animated elements on it. But if you're doing a video of it, it's a video of a slide.

And so, I mean -- they're different words, but an animation, I've certainly seen animated GIFs that are short-form videos, short-form series of images presented and a the video people I think if -- you know, if I were drawing a Venn diagram, they may have some overlap, but they're not fully necessarily, fully within each other.

Q. If my theory is correct, there are some types of animation that you would say are not videos, is that right?

A. That could be the case. They might not be what people traditionally think of as a video. There could be some short-form animation like that.

Like, I think if you animate a PowerPoint slide, I don't know if people would think of that as a video, they may think of it as an animated animation. You know, certainly, I think you could have a whole PowerPoint slide that is, just automatically plays a video for the slide when you get to that slide.

Q. You mentioned animating a PowerPoint slide. You're talking about making material on the slide move around while the slide deck is being watched, is that what you're talking about?

A. Yes, that's one of the things is what I was thinking of in my head, yes. But I've also kind of exported PowerPoint slides into video form to be played as part of -- as an alternative of me presenting

the PowerPoint as well. So I've done that before.

So then I had animations on a slide and encoded it as video, then I would think of it as a video. But, you know, outside the context of anything, right, we're just talking generally, but if I had a PowerPoint and I had something move or, you know, use the animation feature, I wouldn't necessarily think of it in that form yet as a video, but it has animations.

Q. And those types of animations you're talking about there, they would have been available and known it a POSITA in 2004, is that right?

A. Yeah. I mean, I'm not -- I don't remember when all these features were available in PowerPoint, but I may have used some of those features in my presentations before then.

But again, I can't remember. But sure, I mean, I think -- I think those kinds of things were probably available around then to present slides like that.

But Ogdon is teaching that the

segments would simply be videos as well. So, you know, I refer you to my declaration for where I talk about that.

Q. Okay. Let me know, by the way, when your lunch arrives and we can find a time for a break. But I'm just going to keep going until you tell me.

Let's, if we could, turn to paragraph -- I'm back in your declaration for the '138 Patent.

A. Okay.

Q. Turn to paragraph 62.

This is where you begin analyzing Claim 1 of the '138 Patent, correct?

A. Yes, this is for the preamble.

Q. Okay. Just wanted to make sure we're in the same place.

In the second sentence you say: Ogdon discloses a system for adaptive rate content streaming of a video.

Do you see that?

A. Yes.

Q. I have questions about a couple of those words. When you say "adaptive rate" there, what do you -- that's language

from the preamble, but what's your understanding of what that means?

A. So I think what it means includes how I'm analyzing this with respect to Ogdon, which is how there's video presentation information received -- the top of the next page I have a cite from Ogdon about that -- and how there's a client presentation software on a system that coordinates with a browser for requesting and receiving the presentation segments as appropriate during the presentation.

And that's another quote that I -- from Ogdon. And how it dynamically and adaptively switches between versions of the presentation according to network transmission characteristics.

So I think a person of ordinary skill would have recognized that that is, you know, included in what the meaning of adaptive rate content streaming that's in the preamble.

Q. Yeah, so I'm going to -- I totally understood from that answer how you think Ogdon is adaptive, I think. I'm more

1 interested in how what you just described
2 there is adaptive rate. Can you explain
3 that to me?
4 A. Yeah. So it talks about the
5 network transmission characteristics of a
6 network. If you look at Ogdon, you know,
7 there are clearly some network transmission
8 characteristics that are lower bandwidth
9 and require lower rate to show the same
10 content segments. There are some that are
11 higher, have better network transmission
12 characteristics and they can show, for
13 example, full animation.
14 And so that's where the rate comes
15 in, which is, you know, different bandwidths
16 require -- to be able to keep up with the
17 segment being presented, you have some
18 information that has to be transmitted over
19 those different network transmission
20 characteristics in a certain amount of time.
21 And so that's where the rate comes
22 in because Ogdon is recognizing that you need
23 to transmit data at a lower rate for the same
24 segment when the network characteristics are
25 worse or lower, lower bandwidth.

But, you know, that's what its a he teaching. It may not be using those exact words, but that's what Ogdon is teaching in terms of how its adaptive rate.

MR. PAQUETTE: If you want to continue, please do so, but our lunch is here. So if had is a good stopping point or you've got a couple of more questions on this, it's up to you.

MR. WILLIAMS: Let me just ask one or two more to follow up on the last answer.

Q. You said "keep up with the segment being presented." When you say "keep up with," are you talking about the client?

A. Yeah, I mean, the client is making these synchronous presentations of the segment, you know. And so it's -- well, the client may be faster than the network it's connected to. So if I'm dialed up through a modem, you know, to present a segment in a certain amount of time and receive the next segment and the next segment, that's low bandwidth. So it

1 requires data that is encoded at a lower
2 rate.
3 So I think that's what a POSITA
4 would understand. You know, the slide is
5 different than a full animation because the
6 slide has less data in it, which can be
7 transmitted -- and to transmit a full
8 animation or an alternative slide in the same
9 amount of time requires different rates of
10 network capacity.
11 And so, I think that's where the
12 rate comes in. Because, you know, you're
13 presenting these segments one after another
14 and you have to receive the segment before you
15 can play it. And everyone's watching these as
16 it's being presented and it's synchronous. So
17 the data would be transmitted at a different
18 rate and that's where -- that's how Ogdon
19 recognizes that and that's how it's teaching
20 adaptive rate, the adaptive rate part of the
21 preamble.
22 Q. So if I understood your last
23 answer to mean, in that example, if I've
24 got a client device that's got a relatively
25 slow network connection, I may not be able

to keep up, meaning that I may not have the bandwidth to download the full animation or the full video in the time that I need before the next segment is going to need to be presented, is that right?

A. I mean, that would be an example. So, you know, because the segments are being presented at times and you're trying to have everyone see the show, you know, as it's progressing, then, you know, one example is you have a slower modem or a slower connection to the network. And therefore, if you recognize, you know, Ogdon is teaching that the -- that its system dynamically and adaptively switches to versions according to network transmission characteristics at each client node.

So it might be that you have a modem, a slow, like dial-in modem, but it might be that you have a fast connection, but for whatever reason, you know, someone else in the house starts up a huge download or someone else starts watching video or doing other things that your network has

1 just slowed down for you, that's why
2 there's dynamic and adapt -- that's part of
3 the dynamic and adaptive.
4 I mean, if you're always on a slow
5 modem and you're the only person, you
6 wouldn't -- you know, you would probably need
7 to get like the lower, the lower rating
8 encoded data, like a slideshow or a smaller
9 video, smaller resolution image video. But --
10 but -- but Ogdon is teaching more than just
11 that, which is that it's teaching dynamic and
12 adaptive switching based on network
13 conditions.
14 So the network conditions can change
15 over time and Ogdon is teaching that you can
16 adapt over time as network conditions change
17 as well.
18 Q. You used the word
19 "synchronously." Just so I make sure I
20 understand how a POSITA is using that term,
21 in this example synchronous, you're using
22 that to mean that all the users should be
23 seeing the same content at approximately
24 the same time, is that right?
25 A. I think in the one example of

where I used the word synchronously in Ogdon, that is what it was talking about, that first client, second client, different servers. And it was talking about I think synchronous presentation or something like that. Actually, let me see if I can find that again.

Yeah, so this is column 3, line 43, but go back to line -- I mean, there's a part of the invention that dynamically and adaptively switches between content web servers and/or versions of the presentation according to network transmission characteristics at each client node so that the clients at the client nodes have presented to them simultaneously, synchronously and in realtime corresponding content segments of the presentation.

So it goes on to say that, but in that sense synchronously is that everyone's really seeing the same segments, you know, at the same time, in real -- does it use the word realtime -- yes, and in realtime.

So you don't want to have someone get, you know, too far behind. I would say

that falls outside of what it's talking about in this example.

Q. So just to follow up on that, one last thing before lunch. Realtime meaning that at about the time the presenter is actually presenting the material? Is that what that means?

MR. PAQUETTE: Objection. Form.

A. Well, in this particular sentence, I wouldn't, I wouldn't argue too much with that. But, I mean, I think we have to look at the context of how that phrase is used.

MR. WILLIAMS: Okay. All right. This is a fine time for lunch. Let's go off the record.

THE VIDEOGRAPHER: The time is 12:38 p.m. and we are going off the record.

(Luncheon recess taken from 12:38 p.m. to 1:26 p.m. EDT)

THE VIDEOGRAPHER: The time is 1:26 p.m. and we are back on the record.

BY MR. WILLIAMS:

Q. Dr. Houh, did you discuss the substance of your testimony with anyone over the break?
A. No.
Q. Okay. Do you still have your declaration from the '138 Patent available?
A. Yes.
Q. Okay. If you turn to paragraph 64.
A. Okay.
Q. This is the beginning of your analysis of limitation that you've signed the identifier 1B to.
Do you see that?
A. Yes.
Q. Okay. So you start off by saying Ogdon alone would teach this limitation, but at the very least Ogdon in view of Allen teaches element -- teaches 1B.
Do you see that?
A. Yes.
Q. So what part of Ogdon would you rely on to show digitizing a video into three different quality levels?
A. I just lost my screen for some

reason. Hold on. It's -- hello?

Q. Yeah, I'm with you. Do you want to go off the record for a minute?

A. Yeah. I don't know what happened. We went blank.

MR. WILLIAMS: Let's go off the record.

(Recess taken at 1:28 p.m. EDT)

BY MR. WILLIAMS:

Q. Okay. So do you have your declaration up now in front of you?

A. Yes.

Q. Okay. We were at paragraph 64, and I was asking about the first sentence. So what in Ogdon would you say discloses encoding a video into three different quality levels?

MR. PAQUETTE: Objection. Form.

A. So Ogdon teaches that the video or video presentation is digitally encoded at a plurality of different bitrates, and that would be different versions or quality levels in creating a plurality of streams.

Because Ogdon is talking about different versions of the same presentation

with different network requirements, and that there's a first version requirement, network transmission rate sufficient for realtime or animated video, and another version requiring a transmission rate sufficient for graphic slides. And that if a load transmission rate is detected, presentation elements of a reduced size can be retrieved, or if a higher transmission rate is detected, presentation elements of a greater size and corresponding enhanced quality of presentation can be retrieved.

And that also Ogdon talks about how better presentation quality, presentation elements may be retrieved, e.g., the presentation quality may be enhanced from limited or no animation to full animation.

And also, that several variations of presentation content can be provided to clients based on the available bandwidth. And that it was well-known to a POSITA at the time of the priority date to provide three or more alternatives of media at different bitrates for quality levels.

And then there's another typo, maybe

1 this was the same one, citing to Exhibit 1007
2 about what that reference says.
3 Q. So Exhibit 1007 has three or
4 more -- let me back up.
5 You agree with me that Element 1B
6 requires three different quality levels of the
7 video, correct?
8 A. At least three different
9 bitrates: A low quality stream, medium
10 quality stream and high quality stream.
11 Q. Okay. And you indicated that a
12 person of ordinary skill in the art would
13 know to provide three or more alternatives
14 for the media bitrates citing to Exhibit
15 1007. But is there anything in Ogdon that
16 discloses three different quality levels?
17 A. Well, I think it was understood
18 that there's not just two states to a
19 network, like high bandwidth and, you know,
20 that the network transmission
21 characteristics vary widely. And so I
22 think that's why I'm saying Ogdon is
23 teaching the three elements, three quality
24 levels.
25 But, you know, to the extent that

it's found that it doesn't, certainly with Allen, combining with Allen, and I go on to talk about that later in the following paragraph 66 and thereabouts, which actually explicitly discloses three, at least the three quality levels.

Q. You're saying Allen explicitly discloses three quality levels, right?

A. Yeah, I mean, Allen does explicitly. And to the extent Ogdon is found not to, then Allen certainly does. And a person would have been motivated to combine Allen with Ogdon as I discuss elsewhere.

Q. Okay. I think I sent you previously Exhibit 1005 to download. Can you open that up for me?

A. Yes, you did, and I have it open now.

Q. Okay. Can you tell me what that is?

A. This is the Allen reference.

Q. Okay. So when you're talking Allen, it's this Exhibit 1005 that you're referring to, correct?

A. Yes.
Q. And that's true for all five of your declarations, this is the Allen reference you applied in all five of them?
A. Yes.
Q. Okay. And the citation you give in paragraph 66 to Allen is I think column -- well, the first citation I see is to column 12, line 1, is that right?
I'm sorry, in Allen, I guess these are page numbers. So anyway, let me restart the question.
The first citation I see in paragraph 66 to Allen is to page 12, line 1, is that right?
A. Yes, I think that's right. The first one I see in Allen as well.
Q. Okay. And do you have that section of Allen up in front of you?
A. Not yet. But I will find it.
Q. Okay.
A. Yes, I have it up now.
Q. Okay. So he calls -- he begins this paragraph by saying in the currently existing model as shown in Figure 10,

content is produced and encoded by the content producer 1002 at the point of origination. Correct?

A. Yes.

Q. And this sentence is describing content delivery network techniques that were in use at the time, is that right?

A. It is talking about this. It does mention the acronym CDN later, and that would be content delivery network. That's on the previous page, the previous paragraph that it says that as well.

Q. Okay, so on page 11, like line 20, there is a paragraph that begins Figure 10. Is that the one you're talking about?

A. Yes.

Q. Okay. And you're familiar with that terminology, CDN, is that right?

A. Yes.

Q. Okay. So then back to page 12 then, the inventor goes on to say: This example assumes it is pre-processed encoded in Real System, Microsoft Windows Media, and Apple QuickTime formats, that each format is encoded in three different

1 bitrates.
2 Then he lists them. Do you see
3 that?
4 A. Yes.
5 Q. Let me ask you first, what -- do
6 you have an understanding of what the Real
7 System, Microsoft Window Media and Apple
8 QuickTime formats is a reference to?
9 A. Yeah, I think so.
10 Q. Can you explain what that is?
11 A. Well, these are separate media
12 presentation formats and systems. So Real
13 System was a system put out by RealNetworks
14 that allowed for streaming both live and
15 pre-recorded content, and they were one of
16 the first to get in the market, I think, in
17 the late 1990s, if I recall correctly.
18 And then Microsoft Windows Media
19 refers to Microsoft format for I think Windows
20 Media, and they have a corresponding player,
21 which was capable of playing local and
22 network-based content.
23 And the QuickTime form, I think is
24 one -- I think Apple put it forth, it's
25 another format for the video in which -- and

how it's encoded.

So I think they're different systems that have different use -- I think different encoding formats and file types.

Q. And it appears he's saying then each format is encoded in three different bitrates. And he says already nine individual streams have been created for one discrete piece of content.

So the nine individual streams there, as I understand it, means that each of those three you just described for Real System, Windows and Apple, each of those three would also have three bitrate versions of those streams created, is that correct?

A. Yeah, I think that's how a POSITA would have read that, this example. That's why there are nine.

Q. So why was it at the time there were three different formats, if you know?

A. Well, I think there were probably a lot more than just these three formats, but I think the market wasn't as consolidated or standardized around certain few formats as it is today or less so. And

1 the browsers didn't support natively many
2 streaming media types as in modern browsers
3 today, for example.
4 And so there were different
5 plug-ins. So like Apple had its own system.
6 I think they had a plug-in, and QuickTime was
7 the one Apple pushed. Real System was its
8 own, you know, system that was, started from
9 scratch as by RealNetworks -- or I think
10 before then their name was Progressive
11 Networks, and Microsoft did its own thing for
12 its Media Player.
13 And some them may have supported
14 eventually other formats, but I don't think
15 initially they did for various reasons that
16 may include licensing things and whatnot.
17 But back then, if you wanted to
18 reach a wide audience, this is what Allen is
19 saying, is that you would want to use
20 different formats so that people had either a
21 choice or, you know, the people on Apple
22 platforms, they would be using QuickTime,
23 people on Windows platform would be using
24 Windows Media, and Real Systems, if you had
25 the RealNetworks player, I think it was called

Real Player installed. It would really beat supporting just the Real System and maybe any open standards, but maybe not yet Windows Media or QuickTime.

And so I think that's why it's just so people had a choice in the early days, because there were a wide variety of formats and players that had not yet been incorporated into standard browsers and whatnot.

Q. Okay. So going back to your paragraph 66 for a moment in your declaration, you're pointing to the section of Allen as disclosing the three different stream qualities, correct?

A. Yes.

Q. And you say a POSITA -- this is about the third line of that paragraph -- says a POSITA would have been motivated to combine Ogdon with Allen to arrive at this limitation.

Do you see that?

A. Yes.

Q. Can you explain to me what you mean by combining Ogdon with Allen? How would a POSITA have gone about doing that

interview?

A. Well, it's simply taking the explicit encoding levels of Allen and using those to choose rates to encode video in Ogdon. Ogdon's already's teaching a person's video. It's not that explicit at about what bitrates, but it teaches that there are different bitrates depending on network conditions, so different presentation -- whatever my declaration said. But Ogdon is teaching that.

So it's simply recognizing that Allen is teaching these very specific bitrates and the quality levels. And so a person of ordinary skill would have been motivated to just take those bitrates, the three different bitrates that represent three different quality levels, and use those to encode the video in Ogdon.

Q. Do you recall whether Allen talks about or -- I should say -- let me withdraw the question.

Do you recall whether Allen discloses the user or the system changing the quality level while the user is watching a

video?

MR. PAQUETTE: Objection. Form.

A. Well, I mean, I'm relying on what Ogdon's teaching for disclosing what the claim says. I'm just using the quality levels of Allen in this particular claim element.

Q. Okay. I understood that. But you don't recall Allen teaching the possibility of a single client switching quality levels while they're watching the video, correct?

A. I don't recall that offhand in Allen. But it's certainly disclosed in Ogdon. It's combining them in this way that said for this element, which is just using the explicitly listed quality levels for low, medium and high that Allen is teaching about video, whereas Ogdon is teaching different levels of quality for its presentations.

I think a person of ordinary skill would recognize -- and I discuss this I think in paragraph 67, around there -- why they'd be motivated to make such a

combination. But if the combination is just using explicitly listed quality levels from -- the system Ogdon to encode its different quality versions of video segments for presentation level.

Q. Let me ask you about the next paragraph 67.

Do you have that?

A. Yes.

Q. So I think this paragraph is sort of describing what you're just mentioning, which, let me just read it. It says: A POSITA would have been motivated to encode the video presentation of Ogdon, including each sequential segment of the video into each of a low quality, medium quality and high quality level bitrate stream as taught by Allen -- and then it goes on.

Do you see that?

A. Yes.

Q. That's what you were just describing in your prior answer, is that right?

A. I think it's part of what I was describing, yes.

Q. Okay. Let me ask you a few things about that first sentence.

So, first of all, what are the -- what's the segment of the video that you're referring to there?

A. So I discuss this, if you look around paragraph 64 and then 67 and 68. But 67, I talk about from Ogdon it talks about alternative segment collections that are smaller. And so that refers to the parts of presentation including video presentation. So that there are -- those are the segments that are discussed in Ogdon.

And then in paragraph 67, that's the segment it's talking about, which is the segments of the presentation that Ogdon is talking about. And I think there's another reference here in paragraph 68, but that's the next element, so...

But Ogdon uses the word segment, I think, a number of times in its description.

Q. Yeah. Is there a place where Ogdon describes segments of the video?

A. Well, in Figure 2C, in Box 508,

it does talk about a collection of one or more in parenthesized video segments. So it's talking about video segments there, at least. That's one place.

Q. So just focusing on that disclosure in Ogdon and as shown in Box 508 of Figure 2C, what's your understanding of what a video segment is that he's talking about?

A. If you look in column 2, what it talks about there at line 36, it says Ogdon -- of Ogdon that is: Note that each of the one or more presentation versions includes one or more presentation segments, hereinafter, also denoted simply segments, that provide different portions of the presentation.

So it's saying that the segments are what's providing different portions of the presentation. And elsewhere it's teaching that those segments also can be video segments as well and that the presentation can be video. So that's what the segments refer to.

Q. Okay. Do you know at the time -- or let me withdraw the question.

Does Ogdon ever say which type of encoding format he's using for the video and whether it's any of the three specific examples we looked at in Allen a few moments ago?

A. You mean on specific bitrates?

Q. No, sorry, format types. So we looked at RealNetworks, Microsoft and QuickTime in Allen. I'm sort of wondering if anywhere in Ogdon he describes whether he's using any of those video formats.

A. I mean, I don't recall it mentioning specific formats like the Allen does, but it's certainly teaching that there's video and that the presentation segments are encoded for different network characteristics.

Q. Okay. So back to the Ogdon disclosure of segments, am I right to say that, as you understand it then, the video segments that Ogdon is talking about are segments of video that correspond to different segments of the presentation?

A. If you look a little further up in column 2 of Ogdon, it talks about that

there's a presentation sequence in that the subcollections of segments, the presentation elements, are ordered according to their presentation sequence.

Actually, just after that segment, that portion we were looking at -- sorry, that's line around 45 -- but there was -- there was another part that said that the subcollection might be one or more -- let's see if I can find that again.

Q. You may be referring to the top of column 3.

A. Yes, but there was another -- let me just find it. It's essentially right above where I was looking. So we were looking at line 36 down, and line 39 it says: More precisely subcollections, each having one or more segments, are provided as presentation elements that each -- in that each such subcollection is intended to be an individual portion of a presentation performance.

And so it's saying that a subcollection could just have one segment and that the presentation version is made up of

one or more presentation segments. And so each subcollection can just have one element, which it may be just one segment, for example.

So, I mean, it's teaching that they are sequential parts of the presentation overall and that the presentation could be video, and it could just be one element per -- one example of what this teaching is, could be just one element per segment.

Q. Okay. I'm just waiting for a lawnmower to go by. Give me a moment.

A. And I might add, at the top of column 3, it talks about how presentation elements can be one or more of the following, which includes video.

Q. Right. So I guess in your view then, based on what you're saying here in paragraph 67 at least, Ogdon is already describing video that's been divided into segments, is that right?

A. Yes, it's describing an overall presentation could be an overall video which is divided into segments, of which each segment is a subportion of the overall presentation in the video.

Q. Okay. So can you explain what you mean by overall video in the last answer? I'm struggling to formulate a question because I don't think I understood what you were saying.

A. Well, so Ogdon is talking about a presentation. What I mean by "overall" is that it's the whole presentation, but that the presentation is broken into presentation segments that are ordered, which the whole sequence of segments ordered, it forms the whole presentation.

I think when I was trying to -- overall, I think I was referring to the whole presentation, which is then comprised of these segments that are in order. And each of the segments comprise, you know, is teaching that they comprise just one element, which is video. And so the overall presentation also could be video and that's just following all the teachings of Ogdon.

Q. Okay. So in your view, one of the teachings of Ogdon is you could have one overall presentation, which is one

overall video. Am I right so far?

A. Well, it would be an overall video that's made of different segments in sequence, each of which could be a portion of the overall video. Because when you play them in sequence, you still may have -- you still have a video, but it's made up of different presentation segments, each of which is also a video, as Ogdon teaches, it can be one element of the video.

Q. Okay. And is there any other place in Ogdon that we haven't spoken about yet today that you think describes that, what you just said, in other words, that there's one overall video corresponding to one overall presentation that is divided into segments?

MR. PAQUETTE: Objection. Form.

A. Well, I think there are probably a lot of places that reference this concept.

So if you look at Figure 2C in Box 524, kind of the last two lines talk about the time of presentation of this collection of

segments on the client node. So it's talking about the collection of ordered segments.

There's a -- there's an element in Figure 2D or some text talking about in the rightmost -- it's not in the box, but it's -- on the right side, it says: Is a host 200 interrupt detected requesting a halt to the presentation of the current collection of segments.

So that's talking about the presentation overall being made up of these segments, which elsewhere it talks about it being ordered.

The field of the invention, column 1, is talking about providing a presentation to a plurality of client nodes on a communications network, such as the internet.

And it neatly summarizes the adaptation thing, which goes on to say: And more particularly, to a presentation system wherein network transmission characteristics are utilized in determining the presentation materials presented at each client node during a performance of the presentation.

There's probably many others. If

you want me to spend the time looking for them, you know, we can go through them.

Q. Well, let me just take one of the examples you just gave, which is in Figure 2D. I think you're reading around Box 548, is that right?

A. Yes, just to the upper right of Box 548.

Q. Right. What is that discussing, that step?

A. Oh, I think that is describing the decision in Box 548, which is too small the whole of a text. But it's asking a question. And then the diamond represents like a branch depending on whether the answer is yes or no, what it's describing.

Q. And the question being asked there is whether the host wants to halt the current present -- the presentation of the current collection of segments, is that right?

A. That's -- yeah, that's part of the question. It's part of what it says, yes.

Q. Okay. So what is the host there,

as best as you understand it from Ogdon's teachings?

A. If you look in column 3 around line 30, it talks about, in particular, one or more presentation controlling network-connected nodes, in parenthesized, each hereinafter has denoted a host node.

So a host, they're referring to the host node that actually can control the presentation.

And again, that's just an example what's providing. Certainly it's not required that the host interrupt the presentation.

But the point of my pointing that out is it showed how the presentation was in these segments, provided through a number of segments, just additional discussion about how a presentation is made up of a sequence of presentation segments.

Q. Again, let me ask you to turn back to paragraph 67 of your declaration.

A. Okay.

Q. So we were just talking about segment of the video in the second line. And I want to ask you about, I think it's

the last sentence of this paragraph. It starts a POSITA would have had a reasonable expectation.

Do you see that?

A. Yes.

Q. Okay. One thing you say in there is, you say: Simply encoding another copy at an additional quality level would have been a simple and straightforward modification for a POSITA.

Did I read that right?

A. Yes.

Q. Okay. When you say "another copy" there, another copy of what? What are you referring to?

A. Well, another version of the segment at a different quality level. That's what I'm referring to. It's not literally a bit-for-bit copy. But the video it represents is effectively the same at a lower resolution. That would be one example of another copy that I'm referring to.

Q. Okay. And you're describing that as a simple and straightforward

modification, correct?

A. Yes. It's well known how we encode and transcode these videos into lower resolutions. So it would have been straightforward probably for that reason and it's fairly simple because the encoders existed to do such transcoding.

Q. Just explain what you mean by "transcoding" there.

A. Well, transcoding is a form of encoding going from one version of an encoded video to a different version that has different characteristics such as maybe different frame resolutions.

Q. So the modification that you're describing here would be a modification to Ogdon where Ogdon would take a video segment, make a copy of it and transcode that segment into a new quality level and maybe do that twice, is that right?

MR. PAQUETTE: Objection to form.

A. Yeah, I used the word "copy," but what I'm referring to is not a literal bit-by-bit copy. It's not making a copy and then transcoding that copy. You can

1 feed it a source segment at one resolution
2 and ask it to transcode it to a different
3 resolution, and it will just, you know,
4 transcode or it may do it by decoding and
5 then re-encoding or using the compression
6 space to make a direct version at a small
7 resolution.
8 But those are -- you know,
9 people -- there were I think basically
10 packages, software, that could just do
11 that. And so it's a straightforward
12 matter. It should take one version of a
13 segment and make other versions at lower
14 resolutions and lower bitrates as a result
15 of the lower resolution.
16 And that would be an example of
17 what Ogdon's teaching about a different
18 presentation segment version that would be
19 appropriate for different network
20 characteristics such as lower bandwidth or
21 temporarily lower bandwidth that Ogdon
22 teaches it can detect and use in deciding
23 which of the versions of a presentation
24 segment to provide or that the client would
25 request.

And so that's what I mean by that. I guess, yeah, there's some -- I mean -- so the word "copy" there, I understand why it's a little -- a better word may have been ordered, but what I mean by different encoding another copy is taking one version, say a high resolution version and encoding the video represented by that high bandwidth version to a lower bandwidth.

And that's what I mean by encoding of a copy, an additional quality level. You just simply transcode the high resolution video segment into a couple of lower resolution video segments.

And then Allen is teaching that that high, the high quality level being coded at 600 kilobits per second and that the lower ones are 356 kilobits per second.

So what I mean there is that you would take the 600 kilobit encoded version and create another version of the same video segment at a lower bitrate, which is 300 kilobits, and yet another lower bitrate which is 56 kilobits.

So that's what I mean by simply

encoding another copy.

Remember, also, Ogdon is teaching that these different versions of the segments are replacements for each other. So re-encoding the video would qualify as, you know, replacement for the higher quality segment. But simply at a lower quality. But it would be the same video and audio of the higher bandwidth segment version.

Q. So you said it would be the same video and audio of the higher bandwidth segment version? Where does Ogdon say that it would be the same audio?

A. Well, Ogdon is teaching video and I think people, a POSITA would understand a video has audio as part of it. And certainly -- but transcoding down the quality of the video certainly would -- you know, there's more information in video than there is in audio typically.

And so Ogdon is teaching that the different segments are replacements for each other. And certainly if you're doing a presentation of video, a POSITA would understand that that's got audio in it, too.

Q. Okay. Let me ask you about the next element, which you've labeled 1C in your declaration.

Do you see that element?

A. Yes.

Q. Okay. My first -- I think this is the first place in the claim, this patent, where the word "streamlet" appears. I'll just read the first bit of this claim -- this claim element, I should say: It's the low quality stream, the medium quality stream and the high quality stream, each comprising a group of streamlets.

Do you see that?

A. Yes.

Q. We talked a little bit about this at the beginning of the deposition, but what meaning did you apply when interpreting this word "streamlet" in your application of the prior art?

A. So I applied the plain and ordinary meaning as it would have been understood by a POSITA at the time of the invention in the context of the specification and prosecution history.

1 That's how I come up with the plain and
2 ordinary meaning of a POSITA.
3 Q. Let me ask you something
4 different.
5 At the time, in 2004, prior to the
6 applicant's disclosure here, was the word
7 "streamlet" a term that had a plain and
8 ordinary meaning to a POSITA?
9 A. I don't think it was a term of
10 art, if that's what you're asking. I think
11 it's just, you know, people use words and
12 you can understand words even if, you know,
13 you haven't -- and may have different
14 meanings in different contexts, but you can
15 understand them in the context of how it's
16 presented.
17 And the context I used for that is
18 the context of the patent at the time of the
19 invention, and also in view of the prosecution
20 history as well. So I review that and I think
21 a person of ordinary skill would review it in
22 that context and be able to see how it's being
23 used.
24 Q. Okay. When you say it wasn't a
25 term of art, are you saying that the word

"streamlet" was not a term that people in the art were commonly using in 2004?

A. Yeah, I think -- you know, if you said MPEG, well, MPEG might be more of a term of art because many people use that as a standard for an encoding methodology.

But "streamlet" would be understood just -- yeah, I mean, I don't think that evokes this definition if a person just used the word "streamlet."

So I think it's understood in light of the specification and prosecution history and of their knowledge, like the ending "let", you know, people understand that that, those are small things or portion of things or -- I'm just talking generally here, but you know, you can understand that in the context, and part of it's "stream" and part of it is "let" -- L-E-T, that is.

Q. Okay. So this claim element recites that there's a group of streamlets and each streamlet corresponds to a portion of a video, correct?

A. Yeah, I think that language is

1 part of the claim element.
2 Q. And that's the meaning you
3 applied in your analysis as well, correct?
4 A. Well, I applied the plain and
5 ordinary meaning understood in light of the
6 specification and prosecution history to a
7 POSITA at the time of the invention.
8 Q. Okay. And does that plain and
9 ordinary meaning differ from the way I just
10 described it in my question?
11 MR. PAQUETTE: Objection. Form.
12 A. I think you just read the words
13 of the -- that were in the claim. I'm not
14 sure if you're reinterpreting or
15 interpreting them as they mean what they
16 say, or you're just saying they say what
17 they say.
18 Q. Right. I was just reading the
19 words of the claims.
20 And I guess I'm asking, in your
21 view, would a POSITA have thought that the
22 word "streamlet" is something other than
23 what's recited in this claim?
24 A. Well, I mean, I understand that a
25 patentee can be their own lexicographer, so

they could have defined the streamlet.

So I could write a patent that says when I use the word blue, I mean this color with these color characteristics, which I might think is red.

But if I tell the reader that I'm going to redefine the word blue to something else, then subsequent uses of the word blue should be read as whatever the patentee redefined it as.

But I don't think there was any express definition of the word streamlet that I can recall in the -- was it the '183 Patent we're talking about or -- sorry, '138, that is?

Q. Yeah, that's right. Okay.

And what about the other four patents that we're talking about today, do you remember there being an express definition of streamlet in any of those other patents?

A. I mean, I don't have it memorized, but off the top of my head I don't recall an express definition of "streamlet." But I could be misremembering if it's actually there. But I don't recall

one sitting here today.

Q. Okay. This is an interesting question before I forget.

Did you do any kind of analysis to see what differences there were among the specifications of these five patents?

A. I probably did way back, but I don't have a specific recollection. I mean, if I understand what the differences are, I sometimes review things by comparing them and seeing what the differences are because I've already reviewed -- base one, I don't remember which one I would have started with -- but then I would have looked to see what the differences, so I can understand what the differences were.

Q. Sure.

Do you remember any differences that stand out to you in your memory now?

A. I don't recall off the top of my head. I just don't remember everything I've ever done.

Q. Okay. Getting back into Element 1C here, okay, so now I'm at paragraph 68. Are you there?

A. Almost. Yes, now I'm here.
Q. So for this element, Element 1C, it's your opinion that Ogdon, in view of Allen, teaches this element, correct?
A. Yes.
Q. Okay. So in the next sentence of that paragraph reads: Ogdon further discloses that each stream (at each corresponding bitrate) comprises a group (elements, collections or subcollections) of streamlets (segments) encoded at respective 1 of the bitrates.
And then you have some citations?
Do you see that?
A. Yes.
Q. So let me first ask, what is the stream that you're referring to when you say each stream comprises a group?
(Pause.)
A. So I think Ogdon is closing a video presentation and there are different digital encoding at different bitrates. And so I think the stream refers to each of the overall presentations encoded at each of a number of different bitrates.

1 So if there's a presentation and
2 there are three different bitrates, there
3 are -- there's a low quality stream, medium
4 quality stream, and a high quality stream for
5 each presentation. And so that's what I'm
6 talking about, is that the overall
7 presentation is the stream -- or overall
8 presentation at a specific bitrate, as Ogdon
9 is teaching, and as Ogdon and Allen combined
10 are teaching.
11 Q. Okay. Then you say: It
12 comprises a group of streamlets, and you
13 say paren segments.
14 So does that mean that you're saying
15 in Ogdon each segment is one of the claimed
16 streamlets?
17 A. Yes. In Ogdon, this segment is
18 an example of what the claim stream is.
19 And recall that each presentation is
20 comprised of an ordered set of streamlets
21 and that's what Ogdon is teaching.
22 So the overall presentation at a
23 bitrate, it would be one stream, and these
24 different segments as is used in Ogdon are the
25 streamlets of the claim for this mapping.

Q. Okay. So what's your understanding of what -- the citation you have that follows that to Ogdon, column 2, line 43 uses the word subcollection of segments, i.e., presentation elements.

What's your understanding of what that's referring to in Ogdon?

Let me withdraw that question and ask it a slightly different way.

Does a subcollection of segments mean something less than a segment or does it mean a collection of segments that's less than the entire presentation?

A. Well, the segments are what provide different portions of the presentation. And a subcollection may have one or more segments that -- and so, you know, where the segment is a video, because it's one segment -- I'm looking at column, I think, 2, around line 36, down that paragraph.

So, you know, in the case where there's just one segment per subcollection, but the overall presentation makes a series of segments, I think, you know, in that case

subcollection and segment are referring -- they're the same because they're just someone segment per subcollection. So you could either refer to it as the subcollection or the segment.

But we already know that the video is comprised of an order collection of segments. And so these are the different segments that comprise an overall presentation.

MR. WILLIAMS: Why don't we go off the record.

THE VIDEOGRAPHER: The time is 2:25 p.m. and we're going off the record.

(Recess taken from 2:25 p.m. to 2:31 p.m. EDT)

THE VIDEOGRAPHER: The time is 2:31 p.m. and we are back on the record.

BY MR. WILLIAMS:

Q. Okay. Did you discuss the substance of your testimony with anyone during the break, Dr. Houh?

A. No.

Q. Okay. I'm turning now to paragraph 69 of your declaration.

Are you there?

A. Yes, now I am.

Q. Okay, great.

The first sentence reads: Ogdon further discloses that each group comprises at least a first and second streamlets (segments) -- and then you go on.

Do you see that?

A. Yes.

Q. What is the group you're talking about there in that sentence?

A. I think I'm referring to the group at a different encoding rate. That would be a group, each group. So each group of the segments for the encoding rate.

Q. Okay. Hang on a second. Sorry. Maybe I didn't understand that.

So it would be one group of segments at different encoding rates, is that what you're saying?

A. Yeah. So the presentation has three different coding rates, for example,

in complying with Allen.

So the presentation at 600 kilobits is one group of segments, and it comprises at least a plurality of segments, because it talks about ordered segments plural.

So each encoding rate -- each of the presentations encoded at a different rate, each of those I'm saying is a group. And each group has the plurality of segments that comprise -- of ordered segments that comprise the presentation at that rate or the overall video at that rate.

I may use "group" in another way later, but that's what I'm meaning here.

Q. Okay, got it.

Let me ask you about paragraph 70.

A. Okay.

Q. It begins with the word: Additionally.

Do you see that?

A. Yes.

Q. Okay. By the word "additionally" here, are you meaning to invoke now a new theory of obviousness or is this really just expanding on the same theory of

1 obviousness that we were discussing with
2 respect to paragraph 68 and 69?
3 MR. PAQUETTE: Objection. Form.
4 A. Well, I mean, now I'm talking
5 about Allen. So now additionally there's
6 an Allen, combined with Ogdon, part of this
7 analysis, which is now what I'm moving to,
8 so I'm start to talk about Allen.
9 Q. And the combination, can you just
10 explain to me what the combination is that
11 you're analyzing in this paragraph? Is it
12 different than the ones we've been
13 previously talking about?
14 A. I think this is the same one,
15 which is, you know, Allen is teaching very
16 specific encoding rates at the low, medium
17 or high, very specific bitrates.
18 I suppose here I'm not referring to
19 the explicit bitrates, but Allen is explicitly
20 talking about this encoding of the video, the
21 same video at low, medium and high quality
22 levels.
23 Q. And what is the -- you say in the
24 second sentence here, in the middle of that
25 sentence, you say: A POSITA would have

been motivated to encode each recorded video segment of Ogdon into each quality level in parallel in realtime prior to storing at the web servers.

Do you see that section of that sentence?

A. Yes.

Q. What do you mean by "recorded video segment of Ogdon" here?

A. So Ogdon talks about how certain portions of the presentation can be recorded and pre-recorded. And so I think that it's teaching that the portions of the presentation can be pre-recorded or recorded.

And so what I mean there is just by taking any of a segment that's recorded and creating these additional versions or copies -- "versions" is probably a better word here -- of each recorded video segment in Ogdon, at each of the levels of quality as taught by Allen.

Q. So in that scenario you're describing, how would the additional versions that are being created be done in

1 realtime?
2 A. Well, the presentation would be
3 done as the video is being played back, but
4 I mean, here it can be -- a presentation
5 can be made in realtime and it can also --
6 I think Ogdon is teaching it can be
7 recorded.
8 Q. Are those two things compatible
9 with each other, being presented in
10 realtime and being recorded?
11 A. Sure. I mean, I probably
12 understand that this Zoom is being
13 presented realtime and it's also being
14 recorded.
15 Q. Okay. So let's take that
16 example. Is it possible to take this Zoom
17 as it's being recorded and encode it into
18 three different quality levels in realtime?
19 A. Yeah, I think that would be
20 possible.
21 Q. And is that the modification that
22 you're talking about here?
23 MR. PAQUETTE: Objection. Form.
24 A. I lost the paragraph. What
25 paragraph are were you on again, please?

Q. 70. Paragraph 70.
A. Sorry, could you repeat the question, please?
Q. Yeah. That hypothetical we were talking about of taking this Zoom as it's being recorded and then creating three different bitrate versions of that recorded Zoom session, is that the modification that you're describing in paragraph 70?
A. So what I'm describing here is Ogdon contemplates a live video presentation that is segmented and stored at various quality levels. And therefore a person of ordinary skill would have been motivated to encode each recorded video segment in Ogdon, each quality level in parallel in realtime prior to storing at the web servers.
So that's the combination which is Ogdon is teaching these pre-recorded -- these live video presentations that are segmented, and certainly it talks about using pre-recorded audio as part of its presentation and that, you know, that extends also to other types of multimedia content.

And I'm just saying that it would encode each recorded video segment -- it could be presented on the fly as being presented or it could do it at any time -- but you encode those stored video segments into different versions. And that can be done on the fly.

I actually have a media server I run at home that can do it all on the fly as I'm watching a video, are being streamed, even though the video is being encoded only at a high resolution that I have, it can do the transcoding on the fly.

So what I'm talking about here is encoding each recorded video segment of Ogdon into each quality level in parallel, in realtime, according to storing of the web servers.

Q. Do you explain this paragraph -- when you say a person would have been motivated to do that, do you explain why they would have been motivated to do that?

A. Well, I mean, I address it in a different sections, but it's the same overall reason, which is that -- if you look at paragraph 67, because providing

1 three different quality levels would enable
2 user client nodes with a wide variety of
3 network bandwidth requirements and -- and
4 that's exactly what Ogdon is already
5 teaching, but some of them are on a low
6 band -- well, have different network
7 characteristics that require lower bitrate
8 presentations, and some of them don't have
9 that restriction.
10 But the presentation can be made
11 simultaneous to all those by having
12 different versions sent to them. And if
13 it's of a live video, then certainly it
14 would be motivated to keep that capability
15 to include clients on lower -- having
16 different network characteristics such as
17 lower bandwidth, and that's still the same
18 reason why a person of ordinary skill would
19 be motivated to make that combination in
20 this way.
21 Q. So the next -- well, the next
22 sentence you have a citation to Exhibit
23 1005 -- do you see that -- which is Allen,
24 is that right?
25 A. Allen, yeah, I think 1005 is

Allen. But I'm not sure which sentence you're referring to.

Q. It just -- you know, it's the sentence right after the one we were just looking at. It says Exhibit 1005, column 5, line 15 to 21. That's the sentence that I'm talking about.

A. Oh, okay. Those are just -- okay, sure, I see that.

Q. And then there is a citation to Exhibit 1013.

Do you see that?

A. Yes.

Q. Okay. I'm going to put a document in to chat. Let me know when you're able to download and open that.

A. Okay, I have it open.

Q. Is this the Exhibit 1013 that you're citing to there in paragraph 70 of your declaration?

A. Yes.

Q. Okay. I'm going to call this Chou. You know what I mean if I'm referring to this as Chou?

A. Sure, yes.

Q. Okay. So what was it that you found Chou useful for in connection with your analysis in this paragraph?

A. So Chou is talking about somehow a streaming media system comprises an encoder which may be coupled to a camera or other realtime or uncompressed video sources in codes and/or compresses the data, the live transmission such as videoconferencing.

So Chou is teaching that there are other systems and therefore it was well known that you can actually do this compression and encode it into other resolutions even for like a live conference or realtime media source.

Q. Can you turn to column 9 of Chou for a moment.

A. Okay.

Q. There's a paragraph beginning around line 42 that starts: It is not always possible.

Do you see that?

A. Yes.

Q. Just read that paragraph to yourself. Let me know when you're done.

(Pause.)

A. Okay.

Q. Do you have an understanding of what Chou is referring to when he says: The seek delay may be as large as the transmission delay, plus the decoder buffer delay?

A. Oh, it talks about seek at the bottom of column 2, line 64.

It says seek delay refers to the latency the user experiences after he signals to the server to start transmitting data from an arbitrary place in the middle of the content, such as when a seek bar is dragged to a particular point in time before the data can be decoded and presented. So that's what seek delay is referring to.

And then it talks about decoder buffer as the -- this is the bottom of column 7, around line 60. Decoder buffer is a hardware or software component that receives encoded data from a network and stores the encoded data until such time as it can be decoded by the decoder 310.

And so what you're asking about

1 was -- so the decoder buffer is how much data
2 a player, in this example of Chou, talking
3 about how much data the client has received
4 before it's actually played back the frame.
5 So there is a decoder buffer that may have
6 some video stored in it already, that it's
7 already got over the network. And there's
8 some amount of video left there.
9 So what it's saying here, it's
10 possible that the seek delay, which is the
11 time it takes, as I said earlier, to go to a
12 new position and start encoding and sending
13 that data, plus the transmission delay, which
14 is how long it would then take that data to
15 get to the client -- and so, you know, if in
16 the condition, in this case it says the seek
17 delay may be as large as the transmission
18 delay plus the coder buffer delay -- if you --
19 and that's the situation that seeks, that this
20 invention is seeking to reduce, the start-up
21 and seek delays.
22 And so if you did jump to a position
23 in a video, you want to -- it's trying to
24 reduce the delay to get that video to the
25 ultimate sender and play it back. But you

might be able to tolerate like some portion of -- you'd still, you know -- it has some video to play back in a buffer before you start to get the media from the new position that the user is seeking to. And I think that's what this example is talking about. It's talking about how to improve on -- how the invention would improve on reducing the start-up and seek delays.

Q. And one of the ways that talks about improving upon that is in the next column, column 10, line 35 through 63, I think. So if you could read that section and let me know when you're done.

A. Okay.

Q. So in that section that you just read, it seems to be describing a scenario where this encoder takes full bitrate content, prepares a portion that's at a lower bitrate, then splices that with a subsequent portion at a higher bitrate and sends it to the user.

Is that what's going on?

A. Yeah, I think that is describing a faster start-up environment where the

1 user can start to play sooner by doing so.
2 But this isn't the part of Chou I
3 used to support that it was well-known that
4 you could do this encoding of live video
5 content on the fly. That's a different
6 section. But this is just -- this reference
7 is not a -- it's not a secondary reference and
8 the obvious combination for this -- it's
9 simply being used to support that it was known
10 to be able to do this transcoding or encoding
11 at lower bitrates even with live video, and
12 that was a different section.
13 But sure, I mean, this section is
14 talking about how to reduce the start-up when
15 you seek by including a lower quality video as
16 the initial part of the video at the new seek
17 point.
18 Q. And at column 9, line 39, he
19 says: In this way, the start-up delay can
20 be minimized at the expense of the quality
21 of the first view frames. Is that right?
22 A. Sorry, I don't see where you are.
23 Q. Column 9, line 39.
24 A. Oh, I see it now. Yes, I see
25 that.

Q. And you agree that if you followed the teachings of Chou at column 10, line 46 to 62, that's what would happen, right?

MR. PAQUETTE: Objection. Form.

A. Well, that portion of Chou in column 10 seems to be describing in more detail the process of, you know, minimizing delay by reducing the quality of the first view frames of the video.

Q. Okay.

A. Again, but, you know, the portion of Chou that I cite to is merely to support that it was known that you can do this encoding at different rates even for live video sources.

Q. I'll ask you to turn to page 39 of your declaration.

A. Okay.

Q. At the bottom of that page there is an element identified as 1E.

Do you see that?

A. Yes.

Q. Okay. And your analysis of that element begins at paragraph 73 on the next

page, is that right?

A. Yes.

Q. Okay. The first sentence there, you say in your opinion Ogdon, in view of Allen, teaches Element 1E, and you cite back to Elements 1B through 1C, is that right?

A. Yeah, I mean what I'm referring to is my analysis for Sections 1B -- or Elements 1B and 1C above.

Q. Okay. Then the next sentence you say Ogdon further discloses -- and then it goes on.

So is this an alternative theory for how the combination satisfies Element 1E?

MR. PAQUETTE: Objection. Form.

Q. Or is this part of the same theory that you were alluding to when you said that Ogdon, in view of Allen, teaches 1E?

A. I wouldn't say this is additional. I'm referring to 1B and 1C because they talk about the different level of stream quality. And now I'm discussing

parts that I may not have discussed above that somehow how Ogdon, in view of Allen, is teaching this element.

So, I don't think I called this an alternative. I think this is part of the analysis that is -- now I'm talking about how Ogdon is disclosing the first streamlet or segment of each of the groups of streamlets at the different quality levels, at each quality level, has the same first duration and encodes the same first portion of the video in each of the quality levels.

And that's what you'd get if you transcoded a video down from an original video segment. They'd represent the same timing. And it encodes the same portion of the overall video, albeit at a different encoding bitrate.

Q. Okay, that's fine.

And then the last sentence of that paragraph after the quotations from Ogdon says: Thus, Ogdon as modified above (see 1B) -- and it goes on.

Do you see that?

A. Yes, I see.

Q. Okay. So the invalidity analysis that you're applying in paragraph 73 is just Ogdon modified in view of Allen as we've been talking about in connection with the other elements, is that correct?

A. Yes, that's right. And this is addressing an additional point, that each of the first segments across the different encoding rates encodes the same portion of video, so -- or whatever the claim element in 1E that further requires that, and so that's why I'm addressing this here as opposed to above, because this part of Element 1E was not a requirement of Elements 1B or C.

Q. Okay. Can we go to paragraph 75?

A. Okay.

Q. So the first sentence of paragraph 75 makes reference to the provisional application of Ogdon.

Do you see that?

A. Yes.

Q. What was the relevance of the -- let me withdraw the question.

Why is it that you reviewed the

provisional application of Ogdon?

A. Because it discloses that corresponding presentation segments in the collection have identical audio portions. And so that's just to support what, you know, what Ogdon is teaching and certainly Ogdon in view of Allen are teaching.

Q. So was it your view that a person of ordinary skill in the art would have looked to the provisional to better understand the disclosures of Ogdon?

MR. PAQUETTE: Objection. Form.

A. I mean, I don't remember the legalisms of the provisional application, whether -- I don't know. I don't know if part of the -- so I'm not a lawyer here, but it certainly provides some context for Ogdon as filed as a -- in the application that followed the provisional application. I forget what they call that legally.

Q. That's fine. I'm not trying to test you on any legal doctrines here. But I guess in your view as a person of ordinary skill in the art, is it fair to say you found it helpful to review the

Ogdon provisional in trying to determine how a POSITA would have understood the disclosures of the Ogdon patent?

A. Well, I mean, I would review them and the terms would mean what they would mean to a POSITA in the context of the specification and file history. But certainly the provisional is just reinforcing what I think a POSITA would already understand based on the specifications and file history. And so it's just reinforcing that point, which I think was already, would have already been understood. So I don't think it's necessary, but it's certainly part of the background of this patent that led to its ultimate issuance.

Q. Okay. I've put Exhibit 1014 in the chat. If you could just open that and verify that that's the provisional application that you're referring to in your declaration.

A. Yes, it is.

Q. Okay. All right. And the citation that you give in your paragraph 75

is to page 35 of the document, is that correct?

A. Yes, of the PDF document, which is listed as page 34 at the bottom of the page, but it's Claim 25.

Q. Okay. That claim reads -- okay, so Claim 25 reads in relevant part: Wherein, for at least some of the collections, the corresponding presentation segments in the collection have identical audio portions for the presentation. Is that right?

A. Yes.

Q. Okay. And what was the relevance of that to your analysis in this case?

A. What it's talking about here is that the collections that it's referring to are in Claim 1 where a collection of said segments is that for the collection, the first collection, there are two segments, wherein each of said segments is replaceable when presenting the presentation by another of the said segments.

So there's multiple segments and

each of them can be used as a replacement for the other.

And Claim 25 further narrows it to say that the -- that each of those segments, in at least some of the collections, have identical audio portions for the presentation.

So that's relevant in just supporting the notion that the video segments are encoding the same underlying content as taught by the Ogdon reference 1005 -- sorry, 1004.

Q. The language you just pointed to in Claim 25 of the provisional does not appear in the Ogdon patent, correct?

A. I didn't find the word "identical" in my search right now. So identical does appear in Claim 25, but I didn't find the word -- I mean, I did a search, the search index is correct. I didn't not find it. I don't recall it there, but...

Q. So is it your view that this disclosure in the provisional application is itself prior art against the DISH patents?

MR. PAQUETTE: Objection. Form.

A. I mean, the prior art that I'm using is the Ogdon patent and this is just reinforcing what I'm saying the Ogdon patent is teaching. And as I say above this, Ogdon and -- sorry, Ogdon is teaching that there are these -- that the different versions of the encoded different bitrates are the same digital content and same duration because Ogdon, the Ogdon patent does talk about them as replacements for one another.

Q. Okay. I guess the question I have for you is how does language that was in a provisional application but was taken out of the published patent reinforce your conclusions about what the published patent means?

A. So it's reinforcing the notion that Claim 1 is talking about segments that are replaceable. And that includes where the audio is identical. And so it's -- and I think Ogdon talks about how segments can be replacements for each other.

So, it's clear that the patentees

had the notion in their head that replacements for each other include the situation where audio is identical across the different segments that may be replacements for each other.

Q. Okay. Let me ask you to turn to paragraph 77 of your declaration.

A. Okay.

Q. And here you're providing some reasoning why a POSITA would have been motivated to make all of the corresponding segments in equal duration of time, correct?

A. Yes.

Q. Okay. So one of the things you say is that, around the middle of this paragraph, is this would simplify the system and -- well, okay.

I guess one thing you say is this would simplify the system. Do you see that?

A. Yes.

Q. So what do you mean by "simplify"? How would this simplify the system?

A. Well, suppose that different

1 segments didn't represent the same one,
2 then, you know, the segment three and
3 one -- the third ordered segment in one
4 quality level and coding wouldn't have the
5 same content as the third segment in a
6 different level of encoding and maybe
7 segment 5. And you'd have to keep track of
8 the corresponding information and what's in
9 what segment. It simplifies it because you
10 know all the segments have the same
11 information.
12 And segment three, you just need
13 to know -- you don't need to know anything
14 else other than what segment you want and
15 what encoding level you want. And you
16 don't have to reindex segment numbers in
17 different quality collections so that you
18 can actually get to the right position in
19 the context when you request a segment at a
20 different resolution.
21 I mean, that's why it would be
22 simpler than if you didn't have the same
23 iterations, if the segments didn't encode.
24 It's the way that Ogdon is teaching,
25 to start. And to the extent that it's not

1 disclosing that, it's found out to disclose
2 that explicitly, it still would have been
3 obvious to a person of ordinary skill to
4 encode each -- encode the same content each
5 segment across different quality levels.
6 Q. Okay. But, I mean, Ogdon itself
7 already -- I mean, just as is, Ogdon
8 teaches there can be alternative versions
9 for each segment corresponding to different
10 transmission requirements, correct?
11 A. Yes, and they -- yes. Ogdon does
12 talk about that. It's not the only thing
13 -- I mean, Ogdon teaches a lot of things,
14 including that the segments can be
15 replacements for each other and a person of
16 ordinary skill would understand that
17 because of that they would be encoding the
18 same content, you know, especially when the
19 lower quality segments are also video
20 segments.
21 Q. Okay. The next thing you say in
22 that sentence is that: And so that each
23 corresponding streamlet in each version
24 could serve as a replacement for that
25 portion of presentation content so that

when switching to a different version during the presentation, the user still experience as seamless presentation.

Do you see that?

A. Yes.

Q. What do you mean by "seamless presentation" there?

A. Well, if you're watching it at one quality level and suddenly you jumped to a different time in a different presentation, it's like if you're watching a movie and it suddenly jumped from the beginning to somewhere in the middle, it might come as a bit of a start because, you know, the video was designed to be presented in order or kind of from start without weird jumps.

So if you requested the same segment or the next segment in a different quality level and that segment didn't encode the same information or video as the corresponding next segment in the current resolution, then there would be this weird jump.

I mean, there might be transitions

1 between slides, like a slide goes to another
2 slide or a scene changes from one scene to
3 another, but they may not necessarily line up
4 with any of the segment boundaries. And so
5 forcing a jump from one position to a
6 different position because of encoding is not
7 the same, the duration of the encoding content
8 is not the same across different quality
9 levels would be what I would say is not
10 seamless. A user would notice a jump in
11 position because the video doesn't have the
12 natural flow it was intended to have.
13 And so that's another reason why it
14 would be more -- if you actually had to track
15 that you could, but it would be more
16 complicated, so you know, maybe the next
17 segment in this encoding is 3, but the next
18 segment in a different encoding is 7, and so
19 you could calculate all that, but that would
20 make the system more complex. And if you
21 simply requested 3 and you got 3, you might
22 have jumped backwards in time.
23 So that's another reason why it
24 would be obvious to have all the segments
25 encode the same portion of the video

information.

Q. And then the next sentence I think you describe the converse of that then, which is where you have the corresponding streamlets being of different durations. And then you say that would result in an undesirable viewing experience, is that right?

A. Yeah, I mean, if you are playing -- especially if you are playing back at the beginning of a segment, you know, like the same -- if the segments didn't line up and contain the same portion of the video, then the requested segment, if you played it at the beginning and, you know, where it was supposed to be was at a different segment or in the middle, you'd still experience this weird jump that you didn't expect because, you know, if every segment was, you know, every segment was say five seconds long and, you know, the durations between different encoding levels was different so that now you're actually wanting to switch to the middle of the segment, then again you'd experience a jump

of half of that or about half of that five-second or couple-second jumping video and that would not -- that would not be seamless either.

Q. Do you cite any prior art examples of segments that are exactly equal duration?

Let me withdraw that question. Do you cite any prior art that contains examples of alternative presentation segments that are all of exactly equal duration?

A. Not in paragraph 77. This is based just on the knowledge of a POSITA and what they would expect. There's no external other supporting references I cite in paragraph 77.

Q. Okay. What about anywhere in this declaration, is there any prior art that you can think of that discloses the idea of alternative presentation segments that are of exactly equal duration?

(Pause.)

A. Yeah, I cite to the Smil document for the '138 declaration.

Q. Sorry, what document?

A. S-M-I-L. I say "Smile." I think that's the way people say it, but I'm not -- I think that's the way people say it. If you look at paragraph 147.

Q. Just give me one second. Okay, 147 of your declaration.

A. This talks about -- to the extent that Ogdon, in view of Allen, lacks certain limitations, for example, that each corresponding first streamlet has the same or equal first duration. And Smil is taking -- because they teach this thing called the switch, which allows the author to specify a set of alternative elements encoded at different quality levels, from which only the first acceptable element, first acceptable element is chosen. And that Smil then also teaches a sequence.

But in the Smil example, it does teach that the alternative segments do have exact same duration. And so if you look at paragraph 148 at the bottom, just above paragraph 149, there's a figure there where it shows two different alternative sequences and each segment, each brush element within

each -- you know, there's the sequence that each has -- they have the same corresponding durations between them, between the first sequence -- or SEQ limit and the second SEQ element in the switch.

So that's talking about the duration.

Q. Okay. So we'll come back to Smil in just a minute, but I want to make sure we finish the answer.

Is there any other prior art reference that would disclose the idea of having identical duration alternative presentation segments?

MR. PAQUETTE: Objection. Form.

A. With respect to the prior art that I support in this declaration, I don't think I've cited anything explicit about the content, just that it would -- I think Ogdon is teaching it already, but if not it's still obvious to a POSITA to have the same content at the same duration in each corresponding segments, in different quality levels.

Q. I'm just trying to look at your

other declarations for a moment.

Do you recall if, in any of your other declarations submitted in these institute IPRs, you relied on any other prior art that would disclose the idea of identical duration alternative presentation segments?

MR. PAQUETTE: Objection. Form.

A. So just to take a quick look at the table of contents. I see that for four of them it's really the same art, Ogdon, Allen and Smil. And then I think for the '798 there's a Stein reference that I also talk about, that I think I haven't cited to portions of Stein that are disclosing exactly what you're asking about in the '798.

Q. Okay. That's fine.

First of all, let me just put into the chat an exhibit. You could open that and let me know what it is.

A. It's the -- Exhibit 1006 is the Smil reference that I mentioned.

Q. Okay. So turning back to the '138, the declaration for the '138 Patent, you were referring I think to the

discussion beginning around paragraph 147 where you discuss Smil, is that right?

A. Yes. I was talking about around this paragraph.

Q. So, I mean, just so I understand, what is this document Smil? Is it describing a streaming technology?

A. It's actually describing a language for describing synchronized multimedia presentations, interactive multimedia presentations.

Q. Okay. Does interactive multimedia presentations include streaming video?

A. I mean, the Smil document does refer to media object elements that include video.

Q. So, let's see. You have an example on paragraph 148 from Smil.

Do you see that?

A. Yes.

Q. And you said that this example from Smil is talking about -- is teaching three sequential media elements.

Do you see that?

A. There's two sequences, each sequence having three different elements within the sequence.

Q. Okay. And what -- so let's start with what are the media elements that you're referring to here?

A. Well, the point of referring to this was with respect to the duration, which is disclosing explicitly a five-second duration.

But if you -- Smil also discloses video elements. But the point here is to show how each of the sequences has an identical duration of five seconds -- sorry, not each of the sequences, but the elements within each sequence has a duration of five seconds.

Q. Okay. These elements that you're showing here, these aren't videos, correct?

A. They're not using the video tag. There's a separate video tag. But this is an example showing that elements can have durations in that these elements in each of these sequences have an equal playback duration of five seconds, both within the set and between the sets, so that the

corresponding first element of each sequence is five seconds. The corresponding second element of each sequence is also five seconds. But they all happen to be five seconds.

Q. Got it.

And in this example you've shown below, there are two alternative sequences, correct -- or I should say there's two possible sequences, one is an alternative sequence to the other, is that right?

A. Yes, that's fair.

Q. Okay. Does Smil ever disclose the possibility that you could switch between those two alternative sequences?

MR. PAQUETTE: Object to the form.

A. So if you look at page 61, that's the page at the bottom and the PDF page, it talks about the switch element and it says: The switch element allows an author to specify a set of alternative elements from which only the first acceptable element is chosen.

And it gives an example of a

1 switch, within the switch are three
2 elements. And they're audio, each audio
3 elements. And each add a different
4 bitrate. The first bitrate of the first
5 one is 56,000. The bitrate of the second
6 one is 28,800. And so when they say the
7 first acceptable element is chosen, that
8 means, you know, if a system can handle a
9 56 kilobit bitrate, then it would choose
10 the first one. But if it can't, it might
11 go down to the next one. And if it can't
12 handle 28,8 either, it might go to the next
13 one. And so it's choosing the first
14 acceptable element.
15 Q. Right.
16 A. And it gives a choice to the
17 client to choose between the ones that are
18 there based on it whether it can handle --
19 based on whatever the decision-making
20 process of the client is here.
21 In this case, you know, what it's
22 saying here and what's described in the
23 paragraph under, under the XML fragment, it
24 can choose the right one for its purposes
25 based on the system bitrate in this case.

Q. Right.

So as I understand what's described in this example is there would be some video object being presented to the user, which I guess has this name anchor.mpg, and then the client would, while displaying that video, pick which of these audio files to play alongside the video, is that right?

A. In this case that seems fair for this example, but yeah.

Q. So just focusing on that audio portion for a second then, once the client decides to pick one of these bitrates, let's say it picked the 56K -- yeah, 56K bitrate, it can't then switch to 28,8, correct?

A. Well, I mean, I think Ogdon teaches the dynamic switching. So I'm not relying on the small element for the dynamic switching. But in this case the system would pick the first alternative element that is acceptable, that it would work for it.

And so this is ordered in -- order -- well, the least the first two, of

1 decreasing bitrates.
2 So, you know, if you can pick the
3 first one, pick the first one, the best
4 quality. And if you can't, if your system
5 doesn't support that bitrate, you know, or you
6 don't have a good enough connection, you
7 should then pick the first one that's
8 acceptable.
9 MR. WILLIAMS: I forget how long
10 we've been going. Is this a good time
11 for a break?
12 THE WITNESS: Sure.
13 MR. WILLIAMS: Okay. Let's just
14 take a quick break then.
15 THE VIDEOGRAPHER: The time is
16 3:41 p.m. and we're going off the
17 record.
18 (Recess taken from 3:41 p.m. to 3:55
19 p.m. EDT)
20 THE VIDEOGRAPHER: The time is
21 3:55 p.m. and we are back on the
22 record.
23 BY MR. WILLIAMS:
24 Q. Okay. Let me ask you to turn to
25 paragraph 83 of your declaration in the

'138 Patent.

A. Okay.

Q. Do you see that paragraph?

A. Yes.

Q. Okay. And here you're analyzing Element 6B, correct?

A. Yes.

Q. All right. And this element talks about receiving streamlet, a streamlet request from an end user station, right?

A. It does use that language as part of the claim element.

Q. And in your analysis, is the element -- is that request disclosed in Ogdon or does it come from Allen?

A. I do show how Ogdon is disclosing this. But then also, I talk about how Ogdon, in view of Allen, teaches that at least the one streamlet requests from the one or more end user stations includes requests currently selected one of the low quality stream, medium quality stream and the high quality stream, based upon a determination by the client to select a

1 higher or lower bitrate version of the
2 stream.
3 So I think in this case, I think
4 both would be the answer -- or at least
5 different portions. But I think that's what I
6 say in the first part of 83 as well for Ogdon.
7 Q. So -- well, let me ask, let me
8 just get a little more detail into this
9 Claim Element 6B.
10 I'm just going back to the claim
11 text here. Kind of the end of that element
12 says that this request is based upon a
13 determination by the respective one of the one
14 or more end user stations to select a higher
15 or lower bitrate version.
16 Do you see that?
17 A. I think so, yeah. I wasn't
18 looking where you were reading from, but I
19 think it says pretty much what you read.
20 Q. Yeah. And I guess I'm trying to
21 figure out how you interpret this claim
22 language a little bit.
23 Is it your understanding that to
24 practice this element, the client would need
25 to make a change in bitrates?

MR. PAQUETTE: Objection. Form.

A. Well, at least one streamlet requests, as included requests for currently selected first streamlet from one of the different three, based on a determination of the respective one or more end user stations to select a higher or lower bitrate version of a respective one of the plurality.

And what I'm saying is that what Ogdon is teaching, and Ogdon and Allen are teaching together to disclose this, teach this element, I talk about how Ogdon describes how -- this is later down in the paragraph: While the present invention employs a client request technology for each presentation member's browser requests information from a communication network server.

And I think I describe above how in, I think it must be 1B, how Ogdon is teaching a dynamic -- I forget the exact words -- but dynamically requesting the different levels based on the network characteristics current.

I can look back at 1B to double-check that. I don't remember the exact

wording, but let me find that.

Yeah, Ogdon talks about, on page 33 near the bottom, how if a low transmission data rate is detected, presentation elements of a reduced size can be retrieved, or if a higher transmission is detected, presentation elements of a greater size in corresponding enhanced quality presentation can be retrieved.

So I think that's covering the part where it -- I think there's a dynamic quote here somewhere. Let me find that.

Q. Sorry, where in Ogdon were you just reading from? I apologize.

A. I'm sorry, let me -- it was up in Element 1B. At the bottom of page -- middle of page 34, I think. It may be the bottom of page 33 -- yeah, 33, page 33, paragraph 64. So that's what I was referring to.

And then the preamble, I've already discussed how there's dynamically -- so this is on page 32, in the first partial paragraph on that page, the bolded words: Dynamically and adaptively switched between investigations

of the presentation according to network transmission characteristics at each client network node.

So that's adapting to network transmission characteristics, which changed. And so I think that covers -- certainly this disclosure in Ogdon discloses the streamlet requests for different higher or lower bitrate version.

And then I think I'm talking here in Ogdon about how the requests are actually received in a little more detail because I don't think that part of this claim was in the corresponding 1B. Double-check that, too.

Yeah, 1B doesn't talk about requests from receiving end user nodes or anything like that. So I think that's why I address that portion of element for 6B, was it. I talk about Ogdon first, and then Ogdon and Allen.

And so I think Ogdon is already teaching that there is a dynamic switching that occurs, and so I think it certainly meets the part of 6B that talks about the -- based upon a determination and the different various streamlets that are discussed in 6B.

Q. Okay. So that section that you were reading from on page, was it 32 -- the dynamically and adaptively, in Ogdon that's in column 3 around line 38, is that right?

A. I think that's where I'm citing to, yes. I see it at line 38 or 39.

Q. Okay, yeah.

Okay. An example it gives at the end of that is, starting at line 44, is a first client can experience the presentation as an ordered series of presentations in full animation.

And then in line 51, there is a second client that may experience the presentation in slideshow format.

So those are two different ways of viewing the same presentation for two different users, correct?

A. I mean, that's the example that's given. But elsewhere it does give examples how videos can be -- the segments can consist of a single video element, for example, and that the presentation can be video.

So the example given here is with

1 respect to full animation and then a slideshow
2 format. This part of the discussion, it was
3 talking about how the content may be on one
4 server, multiple servers, and that -- so this
5 is going through a few examples of some of the
6 different combinations of where the data is
7 coming from, which server.
8 Yeah, because the dynamically and
9 adaptively switchings between content web
10 servers and/or versions of that presentation.
11 So it's giving some with, you know -- it's
12 teaching a variety of things here and some
13 flexibility. And examples are going through a
14 few of the examples, not going to go through
15 all possible examples.
16 Q. Okay, so, but I mean, this is the
17 sentence that you bolded in your
18 declaration about dynamically and
19 adaptively switching. So I just wanted to
20 make sure I understood what you thought
21 Ogdon was teaching here.
22 One example is these two different
23 clients that are receiving two different
24 versions of the presentation, correct?
25 A. Right. I mean, so one thing it's

1 teaching, it's teaching that there's a
2 dynamically and adaptively switching
3 between versions of the presentation
4 according to network transmission
5 characteristics and also is teaching that
6 it's dynamically and adaptively switching
7 between content web servers according to
8 network transmission characteristics.
9 So it's teaching both those things
10 with what it's saying. And then in the
11 example it's giving some combinations where
12 it's switching web servers and switching
13 content presentations at the same time.
14 But it doesn't have to go through
15 every example. For example, you might not
16 switch between content web servers. You just
17 might, you know, get different versions from
18 the same web server. I don't think it
19 specifically lists that example, but that
20 could have been an example. That's certainly
21 covered by what Ogdon is teaching, you know,
22 on line 39 down to the next couple of lines.
23 And then it is enumerating a few of
24 the examples. And they appear to be somewhat
25 more complex than the simple thing we just

1 went over where you're just going to request a
2 different content version based on the network
3 characteristics from the same server.
4 You know, so the examples are more
5 complex because it's switching between both
6 content web servers and media presentation
7 versions in some of the examples.
8 Q. Okay, yeah, that's fine.
9 Just going back to Element 6B, which
10 again, it's around paragraph 83 of your
11 declaration.
12 So the modification that you've been
13 proposing to Ogdon, in view of Allen, as we've
14 talked about, involves encoding a single video
15 presentation into multiple bitrates, correct?
16 A. I think that's already disclosed
17 in Ogdon. But Allen -- did you say Allen,
18 the combination?
19 Q. I think so. That's what he meant
20 to say, yes.
21 A. As close as explicit bitrates for
22 low, medium and high quality levels. And
23 so I think that's -- you know, to the
24 extent Ogdon isn't teaching three different
25 quality levels, low, medium and high, Allen

is teaching that.

But I think it does because, you know, network characteristics can vary. It could be that maybe you need the low. Maybe it's really congested, you have severe congestion on your network. Maybe you have moderate congestion where a medium would do. Or maybe you're free and clear and you could go with high.

And so I think Ogdon does teach that to a POSITA. But to the extent it doesn't, Allen explicitly teaches low, medium, high, three quality levels at very specific bitrates.

Q. Okay. So in that modification with Allen, would there be any change needed to Ogdon's approach of transmitting streamlet requests from the end user station?

A. So in this analysis for 6B, I don't see a citation to Allen. I think the reason Allen is there is because, you know, to the extent it requires the three encoding levels, you know, Allen is disclosing the three different coding

levels, which would be understood as low, medium and high. But I think, again, Ogdon is already talking about making a request.

You know, I talk about how, in paragraph 84, the first block citation to Ogdon is the client node provides the identity of the selective web server and next segments to the client node's browser and the browser, in turn, sends a network request to the selected web server for the selected subversion of segments.

Then the client presentation software monitors the time elapsed before the transmission of the selected collection of segments is completed and determines whether these segments or provided with an appropriate window of time that allows them to be presented during the performance of the presentation.

So it's really Ogdon that I'm citing to for the requests made by the client to the server and receiving a request from end user station.

And I think Allen is here because, you know, this claim element requires three

1 different quality levels, and Allen is
2 explicitly teaching three different quality
3 levels, which would be understood to be low,
4 medium and high for the different bitrates
5 that Allen provides.
6 Q. The way Ogdon's requests work,
7 are those for single segments of the
8 presentation?
9 A. Well, Ogdon at 759 and 63 talks
10 about how the client presentation software
11 system 88, that coordinates with the
12 browser 78, for requesting, receiving and
13 displaying presentation segments from the
14 network, and that's the software at line
15 1954 to 59, client presentation software
16 ADA is instructed by the presentation
17 controlling host to retrieve and cache by
18 network one or more initial presentation
19 segments -- certainly teaching that it
20 would retrieve one presentation segment
21 from the web server. And then it could
22 request more as needed, which would be a
23 different request for one more.
24 Q. What was that section you were
25 just reading from in Ogdon?

A. I think that was 1954 to 59 that I've cited on page 47.

Q. So this discussion at 1954, this is the host transmitting to the client the identification of potential segments it could request, right?

A. Well, it is talking about how there's a presentation controlling host, instructs the presentation software on the client to retrieve and cache one or more initial segment, presentation segments.

So that means one or more. It means that it could be requested to get just one. And so it is disclosing that the segments can be individually requested by the host here.

Q. Right. But, I mean, this claim is talking about the client actually making a request. And I guess my point was, seems like you're citing to the section of Ogdon that talks about the host identifying to the client a list of segments that it could request.

MR. PAQUETTE: Object to form.

Q. Is there a section of Ogdon you think shows the client making the actual

1 request for a segment?
2 A. I mean, that's what it's saying
3 here. It's instructing the client host to
4 then make one or more initial presentation
5 segments, request one or more -- to
6 retrieve one presentation segment. So it's
7 going to be making a request for a
8 presentation segment here, and that's what
9 it's instructing the host to do.
10 You know, this is the kind of
11 flexible language in patents that most patents
12 have in it. And it is talking about how it's
13 the host that is now going to retrieve one
14 presentation segment.
15 Q. So, okay, maybe I'm confused. I
16 thought you said Ogdon was teaching a pull
17 system where the client makes a request for
18 a segment. Are you saying that this is a
19 push system where the host actually decides
20 what segments to push?
21 A. No. The client decides based on
22 dynamic networking, what version, and it
23 may request them one segment at a time for
24 the appropriate version.
25 Q. Okay.

A. That's what Ogdon is teaching as a whole.

I know you're focusing me on this one little section here, but, you know, it's Ogdon as a whole teaching it, and I describe why in my declaration in more detail than just look at this one section.

Q. Sorry, I'm not trying to force you to analyze this section. This is a section that you pointed me to. So I'm just trying to understand how it informs your opinion because it seems to me this is about the host deciding what presentation segments to present, not -- it's not showing the client, which is 56 making a request.

So is there a different section of Ogdon that you think better discloses the client making a request for segments?

MR. PAQUETTE: Objection to form.

A. This was not the only section that I cited in that paragraph. There were numerous sections. And taken as a whole, the hosts are making requests to retrieve segments. That's what this is teaching

1 here. And it can make a request for just
2 one segment. That's what this is teaching
3 here.
4 And, you know, Ogdon is teaching
5 that the -- sorry, not the host, I meant the
6 client in this last answer. It's the hosts
7 that are instructing the client to retrieve
8 one or more segments, which means a client can
9 retrieve one segment.
10 And we know that the host can adapt
11 dynamically to the changing network conditions
12 and so it can -- and I think there was also a
13 portion where it talked about measuring the
14 time and things like that.
15 So it's teaching about how the
16 client can request one segment at a time here
17 as instructed to -- you know, the host may say
18 here's a list of all the segments, you can
19 request one to get started. I think that is
20 part of what it's talking about here.
21 But ultimately, it's the client that
22 is making a request for -- and a determination
23 as to which version, you know, it may want to
24 get based on, of the next segment, based on
25 changing network conditions and dynamically

and adaptively is, I think, the phrase that Ogdon actually uses.

Q. So one section you also cite is column 22, line 12 of Ogdon in this paragraph, correct?

A. Yes, I see that.

Q. Okay. And that section of Ogdon talks about an appropriate version of the next collection of segments to be retrieved.

Do you see that? That's at the end of your paragraph there.

A. Yes, I see that.

Q. So what is the collection of segments that's being referred to there?

A. Well, it talks about later in 22, down at line 30, the time for each network 70 transfer of a collection of segments (e.g., one or more presentation elements, each such element having one or more segments therein).

So again, it could just be one presentation element with one segment. So a presentation segment, a selection of segments could just be the next video segment that's in

1 sequence. That's what it's teaching. Because
2 it's saying the collection of segments is
3 really just one or more of presentation
4 elements, each element having one or more
5 segments. So it could just be one video
6 presentation element having a video segment.
7 And so that's what it's talking about there.
8 And that's what it's referring to.
9 So if the next video segment is not
10 small already, then the client software uses
11 its connection and its most recent
12 characteristics that it's, you know, data
13 transmission characteristics, together with a
14 list, a close transmitted list of network
15 addresses for content web servers, and
16 appropriate version of the next collection of
17 segments to be retrieved.
18 So collection of segments could just
19 be the next video segment. And so it's saying
20 that -- and remember the examples where the
21 segments that one quality level could be
22 stored on one server and a different quality
23 level could be stored on a different server.
24 So, using the list that the host
25 provided, the client node can make a request

1 from the appropriate server, could be the same
2 server it's always made, therefore an
3 appropriate next segment based on its
4 currently measured or currently measured
5 network characteristics.
6 So that's what this is saying and
7 teaching. I mean, it's teaching something
8 that's broader and more flexible. But if you
9 look at what Ogdon is saying about what a
10 collection of segments is, it could just be
11 the next video portion to play. So that's
12 kind of why I cited this section here.
13 Q. Turn to paragraph 113 of your
14 declaration.
15 A. Okay.
16 Q. This is analyzing Element 14D,
17 correct?
18 A. Yes.
19 Q. Okay. And this element requires
20 a determination by the end user station to
21 select a higher or lower bitrate version of
22 the streams, correct?
23 A. Yes.
24 Q. Okay. And so where -- and you're
25 relying on Ogdon to disclose this

1 determination, is that right?
2 A. Yes.
3 Q. Okay. Is there something new in
4 this analysis that wasn't present in the
5 analysis we just looked at?
6 A. There may be. This is a lot
7 longer, but it's a lot of the same -- I see
8 some of the same citations. But, I mean, I
9 think what I just read to you from I think
10 column 22 was, I think that must be in
11 here, too. I thought it's, you know, if
12 the next statement is not cache, it looks
13 at what the network characteristics are and
14 then determines what next version to
15 select. And that's part of it here, too, I
16 think, along with all of the other
17 citations that are part of this.
18 Q. Okay. Are you familiar with the
19 term "objective evidence of
20 non-obviousness" or sometimes called
21 "secondary considerations"?
22 A. I've heard of them, yes.
23 Q. Have you applied those ideas in
24 other cases where you've given testimony?
25 A. I'd say on occasion I may have,

1 but it's not that --
2 Q. Sorry, go ahead.
3 A. I'd say occasionally I have, but
4 it's not that frequent.
5 Q. Okay. Did you apply those ideas
6 in this case?
7 A. I don't think I have a section in
8 my declarations here that address directly
9 secondary considerations.
10 Q. Do you recall why not?
11 A. Well, I mean, I think -- I don't
12 understand that -- I mean, it's hard to
13 know what arguments the patent owner is
14 going to come back with. But, I mean, I
15 reviewed the documents I cite, including
16 the ITC case. But you know, if they're
17 raised in this matter, then I hope I'll
18 have a chance to respond to them.
19 Well, actually, I understand --
20 Mr. DeFay has raised that issue, but I have
21 not responded to them, and I hope I will have
22 a chance to respond to them.
23 Q. I see. So before submitting your
24 declaration, you had reviewed the ITC
25 determination, correct?

A. Yes.
Q. And do you recall there being a discussion of objective indicia of non-obviousness in that determination?
A. Yes, I remember part of it.
Q. Is there a reason you didn't address it in your declaration?
A. Well, I don't agree with -- I didn't agree with some of the rulings in the ITC case, especially with respect to the nexus. And so I didn't see how some of the evidence that was presented actually were based on the nexus for what was the reason that these patents were granted over everything that already existed beforehand.
So, I mean, other than that, I don't have -- I -- you know, I hope now that it's been raised by patent owner that I will have a chance to respond.
Q. Thinking back to the work you were doing at MIT during your Ph.D., during your graduate work I should say, you said that I think at the time MIT wasn't attempting to commercialize the technology that you were developing, is that right?

A. Yeah, I'm not aware of any efforts by MIT to take what we did and commercialize it.

Q. Do you have any idea why they weren't trying to commercialize that technology at the time?

MR. PAQUETTE: Objection. Form.

A. Well, I mean, we never went to the Patent Office at MIT, which some students do, and, you know, get MIT to file a patent on any of our work. So I think that would have been step number one. Our advisors never mentioned it. Actually didn't realize it was an option until years later, that MIT did own a substantial number of patents.

Q. In your view, when was adaptive bitrate streaming sort of commonplace in the market?

MR. PAQUETTE: Objection. Form.

A. Well, I mean, I think with respect to these declarations, I certainly think that Ogdon, and Ogdon in combination with other references, disclose it. And I think Ogdon is describing, you know,

adaptivity based on network conditions for video presentations.

I would have to think about it and perform some type of analysis, but that's not part of what I did for this calculation.

Q. In terms of this notion of Ogdon teaching adaptive streaming, you talked -- we talked earlier about your paragraph 77 that mentions the undesirable viewing experience of having a presentation that was not seamless.

Is it your view that Ogdon had a seamless presentation?

A. I mean, Ogdon has -- issued and I think it has a presumption of validity and enablement in that someone could make and use what Ogdon is presenting, and I don't see how, why one would assume that it's not working the way it talks about.

Q. Well, does Ogdon ever say it's a seamless presentation?

A. It talks about how presentations are made. You know, patents often don't describe what they're not.

So I don't see why -- you know,

1 Ogdon is describing a system for making
2 presentations, presentations could include
3 video, and that they're adaptive, it adapts to
4 changing network conditions. And this is all
5 in my report, I'm kind of paraphrasing what's
6 already there.
7 And Ogdon, and Ogdon in combination
8 with other references, actually render obvious
9 the challenged claims for the reasons I
10 provide in my declarations.
11 So there are reasons why
12 motivations, why you wouldn't do certain
13 things a certain way and you wouldn't do them
14 another way. And I've laid those out with
15 respect to the segments being the same
16 duration and encoding the same content, I
17 think.
18 At least in 77, it's about the
19 quality level segments each having equal
20 playback duration and why a person of ordinary
21 skill would have been motivated to make them
22 to be exactly the same length across the
23 different segments of different quality
24 levels.
25 And so I give those reasons there.

1 And I still stand behind these reasons.
2 They're still good reasons why a POSITA would
3 do it this way.
4 Q. Right, okay. But I just want to
5 make sure -- so two questions about that.
6 So first, is it your opinion that a
7 person of ordinary skill in the art reading
8 Ogdon would understand that the end user would
9 experience a seamless presentation as you
10 describe it here in paragraph 77?
11 A. I mean, I don't think Ogdon uses
12 the word "seamless," right, in the
13 specification because it's describing a
14 system that allows a presentation to be
15 made, that includes video presentations
16 that may be made up of different video
17 segments encoded to meet different network
18 characteristics of different users.
19 And so it works the way it's
20 designed and laid out to work, and it's an
21 issued U.S. Patent is my understanding.
22 So my point about it not being
23 seamless is a person of ordinary skill, to the
24 extent -- would do it to make all the
25 different segments across different qualities

1 include the same content for the same length
2 of time so that the presentations at the, you
3 know, switching between segments -- it's
4 simpler, I think we talked about that earlier,
5 the system would be simpler if all the
6 different segments, different quality levels
7 encoded the same duration of content because
8 you wouldn't have to keep a separate index and
9 mapping where the content you want to play
10 next is in which segment of alternative, you
11 know, encoded stream collections.
12 So it would be simpler to do it that
13 way. And furthermore, if you did encode them
14 at different durations of content in each
15 segment between the streams, if you simply
16 picked the next segment, there would be a jump
17 in the video because the segment doesn't
18 encode the same video.
19 And that's why a reason to not -- a
20 person of ordinary skill wouldn't do it that
21 way, but would choose to do it the way that's
22 simpler and would not produce jumps in video
23 if you simply just requested the next segment
24 to play of a different quality, even
25 knowing -- they wouldn't even do that because

they would know that that's not the right next segment to play anyway.

So that's all part of the thing why doing it in a different way -- why doing it the way that I've laid out would have been obvious to a POSITA and it they would be motivated to make all of the corresponding segments in each version in equal duration of time to simplify the question, and so that each corresponding streamlet in each version could serve as a replacement for that portion of presentation content.

And that's what Ogdon teaches, that the alternative segments are replacements for the segment.

So that when switching to a different version, using the next segment in the sequence, there would be a seamless presentation. That wouldn't jump because -- that there were different durations of content between segments of different quality encoding.

Q. So one thing you don't discuss in your declaration is the latency issue associated with switching to a new stream.

I mean, isn't it true that when you switch to a new stream, the client would need to buffer the content before it could begin playing that new stream?

MR. PAQUETTE: Objection. Form.

A. I don't think the claims, the challenged claims across all five challenged patents use the word "latency" in the claim elements. So I'm not -- I don't know. If you point -- if there's someplace I have discussed this, I mean if you point me to it, we can look at it.

Q. Yeah, 77 where you talk about the seamless presentation experience. I'm trying to figure out how that would work in practice. Because when this occurs, when you make the switch that you're talking about between a low bitrate and a high bitrate, isn't it true that the client is going to have to buffer that new stream until it could begin playing it back?

A. Well, I mean, with respect to audio functions, Ogdon does actually teach buffering IP packets received from the audio server. That's in column 13, line 32

or so. And also in column 27 around line 17 it talks about how -- I think this is a characteristic of the data, a resource type where live streaming of an audio file by a network requires dynamic realtime buffering at the client nodes. I think a person of ordinary skill would understand that would apply to it as well. So I think it is discussing some buffering here.

Q. Sorry, what was the first cite, 13, column what?

A. 13, around line 32. And I think that it was just well known at that time. I meant a voice over IP live conversational system in the late '90s and we had buffers to buffer the realtime content.

Q. Right. So the buffer in column 13, line 32 is an audio player -- this is discussion in -- this is discussion in Ogdon of previously recorded audio, right? Is that what you're referring to here?

A. I think it is talking about preloaded audio presentation data at the content manager. But, I think, you know, if you're making a presentation and the

presenter is speaking, this is like the system that we built in '98-'99 timeframe. You know, it's known how to do this live audio and live media using buffers.

I'm not sure why that's an issue you seem to not think is present in Ogdon. It talks about how it uses buffers. You know, that's how you -- even with live back and forth conversational audio, you would -- we need to use buffers. We weren't doing anything even in '98-'99.

Q. So I just want to make -- let's finish this discussion about this section you pointed me to at column 13.

So this has to do with a phone bridge, right? This situation is when the user is receiving audio separately from the visual material they're getting from the presentation, right?

A. Well, it is talking about receiving IP packets with audio. This is kind of over a network, not a separate phone bridge that uses a phone system. This is talking about bridging IP audio -- and that could be because, you know, people

in the presentation might want to talk back. I mean, I'll look to see what it's describing here, but I mean, that's just -- it's talking about IP packets of media content received over the network and how they would be buffered.

And then the other citation actually talks about realtime, you know, live streaming and real, dynamic realtime buffering.

Q. Okay. Which section? Where is that citation?

A. That's 27, line 17. And that's live streaming of an audio file.

Q. Okay, great. So for that one, this requires dynamic realtime buffering at the client nodes, correct? That's what it says?

A. It says that.

Q. Okay.

A. Live streaming of an audio file requires, you know, via the network, requires dynamic realtime buffering at the client nodes.

Q. Okay. So is that dynamic realtime buffering discussed there mean

that the bitrate of the audio can change?

A. I mean, I certainly think that the audio file could be encoded in different quality levels as well and that, you know, depending on network characteristics, it could. And Ogdon is teaching that these media elements can be audio. It's teaching that the audio can come from over the network live. It says here from an audio file, but there's no reason it can't be applied to actual live data collected from the presenter. And then it certainly could be encoded at different quality levels.

I mean, overall that is what Ogdon is teaching. It's teaching a dynamic system where the next segment, you know, of overall video presentation -- in this case it could just be an audio presentation is, you know, the next step is determined based on the last measured network conditions. That may affect what next segment you choose.

So that applies to video, as I've laid out in my declarations, and it could be the case for audio as well, but we're focusing

on the video part for the challenged claims.

Q. So do you still have Chou available, which is Exhibit 1013?

A. I closed it, but I can bring it up again.

Q. Okay, if you can do that for me.

A. Okay. I can do it now.

Q. All right. Turn to column 7.

A. Okay.

Q. And then starting at line 9, there is a paragraph that talks about in operation, for example.

Do you see that?

A. Yes.

Q. Okay. So it says: In operation, a user clicks on a link to a video clip or other video source such as a camera used for videoconferencing or other purposes and an application program for viewing streamed multimedia files launches from a hard disk to the video client.

Do you see that?

A. Yes.

Q. Okay. This is describing a pretty typical system for on-demand video

streaming, correct?

A. I mean, it's describing the system that it's claiming in its invention.

Q. Right. And this is a reference that you point to in your declaration as being kind of evidence of what a person of ordinary skill in the art would have known at the time, correct?

A. It is. And I think I cited to specifically the paragraph before the one we're looking at.

Q. Uh-huh, yep.

Do you have reason to believe this paragraph is not describing something a person of ordinary skill in the art would have been familiar with at the time?

MR. PAQUETTE: Objection to form.

A. Sorry, I'm not sure if it's the same previous paragraph. But the previous paragraph talks about QuickTime, Real -- I think it actually may be slightly a different paragraph, but it's describing the same things that a person knew.

I'm sorry, could you repeat the question, please?

Q. I think you answered it. So let me just go on.

It says -- this is now line 15: Rather than waiting for the entire video download, the video starts playing after initial portion of the video has come across the network, continues downloading the rest of the video while it plays.

Do you see that?

A. Yes.

Q. Okay. The user does not have to wait for the entire video to download before the user can start viewing. However, in existing systems, there is a delay for such on-demand interactive applications before the user can start viewing the initial portion of the video. The delay, referred to herein as a startup delay, or a seek delay, is experienced by the user between the time when the user signals the video server to start transmitting data and the time when the data can be decoded by the video client and presented to the user.

Do you see that?

A. Yes.
Q. So, so far this has been describing a prior art as it existed at the time of this Chou patent, correct?
A. This is some of what's existing. It's not the entirety of all human knowledge about this topic.
Q. Okay. And then it says: However, the present invention as described below achieved low latency responses from video server 204 and thus reduces the start of delay in the seek delay, correct?
A. I see that.
Q. Okay. So my question to you is, what's described here is the start-up delay going to be a feature of the Ogdon system as you've modified it. So when a user makes a change to the stream that they're requesting, are they going to experience the start-up or seek delay that's described here in Chou? And if not, can you explain why not?
A. Well, every system that doesn't do pre-caching would be subject to delay because, you know, if a server is somewhere

else, you have to make a request, the request has to be processed and retrieved and you have to cede to the appropriate, it could be the beginning of the file, but you still have to access the appropriate portion of the file. Then you have to transmit that data back to the user.

What this is saying, remember in Chou is that the amount of data that represents the first few frames is of lower quality. And so it only reduces this delay in the sense that because the first frames are lower quality, they take up fewer bits to be transmitted and therefore, you know, if -- therefore you'll receive them -- you'll receive the full amount of the first frame at a slightly earlier time than receiving a full frame of data.

And so that's what it's talking about as one way to minimize in delay. You can't change the speed of light, right.

Now, you can do things like content delivery networks, you can move the data closer to the end user that the data is retrieved from, and that speeds it up because

1 the distance required to make a round-trip is
2 less and therefore it can be -- you can get it
3 faster that way, too.
4 And then you can get it faster if
5 you, like, make the first couple of frames
6 much smaller. So you get it slightly faster.
7 And the faster the network is, the less fast
8 the difference will make. Because, you know,
9 if a frame is four times larger at, you know,
10 26 or 28.8 kilobits, that's a bottleneck, then
11 you might actually have substantial savings.
12 But on a gigabit or 100 megabit
13 network or faster where the difference in
14 delay actually goes down and then begins to be
15 dominated by things like a round-trip delay,
16 which is why content delivery networks, people
17 with -- are -- they're worth paying for that
18 some clients, many clients use them, to cache,
19 to pre-cache content closer to the user.
20 And so, you know, every system has
21 the same bottlenecks that you can't get
22 around. This round-trip transmission play is
23 one of them.
24 You can make it better by pushing
25 content closer to the users in advance. But,

you know, you can't -- you know, it's expensive to replicate all the content, you know, next door to everyone's house, right. So there's a limit to the cost benefit on that.

But pushing it into, you know, head ends near neighborhoods, regional head ends may make sense, and certainly that's a lot of content delivery networks do.

So the delay that you're seeking to reduce here and the way, one of the ways Chou talks about it is simply by reducing the amount of data needed to display the first few frames. And that saves a little bit, but it saves less time when the data network core speeds are faster.

Q. So in the combination you're proposing between Ogdon and Allen, would that combined system do pre-caching of all of the potential bitrate contents that the system may want?

A. I mean, Ogdon does mention caching. For example, on column 19 around line 50, 52, it talks about how -- and remember, these are just examples of what's

in Ogdon. But Ogdon is teaching what it's teaching, which is there are, you know, the next segments, segment to get, can be done dynamically based upon the network characteristics.

And it mentions that, you know, if the next one is not cached, you know, you can't preload everything that a user, you think a user is going to get to. But if they've logged into a particular presentation server for a particular presentation before it starts, maybe they could pre-load already, you know, pre -- some pre-done segments if possible.

But this is only part of what Ogdon is teaching. But it's teaching that: Following the activation of a connection between the client node and a presentation controlling host, in Step 448 a client presentation software is instructed by the presentation controlling host, hereinafter for simplicity referred to as the host, to retrieve and cache via network one or more initial presentation segments from identified content web servers where the

1 presentation segments have been prestored.
2 Note that the initial presentation
3 segments, as well as subsequent
4 presentation segments, may be different for
5 clients at different client sites. In
6 particular, the segments provided may
7 depend on network 70 transmission rates,
8 client natural language preferences, unique
9 organizational displays and/or data,
10 corporate logos and/or confidential
11 financial data in configuration of client
12 nodes 56, the software and/or hardware.
13 So, I mean, there is some teaching
14 of caching in Ogdon, but the teaching about
15 the dynamic is if the next segment is not
16 cached. We looked at this earlier. If it's
17 not in a cache, then you use the existing
18 network characteristics that you just -- that
19 you have, the most recent one, to determine
20 what next segment you want to request. And
21 that's also what Ogdon is teaching.
22 So Ogdon's other teachings aren't
23 conflicting with what, you know, the teachings
24 that I am specifically using in my
25 declaration.

Q. Okay.

MR. WILLIAMS: Let's go off the record and let me just take a look through my outline and see if there is anything left here.

THE VIDEOGRAPHER: The time is 4:05 p.m. and we are going off the record -- or rather 5:04 p.m. and we are going off the record.

(Recess taken from 5:04 p.m. to 5:10 p.m. EDT)

THE VIDEOGRAPHER: The time is 5:10 p.m. and we are back on the record.

MR. WILLIAMS: I pass the witness.

EXAMINATION BY
MR. PAQUETTE:

Q. Dr. Houh, do you remember you testified earlier that Ogdon teaches video and a POSITA would understand that video has audio as part of it?

Do you generally recall that?

A. Yes.

Q. From a perspective of a POSITA at

the time of the invention, would video always have to include audio?

A. No, no, it wouldn't.

MR. PAQUETTE: Pass the witness.

MR. WILLIAMS: No further questions. We can go off the record.

THE VIDEOGRAPHER: All right. The time is 5:11 p.m. and this concludes today's deposition.

MR. WILLIAMS: I don't know if we got an order, but we would like a rough and then what's your quickest delivery?

THE COURT REPORTER: How soon do you need it?

MR. WILLIAMS: Well, I mean is tomorrow possible?

THE COURT REPORTER: I can get it to you Thursday.

(Continued on next page to include signature and jurat.)

MR. WILLIAMS: Okay, that's fine. Thursday is doable, but we would like the rough tonight if you can get it.

(Time noted: 5:11 p.m. EDT)

_____

DR. HENRY HOUH

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

_____

REPORTER CERTIFICATE

I, JOAN FERRARA, do hereby certify:

That said proceedings were taken at the time and place herein named; and that the transcript is a true record of the testimony as reported by me, a disinterested person, and was thereafter transcribed.

I further certify that I am not interested in the outcome of the said action, nor connected with, nor related to any of the parties in said action, nor to their respective counsel.

IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of July, 2024.

Joan Ferrara

JOAN FERRARA, RMR, FCRR

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DR. HENRY HOUH

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DEPOSITION ERRATA SHEET

Page No. 146 Line No. 2 Change to: "someone" to "one"

Reason for change: Mistranscription.

Page No. 198 Line No. 15 Change to: "host" to "client"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

Page No. 199 Line No. 3 Change to: "client host" to "client"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

Page No. 199 Line No. 9 Change to: "host" to "client"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

Page No. 199 Line No. 13 Change to: "host" to "client"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

Page No. 200 Line No. 24 Change to: "hosts" to "clients"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

Page No. 201 Line No. 10 Change to: "host" to "client"

Reason for change: Clarification. As I testified on the record I misspoke when I said "host" instead of "client." 201:4-9.

SIGNATURE: Henry H. Houh. DATE: 7/19/24

DR. HENRY HOUH

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1 DEPOSITION ERRATA SHEET

2 Page No. 118 Line No. 1 Change to: ____

3 "beat" to "be."

4 Reason for change: Mistranscription.

5 Page No. 135 Line No. 4 Change to: ____

6 "ordered" to"in order."

7 Reason for change: Mistranscription.

8 Page No. 146 Line No. 7 Change to: ____

9 "order" to "ordered."

10 Reason for change: Mistranscription.

11 Page No. 206 Line No. 20 Change to: ____

12 "Mr. DeFay" to "Dr. Jeffay."

13 Reason for change: Mistranscription.

14 Page No. ___ Line No. ____ Change to: ____

15 _____

16 Reason for change: _____

17 Page No. ___ Line No. ____ Change to: ____

18 _____

19 Reason for change: _____

20 Page No. ___ Line No. ____ Change to: ____

21 _____

22 Reason for change: _____

23

24 SIGNATURE: Henry H. Houh. DATE: 7/19/24

25 DR. HENRY HOUH

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