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Transcript of John C. Hart, Ph.D.

Date: November 6, 2021

Case: Sony Interactive Entertainment LLC -v- Intellectual Pixels Limited (PTAB)

Planet Depos

Phone: 888.433.3767

Email: transcripts@planetdepos.com

www.planetdepos.com

SONY 1025

Sony v. IPL

IPR2021-00237

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 -----

5 SONY INTERACTIVE ENTERTAINMENT LLC,

6 Petitioner,

7 v.

8 INTELLECTUAL PIXELS LIMITED,

9 Patent Owner.
10 -----

11 Case No. IPR IPR2021-00237

12 U.S. Patent No. 10,681,109
13

14 VIDEOTAPED DEPOSITION OF JOHN C. HART, Ph.D.

15 Taken on behalf of Petitioner

16 Saturday, November 6, 2021

17 9:54 a.m.
18
19
20
21

22 Job No.: 408076

23 Pages: 1 - 176

24 Reporter: Debra Bollman Farfan

25 RDR-RMR-CRR and CA CSR No. 11648

1 VIDEOTAPED DEPOSITION OF JOHN C. HART, Ph.D.
2 held at the offices of: REMOTELY
3
4

5 Pursuant to notice, before Debra Bollman
6 Farfan, Certified Shorthand Reporter No. 11648
7 in and for the State of California.
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A P P E A R A N C E S

ON BEHALF OF PETITIONER SONY INTERACTIVE
ENTERTAINMENT LLC:

BY: JOSEPH HAAG, ESQUIRE

DENNIS WANG, ESQUIRE

WILMER CUTLER PICKERING HALE &

DORR, LLP

2600 El Camino Real, Suite 400

Palo Alto, CA 94306

(650) 858-6000

Joseph.haag@wilmerhale.com

ON BEHALF OF PATENT OWNER INTELLECTUAL
PIXELS LIMITED:

BY: JOSEPH LI, ESQUIRE

DOUGLAS R. WILSON, ESQUIRE

ARMOND WILSON LLP

895 Dove Street, Suite 300

Newport Beach, CA 92660

(949) 932-0778

Litigation@armondwilson.com

ALSO PRESENT:

Catherine Gonzalez, The Videotech

Jeremy Hatfield, The Videographer

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I N D E X O F E X H I B I T S

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PREVIOUSLY MARKED EXHIBITS

DESCRIPTION	PAGE
Exhibit 1001 '109 Patent	9
Exhibit 1004 Wiltshire patent	28
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P R O C E E D I N G S

* * * * *

THE VIDEOGRAPHER: Here begins the video deposition of Dr. John C. Hart, in the matter of Sony Interactive Entertainment, LLC, v. Intellectual Pixels, Ltd., in the United States Patent and Trademark Office before the Patent Trial and Appeals Board, Case Number IPR2021-00237.

Today's date is November 6, 2021. The time on the video monitor is 9:54 Central Standard Time.

The videographer today is Jeremy Hatfield, representing Planet Depos. This video deposition is taking place remotely.

Would counsel voice identify themselves and state whom they represent.

MR. HAAG: Joseph Haag from WilmerHale for the petitioner, and with me is Dennis Wang, also from WilmerHale.

MR. LI: Josepher Li from Armond Wilson, representing the witness and patent owner Intellectual Pixels, and with me is Douglas Wilson.

THE VIDEOGRAPHER: The court reporter

09:53:54
09:53:54
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09:54:36
09:54:39
09:54:43
09:54:44
09:54:48
09:54:52
09:54:52
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09:54:57
09:54:59
09:55:02
09:55:03
09:55:08
09:55:11
09:55:14
09:55:17
09:55:19
09:55:22
09:55:23

1 today is Debra Bollman, representing Planet
2 Depos. Would the reporter please wear in the
3 witness.

09:55:24

09:55:26

09:55:28

4 S T I P U L A T I O N S

5 THE REPORTER: Will counsel please
6 stipulate that in lieu of formally swearing in
7 the witness, the reporter will instead ask the
8 witness to acknowledge that their testimony
9 will be true under the penalties of perjury,
10 that counsel will not object to the
11 admissibility of the transcript based on
12 proceeding remotely, and that the witness has
13 verified that he is, in fact, John C. Hart.

14 Do counsel stipulate?

09:55:28

15 MR. HAAG: For petitioner, yes.

09:55:28

16 MR. LI: For Josepher Li, yes.

09:55:56

17 Whereupon,

09:55:56

18 JOHN C. HART, PH.D.,

09:55:56

19 the witness herein, was examined and
20 testified under penalty of perjury as follows:

09:55:56

09:55:56

21 EXAMINATION

09:56:16

22 BY MR. HAAG:

09:56:16

23 Q. Good morning.

09:56:17

24 A. Good morning.

09:56:19

25 Q. Can you please state your full name for

09:56:20

1	the record.	09:56:22
2	A. It's John C. Hart.	09:56:22
3	Q. And you've been deposed before, right?	09:56:24
4	A. Yes, I have.	09:56:26
5	Q. Roughly how many times?	09:56:28
6	A. Maybe ten.	09:56:29
7	Q. And you understand you're under oath,	09:56:33
8	right?	09:56:35
9	A. Yes, I do.	09:56:35
10	Q. Are you presently under the influence of	09:56:37
11	any medication or drugs that could impact your	09:56:39
12	ability to testify truthfully?	09:56:42
13	A. No, I am not.	09:56:43
14	Q. Is there any other reason you cannot	09:56:46
15	give your best and truthful testimony here	09:56:48
16	today?	09:56:50
17	A. No reason at all.	09:56:52
18	Q. Do you have any hard-copy documents with	09:56:54
19	you?	09:56:58
20	A. No. Based on previous experiences, I	09:56:58
21	thought I would just use the online ones that	09:57:05
22	you might provide.	09:57:09
23	I do have a laser printer behind me and	09:57:10
24	can print out any documents you might need, but	09:57:13
25	I don't have any hard-copy documents.	09:57:15

1 Q. Okay. Do you have any soft-copy
2 documents in front of you?

3 A. No. The only application I have only
4 presently is Zoom.

5 Q. Okay.

6 MR. HAAG: So I would like to get
7 Dr. Hart access to a few of the exhibits that I
8 downloaded. So if we could get him -- and he
9 can just get an electronic copy of these. I
10 don't need it brought up on the screen. But
11 I'd like him to get Exhibit 1001.

12 THE WITNESS: Will these be in the Zoom
13 chat area, or do I need to log into a website
14 some place?

15 (Discussion with Videotech held off the
16 written record.)

17 MR. HAAG: So while you're getting them,
18 the ones I'd like to pull out are 1001, 1004,
19 1005, and 2009.

20 (Previously marked Deposition Exhibits
21 1001, 1004, 1005, and 2009 were reviewed.)

22 Did you say you were putting those in
23 the chat?

24 THE VIDEOTECH: Yes, they should be
25 there in the chat now.

1	BY MR. HAAG:	09:59:54
2	Q. I actually don't see them. Do you see	09:59:54
3	them, Dr. Hart?	09:59:56
4	A. Yes, I do, and I just loaded all four.	09:59:57
5	Q. Do you have all four up on your screen?	10:00:00
6	A. Yes, I do.	10:00:02
7	Q. Okay, great. If you could take a look	10:00:04
8	at Exhibit 1001.	10:00:06
9	A. Okay.	10:00:10
10	Q. If I refer to Exhibit 1001 as the '109	10:00:11
11	patent, will you understand that?	10:00:15
12	A. Yes.	10:00:16
13	Q. And you understand that the '109 patent	10:00:18
14	is the subject of this inter partes review; is	10:00:21
15	that right?	10:00:24
16	A. Yes.	10:00:24
17	Q. And that's the patent you've provided	10:00:27
18	opinions about, right?	10:00:29
19	A. Right.	10:00:30
20	Q. So I'd like you to look now at	10:00:34
21	Exhibit 2009.	10:00:36
22	A. Okay.	10:00:40
23	Q. And do you recognize that document?	10:00:42
24	(Previously marked Deposition	09:54:00
25	Exhibit 2009 was reviewed.)	09:54:00

1	A. Yes. It appears to be my declaration	10:00:44
2	on -- in support of patent owner's response to	10:00:54
3	the petition for the IPR.	10:00:57
4	Q. So Exhibit 2009 is your IPR declaration,	10:00:59
5	is that fair?	10:01:04
6	A. Yes.	10:01:04
7	Q. And if you turn to -- I think it's on	10:01:05
8	page 58. Do you see your signature there?	10:01:09
9	A. Yes, I do.	10:01:13
10	Q. And have you reviewed this declaration	10:01:17
11	carefully?	10:01:24
12	A. Yes.	10:01:24
13	Q. Did you review it carefully before you	10:01:26
14	signed it?	10:01:30
15	A. Yes, I did.	10:01:30
16	Q. Did you believe everything in it was	10:01:32
17	accurate before you signed it?	10:01:33
18	A. Yes, I did.	10:01:35
19	Q. Is there anything that is not accurate	10:01:37
20	in your declaration, to your knowledge?	10:01:40
21	A. No. There may be the occasional typo,	10:01:45
22	but as far as I recall then and now, everything	10:01:50
23	in this declaration is accurate.	10:01:53
24	Q. There are no errors as far as you're	10:01:55
25	aware of, aside from typos, in your	10:01:57

1	declaration?	10:02:00
2	A. It includes my vitae at the end, and I	10:02:00
3	believe that's current. I don't know that	10:02:08
4	there's anything since then -- since	10:02:10
5	September 3rd until now that would have gone	10:02:15
6	into my vitae, but I believe everything is	10:02:17
7	accurate.	10:02:19
8	Q. So there is nothing in your declaration	10:02:20
9	that you'd like to change?	10:02:23
10	A. No.	10:02:24
11	Q. And do you stand by the opinions that	10:02:27
12	are in your IPR declaration of Exhibit 2009?	10:02:29
13	A. Yes, I do.	10:02:33
14	Q. And are you confident in the opinions	10:02:35
15	you've set forth in Exhibit 2009?	10:02:36
16	A. Yes, I am.	10:02:39
17	Q. Now, I'd like you to turn to	10:02:41
18	paragraph 11 of your declaration. Are you	10:02:47
19	there, sir?	10:02:55
20	A. Yes, I am.	10:02:55
21	Q. And you've got a list of documents that	10:02:57
22	you reviewed in preparing your declaration; is	10:03:02
23	that right?	10:03:05
24	A. That's correct.	10:03:05
25	Q. And does your IPR declaration contain a	10:03:07

1	complete list of the documents you relied on in	10:03:10
2	forming your opinions relating to the '109	10:03:14
3	patent?	10:03:19
4	A. Yes, it does.	10:03:19
5	Q. What did you do to prepare for today's	10:03:21
6	deposition?	10:03:25
7	A. I met with counsel to review the report.	10:03:25
8	Q. When?	10:03:33
9	A. Let's see, today's -- it would have been	10:03:34
10	Thursday and Friday.	10:03:41
11	Q. For how long?	10:03:41
12	A. I think maybe a total of two or three	10:03:42
13	hours.	10:03:46
14	Q. Who did you meet with?	10:03:47
15	A. Josepher Li and Doug Wilson.	10:03:50
16	Q. Anyone else?	10:03:57
17	A. No.	10:03:57
18	Q. Now, in paragraph 9 of your declaration,	10:03:58
19	you mention the January 24th, 2001, priority	10:04:12
20	date of the '109 patent. Do you see that?	10:04:18
21	A. Yes, I do.	10:04:19
22	Q. I'd like you to focus on that date for	10:04:20
23	me right now, okay?	10:04:22
24	A. Okay.	10:04:23
25	Q. Am I right that client server systems	10:04:30

1	were known in the prior art to the '109 patent?	10:04:32
2	A. Yes, I think there were examples of	10:04:35
3	clients -- client server systems on	10:04:43
4	January 24th, 2001.	10:04:47
5	Q. And am I right that client server	10:04:48
6	systems where a client was a separate machine	10:04:50
7	from the server were known in the prior art to	10:04:56
8	the '109 patent?	10:04:59
9	A. Yes.	10:04:59
10	Q. Am I right that a client device with an	10:05:01
11	image display was known in the prior art to the	10:05:04
12	'109 patent?	10:05:07
13	A. Yes.	10:05:07
14	Q. Am I right that running interactive	10:05:09
15	software applications on a server was known in	10:05:12
16	the prior art to the '109 patent?	10:05:15
17	A. I'd have to see what you mean by	10:05:16
18	interactive applications on a server.	10:05:25
19	Q. Well, am I right that interactive games	10:05:27
20	were known in the prior art to the '109 patent?	10:05:30
21	A. Interactive games, in general? Sure.	10:05:32
22	Q. Am I right that running interactive	10:05:38
23	games on a server was known in the prior art to	10:05:42
24	the '109 patent?	10:05:46
25	A. It depends on what you mean by an	10:05:47

1	interactive game. There were certainly	10:05:51
2	text-based games that could be run	10:05:54
3	interactively on a server at that time.	10:05:56
4	Q. What about Quake?	10:05:59
5	MR. LI: Objection. Form.	10:06:04
6	THE WITNESS: I believe so. I believe	10:06:05
7	I'm aware of some prior art that showed an	10:06:15
8	example of Quake being run interactively on a	10:06:18
9	server.	10:06:22
10	BY MR. HAAG:	10:06:23
11	Q. And Quake is an interactive game, right?	10:06:26
12	A. Yes.	10:06:28
13	Q. So you'll agree with me that running	10:06:29
14	interactive games on a server was known in the	10:06:31
15	prior art to the '109 patent?	10:06:36
16	MR. LI: Objection. Form.	10:06:38
17	THE WITNESS: Certainly those two	10:06:39
18	were -- those two examples were in the prior	10:06:42
19	art at the time.	10:06:45
20	BY MR. HAAG:	10:06:46
21	Q. Am I right that playing interactive	10:06:49
22	games on a client computer was known in the	10:06:51
23	prior art to the '109 patent?	10:06:53
24	A. Yes.	10:06:55
25	Q. Am I right that playing interactive	10:06:59

1	games in a client server system was known in	10:07:02
2	the prior art to the '109 patent?	10:07:05
3	A. So that example you mentioned before	10:07:07
4	with Quake was in a client server system; so,	10:07:12
5	yes.	10:07:15
6	Q. Am I right that updating the state of an	10:07:16
7	interactive software application was known in	10:07:19
8	the prior art to the '109 patent?	10:07:21
9	MR. LI: Objection. Form.	10:07:26
10	THE WITNESS: What do you mean by "the	10:07:27
11	state of interactive server"?	10:07:32
12	BY MR. HAAG:	10:07:36
13	Q. Are you familiar with the state of a --	10:07:36
14	actually, let me ask my question again. You	10:07:39
15	may have not heard my question right.	10:07:42
16	Am I right that updating the state of an	10:07:44
17	interactive software application was known in	10:07:47
18	the prior art to the '109 patent?	10:07:49
19	A. Updating the state of an -- of an	10:07:51
20	interactive software application?	10:07:56
21	Q. That was my question, yes.	10:07:58
22	A. Yes, that was known.	10:08:00
23	Q. Am I right that image compression was	10:08:01
24	known in the prior art to the '109 patent?	10:08:06
25	A. Yes.	10:08:09

1 Q. Am I right that compressing frames of a
2 video sequence was known in the prior art to
3 the '109 patent?

4 A. Yes.

5 Q. Am I right that compressing a stream of
6 images was known in the prior art to the '109
7 patent?

8 A. When you say "compressing a stream of
9 images," MPEG encoding was known; so if you had
10 a preexisting stream of images, one could
11 encode that stream of images using the MPEG
12 compression format.

13 Q. Am I right, then, that compressing a
14 stream of images was known in the prior art to
15 the '109 patent?

16 MR. LI: Objection. Form.

17 THE WITNESS: Yes, for example, that
18 example I just gave.

19 BY MR. HAAG:

20 Q. Am I right that decompression of
21 compressed images was known in the prior art to
22 the '109 patent?

23 A. Yes.

24 Q. Am I right that compressing a stream of
25 images in realtime was known in the prior art

1	to the '109 patent?	10:09:17
2	A. What I looked at in my report was that	10:09:25
3	that was available in hardware and in very	10:09:30
4	special cases and with very special forms of	10:09:36
5	compression.	10:09:41
6	Q. So you agree with me, then, that	10:09:42
7	compressing a stream of images in realtime was	10:09:45
8	known in the prior art to the '109 patent; is	10:09:47
9	that right?	10:09:50
10	MR. LI: Objection. Form.	10:09:50
11	THE WITNESS: There were some very	10:09:51
12	specific examples that I provided in my report	10:09:52
13	where that is possible.	10:09:55
14	BY MR. HAAG:	10:09:59
15	Q. In the prior art to the '109 patent,	10:09:59
16	right?	10:10:01
17	A. Right.	10:10:01
18	Q. Am I right that decompression of	10:10:03
19	compressed images for display was known in the	10:10:20
20	prior art to the '109 patent?	10:10:22
21	A. Yes.	10:10:23
22	Q. Am I right that user input signals were	10:10:28
23	known in the prior art to the '109 patent?	10:10:37
24	MR. LI: Objection. Form.	10:10:41
25	THE WITNESS: Yes. Yes, user input	10:10:42

1	signals were known.	10:10:45
2	BY MR. HAAG:	10:10:46
3	Q. Am I right that it was known in the	10:10:46
4	prior art to the '109 patent for a server to	10:10:48
5	receive user input signals from a client	10:10:52
6	device?	10:10:54
7	A. So user input signals as a claim term, I	10:10:54
8	don't recall that specific claim term used in	10:11:10
9	that context coming up in Dr. Fuchs report or	10:11:12
10	in patent owner's response and my issuing an	10:11:19
11	opinion on that. So I don't know that I really	10:11:25
12	looked at those specific details pertaining to	10:11:27
13	that particular claim term in the -- in my	10:11:31
14	response and in my declaration.	10:11:35
15	Q. Well, you'd agree with me that mouse	10:11:37
16	clicks or mouse movements are an example of	10:11:43
17	user input signals, right?	10:11:46
18	A. When you say "user input signals" in	10:11:48
19	general, sure. User input signals as referred	10:11:52
20	to in the claim language, I didn't -- I don't	10:11:57
21	recall looking in detail at that question in	10:12:02
22	this declaration.	10:12:05
23	Q. Were mobile devices known in the prior	10:12:06
24	art to the '109 patent?	10:12:11
25	MR. LI: Objection. Form.	10:12:14

1	THE WITNESS: Yes, there were mobile	10:12:15
2	devices.	10:12:19
3	BY MR. HAAG:	10:12:24
4	Q. Am I right that it was known in the '109	10:12:25
5	-- strike that.	10:12:28
6	Am I right that it was known before the	10:12:28
7	'109 patent that the bandwidth for	10:12:31
8	client-to-server communications could be less	10:12:33
9	than the bandwidth for server-to-client	10:12:39
10	communications?	10:12:42
11	A. Yes.	10:12:43
12	Q. Have you ever owned a personal digital	10:12:50
13	assistant?	10:13:08
14	A. Yes.	10:13:09
15	Q. When?	10:13:10
16	A. At the time of, you know, at the	10:13:10
17	priority date.	10:13:17
18	Q. So you owned a -- you'll understand me	10:13:18
19	if I refer to a personal digital assistant as a	10:13:21
20	PDA?	10:13:26
21	A. Yes.	10:13:26
22	Q. You owned a PDA before January 24, 2001?	10:13:26
23	A. Yes.	10:13:30
24	Q. Did that PDA have wireless capability?	10:13:35
25	MR. LI: Objection. Form.	10:13:41

1	THE WITNESS: I don't recall. I	10:13:42
2	think -- I think so. But I don't recall.	10:13:43
3	BY MR. HAAG:	10:13:45
4	Q. Before January 24th, 2001, are you aware	10:13:45
5	of any PDAs that had wireless capability?	10:13:49
6	A. I don't recall specifically. I believe	10:13:52
7	so.	10:14:06
8	Q. But you're not sure?	10:14:07
9	MR. LI: Objection. Form.	10:14:10
10	THE WITNESS: I don't recall looking at	10:14:11
11	specific wireless examples in my report. I	10:14:20
12	believe so, yes.	10:14:28
13	BY MR. HAAG:	10:14:29
14	Q. So I just -- I'm not sure I understand	10:14:32
15	your answer now, so I'm just going to ask my	10:14:35
16	question again, okay?	10:14:37
17	A. Okay.	10:14:38
18	Q. Before January 24th, 2001, are you aware	10:14:39
19	of any PDAs that had wireless capability?	10:14:43
20	MR. LI: Objection. Form.	10:14:46
21	THE WITNESS: I can't name any off the	10:14:49
22	top of my head, but my recollection is that	10:14:51
23	that feature was available on PDAs at that	10:14:56
24	time.	10:14:58
25	BY MR. HAAG:	10:15:00

1	Q. Before January 24th, 2001, are you aware	10:15:00
2	of any PDAs that could be used to play	10:15:03
3	interactive games running on a server?	10:15:06
4	A. I believe that was possible. I can't	10:15:08
5	name any specific ones at the time, but I do	10:15:16
6	believe that was possible?	10:15:20
7	Q. And before January 24th, 2001, did you	10:15:21
8	own a mobile telephone?	10:15:26
9	A. Yes.	10:15:27
10	Q. Before January 24th, 2001, are you aware	10:15:32
11	of any mobile telephones that could be used to	10:15:36
12	play interactive games running on a server?	10:15:38
13	A. My recollection at that time were that	10:15:41
14	mobile games ran on the device and not on the	10:15:50
15	server. I don't recall any running	10:15:54
16	specifically on the server.	10:15:57
17	Q. When did you first own a laptop	10:15:58
18	computer?	10:16:06
19	A. It would have been in the '80s.	10:16:06
20	Q. Before January 24th, 2001, are you aware	10:16:15
21	of any laptop computers that could be used to	10:16:25
22	play interactive games running on a server?	10:16:28
23	A. Yes.	10:16:31
24	Q. Have you ever used a laptop computer	10:16:41
25	while holding it in one hand?	10:16:44

1	MR. LI: Objection. Form.	10:16:50
2	THE WITNESS: No, I don't recall any	10:16:51
3	specific instances of doing that. That's	10:17:02
4	really not what a laptop computer is designed	10:17:07
5	for. Laptop computers are expensive. I think	10:17:11
6	that would have been a rather careless use of a	10:17:18
7	laptop computer.	10:17:21
8	BY MR. HAAG:	10:17:22
9	Q. Do you agree that it is possible to use	10:17:22
10	a laptop computer while holding it in one hand?	10:17:24
11	MR. LI: Objection. Form.	10:17:27
12	THE WITNESS: I didn't look at the	10:17:28
13	question of whether it was possible. Certainly	10:17:35
14	that is not what the laptop computer is	10:17:37
15	designed for. I think that would be careless.	10:17:40
16	A careless use of a laptop computer in using a	10:17:43
17	laptop computer in a way for which it was not	10:17:47
18	designed.	10:17:50
19	BY MR. HAAG:	10:17:50
20	Q. But you agree that it's possible to use	10:17:50
21	a laptop computer while holding it in one hand,	10:17:52
22	right?	10:17:55
23	MR. LI: Objection. Form.	10:17:55
24	THE WITNESS: I don't think I have an	10:17:59
25	opinion on, you know, what's, you know	10:18:00

1 possible. I think you could, you know -- there
2 are things you could do hanging upside down
3 from a jungle gym that I wouldn't recommend,
4 and I didn't think those uses were relevant to
5 the -- my opinions regarding Dr. Fuchs' report
6 or patent owner's response.

7 BY MR. HAAG:

8 Q. Did you use a laptop in 2001?

9 MR. LI: Objection. Form.

10 THE WITNESS: Yes, I used a laptop
11 computer in 2001.

12 BY MR. HAAG:

13 Q. Do you recall which one?

14 MR. LI: Objection. Form.

15 THE WITNESS: It probably would have
16 been a Dell laptop computer.

17 BY MR. HAAG:

18 Q. Do you agree that in 2001 a laptop was
19 considered a client device?

20 MR. LI: Objection. Form.

21 THE WITNESS: I would have to see the
22 context of what use that was being used for to
23 use the term "client device."

24 BY MR. HAAG:

25 Q. What do you mean by that, you'd have to

10:18:05
10:18:09
10:18:11
10:18:16
10:18:24
10:18:26
10:18:29
10:18:38
10:18:41
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10:18:46
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10:18:48
10:18:54
10:18:55
10:18:56
10:19:01
10:19:02
10:19:06
10:19:10
10:19:11
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10:19:19
10:19:20

1	know the context?	10:19:22
2	A. Just saying something is a client	10:19:22
3	device, I would infer that there was a server	10:19:28
4	some place. I'd need to know, what was -- you	10:19:31
5	know, if it's being used as a client device,	10:19:34
6	I'd need to know the configuration of client	10:19:37
7	and server in that case.	10:19:39
8	Q. But you agree that it was possible for a	10:19:41
9	laptop to communicate with a server, right, in	10:19:42
10	2001?	10:19:45
11	A. Yes.	10:19:46
12	Q. So you agree that it was possible for a	10:19:49
13	laptop be to be used as a client device in	10:19:51
14	2001, right?	10:19:55
15	MR. LI: Objection. Form.	10:19:56
16	THE WITNESS: Given the context of your	10:19:57
17	previous question, I believe it was possible	10:20:01
18	for a laptop to communicate with a server	10:20:03
19	device. In that context, the laptop could be	10:20:07
20	used as a client device.	10:20:10
21	BY MR. HAAG:	10:20:11
22	Q. And you agree that laptops were	10:20:12
23	available to consumers in 2001, right?	10:20:13
24	A. Yes.	10:20:16
25	Q. Do you agree that in 2001, a laptop was	10:20:20

1	a common consumer client device?	10:20:26
2	MR. LI: Objection. Form.	10:20:29
3	THE WITNESS: It was certainly available	10:20:30
4	to consumers to be used to provide a wireless	10:20:35
5	connection to a server.	10:20:41
6	BY MR. HAAG:	10:20:42
7	Q. So you agree then that a laptop was a	10:20:44
8	common consumer client device in 2001?	10:20:49
9	MR. LI: Objection. Form.	10:20:53
10	THE WITNESS: In that context of a	10:20:53
11	client device, yes.	10:20:55
12	BY MR. HAAG:	10:20:56
13	Q. I'd like you to look at the '109 patent,	10:21:01
14	and if you could turn to Claim 1. And you've	10:21:05
15	reviewed Claim 1 in detail, right, Dr. Hart?	10:21:16
16	A. Yes, I have.	10:21:20
17	Q. Do you agree with me that Claim 1 of the	10:21:22
18	'109 patent does not require three-dimensional	10:21:25
19	graphics?	10:21:27
20	MR. LI: Objection. Form.	10:21:30
21	THE WITNESS: I don't recall that issue	10:21:32
22	coming up in Dr. Fuchs' report or patent	10:21:55
23	owner's response. In reviewing the claim as it	10:21:59
24	sits here, I don't see the term 3D computer	10:22:04
25	graphics, I do see generating at least one	10:22:07

1	updated image at the server, and I read the	10:22:10
2	claims in light of the specification. But I	10:22:13
3	don't believe I have an opinion stating whether	10:22:15
4	or not Claim 1 requires 3D computer graphics.	10:22:18
5	BY MR. HAAG:	10:22:22
6	Q. And how about claim 8? Does claim 8	10:22:22
7	require the use of three-dimensional graphics?	10:22:25
8	MR. LI: Objection. Form.	10:22:29
9	THE WITNESS: Same answer as for	10:22:38
10	Claim 1. Claim 8 includes the stipulation of	10:22:40
11	the requirement of generating at least one	10:22:42
12	updated image at the server. And I read the	10:22:44
13	claims in light of the specification.	10:22:48
14	BY MR. HAAG:	10:23:28
15	Q. Do you agree with me that the '109	10:23:28
16	patent does not relate to television?	10:23:31
17	MR. LI: Objection. Form.	10:23:34
18	THE WITNESS: I don't know that I recall	10:23:35
19	anything in Dr. Fuchs' report or the patent	10:23:41
20	owner's response regarding television. I don't	10:23:43
21	recall an opinion I've provided in terms of	10:23:47
22	television. I do know that set-top boxes are	10:23:51
23	mentioned in the '109 patent.	10:23:55
24	BY MR. HAAG:	10:23:59
25	Q. Well, let me ask you this question, do	10:24:00

1	you consider the field of the '109 patent to	10:24:03
2	relate to televisions?	10:24:06
3	MR. LI: Objection. Form.	10:24:08
4	THE WITNESS: I don't recall that the	10:24:20
5	field of the patent, how it's organized,	10:24:24
6	listed, categorized and so on, came up in my	10:24:29
7	declaration in response to Dr. Fuchs'	10:24:33
8	declaration or the patent owner response.	10:24:35
9	So it certainly includes set-top boxes,	10:24:38
10	for example, but I haven't looked in detail at	10:24:48
11	that particular question.	10:24:51
12	BY MR. HAAG:	10:24:55
13	Q. In your view, what is the field of the	10:24:55
14	'109 patent?	10:24:58
15	MR. LI: Objection. Form.	10:24:59
16	THE WITNESS: I mean, "image display	10:25:01
17	system" is in the title of the patent. It's,	10:25:19
18	the Abstract says, an image display system with	10:25:23
19	one or more client computers and selective	10:25:26
20	communication with a Visual Server having image	10:25:28
21	processing capabilities.	10:25:31
22	So image display system, image	10:25:33
23	processing, communication between a client and	10:25:36
24	a server, all seem to be relevant in the field	10:25:42
25	of the patent.	10:25:46

1	BY MR. HAAG:	10:26:00
2	Q. In the context of the answer you just	10:26:00
3	gave, do you consider televisions to be	10:26:02
4	relevant in the field of the '109 patent?	10:26:04
5	MR. LI: Objection. Form.	10:26:06
6	THE WITNESS: I haven't formed an	10:26:09
7	opinion on televisions. That just was not	10:26:10
8	within what I was asked to provide opinions on,	10:26:15
9	based on Dr. Fuchs declaration and the patent	10:26:18
10	owner response.	10:26:22
11	(Previously marked Deposition	09:54:00
12	Exhibit 1004 was reviewed.)	09:54:00
13	BY MR. HAAG:	10:26:25
14	Q. One of the documents you should have	10:26:28
15	downloaded was Exhibit 1004. Do you have that?	10:26:29
16	A. Yes, I do.	10:26:33
17	Q. And you recognize this as the Wiltshire	10:26:36
18	patent?	10:26:40
19	A. Yes, I do.	10:26:42
20	Q. And this is one of the patents that	10:26:43
21	you've expressed some opinions about, right?	10:26:45
22	A. Yes, it is.	10:26:48
23	Q. And you'll understand me if I refer to	10:26:52
24	Exhibit 1004 as Wiltshire?	10:26:54
25	A. Yes, I think I've been calling it	10:26:56

1	Wiltshire, but I will understand either.	10:26:59
2	Q. I'd like you to turn to Claim 1 of	10:27:03
3	Wiltshire, okay?	10:27:10
4	A. Okay.	10:27:17
5	Q. And Claim 1 begins: A computer gaming	10:27:18
6	system, right?	10:27:22
7	A. Yes.	10:27:22
8	Q. And you'll agree with me that Wiltshire	10:27:25
9	relates generally to computer gaming systems,	10:27:28
10	right?	10:27:30
11	MR. LI: Objection. Form.	10:27:33
12	THE WITNESS: Yes. I think in the title	10:27:46
13	it refers to gaming systems. Certainly Claim 1	10:27:48
14	refers to a computer gaming system.	10:27:53
15	Wiltshire's use of the term "gaming" carries	10:27:57
16	with it games where there is a stake, gambling	10:28:00
17	games, games where money changes hands.	10:28:05
18	BY MR. HAAG:	10:28:11
19	Q. So I'd like you to focus on Claim 1 of	10:28:12
20	Wiltshire, okay? And it begins: One or more	10:28:14
21	server host computers.	10:28:24
22	Do you see that?	10:28:25
23	A. Yes, I do.	10:28:26
24	Q. And after that it states: One or more	10:28:27
25	client/terminal computers for connection to the	10:28:35

1	server/host computers via communication	10:28:38
2	pathways.	10:28:42
3	Do you see that?	10:28:43
4	A. Yes, I do.	10:28:44
5	Q. Am I right that the communication	10:28:47
6	pathway in Wiltshire couples a client and a	10:28:49
7	server?	10:28:54
8	A. Couples, I don't know if we have a	10:28:56
9	formal definition of couples or if couples is a	10:29:06
10	term used. Certainly they were connected in	10:29:09
11	the embodiments provided in Wiltshire by a	10:29:11
12	network, and I would consider a network to	10:29:15
13	couple a client to a server.	10:29:18
14	Q. So you agree with me that Wiltshire	10:29:22
15	discloses a communication pathway that connects	10:29:24
16	a client and a server?	10:29:27
17	MR. LI: Objection. Form.	10:29:28
18	THE WITNESS: So the language you used	10:29:29
19	is right there in Claim 1, and, yes, I believe	10:29:35
20	the embodiments demonstrate a one or more	10:29:38
21	client terminal computers connected to a server	10:29:41
22	host -- to the server host computers -- via	10:29:46
23	communication pathways.	10:29:50
24	Sorry, just finishing up claim -- the	10:29:52
25	element of Claim 1.	10:29:54

1	BY MR. HAAG:	10:29:56
2	Q. So part of Claim 1 that we just read is	10:30:08
3	a client server system in Wiltshire, right?	10:30:12
4	MR. LI: Objection. Form.	10:30:15
5	THE WITNESS: Yes, that's the previous	10:30:16
6	requirement of Claim 1. One or more server	10:30:21
7	host computers.	10:30:24
8	BY MR. HAAG:	10:30:28
9	Q. Do you agree with me that Wiltshire	10:30:34
10	discloses using a single client computer in a	10:30:36
11	client server system?	10:30:41
12	A. A single client?	10:30:43
13	Q. Yes.	10:30:58
14	A. So Claim 1 says: One or more client	10:31:06
15	terminal computers.	10:31:10
16	I don't recall any of Wiltshire's	10:31:12
17	embodiments utilizing a single client. It's	10:31:16
18	either utilizing a single client with a single	10:31:24
19	server seems to be, you know, outside of the	10:31:27
20	intended design communicated in the	10:31:37
21	specification of Wiltshire.	10:31:40
22	Q. But you do agree with me that Wiltshire	10:31:41
23	discloses in at least Claim 1 using a single	10:31:44
24	client in a client server system, right?	10:31:46
25	MR. LI: Objection. Form.	10:31:49

1	Mischaracterizes.	10:31:50
2	THE WITNESS: Claim 1, that element says	10:31:51
3	one or more client terminal computers for	10:31:57
4	connection to the server host computers.	10:31:59
5	Q. So the answer to my question is yes?	10:32:04
6	MR. LI: Objection. Form.	10:32:07
7	THE WITNESS: I believe Wiltshire	10:32:09
8	discloses the use of one client terminal	10:32:10
9	computer.	10:32:15
10	Q. In a client server system, right?	10:32:17
11	MR. LI: Objection. Form.	10:32:21
12	THE WITNESS: Yes.	10:32:21
13	Q. So you agree with me that Wiltshire	10:32:22
14	discloses the use of one client terminal	10:32:24
15	computer in a client server system, correct?	10:32:27
16	MR. LI: Objection. Form.	10:32:31
17	THE WITNESS: Yes, I believe the use of	10:32:35
18	one or more client terminal computers in	10:32:37
19	Claim 1 indicates that Claim 1 would apply to a	10:32:41
20	situation that had one client terminal	10:32:46
21	computer.	10:32:48
22	Q. I'd like you to turn to column 7,	10:32:49
23	starting at line 7 of Wiltshire, okay? Just	10:32:56
24	let me know when you get there?	10:33:06
25	A. Column 7, line 7.	10:33:08

1	Q. Yep.	10:33:10
2	A. I'm there.	10:33:11
3	Q. And there's a description starting at	10:33:11
4	column 7, line 7 in Wiltshire regarding	10:33:13
5	Wiltshire's Figure 2, right?	10:33:16
6	A. Correct.	10:33:18
7	Q. And you've reviewed Wiltshire's	10:33:21
8	Figure 2, right?	10:33:24
9	A. Yes, I have.	10:33:24
10	Q. And you've also reviewed the description	10:33:27
11	of Wiltshire's Figure 2 in column 7, right?	10:33:30
12	A. Yes, I have.	10:33:32
13	Q. Now the paragraph in Wiltshire at column	10:33:38
14	7, starting at line 7, refers to a gaming	10:33:48
15	system; do you see that?	10:33:52
16	A. Yes.	10:33:53
17	Q. And it also refers to a game program,	10:33:56
18	right?	10:33:59
19	A. Yes, and the term "game program" has the	10:33:59
20	same connotation of "game" as "gaming system,"	10:34:06
21	as I mentioned before; something with stakes	10:34:10
22	where money changes hands.	10:34:15
23	Q. Well, let's look at Wiltshire at column	10:34:18
24	1, line 26, okay?	10:34:21
25	Are you there, sir?	10:34:32

1	A. Yes.	10:34:32
2	Q. Now you see at column 1, line 26,	10:34:33
3	Wiltshire begins: The terms "game" and	10:34:36
4	"gaming" as used here and include...	10:34:40
5	And then it goes on from there, right?	10:34:43
6	A. Yes, I see that.	10:34:45
7	Q. So you'll agree with me that Wiltshire	10:34:49
8	-- strike that.	10:34:51
9	You'll agree with me that Wiltshire	10:34:52
10	defines the terms "game" and "gaming," right?	10:34:54
11	A. That paragraph concludes by saying:	10:34:58
12	Stake games between two or more players defined	10:35:08
13	by the Indian Gaming Regulatory Act.	10:35:10
14	All the examples I saw were based on	10:35:15
15	games that had stakes.	10:35:19
16	Q. Well, let's look at this, at column 1,	10:35:24
17	line 26, Wiltshire defines games as including	10:35:29
18	all types of electronic, electromechanical,	10:35:33
19	gambling and casino games, right?	10:35:36
20	A. Yes, I see that.	10:35:39
21	Q. And in that column -- strike that, in	10:35:41
22	that paragraph at Wiltshire column 1, line 26,	10:35:47
23	it also defines games by stating: As well as	10:35:50
24	games of skill and/or strategy such as chess	10:35:55
25	and checkers; right?	10:35:59

1	A. Yes, but it concludes by mentioning	10:36:00
2	stake games, defined by the Indian Gaming	10:36:06
3	Regulatory Act as Class II games.	10:36:09
4	Q. So you'll agree with me that games in	10:36:13
5	Wiltshire does include stake games defined by	10:36:16
6	the Indian Gaming Regulatory Act, right?	10:36:18
7	MR. LI: Objection. Form.	10:36:22
8	THE WITNESS: Yes, that's the end of	10:36:26
9	that paragraph, I consider that being included	10:36:27
10	in games and gaming as used by Wiltshire.	10:36:30
11	BY MR. HAAG:	10:36:32
12	Q. Now, Wiltshire also defines games and	10:36:33
13	gaming as including video based games such as	10:36:36
14	Doom, Pong, Pac-Man, Myst; do you see that?	10:36:41
15	A. I see that in the context of stake	10:36:47
16	games.	10:36:50
17	Q. And have you ever played Doom?	10:36:51
18	A. Yes, I have.	10:36:57
19	Q. Have you played it on a PC?	10:37:02
20	A. Yes, I have.	10:37:03
21	Q. Have you played it on a laptop?	10:37:04
22	A. Yes, I have.	10:37:08
23	Q. During what timeframe?	10:37:09
24	A. It would be around the time of the -- it	10:37:11
25	would be late '90s.	10:37:17

1	Q. So you played Doom in the late 1990s on	10:37:23
2	a desktop computer; is that right?	10:37:26
3	MR. LI: Objection. Form.	10:37:28
4	THE WITNESS: I believe I played it on a	10:37:29
5	desktop and laptop computer in the '90s.	10:37:31
6	BY MR. HAAG:	10:37:35
7	Q. And have you ever played Doom in a	10:37:35
8	casino?	10:37:36
9	A. No, I have not.	10:37:37
10	Q. Have you ever played Doom in a	10:37:44
11	commercial gaming establishment?	10:37:46
12	A. No, I have not.	10:37:47
13	Q. Are you familiar with the game Myst?	10:37:52
14	A. Yes.	10:37:56
15	Q. Have you played it before?	10:37:57
16	A. No.	10:37:58
17	Q. During what timeframe were you familiar	10:38:01
18	with the game Myst?	10:38:05
19	A. The '90s.	10:38:07
20	Q. And are you aware of Myst being played	10:38:09
21	on a desktop computer or laptop?	10:38:13
22	A. Yes.	10:38:15
23	Q. Rougher aware of Myst being played in a	10:38:19
24	casino?	10:38:24
25	A. No.	10:38:25

1	Q. How about Pac-Man? Have you ever played	10:38:26
2	Pac-Man?	10:38:34
3	A. Yes.	10:38:35
4	Q. When?	10:38:36
5	A. '80s.	10:38:36
6	Q. What did you play Pac-Man on?	10:38:39
7	A. That would have been an arcade machine.	10:38:41
8	Q. Have you ever played Pac-Man on a	10:38:46
9	desktop or a laptop?	10:38:48
10	A. I believe so, yes.	10:38:50
11	Q. When?	10:38:52
12	A. It may have been the '90s. I don't	10:38:54
13	recall the specific decade.	10:38:59
14	Q. Have you ever played Pac-Man in a	10:39:03
15	casino?	10:39:05
16	A. I don't -- I don't recall. There are	10:39:05
17	video arcades in casinos.	10:39:11
18	Q. How about Pong? Have you ever played	10:39:15
19	Pong?	10:39:17
20	A. Yes.	10:39:17
21	Q. When?	10:39:18
22	A. That may have been as early as the '70s.	10:39:20
23	Q. Have you ever played Pong in a casino?	10:39:26
24	A. Again, casinos have arcades. I don't	10:39:28
25	recall. But it wouldn't be unusual to see a	10:39:31

1	Pong game in an arcade in a casino.	10:39:34
2	Q. Have you ever played Pong on a desktop	10:39:39
3	or laptop computer?	10:39:41
4	A. I don't recall that I've ever played	10:39:43
5	Pong on a desktop or laptop, maybe.	10:39:47
6	Q. Is Doom a stake game?	10:39:52
7	A. Doom is listed here in this paragraph in	10:39:53
8	the context of stake games. I think many of	10:40:00
9	these games I wouldn't ordinarily associate	10:40:04
10	with a stake game, but there are many games	10:40:06
11	that I didn't associate as stake games that	10:40:09
12	I've seen at casinos. And I think there are	10:40:13
13	many opportunities where gambling is allowed,	10:40:19
14	and in other cases gambling is not allowed.	10:40:26
15	So in reading this paragraph, I got the	10:40:30
16	impression that expanding gambling games to	10:40:32
17	include other games that would be stake games	10:40:37
18	was being described here.	10:40:40
19	Q. So you referred to the last -- well, I	10:40:43
20	think you referred to column 1, starting at	10:40:50
21	line 41 where it refers to stake games between	10:40:54
22	two or more players, games defined by the	10:40:57
23	Indian Gaming Regulatory Act as Class II games.	10:41:02
24	Did you refer to that part of Wiltshire?	10:41:06
25	A. Yes, I did.	10:41:09

1 Q. And do you read the discussion of stake
2 games in the Indian Gaming Regulatory Act as
3 limiting any type of game or gaming that can be
4 used in Wiltshire?

10:41:10

10:41:14

10:41:20

10:41:24

5 A. I read the claims in terms of the
6 specification, and as I read the specification,
7 I looked at the context of each paragraph, each
8 sentence in the specification. And I see a
9 list of games, and then further generalization
10 of non-house stake games between two or more
11 players defined by a Gaming Regulatory Act, and
12 so many of these games are games between two or
13 more players, and so I read those games in that
14 context.

10:41:25

10:41:34

10:41:37

10:41:42

10:41:46

10:41:50

10:41:53

10:42:00

10:42:02

10:42:06

15 Q. So you think that any game -- well, I'm
16 just trying to figure out, do you think that
17 Wiltshire's descriptions of games are limited
18 to non-house stake games as stated in column 1,
19 line 41?

10:42:10

10:42:12

10:42:14

10:42:17

10:42:22

20 A. No, I think some of the games at the
21 beginning of the paragraph are house stake
22 games. What I saw in this paragraph and in
23 Wiltshire was that this was a system designed
24 for stake games, either house stake games or
25 non-house stake games.

10:42:23

10:42:28

10:42:31

10:42:34

10:42:38

10:42:42

1	Q. So you're not limiting all the games to	10:42:45
2	non-house stake games, right?	10:42:59
3	MR. LI: Objection. Form.	10:43:01
4	Mischaracterizes.	10:43:02
5	THE WITNESS: I believe what I said was	10:43:04
6	that Wiltshire, in my reading of it, and what I	10:43:05
7	expect a person of ordinary skill in the arts	10:43:08
8	reading of it in 2001, reading this paragraph	10:43:11
9	and its emphasis on these stake games, either	10:43:15
10	house stake games or non-house stake games,	10:43:20
11	would understand game and gaming to refer to	10:43:23
12	stake games. Either games where the stake is	10:43:25
13	between the player and the House, or where the	10:43:30
14	stake is between the player and another player.	10:43:32
15	BY MR. HAAG:	10:43:43
16	Q. Have you ever been in a casino?	10:43:43
17	A. Yes, I have.	10:43:44
18	Q. Approximately how many times? I don't	10:43:45
19	need an exact number.	10:43:47
20	A. Good, because I don't have an exact	10:43:50
21	number. Many times.	10:43:52
22	Q. And in those times you've been in a	10:43:56
23	casino, have you ever seen anyone play Doom in	10:43:58
24	the casino?	10:44:04
25	A. No.	10:44:05

1	Q. Have you about Myst?	10:44:09
2	A. No.	10:44:10
3	Q. You agree with me that Doom is	10:44:12
4	traditionally not a casino game, right?	10:44:14
5	MR. LI: Objection. Form.	10:44:17
6	THE WITNESS: I believe as I mentioned	10:44:19
7	before, I've seen other games that I didn't	10:44:20
8	expect to become casino games and then become	10:44:23
9	casino games.	10:44:26
10	BY MR. HAAG:	10:44:29
11	Q. Do you agree with me that Wiltshire's	10:44:29
12	disclosure relates to both casino games and	10:44:32
13	video games such as Doom and Myst?	10:44:35
14	MR. LI: Objection. Form.	10:44:37
15	THE WITNESS: Your use of "and" there is	10:44:42
16	a bit vague. I see this as disclosing video	10:44:45
17	games such as Doom and Myst being used as	10:44:50
18	casino games in this paragraph.	10:44:54
19	BY MR. HAAG:	10:45:04
20	Q. And in your experience, do casino games	10:45:04
21	typically use a computer mouse for user input?	10:45:09
22	A. I don't recall any off the top of my	10:45:11
23	head. Certainly they use touchscreens, and the	10:45:25
24	input from a mouse or a touchscreen could be	10:45:28
25	handled using similar methods.	10:45:32

1	Q. But in your experience, you don't recall	10:45:37
2	casino games using a mouse for user input,	10:45:40
3	right?	10:45:42
4	MR. LI: Objection. Form.	10:45:43
5	THE WITNESS: I don't have a	10:45:44
6	comprehensive view of all casino games, all	10:45:47
7	accessibility options. I know some people have	10:45:51
8	limited mobility. Some people may not be able	10:45:54
9	to reach up and use a touchscreen where a mouse	10:45:57
10	would be possible and the casino could provide	10:46:01
11	a mouse in those circumstances.	10:46:05
12	Q. But you've never seen it, right?	10:46:09
13	MR. LI: Objection. Form.	10:46:11
14	THE WITNESS: No, fortunately, I have	10:46:12
15	mobility sufficient that I wouldn't have needed	10:46:14
16	such an accommodation.	10:46:16
17	BY MR. HAAG:	10:46:17
18	Q. You have seen levers used for slot	10:46:17
19	machines in casinos though, right?	10:46:21
20	MR. LI: Objection. Form.	10:46:23
21	THE WITNESS: Yes. But in those cases,	10:46:26
22	the ones that I recall, there is a lever as	10:46:29
23	well as a button for spin that does the same	10:46:31
24	thing.	10:46:36
25	BY MR. HAAG:	10:46:38

1	Q. So you've seen buttons and levers for	10:46:38
2	casino games before, right?	10:46:41
3	MR. LI: Objection. Form.	10:46:43
4	THE WITNESS: Yes, and specifically a	10:46:44
5	button being provided for someone that didn't	10:46:45
6	want to or couldn't pull the lever.	10:46:50
7	BY MR. HAAG:	10:46:54
8	Q. But you have not seen a mouse used for	10:46:54
9	an input at a casino game before, right?	10:46:57
10	A. In my own experience, I have not needed	10:47:00
11	the mouse nor have I seen a mouse specifically	10:47:04
12	being used in a -- in such a game. I imagine	10:47:07
13	the use of a mouse in, for example, a case	10:47:12
14	where somebody had limited mobility, would	10:47:16
15	require some kind of surface. And so I don't	10:47:18
16	think that would be as readily available as a	10:47:21
17	push button, but I could envision seeing that	10:47:25
18	being used in the case of an accessibility	10:47:28
19	issue.	10:47:32
20	Q. But you've never seen it before in a	10:47:33
21	casino, a mouse being used for an input in a	10:47:35
22	casino game, right?	10:47:38
23	MR. LI: Objection. Form.	10:47:40
24	THE WITNESS: No, as I said before, I	10:47:41
25	don't have such accessibility issues, so I've	10:47:42

1	had no need for that, and I haven't observed,	10:47:45
2	you know, somebody using that particular	10:47:49
3	feature.	10:47:51
4	BY MR. HAAG:	10:47:53
5	Q. I'd like you to turn to Figure 2 of	10:47:53
6	Wiltshire, okay?	10:47:56
7	A. Okay.	10:47:57
8	Q. And as we just talked about a moment	10:47:58
9	ago, you understand that there's a description	10:48:01
10	of Figure 2 beginning at column, right around	10:48:03
11	line 7 of Wiltshire, right?	10:48:08
12	A. Yeah, let me get back to column 7.	10:48:09
13	Q. And actually, I think I'm going to go	10:48:16
14	over mostly Figure 2, but if you need to look	10:48:18
15	at column 7 as I discuss Figure 2, feel free to	10:48:21
16	do so, okay?	10:48:24
17	A. Okay.	10:48:24
18	Q. Okay. So in Step 210 in Figure 2, it's	10:48:25
19	executing a game program on a server, right?	10:48:35
20	A. Yes, that's the label for Box 210.	10:48:38
21	Q. And then, if we go down to the bottom,	10:48:47
22	there is Stage 250. Do you see that?	10:48:51
23	A. Yes.	10:48:54
24	Q. And that's input command on a client,	10:48:57
25	right?	10:49:00

1	A. Yes.	10:49:00
2	Q. So Stage 250 determines whether an input	10:49:05
3	command has been entered on a client device,	10:49:09
4	right?	10:49:12
5	MR. LI: Objection. Form.	10:49:13
6	THE WITNESS: Yeah, Box 250 is diamond	10:49:15
7	shaped, indicating a decision, yes or no, in	10:49:18
8	this case, whether or not an input command has	10:49:21
9	been entered on the client.	10:49:24
10	Q. And so is Wiltshire in the case of Doom,	10:49:28
11	that input command could be a mouse click or a	10:49:31
12	mouse movement, right?	10:49:34
13	MR. LI: Objection. Form.	10:49:36
14	THE WITNESS: I didn't see an example	10:49:37
15	describing how these -- how Figure 2 would be	10:49:42
16	mapped to the game Doom, so I don't think I	10:49:46
17	have an opinion on whether 250 corresponds to a	10:49:52
18	mouse click or a mouse movement in Doom in this	10:49:55
19	particular example.	10:50:00
20	BY MR. HAAG:	10:50:02
21	Q. You played Doom though back before 2001,	10:50:02
22	right?	10:50:05
23	A. Yes, I did.	10:50:05
24	Q. And did you use your mouse for user	10:50:08
25	inputs when you played Doom before 2001?	10:50:11

1	A. No, I did not.	10:50:14
2	Q. Did you use a keyboard for user inputs	10:50:17
3	when you played Doom for 2001?	10:50:19
4	A. Yes.	10:50:22
5	Q. Now, Stage 260 is the client	10:50:24
6	transmitting to the server the user's input	10:50:42
7	commands, right?	10:50:45
8	A. Yes, that's the label for Box 260, send	10:50:45
9	user's input command to server.	10:50:51
10	Q. And then Stage 270 is where the server	10:50:53
11	processes the user's input command, right?	10:50:56
12	A. Yes. Process user's input command on	10:50:58
13	server.	10:51:06
14	Q. And then Wiltshire also discloses that	10:51:06
15	the server updates the state of the game	10:51:10
16	accordingly, right?	10:51:12
17	MR. LI: Objection. Form.	10:51:21
18	BY MR. HAAG:	10:51:35
19	Q. If it helps, you can look at column 7,	10:51:35
20	line 41 about?	10:51:38
21	A. Yes: Game program 112 is executed on a	10:52:01
22	server host computer 110 in Stage 210 and in	10:52:07
23	Stage 270 game program 112 processes the input	10:52:15
24	command and updates the state of the game	10:52:18
25	accordingly.	10:52:20

1 So that would have occurred in Box 210,
2 or at least starting with Box 210.

3 Q. And if you look at Figure 2, Box 210 is
4 executing a game program on the server, right?

5 A. Right.

6 Q. And then after Box 210, you can update
7 the image to be displayed, right?

8 MR. LI: Objection to form.

9 BY MR. HAAG:

10 Q. 220?

11 A. So the text says: That Stage 220 then
12 determines whether an image is to be displayed
13 on the screen of client terminal computer.
14 And, in which case, operation 200 proceeds to
15 Stage 230. Stage 220 is a diamond shaped box,
16 and so it's ending it with a question mark.
17 It's determining whether to display or update
18 the image.

19 Q. On step or Stage 220 in Wiltshire's
20 Figure 2 is determining whether to display or
21 update the image, right?

22 A. The text says that it determines whether
23 an image is to be displayed on the screen of a
24 client terminal computer. It's labeled in the
25 figure as display/update image. But the text

1	is clear that it says display.	10:53:55
2	Q. Well, let's move on to Stage 230, okay?	10:53:58
3	Stage 230 sends video stream to client, right?	10:54:02
4	A. Yes.	10:54:05
5	Q. And then Step 235 is receive video	10:54:10
6	stream at the client, right?	10:54:15
7	A. Yeah, it says: Receive video stream to	10:54:16
8	client.	10:54:21
9	I believe video stream to client is the	10:54:22
10	video stream to client referred to in Step 230.	10:54:24
11	Q. For the use of the Doom game in	10:54:29
12	Wiltshire, in response to a user moving	10:54:31
13	positions, what would "send video stream to	10:54:35
14	client" encompass?	10:54:38
15	MR. LI: Objection. Form.	10:54:39
16	BY MR. HAAG:	10:54:40
17	Q. Stage 230.	10:54:41
18	A. I don't recall a specific mapping of	10:54:43
19	Figure 2 being applied to the Doom game at that	10:54:47
20	level in Dr. Fuchs' report or in patent owner's	10:54:52
21	response, so I don't know that I have an	10:54:56
22	opinion that maps these boxes to the specifics	10:54:58
23	of the Doom game.	10:55:01
24	I'm happy to look at that if that's	10:55:06
25	there in Dr. Fuchs' report, but I don't recall	10:55:10

1 that being there or something that I

10:55:13

2 specifically responded to.

10:55:15

3 Q. I guess what I'd like to know right now

10:55:16

4 is if you have any opinions about what

10:55:19

5 Stage 230 would encompass for Doom in

10:55:23

6 Wiltshire, okay?

10:55:27

7 So do you have any opinions regarding

10:55:32

8 the use of the Doom game in Wiltshire, and what

10:55:38

9 Stage 30 [sic] would encompass in response to a

10:55:41

10 user moving positions?

10:55:44

11 MR. LI: Objection. Form.

10:55:45

12 THE WITNESS: Not Stage 30. I don't see

10:55:50

13 a Stage 30. I also don't recall any opinions.

10:55:52

14 My opinions were in response to Dr. Fuchs'

10:55:58

15 report, and the patent owner's response. So,

10:56:01

16 you know, this -- making that determination

10:56:07

17 would require additional analysis. I don't

10:56:10

18 recall being asked to perform that particular

10:56:14

19 analysis. I don't recall seeing that in the

10:56:16

20 material I was provided to respond to.

10:56:22

21 So sitting here, you know, I wouldn't --

10:56:25

22 I wouldn't want to give an opinion that would

10:56:29

23 be given the same weight as the opinions I've

10:56:32

24 devoted significant time to forming, based on

10:56:34

25 the analysis provided in those documents.

10:56:37

1 BY MR. HAAG:

2 Q. So now let's focus on Stage 270. For
3 the Doom game in Wiltshire, in response to a
4 user command moving positions, what would
5 Stage 270 of Wiltshire's Figure 2 encompass?

6 MR. LI: Objection. Form.

7 THE WITNESS: I did not analyze this
8 figure in this particular case for the specific
9 situation of the Doom video game. I don't
10 recall that analysis being provided in
11 Dr. Fuchs' declaration or the patent owner
12 response. So, you know, sitting here, I'd have
13 to, you know, give that an analysis in order to
14 do that mapping.

15 My opinion was in response to Dr. Fuchs'
16 report, and patent owner response, so I don't
17 recall in those opinions diving into what
18 Box 270 would correspond to in the particular
19 case of Doom.

20 Q. In Doom, what type of image data would
21 be sent from the server to the client?

22 MR. LI: Objection. Form. Relevance.

23 THE WITNESS: In what context of Doom
24 running on a server and a client?

25 Q. I'm sorry. I don't understand. What

1	did you just ask?	10:58:55
2	A. In what context of a server and a	10:58:55
3	client?	10:58:59
4	Q. So I'd like you to assume that the	10:59:06
5	user's playing Doom, okay?	10:59:08
6	A. Okay. A user playing Doom.	10:59:09
7	Q. Well, let's actually just take this in	10:59:13
8	the context of when you played Doom before	10:59:17
9	2001, okay?	10:59:21
10	A. Okay. In that context, I would have	10:59:24
11	been sitting at a PC, and Doom would have been	10:59:26
12	running on that PC.	10:59:29
13	Q. Okay. And what was displayed on your	10:59:31
14	screen?	10:59:33
15	A. A rather low-resolution,	10:59:33
16	three-dimensional depiction of a scene.	10:59:38
17	Q. What do you mean by "a scene"?	10:59:41
18	A. Doom is kind of a dungeon crawler,	10:59:44
19	first-person shooter, so it would have been --	10:59:47
20	I would have seen the, you know, a rendering of	10:59:50
21	the dungeon, any characters in the dungeon, as	10:59:53
22	well as information about myself as a player,	10:59:57
23	including what weapon I was holding.	11:00:02
24	Q. And when you played Doom before 2001,	11:00:04
25	did your display show a video screen?	11:00:09

1	MR. LI: Objection. Form.	11:00:14
2	THE WITNESS: When I played Doom in that	11:00:18
3	situation, I was looking at the rendered output	11:00:22
4	of a graphics process running on the client	11:00:26
5	computer, running on a PC. And so I wouldn't	11:00:29
6	characterize that as a video stream. I was	11:00:35
7	looking at the contents of a frame buffer that	11:00:38
8	was being rendered by the same machine.	11:00:41
9	Q. When you played Doom before 2001, am I	11:00:45
10	right that your display showed a sequence of	11:00:49
11	images?	11:00:52
12	MR. LI: Objection. Form.	11:00:57
13	THE WITNESS: Yes, it showed a sequence	11:00:58
14	of images, in that very general sense of a	11:01:00
15	sequence of images.	11:01:03
16	Q. And am I right that the images on your	11:01:16
17	screen would change in response to user input	11:01:19
18	when you played Doom before 2001?	11:01:21
19	MR. LI: Objection. Form.	11:01:25
20	THE WITNESS: Yes. I would enter input	11:01:26
21	on that PC's keyboard, and those inputs would	11:01:29
22	be processed by the Doom program, and I would	11:01:34
23	see the resulting effects in the display.	11:01:42
24	Q. If we look back at Figure 2 of	11:02:24
25	Wiltshire, again, Stage 230 says: Send video	11:02:27

1	stream to client, right?	11:02:31
2	A. Yes.	11:02:33
3	Q. If we go back to when you were playing	11:02:38
4	Doom before 2001, am I right that what you saw	11:02:46
5	on your display, those were not pre-rendered	11:02:50
6	image sequences?	11:02:56
7	MR. LI: Objection. Form.	11:02:57
8	THE WITNESS: No, I wouldn't -- I	11:03:08
9	wouldn't necessarily say that. Certainly with	11:03:10
10	any video game there is a certain amount of	11:03:12
11	precomputation that goes into the preparation	11:03:15
12	and delivery of the graphics content. I	11:03:18
13	haven't looked at Doom close enough, and	11:03:21
14	certainly didn't look at it for the opinions	11:03:24
15	provided here at what level Doom includes those	11:03:27
16	precomputed, prerendered components. And in	11:03:31
17	what form they were used to create the display.	11:03:37
18	BY MR. HAAG:	11:03:40
19	Q. When you played Doom before 2001, am I	11:03:40
20	right that the image sequence that was	11:03:44
21	displayed changed in realtime?	11:03:46
22	A. It changed in response to my commands,	11:03:49
23	so it was interactive in that sense. I don't	11:03:59
24	recall the frame read, but it was something in	11:04:04
25	the neighborhood of 30 times a second. So with	11:04:06

1 those specifics, you know, that would make it 11:04:10
2 feel like it was being displayed in realtime. 11:04:15

3 Q. So when you played Doom before 2001, the 11:04:21
4 image sequence changed in realtime in response 11:04:24
5 to your inputs; is that right? 11:04:28

6 MR. LI: Objection. Form. 11:04:34

7 THE WITNESS: Yes, in that very general 11:04:36
8 context of realtime that I explained in the 11:04:37
9 previous answer, yes. 11:04:40

10 BY MR. HAAG: 11:04:41

11 Q. Do you agree with me that the data 11:04:52
12 transmitted to the client in Wiltshire can 11:04:53
13 include a compressed MPEG video stream? 11:04:56

14 A. I don't recall seeing any example in 11:04:58
15 Wiltshire where the data transmitted to the 11:05:03
16 server included a video stream as you 11:05:06
17 described. Is there a specific part? 11:05:15

18 Q. I'm sorry. Let me -- let me just ask my 11:05:19
19 question again. Do you agree with me that in 11:05:21
20 Wiltshire the data transmitted to the client 11:05:24
21 can be a compressed video MPEG stream? 11:05:29

22 MR. LI: Objection. Form. 11:05:38

23 THE WITNESS: So, in column 7, right 11:05:40
24 around line 12 or 13, I guess: In Stage 230, 11:05:43
25 an image is sent from server host computer to 11:05:48

1 client terminal computer. That image may
2 include any typographical information,
3 including a bitmap, a JPEG file, a TIFF file,
4 or even an encoded audio/video stream such as a
5 compressed video MPEG stream.

6 In reading that sentence in terms of
7 that image sent to the -- from the server host
8 computer to the client terminal computer, the
9 inclusion of those various media assets could
10 include a pre-encoded -- the contents of a
11 pre-encoded compressed video MPEG stream stored
12 in a file and inserted into the -- into the
13 image.

14 BY MR. HAAG:

15 Q. So I'd like you to turn to column 8,
16 line 2 of Wiltshire.

17 A. Okay.

18 Q. And there is a sentence that begins with
19 "In some embodiments," do you see that?

20 A. Yes, I do.

21 Q. Can you read that sentence out loud for
22 us, please.

23 A. It says: In some embodiments to further
24 reduce the amount of network bandwidth required
25 for the operation of computer gaming system

1 100, image updates, once an image has been
2 displayed, are limited to areas of the screen
3 that are actually modified rather than full
4 screen refreshes.

5 Q. And based on that sentence, do you agree
6 with me that Wiltshire discloses updating an
7 image that has already been displayed?

8 A. Yes, I believe that Wiltshire is
9 assuming that an image already has been
10 previously transmitted to the client, and that
11 in this embodiment a portion of that image is
12 being updated rather than the full image.

13 Q. So in some embodiments, according to
14 this sentence, Wiltshire updates a limited area
15 of the screen rather than the full screen,
16 right?

17 MR. LI: Objection. Form.

18 THE WITNESS: So this -- this sentence
19 is teaching a preference to update a portion of
20 a screen.

21 Q. But it says in some embodiments, right?

22 MR. LI: Objection. Form.

23 THE WITNESS: Yes, it does say in some
24 embodiments, that's correct.

25 Q. So that means in Wiltshire, it also

1	sometimes updates or refreshes the entire	11:09:37
2	screen, right?	11:09:40
3	MR. LI: Objection. Form.	11:09:44
4	Mischaracterizes.	11:09:45
5	THE WITNESS: No. Wiltshire is silent	11:09:47
6	on that. I see this as teaching that a	11:09:49
7	preference for reducing bandwidth in general in	11:09:56
8	this paragraph, and specifically updating only	11:10:00
9	the portions of a screen that have changed.	11:10:03
10	MR. HAAG: Why don't we take a break.	11:10:14
11	So off the record.	11:10:20
12	THE VIDEOGRAPHER: We are going off the	11:10:22
13	record. The time is 11:10 a.m.	11:10:23
14	(Recess ensued from 11:10 a.m. to	11:10:25
15	11:19 a.m.)	11:19:32
16	THE VIDEOGRAPHER: We are back on the	11:19:35
17	record. The time is 11:19 a.m.	11:19:43
18	BY MR. HAAG:	11:19:46
19	Q. Dr. Hart, if you could go to your	11:19:48
20	declaration, Exhibit 2009, and turn to	11:19:49
21	paragraph -- I think it's paragraph 44. Just	11:19:58
22	let me know when you get there.	11:20:16
23	A. Okay.	11:20:19
24	Q. So at the end of this paragraph, you set	11:20:21
25	forth your opinion that "frame" means a single	11:20:25

1	instance of the display, right?	11:20:28
2	A. Yes.	11:20:31
3	Q. And that's the meaning you're giving the	11:20:43
4	term "frame" in the claims of the '109 patent,	11:20:47
5	right?	11:20:50
6	A. That's right. And I say that a person	11:20:50
7	of ordinary skill in the art would have also	11:20:55
8	understood that.	11:20:57
9	Q. You understand that the word "frame" was	11:20:59
10	used in 2001 in different ways than your	11:21:05
11	construction, right?	11:21:12
12	MR. LI: Objection. Form.	11:21:13
13	THE WITNESS: You mean like a picture	11:21:14
14	frame hanging on the wall?	11:21:21
15	BY MR. HAAG:	11:21:23
16	Q. That's one use of frame that's different	11:21:23
17	from your construction. At least I think it	11:21:24
18	is, right?	11:21:27
19	A. Sure, I think, I mean, in all of these	11:21:27
20	terms, there are multiple definitions and you	11:21:31
21	have to look at the context of the term in	11:21:36
22	order to determine what the word means.	11:21:38
23	Q. And the -- well, I'll come back to that	11:21:39
24	in a moment.	11:21:43
25	What do you mean by single instance of	11:21:45

1	the display?	11:21:47
2	A. If the display is animated, updated with	11:21:47
3	multiple images, a single instance would be a	11:22:00
4	snapshot in time of that, and the display,	11:22:04
5	meaning the entirety of the output of the	11:22:08
6	application.	11:22:14
7	Q. So in your view, a frame is one instance	11:22:16
8	in a sequence of instances of the display? Is	11:22:22
9	that fair?	11:22:27
10	MR. LI: Objection. Form.	11:22:28
11	THE WITNESS: I don't think I -- I don't	11:22:29
12	think I defined that in those terms or at that	11:22:32
13	level. The focus of the discussion was largely	11:22:37
14	on display. The --	11:22:45
15	BY MR. HAAG:	11:22:51
16	Q. Sorry.	11:22:51
17	A. Sorry, let me finish this point.	11:22:52
18	For example, the IEEE dictionary defines	11:22:56
19	a display frame as a single display image	11:23:00
20	analogous to a frame in a motion picture.	11:23:03
21	So, you know, as used in that IEEE	11:23:05
22	dictionary, it would correspond to a single	11:23:10
23	display image.	11:23:13
24	Q. In your previous answer you said that if	11:23:14
25	a display is animated, updated with multiple	11:23:19

1	images, a single instance would be a snapshot	11:23:22
2	in time of that, and then you went on from	11:23:25
3	there.	11:23:28
4	So am I right that what you're saying is	11:23:30
5	that a frame is one instance in a sequence of	11:23:33
6	images?	11:23:37
7	MR. LI: Objection. Form.	11:23:39
8	THE WITNESS: Yeah, I believe that's how	11:23:40
9	I've characterized it. I mean, if you're	11:23:44
10	making a frame out of multiple images, there's	11:23:47
11	a bunch of different ways to make it out of	11:23:49
12	multiple images. That's why the IEEE	11:23:51
13	dictionary definition is helpful, that a	11:23:55
14	display frame is a single display image	11:23:57
15	analogous to a frame in a motion picture.	11:24:00
16	The display portion of that means that	11:24:04
17	you're seeing the entire display, and not a	11:24:06
18	sub-portion of the display.	11:24:09
19	BY MR. HAAG:	11:24:12
20	Q. So it seems like -- I'm just trying to	11:24:12
21	understand your construction. It seems like	11:24:15
22	you're trying to get two points across, if I'm	11:24:17
23	understanding you. One point I think you're	11:24:20
24	trying to get across is you're trying to focus	11:24:21
25	on the display; is that fair to say?	11:24:24

1 A. Yes. And, for example, the Microsoft
2 computer dictionary says a single screen-sized
3 image. So, yeah, that display portion of
4 the -- of the construction is important.

5 Q. And am I right that the second thing
6 you're trying to have come across is that a
7 frame is one instance or a single instance in a
8 sequence of instances?

9 MR. LI: Objection. Form.

10 BY MR. HAAG:

11 Q. Is that fair?

12 A. I haven't characterized it like that. I
13 think, you know, column -- or paragraph 47 in
14 my report is clear. It relies on the IEEE
15 dictionary definition, the Microsoft computer
16 dictionary definitions. Referring to, you
17 know, a single image, you know, from a motion
18 picture.

19 And the Microsoft definition says it can
20 be displayed in sequence with other slightly
21 different images to create animated drawings.
22 So when we're talking about multiple images, I
23 think those two definitions which are
24 consistent with the construction are that those
25 images are changing over time, but they are

1	still images that fill the entire display, the	11:25:49
2	entire screen.	11:25:55
3	Q. Okay. And I'm going to come back in	11:25:56
4	just a second to what you said about "fill the	11:25:59
5	entire display," and I'll ask you about that.	11:26:02
6	But right now, I want to focus on what	11:26:04
7	you mean by "single instance" in your	11:26:07
8	construction, okay?	11:26:09
9	A. Okay.	11:26:10
10	Q. So my question is: What do you mean by	11:26:11
11	single instance in your construction of the	11:26:15
12	term "frame"?	11:26:19
13	A. I believe those two examples described	11:26:20
14	what a single instance means. It's analogous	11:26:26
15	to a frame in a motion picture or a single	11:26:31
16	screen-sized image that can be displayed in	11:26:35
17	sequence with other slightly different images	11:26:39
18	to create animated drawings.	11:26:40
19	So we are talking about if you have a	11:26:43
20	sequence of images over time that are forming,	11:26:45
21	you know, a display frame as one of those	11:26:49
22	images, but any time you talk about multiple	11:26:52
23	images, you have to talk about, you know, how	11:26:56
24	those multiple images are being used in the	11:26:59
25	display. And in this case, they fill the	11:27:01

1	entire display.	11:27:04
2	Q. So by single instance, you mean one	11:27:10
3	instance in a sequence; is that fair?	11:27:12
4	MR. LI: Objection. Form.	11:27:15
5	Mischaracterizes.	11:27:16
6	THE WITNESS: I didn't use the term	11:27:18
7	"sequence." The Microsoft definition uses the	11:27:20
8	term sequence. It says a single screen-sized	11:27:24
9	image that can be displayed in sequence with	11:27:26
10	other slightly different images to create	11:27:28
11	animated drawings.	11:27:30
12	BY MR. HAAG:	11:27:36
13	Q. And do you agree with that?	11:27:36
14	A. Yes.	11:27:37
15	Q. Now, in your view, you think a frame	11:27:38
16	needs to be for the entire display? Am I	11:27:59
17	getting that right?	11:28:03
18	MR. LI: Objection. Form.	11:28:05
19	THE WITNESS: It's more about the	11:28:06
20	application than the display. I mean, what I	11:28:13
21	go on to say in paragraph 48 is, is that that	11:28:19
22	display refers specifically to the full image	11:28:25
23	generated by the application at any given	11:28:29
24	instance in time.	11:28:31
25	/////	

1	BY MR. HAAG:	11:28:42
2	Q. Well, let me take you back to	11:28:42
3	paragraph 46. There you seem to say a frame	11:28:45
4	would refer to the "entire display and not a	11:28:51
5	first portion of the display."	11:28:56
6	Did I read that right?	11:28:58
7	A. Yeah, and that first portion of the	11:29:00
8	display would be combined with the second	11:29:06
9	portion of the display.	11:29:08
10	Q. So you think a frame needs to be for the	11:29:10
11	entire display; is that right?	11:29:13
12	A. Yes.	11:29:15
13	Where display is the, you know, as	11:29:25
14	outlined in paragraph 48, refers specifically	11:29:30
15	to the full image generated by the application.	11:29:33
16	Q. So right now am I right that you have	11:29:38
17	multiple video feeds on your computer display?	11:29:40
18	MR. LI: Objection. Form.	11:29:44
19	THE WITNESS: Are you referring to Zoom?	11:29:49
20	BY MR. HAAG:	11:29:50
21	Q. Yes.	11:29:50
22	A. Okay. Yeah, I'm running Zoom, and I can	11:29:53
23	see multiple people.	11:29:55
24	Q. Does any one video feed take up your	11:29:58
25	entire display?	11:30:01

1	MR. LI: Objection. Form.	11:30:05
2	THE WITNESS: If you're using display in	11:30:16
3	the way I've been using display, it would be	11:30:17
4	the output of the application, Zoom in this	11:30:20
5	case. And each of these video feeds that I'm	11:30:24
6	looking at takes up a portion of the Zoom	11:30:27
7	application display.	11:30:30
8	Q. So right now when you're using Zoom and	11:30:32
9	you have multiple video feeds, you would say	11:30:37
10	you still have a frame being shown on your	11:30:40
11	display; is that right?	11:30:44
12	MR. LI: Objection. Form.	11:30:46
13	THE WITNESS: I don't know. I would	11:30:48
14	have to look into how Zoom is collecting these	11:30:51
15	video feeds and assembling them. Whether	11:30:55
16	they're coming across simultaneously as a	11:31:00
17	single display. As a single frame from the	11:31:02
18	server, or whether they're being collected	11:31:05
19	together on the client and being shown	11:31:07
20	separately and assembled on the client.	11:31:10
21	Zoom was not one of the embodiments	11:31:14
22	discussed by Dr. Fuchs or the patent owner's	11:31:16
23	response, so I didn't really analyze Zoom as an	11:31:22
24	example of the definition of a frame.	11:31:26
25	/////	

1	BY MR. HAAG:	11:31:30
2	Q. So what information do you need to	11:31:31
3	determine whether there is a frame as you've	11:31:32
4	construed the term "frame"?	11:31:35
5	A. So this construction for frame is very	11:31:37
6	specific to '109 in that it's referring to	11:31:44
7	what's being described in the claim language of	11:31:49
8	'109 as illuminated by the specification of	11:31:53
9	'109. And the term, frame, is referring to the	11:31:57
10	output of the Visual Server.	11:32:02
11	You're running an application on a	11:32:04
12	server, and that application you're running on	11:32:06
13	the server being transmitted to the client is	11:32:10
14	supposed to give you a similar experience to	11:32:14
15	running that application directly on the	11:32:17
16	client. And so it's quite clear when you run	11:32:20
17	an application on a client what the display is.	11:32:25
18	It's the output of that application that you	11:32:27
19	see.	11:32:30
20	And when running it on a Visual Server,	11:32:31
21	that display is being transmitted over the	11:32:37
22	network, and that describes the frame in that	11:32:39
23	context.	11:32:44
24	Q. So on my screen right now where your	11:32:46
25	video feed is, I have changed the size of my	11:32:49

1	Zoom so it doesn't take up the full screen, and	11:32:54
2	I also am showing a PDF on the same screen.	11:32:56
3	Do you understand what I just said?	11:33:03
4	A. Yes.	11:33:04
5	Q. Am I showing a frame on my screen?	11:33:05
6	MR. LI: Objection. Form. Lacks	11:33:08
7	foundation.	11:33:10
8	THE WITNESS: I didn't analyze '109 in	11:33:12
9	the context of a videoconferencing system such	11:33:15
10	as Zoom. I analyzed '109 in the context of its	11:33:20
11	embodiments and those applications. And showed	11:33:27
12	that it wasn't obviated, for example, by	11:33:32
13	Wiltshire and those -- and those embodiments.	11:33:36
14	None of those embodiments included a	11:33:43
15	videoconferencing system, so I didn't do that	11:33:46
16	analysis.	11:33:49
17	What I can say is that the construction	11:33:51
18	of a frame refers specifically to the full	11:33:54
19	image generated by the application at any given	11:33:56
20	instance in time.	11:34:00
21	If you're running an application in a	11:34:01
22	windowed environment, then that application's	11:34:04
23	output will be limited to that window. If	11:34:06
24	you're running an application full screen, then	11:34:09
25	the frame would be the entire screen.	11:34:12

1	BY MR. HAAG:	11:34:16
2	Q. So even if I'm only using a portion of	11:34:17
3	my display to display the output of an	11:34:19
4	application, you think that might still be	11:34:25
5	displaying a frame; is that right?	11:34:28
6	MR. LI: Objection to form. Lacks	11:34:33
7	foundation.	11:34:35
8	THE WITNESS: I really need to see a	11:34:36
9	specific embodiment so that we can map what is	11:34:39
10	the application you're referring to? What is	11:34:42
11	the, you know, what's running on a client?	11:34:45
12	What's running on a server? To be able to	11:34:48
13	understand how this construction of frame	11:34:50
14	applies to that particular case.	11:34:52
15	Q. If the images in the '109 patent are	11:35:06
16	shown in a window on the client, is there a	11:35:09
17	frame present, in your view?	11:35:12
18	MR. LI: Objection. Form.	11:35:14
19	THE WITNESS: Sorry, I'd have to see the	11:35:15
20	specific embodiment you're describing in the	11:35:32
21	'109. The construction of -- the construction	11:35:35
22	I used in my report specifically at	11:35:40
23	paragraph 48 says that the frame refers to the	11:35:43
24	full image generated by the application whether	11:35:46
25	running on a standard personal computer or	11:35:52

1 running on a Visual Server that is displayed to 11:35:55
2 the user. 11:35:58

3 If that application is a program run 11:35:59
4 within a windowing operating system, and the 11:36:01
5 output of that application is limited to a 11:36:04
6 window when run on the PC, then when run on a 11:36:08
7 Visual Server and transmitted to a client 11:36:14
8 computer, I would expect that same output that 11:36:16
9 appears in the window to meet the requirements 11:36:20
10 of a frame. 11:36:24

11 Q. In your view, it's possible to have a 11:36:30
12 frame, even if the frame does not take up the 11:36:33
13 full screen of the client display; is that 11:36:36
14 right? 11:36:39

15 MR. LI: Objection. Form, 11:36:40
16 mischaracterizes. 11:36:41

17 THE WITNESS: I think paragraph 48 is 11:36:46
18 clear. If you have a application running on 11:36:48
19 your standard personal computer that runs in 11:36:51
20 full screen, then in that case, if that was 11:36:53
21 running on a Visual Server and displayed in 11:36:57
22 full screen mode on the client, it would be 11:36:59
23 taking up the entire screen. 11:37:01

24 But if you were running that same 11:37:05
25 application and on your client computer you had 11:37:07

1 an operating system that was displaying the
2 output in a particular window, you would still
3 be seeing that same full screen output from the
4 application being displayed on a portion of the
5 screen on the personal computer that is not,
6 for example, describing -- what's described in
7 Wiltshire as only updating the portions of an
8 application display that hadn't changed,
9 because we are seeing the entire output of the
10 application. That's the full image generated
11 by the application at any given instance.

12 Q. Under your meaning of frame, you agree
13 that it is possible to have a frame even if it
14 does not take up the full screen of the client
15 display, correct?

16 MR. LI: Objection. Form. Asked and
17 answered.

18 THE WITNESS: And in paragraph 48 I say
19 the term "display" used in the proposed
20 construction for frame refers specifically to
21 the full image generated by the application at
22 any given instance in time.

23 So using the term display in that
24 context, you know, does not follow the way the
25 term display is being used in my opinions on

11:37:10
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11:37:15
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11:37:42
11:37:45
11:37:50
11:37:53
11:37:58
11:38:01
11:38:06
11:38:07
11:38:08
11:38:09
11:38:13
11:38:16
11:38:18
11:38:20
11:38:22
11:38:24
11:38:30

1	this construction.	11:38:33
2	BY MR. HAAG:	11:38:36
3	Q. So by display as you use it in your	11:38:36
4	report, you don't mean the client display? Is	11:38:39
5	that fair to say?	11:38:42
6	A. I believe what I mean by display is	11:38:43
7	what's shown in paragraph 48. Display refers	11:38:51
8	specifically to the full image generated by the	11:38:55
9	application at a given instance in time.	11:38:57
10	Q. So in your declaration, when you use the	11:39:01
11	term display, you do not mean the display of a	11:39:03
12	client device? You mean something else; is	11:39:08
13	that fair?	11:39:12
14	MR. LI: Objection. Form.	11:39:12
15	THE WITNESS: I would have to see the	11:39:15
16	context in which I'm using display in the	11:39:16
17	context of the construction of a -- of frame,	11:39:21
18	as a single instance of the display.	11:39:27
19	When I use the term display in that	11:39:34
20	context of that construction of frame, I mean	11:39:37
21	display as I stated in 48, referring	11:39:39
22	specifically to the full image generated by the	11:39:46
23	application at any given instance in time.	11:39:47
24	Q. Under your meaning of frame, you agree	11:39:58
25	that it is possible to have a frame even if it	11:40:01

1	does not take up the full screen of the client,	11:40:04
2	correct?	11:40:07
3	MR. LI: Objection. Form.	11:40:08
4	THE WITNESS: I'd have to see how it was	11:40:09
5	being used, the details of that embodiment,	11:40:12
6	what was the application, what was meant by the	11:40:15
7	screen of a client. I would need to see	11:40:19
8	details in order to be able to determine what	11:40:23
9	constituted a frame, be it the proper	11:40:26
10	application to this construction of frame to	11:40:32
11	that particular case.	11:40:34
12	Q. Under your meaning of frame, is it	11:40:36
13	possible to have a frame even if the frame does	11:40:38
14	not take up the full screen of the client?	11:40:46
15	MR. LI: Objection. Form. Asked and	11:40:49
16	answered.	11:40:50
17	THE WITNESS: I would have to see the	11:40:51
18	specifics of that -- of that situation, what	11:40:53
19	was being referred to as the screen of the	11:40:58
20	client, what was the application? What was the	11:41:00
21	configuration being used.	11:41:03
22	Q. Under your meaning of frame, a frame is	11:41:11
23	not limited to taking up the full screen of the	11:41:13
24	client; is that fair?	11:41:21
25	MR. LI: Objection. Form.	11:41:22

1	THE WITNESS: I'd have to see the	11:41:23
2	specifics of an embodiment. The embodiments I	11:41:27
3	did apply frame to, including the '109 and what	11:41:30
4	was being described by Wiltshire, had all of	11:41:33
5	those details and so I was able to apply this	11:41:36
6	construction of frame in those specific	11:41:40
7	embodiments. I'd need to see the specifics of	11:41:45
8	what is the application, what is being	11:41:48
9	considered the screen, what is the full image	11:41:49
10	generated by the application at any given	11:41:51
11	instance in time.	11:41:53
12	BY MR. HAAG:	11:41:54
13	Q. Is there a difference between the word	11:41:57
14	"display" and "screen" as you've been using it	11:41:59
15	for your meaning of the term "frame"?	11:42:02
16	A. It would depend on the context of what	11:42:05
17	we're discussing. When I'm using the term	11:42:10
18	display in the construction of frame, I'm	11:42:13
19	construing a frame to mean a single instance of	11:42:18
20	the display. And so there, display has a very	11:42:21
21	specific meaning as illuminated by	11:42:25
22	paragraph 48. I think the term screen is, you	11:42:30
23	know, appears, for example, on the Microsoft	11:42:33
24	dictionary definition of frame as a single	11:42:40
25	screen sized image that can be displayed in	11:42:42

1 sequence with other slightly different images 11:42:46
2 to create animated drawings. So I think you 11:42:48
3 have to look at the context of how screen is 11:42:51
4 being used, and by which definition, you know, 11:42:53
5 what is being described. 11:42:58

6 But the term display is very 11:43:01
7 specifically defined by paragraph 48. 11:43:04

8 Q. So is it fair to say that you would need 11:43:06
9 a lot of information to determine whether a 11:43:09
10 frame is present under your definition of the 11:43:11
11 term frame? 11:43:14

12 MR. LI: Objection. Form. 11:43:16

13 THE WITNESS: I don't know that I would 11:43:18
14 characterize it as a lot of information. I 11:43:19
15 would need information. What I said before, 11:43:22
16 the kind of information provided in, for 11:43:26
17 example, the embodiments described in the '109 11:43:28
18 patent specification, the embodiments described 11:43:34
19 in the -- in Wiltshire's specification, those 11:43:36
20 descriptions had sufficient detail to be able 11:43:43
21 to determine whether they are describing a 11:43:46
22 frame or not. 11:43:48

23 BY MR. HAAG: 11:43:52

24 Q. In your view does a frame have to be a 11:43:52
25 screen-sized image? 11:43:54

1 A. I don't believe I have issued an opinion
2 requiring that. The opinion I did issue is
3 that the frame is a -- an instance of a --
4 where is it? A single instance of the display
5 the Microsoft definition says a single
6 screen-sized image that can be displayed in a
7 sequence with other slightly different images
8 to create animated drawings.

11:43:56
11:44:03
11:44:08
11:44:16
11:44:25
11:44:27
11:44:29
11:44:31

9 But, you know, the -- their use of the
10 term screen-sized image is not necessarily the
11 same term screen that you might use in a
12 particular embodiment. You'd have to look at
13 the details of the embodiment to determine what
14 is meant by screen or screen-sized image.

11:44:35
11:44:39
11:44:44
11:44:47
11:44:50
11:44:52

15 Q. Do you agree with the definition of
16 frame that you've cited in paragraph 47 from
17 the Microsoft computer dictionary?

11:44:54
11:44:57
11:45:00

18 A. Yes, it's -- it defines frame as a
19 single screen sized image that can be displayed
20 in sequence with other slightly different
21 images to create animated drawings.

11:45:02
11:45:08
11:45:11
11:45:12

22 The Microsoft computer dictionary is a
23 general book. It was not written using the
24 specific language, terminology of the '109
25 patent. It's a much broader definition. So

11:45:18
11:45:21
11:45:23
11:45:26

1 what's being provided here in the definition of 11:45:30
2 a frame is consistent, but the specific terms 11:45:32
3 used, for example, screen-sized image, are 11:45:36
4 generalities that may not match specifically to 11:45:39
5 what is being described as a screen in any of 11:45:45
6 these embodiments. When the Microsoft computer 11:45:49
7 dictionary says a single screen-sized image, 11:45:53
8 that is consistent with my definition of 11:45:55
9 display as being the full image generated by 11:46:03
10 the application at any given instance in time. 11:46:06

11 Q. So you think the Microsoft computer 11:46:08
12 dictionary is right when it defines frame as a 11:46:10
13 single screen-sized image; is that right? 11:46:13

14 A. As I've just said, that definition is 11:46:16
15 consistent and supports the construction 11:46:21
16 provided for frame. The details of that used 11:46:25
17 terminology in different context, so you have 11:46:32
18 to be very careful in looking at, for example, 11:46:35
19 the term screen in one context versus another 11:46:37
20 context. 11:46:40

21 The context of the Microsoft computer 11:46:41
22 dictionary is very broad. The context of the 11:46:43
23 '109 is very specific, focused on the 11:46:46
24 embodiments and claims described by it. 11:46:48

25 Q. So does a frame have to be a 11:46:51

1	screen-sized image, yes or no, or you don't	11:46:53
2	know?	11:46:56
3	MR. LI: Objection. Form.	11:46:56
4	THE WITNESS: The Microsoft computer	11:46:58
5	dictionary refers to a single screen-sized	11:47:02
6	image. That is general language that's	11:47:04
7	consistent with the construction of a frame.	11:47:08
8	But I did not -- the construction of the frame	11:47:12
9	doesn't include the term single screen-sized	11:47:15
10	image because that does not address, for	11:47:21
11	example, the specifics of a client server	11:47:23
12	example as provided in '109. There, the	11:47:26
13	display used in the construction of the frame,	11:47:30
14	refers specifically to the full image generated	11:47:34
15	by the application at any given instance in	11:47:37
16	time.	11:47:40
17	BY MR. HAAG:	11:47:40
18	Q. So if your -- imagine that a client	11:47:55
19	display shows a single video feed, okay?	11:47:58
20	A. The client application?	11:48:00
21	Q. Imagine that the screen on a client	11:48:08
22	shows a single video feed coming from a server,	11:48:12
23	okay?	11:48:15
24	A. When you say the screen on the client,	11:48:15
25	are you talking about the entire display	11:48:17

1	monitor?	11:48:20
2	Q. I'm saying that a display on a client	11:48:21
3	shows a single video feed, okay?	11:48:26
4	A. When you say display, are you using the	11:48:28
5	term display as I've used it in paragraph 48?	11:48:30
6	Q. I'm using a physical display. My	11:48:34
7	physical display that you're shown on right	11:48:37
8	now, or the display that you're looking at	11:48:40
9	right now, your screen. Your client screen.	11:48:42
10	That's what I mean by display, okay?	11:48:46
11	A. Okay.	11:48:48
12	Q. So imagine that that display shows a	11:48:49
13	single video feed, okay?	11:48:53
14	A. Okay.	11:48:55
15	Q. And imagine that there's a static	11:48:56
16	boundary around that video feed, okay?	11:49:00
17	A. Okay.	11:49:02
18	Q. The video feed is coming from the	11:49:06
19	server, but the static boundary is not, okay?	11:49:08
20	A. Okay.	11:49:10
21	Q. Is there a frame being sent to the	11:49:13
22	client by the server?	11:49:15
23	MR. LI: Objection. Form. Lacks	11:49:16
24	foundation. Calls for speculation.	11:49:18
25	THE WITNESS: Based on that description,	11:49:19

1	I couldn't say. One, you're using the term	11:49:24
2	display differently than it's being used, for	11:49:26
3	example, in paragraph 48. I don't know the	11:49:29
4	characteristics of the application. There's	11:49:33
5	not enough information there to determine if	11:49:37
6	frame applies to that particular case.	11:49:41
7	BY MR. HAAG:	11:49:50
8	Q. You agree with me that it's possible to	11:50:00
9	have a frame sent from the server to the client	11:50:02
10	even if the client augments the frame with	11:50:04
11	additional decorations, right?	11:50:10
12	A. I'd have to see what those decorations	11:50:15
13	were, what's going on to determine if that's an	11:50:23
14	appropriate frame in terms of the '109.	11:50:26
15	Q. Well, sir, in paragraph 48, you say:	11:50:34
16	Even if the '109 patent's client augments the	11:50:42
17	frame with additional decorations such as a	11:50:45
18	window frame, a POSITA would have understood	11:50:47
19	that those decorations were not part of the	11:50:49
20	original application and, hence, did not	11:50:51
21	constitute any part of the frame.	11:50:53
22	That's what you said, right?	11:50:54
23	A. Yes.	11:50:56
24	Q. Now, with what you just described there,	11:50:57
25	is it possible that there was a frame sent from	11:51:03

1	the server to the client, even though the	11:51:06
2	client augments what was displayed?	11:51:09
3	MR. LI: Objection. Form.	11:51:13
4	THE WITNESS: Yes, and in that	11:51:14
5	particular example, then, yes, that would --	11:51:16
6	that could be used to transmit a frame.	11:51:22
7	Q. Do you agree with me that the '109	11:51:26
8	patent does not contain an explicit definition	11:51:28
9	of the term frame?	11:51:31
10	MR. LI: Objection. Form.	11:51:33
11	BY MR. HAAG:	11:51:37
12	Q. Do you need me to repeat that question?	11:51:37
13	A. No. I don't recall, you know, any	11:51:38
14	glossary in the '109. The terms in the claims,	11:51:45
15	particularly Claim 1, I read in light of the	11:51:51
16	specification and the characterization of a	11:51:56
17	Visual Server and what is considered to be the	11:51:59
18	output of the Visual Server, the intended	11:52:04
19	output of the Visual Server versus what is not.	11:52:07
20	In the description of the related art, for	11:52:11
21	example, there are descriptions of systems that	11:52:13
22	create a low resolution version of an image,	11:52:16
23	and a higher resolution version of an image,	11:52:19
24	and then do some math on that, so there is a	11:52:21
25	combination of the results that is displayed.	11:52:25

1	And it's quite clear that that situation is not	11:52:28
2	intended to be a frame.	11:52:31
3	So based on that example and others in	11:52:34
4	the discussion of in the specification of the	11:52:38
5	'109, it became quite clear what was the	11:52:45
6	intended output of the Visual Server, and what	11:52:48
7	was intended by the term frame in Claim 1.	11:52:51
8	Q. Does the '109 patent contain an explicit	11:52:58
9	definition of the term frame in your view?	11:53:01
10	MR. LI: Objection. Form. Asked and	11:53:03
11	answered.	11:53:05
12	THE WITNESS: As I said before, if	11:53:05
13	explicit means a glossary definition, then, no,	11:53:09
14	there is no glossary that I saw in the '109	11:53:13
15	listing terms and their specific definitions.	11:53:18
16	But I was able to understand what was	11:53:22
17	intended by the term frame, and I believe a	11:53:24
18	person of ordinary skill in the art at the time	11:53:27
19	understood what was being meant by a frame,	11:53:29
20	based on the disclosures in the specification,	11:53:34
21	the examples, the embodiments, the related art.	11:53:38
22	BY MR. HAAG:	11:53:42
23	Q. At the end of paragraph 46 of your	11:53:46
24	declaration, you use the term "full resolution	11:53:49
25	image," do you see that?	11:53:54

1	A. Yes, I see that.	11:53:55
2	Q. What is a full resolution image?	11:54:02
3	A. Resolution, you know, can mean the	11:54:04
4	number of Pixels in an image, or the resolution	11:54:23
5	of the underlying geometry used to generate the	11:54:26
6	image. I'm using resolution in this context to	11:54:30
7	differentiate the other examples of related	11:54:34
8	work that are quoted in the same paragraph	11:54:39
9	about compositing together, you know,	11:54:45
10	renderings from a -- from a low-level of detail	11:54:48
11	database and a -- along with a difference image	11:54:57
12	of the full-level of detail computed on the	11:55:03
13	server.	11:55:09
14	Q. How does a server know when the image is	11:55:09
15	a full resolution image?	11:55:12
16	MR. LI: Objection. Form.	11:55:17
17	THE WITNESS: The server knows because	11:55:22
18	of this particular model described in the	11:55:24
19	related art. The client unit contains only a	11:55:26
20	low-level of detailed geometric database, and	11:55:29
21	renders this database for each frame, and the	11:55:33
22	difference image computed on the server is	11:55:37
23	compressed and transmitted to the client in	11:55:39
24	realtime, which then decompresses and	11:55:41
25	composites it together.	11:55:43

1	So by design, the server knows that it's	11:55:45
2	doing a full resolution rendering, and in	11:55:48
3	computing -- it's doing a full resolution	11:55:51
4	rendering and a lower resolution rendering,	11:55:53
5	computing a difference image, and then sending	11:55:56
6	that across to be composited with a low-level	11:55:58
7	of detail database rendering on the client.	11:56:04
8	So the term "full resolution" is being	11:56:07
9	described, as opposed to the low-level of	11:56:12
10	detail database rendering.	11:56:18
11	Q. Is the server generating a frame if the	11:56:23
12	client supports a higher resolution image than	11:56:26
13	what the server generates?	11:56:31
14	MR. LI: Objection. Form.	11:56:33
15	THE WITNESS: I'd have to see the	11:56:35
16	example, you know, the embodiment, the details	11:56:36
17	of the embodiment to such a system to be able	11:56:39
18	to make that determination.	11:56:42
19	BY MR. HAAG:	11:56:43
20	Q. So let's say that a server generates a	11:56:43
21	1024x768 image, okay?	11:56:48
22	A. Okay.	11:56:51
23	Q. And it transmits that image to the	11:56:56
24	client, okay?	11:56:59
25	A. Okay.	11:56:59

1	Q. And the client has a display that	11:57:00
2	supports 1920x1080, okay?	11:57:02
3	A. Okay.	11:57:07
4	Q. So the client here has a higher	11:57:08
5	resolution than the server generated, right?	11:57:10
6	A. Okay.	11:57:12
7	Q. Is the server generating a frame in this	11:57:14
8	scenario?	11:57:16
9	MR. LI: Objection. Form.	11:57:19
10	THE WITNESS: So the term "frame," as a	11:57:20
11	single instance of the display uses the term	11:57:26
12	display. And the term display as described in	11:57:29
13	paragraph 48 refers specifically to the full	11:57:34
14	image generated on the application at any given	11:57:36
15	instance in time. And so the resolution of the	11:57:39
16	client just needs to be sufficient to be able	11:57:44
17	to visually show that the display image	11:57:48
18	generated by the application.	11:57:56
19	Q. So if the client program just displays	11:58:01
20	what it receives from the server, is the client	11:58:04
21	program displaying a frame in this scenario?	11:58:08
22	MR. LI: Objection. Form.	11:58:15
23	THE WITNESS: I don't know that I was	11:58:16
24	asked to offer any opinions on that.	11:58:20
25	The term frame is used in the '109 at	11:58:23

1	Claim 1 in the context of a compressed frame	11:58:27
2	that could be decompressed and displayed as an	11:58:38
3	updated image on the client device.	11:58:41
4	So the term frame being used in Claim 1	11:58:44
5	isn't referring to what the client is doing.	11:58:49
6	The term frame is referring to the updated	11:58:52
7	image as a compressed frame from the server.	11:58:55
8	So, you know, I don't know that your question	11:59:00
9	is really relevant to Claim 1 or the analysis	11:59:03
10	or opinions I've provided on it.	11:59:07
11	BY MR. HAAG:	11:59:10
12	Q. So let's go back to your construction of	11:59:11
13	the term frame that you list in paragraph 44 of	11:59:13
14	your declaration, okay?	11:59:15
15	A. Okay.	11:59:16
16	Q. You say a frame is a single instance of	11:59:19
17	a display, right?	11:59:22
18	A. Yes.	11:59:23
19	Q. And then you need to construe the term	11:59:25
20	display as it's used in your construction of	11:59:29
21	the term frame, right?	11:59:31
22	A. Well, I construed frame. I didn't offer	11:59:32
23	a construction of the term display, but I did	11:59:38
24	use paragraph 48 to further illustrate what is	11:59:43
25	meant by the term display in that definition,	11:59:47

1	in that construction of frame. In that display	11:59:50
2	specifically refers to the full image generated	11:59:55
3	by an application at any given instance in	11:59:57
4	time.	11:59:59
5	Q. So in your construction of the term	11:59:59
6	frame, the word display is not referring to	12:00:01
7	simply the client's display, correct?	12:00:03
8	MR. LI: Objection. Form.	12:00:09
9	Mischaracterizes.	12:00:10
10	THE WITNESS: I think what display is	12:00:12
11	referring to is specifically the full image	12:00:13
12	generated by the application at any given	12:00:15
13	instance in time.	12:00:17
14	BY MR. HAAG:	12:00:21
15	Q. So by "the display" in your construction	12:00:24
16	of frame, you don't mean the client's display;	12:00:26
17	is that fair?	12:00:30
18	MR. LI: Objection to form.	12:00:30
19	THE WITNESS: I mean what I said it	12:00:36
20	meant. The term display refers to the output	12:00:37
21	of the application.	12:00:39
22	That's how it's used in the term	12:00:45
23	compressed frame that appears in Claim 1.	12:00:48
24	BY MR. HAAG:	12:00:57
25	Q. So you think the term display in your	12:00:57

1	construction is referring to something taking	12:00:59
2	place on the server and not the client; is that	12:01:01
3	fair?	12:01:06
4	A. No. The term display is, as I specified	12:01:07
5	in paragraph 48, it refers to the full image	12:01:13
6	generated by the application. So the	12:01:17
7	application is running on the server, but I'm	12:01:20
8	not talking about the server, I'm not talking	12:01:23
9	about the client; I'm talking about the full	12:01:26
10	image generated by the application. And I go	12:01:27
11	on to say whether that application is running	12:01:30
12	on a standard personal computer or running on a	12:01:32
13	Visual Server.	12:01:35
14	Q. So the term "display" in your	12:01:36
15	construction of frame is referring to an	12:01:44
16	application; is that right?	12:01:52
17	A. That's right. It refers specifically to	12:01:54
18	the full image generated by the application.	12:01:59
19	Q. So display does not mean a screen in	12:02:02
20	your construction of frame, is that fair?	12:02:06
21	A. I didn't say that. I'd have to see the	12:02:08
22	example to make a determination like that.	12:02:10
23	Q. In your construction of frame, the term	12:02:15
24	display does not mean the client's display	12:02:18
25	device; is that fair?	12:02:23

1 A. So the term display that I'm using is in
2 the construction of frame. The term frame that
3 that construction defines is from the term --
4 from the phrase compressed frame in Claim 1,
5 that can be decompressed and displayed as an
6 updated image to the client device. So the
7 client device is going to be displaying that.

8 But when I say display in the
9 construction of a compressed frame, it's not
10 necessarily being used as the term display
11 further on in the -- in Claim 1.

12 That term display, displayed as an
13 updated image in the client device, I felt was
14 well understood by a person of ordinary skill
15 in the art at that time, are using its plain
16 and ordinary meaning.

17 Q. Is it fair to say that the term display
18 used in your construction of the term frame, is
19 not the same thing as the display in Claim 1 of
20 the '109 patent?

21 MR. LI: Objection. Form.

22 THE WITNESS: I'm saying that it's not
23 necessarily the same. I would have to look at
24 the particular example to see what was being
25 referred to, what was the output of the

1 application, how was it being displayed as an 12:03:48
2 updated image on the client -- at the client 12:03:52
3 device to be able to determine if they, indeed, 12:03:55
4 were the same thing or different things in that 12:03:58
5 particular case. 12:04:00

6 BY MR. HAAG: 12:04:01

7 Q. So sitting here right now, you're not 12:04:04
8 sure if the term display in your construction 12:04:07
9 of frame means the same thing as display as 12:04:10
10 used in the '109 patent, is that fair? 12:04:13

11 MR. LI: Objection. Form. 12:04:16
12 Mischaracterizes. 12:04:17

13 THE WITNESS: I didn't offer any opinion 12:04:19
14 or any construction on the term display used in 12:04:20
15 Claim 1, and displayed as an updated image in 12:04:23
16 the client device. I can't, you know, provide 12:04:27
17 general equivalences of, you know, this term 12:04:30
18 display used specifically in the construction 12:04:34
19 of frame. 12:04:37

20 You know, for example, the compressed 12:04:40
21 frame used in Claim 1, I would have to look at 12:04:42
22 the embodiment to, you know, apply Claim 1 to 12:04:45
23 determine how each of these elements is being 12:04:49
24 properly utilized and met. 12:04:52

25 Q. But you do agree with me that the term 12:05:41

1 display in your construction of frame is not
2 referring to a client display screen, correct?

3 MR. LI: Objection. Form. Asked and
4 answered.

5 THE WITNESS: It could. But in 48 when
6 I use the term display, it refers specifically
7 to the full image generated by the application
8 at any given instance in time.

9 So in paragraph 48, I'm not saying
10 whether or not it has anything to do with the
11 client. What I am saying is that it refers
12 specifically to the full image generated by the
13 application at any given instance in time.

14 Q. So the term display in your construction
15 to frame does not specifically mean the client
16 display, correct?

17 MR. LI: Objection. Form.

18 THE WITNESS: It could or it could not.
19 It depends on the embodiment. What it does
20 specifically refer to is the full image
21 generated by the application at any given
22 instance in time.

23 BY MR. HAAG:

24 Q. Could you go to the abstract of the '109
25 patent, it's Exhibit 1001.

12:05:43

12:05:46

12:05:53

12:05:54

12:05:55

12:06:01

12:06:03

12:06:06

12:06:08

12:06:11

12:06:14

12:06:17

12:06:20

12:06:23

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12:06:29

12:06:31

12:06:35

12:06:37

12:06:41

12:06:44

12:06:47

12:06:49

12:07:00

12:07:02

1	A. Okay.	12:07:08
2	Q. The last sentence reads: In the system,	12:07:45
3	the Visual Server and client can provide a	12:07:48
4	sequential display of modified frames on client	12:07:50
5	to support animation with complex 3-dimensional	12:07:54
6	graphics.	12:07:58
7	Do you see that?	12:07:58
8	A. Yes, I do.	12:07:59
9	Q. What does "sequential display" mean?	12:08:01
10	A. I think a person of ordinary skill in	12:08:04
11	the art would understand sequential display	12:08:12
12	similar to how it's referred to in the	12:08:15
13	Microsoft computer dictionary definition of	12:08:18
14	frame, as images displayed in a sequence with	12:08:22
15	other slightly different images to create	12:08:27
16	animated drawings.	12:08:29
17	That would support animation.	12:08:35
18	Q. Am I right in the abstract the '109	12:08:38
19	patent indicates that a frame is one of a	12:08:48
20	sequence to be displayed sequentially on the	12:08:51
21	client?	12:08:56
22	MR. LI: Objection. Form.	12:08:57
23	Mischaracterizes.	12:08:59
24	THE WITNESS: I mean, the abstract says	12:09:08
25	it can provide a sequential display of modified	12:09:17

1 frames on a client to support animation.

12:09:20

2 Q. That's indicating that a frame is one of
3 a sequence of images to be displayed on the
4 client; is that right?

12:09:29

12:09:33

12:09:36

5 MR. LI: Objection. Form.
6 Mischaracterizes.

12:09:36

12:09:38

7 THE WITNESS: Frame is a term in
8 Claim 1. The abstract is describing a summary
9 of the entire patent specification. So I would
10 have to look at a particular embodiment to
11 determine, you know, how, you know, Claim 1 was
12 being demonstrated, to be able to answer
13 questions about a frame. The abstract is
14 giving a general setting for the Visual Server
15 and the client server operation described by
16 the entire specification.

12:09:39

12:09:42

12:09:47

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12:09:55

12:09:59

12:10:02

12:10:07

12:10:09

12:10:13

17 Q. Now, are you saying that the abstract is
18 not specifically relevant to your construction
19 of the term frame?

12:10:16

12:10:18

12:10:20

20 MR. LI: Objection. Form.
21 Mischaracterizes.

12:10:23

12:10:25

22 THE WITNESS: No, I think I said the
23 opposite. That it's very relevant, but it's a
24 summary. It's too broad. Claim 1 is very
25 specific. It has specific requirements. And

12:10:27

12:10:29

12:10:33

12:10:36

1	the abstract does not, you know, include	12:10:39
2	embodiments at the level of detail needed to	12:10:42
3	understand those details in Claim 1. The	12:10:45
4	abstract is a summary.	12:10:48
5	BY MR. HAAG:	12:10:50
6	Q. So just from the abstract, do you	12:10:50
7	understand what the term "frame" means?	12:10:53
8	A. No, I don't think I ever said that my	12:10:56
9	understanding of the term frame came only from	12:11:01
10	the abstract.	12:11:03
11	(Previously marked Deposition	09:54:00
12	Exhibit 2004 was reviewed.)	09:54:00
13	Q. If we could provide Dr. Hart with	12:11:14
14	Exhibit 2004. And I think you were putting	12:11:18
15	that in the chat before, so if you could put	12:11:29
16	that in the chat so anyone who wants it can get	12:11:31
17	it, that would be great.	12:11:33
18	Dr. Hart, just let me know when you have	12:12:09
19	Exhibit 2004.	12:12:13
20	A. Okay. I have it.	12:12:16
21	Q. Dr. Hart, do you recognize Exhibit 2004	12:12:18
22	as being the file history of the '109 patent?	12:12:21
23	A. Yes, I do.	12:12:25
24	Q. And you discuss parts of the file	12:12:26
25	history for the '109 patent in your	12:12:29

1	declaration, right?	12:12:31
2	MR. LI: Objection. Form.	12:12:32
3	THE WITNESS: I believe I indicated that	12:12:34
4	I had read it. I imagine I cited to it.	12:12:36
5	BY MR. HAAG:	12:12:40
6	Q. So I'd like you to turn to page 273 of	12:12:40
7	Exhibit 2004, okay?	12:12:51
8	A. Okay.	12:12:52
9	Q. Are you there, sir?	12:13:00
10	A. Yes.	12:13:01
11	Q. And you recognize page 273, right?	12:13:03
12	A. Yes.	12:13:12
13	Q. And this is where the patent applicant	12:13:15
14	for the '109 addressed Section 102 and 103	12:13:19
15	Rejections, right?	12:13:25
16	A. Yes.	12:13:26
17	Q. Now, one of the arguments made, and this	12:13:28
18	is in the first paragraph, is that "there is	12:13:35
19	nothing to suggest that Yamada first generates	12:13:39
20	a frame of image data and then compresses that	12:13:43
21	frame prior to transmitting it to a remote	12:13:45
22	client device."	12:13:48
23	Do you see that?	12:13:50
24	A. Yes.	12:13:50
25	Q. And then if we go down, there is a	12:13:51

1	sentence, the paragraph that begins with	12:14:06
2	"Yamada clearly teaches..." Do you see that?	12:14:08
3	A. Yes.	12:14:10
4	Q. It says: Yamada clearly teaches that	12:14:11
5	the game software information stored on the	12:14:15
6	hard disk of the STB is used by the game	12:14:17
7	machine 1 to execute a game.	12:14:21
8	Do you see that?	12:14:23
9	A. Yes, I do.	12:14:23
10	Q. And STB in Yamada is a set-top box,	12:14:26
11	right?	12:14:30
12	A. I'd have to review Yamada. I believe	12:14:30
13	so.	12:14:39
14	Q. And then the response goes on, and it	12:14:39
15	says: This local execution of the game fails	12:14:43
16	to meet the limitations of claim 21 which	12:14:46
17	further includes the limitation that the server	12:14:49
18	runs the interactive software application.	12:14:51
19	Do you see that?	12:14:53
20	A. Yes.	12:14:54
21	Q. So here, the applicant was	12:14:56
22	distinguishing Yamada, because Yamada locally	12:14:59
23	executes a game, rather than the server running	12:15:03
24	an interactive software application; is that	12:15:08
25	right?	12:15:10

1	MR. LI: Objection to form.	12:15:12
2	THE WITNESS: In that sentence.	12:15:13
3	BY MR. HAAG:	12:15:15
4	Q. Is the answer to my question yes?	12:15:15
5	A. What was the question?	12:15:17
6	Q. So in the sentence I read from page 273	12:15:19
7	from the file history, the applicant was	12:15:33
8	distinguishing Yamada, because Yamada locally	12:15:36
9	executes a game, rather than the server running	12:15:39
10	an interactive software application, right?	12:15:43
11	MR. LI: Objection. Form.	12:15:46
12	THE WITNESS: I see that that sentence	12:15:47
13	states that, yes.	12:15:51
14	BY MR. HAAG:	12:15:53
15	Q. Now, do you agree with me that on	12:16:11
16	page 273 of the file history, the applicant	12:16:17
17	does not discuss MPEG?	12:16:21
18	A. I don't see the term MPEG used in	12:16:26
19	page 273.	12:16:36
20	Q. And on page 273 from the file history,	12:16:37
21	do you agree with me that the applicant does	12:16:41
22	not define the term "frame"?	12:16:43
23	MR. LI: Objection. Form.	12:16:46
24	THE WITNESS: I don't see a glossary	12:16:48
25	definition of the term frame. But I do see the	12:17:16

1 term frame used. Specifically there is nothing
2 to suggest that Yamada first generates a frame
3 of image data, and then compresses that frame
4 prior to transmitting it to the remote client
5 device.

6 Q. But you don't see a definition of the
7 term frame, correct?

8 MR. LI: Objection. Form.

9 THE WITNESS: Well, when you say see a
10 definition, if -- as I read this, as a person
11 of ordinary skill would read this, I see the
12 objection being that Yamada doesn't first
13 generate a frame of image data and then
14 compress that frame prior to transmitting it to
15 a remote client device. Then I see a
16 description of what Yamada does. And in doing
17 that, there is a combination occurring that
18 does not meet that use of the term frame as a
19 compressed frame, first generating a frame of
20 image data and then compressing that frame.

21 So I can glean a definition of frame
22 from that context.

23 BY MR. HAAG:

24 Q. And on page 273 of the file history, you
25 don't see the term "single instance of the

12:17:19

12:17:24

12:17:27

12:17:30

12:17:33

12:17:35

12:17:37

12:17:38

12:17:41

12:17:44

12:17:48

12:17:53

12:17:56

12:17:59

12:18:01

12:18:04

12:18:08

12:18:13

12:18:21

12:18:24

12:18:27

12:18:30

12:18:32

12:18:32

12:18:37

1	display" used, right?	12:18:40
2	A. No, I don't believe that particular	12:18:42
3	phrase is here on page 273.	12:18:51
4	Q. And on page 273, you also don't see the	12:18:54
5	phrase "entire display," right?	12:18:59
6	A. I don't, I don't believe so.	12:19:02
7	Q. And you've read Yamada; is that right?	12:19:56
8	A. Yes.	12:19:58
9	Q. And am I right that Yamada locally	12:20:01
10	executed a game?	12:20:03
11	A. I'd have to look at Yamada again to look	12:20:05
12	at the specific embodiments and system design.	12:20:15
13	What I recall from, for example, what's shown	12:20:25
14	in front of me on page 273 is there is a	12:20:28
15	combination of elements to create an image in	12:20:30
16	Yamada, and it's that combination of elements	12:20:33
17	that, you know, did not meet the requirements	12:20:36
18	of a frame, of a compressed frame that -- which	12:20:41
19	is why the -- why the rejection was withdrawn.	12:20:49
20	Q. So if you go to the first paragraph, you	12:21:06
21	see the sentence that begins with "Second"?	12:21:13
22	A. First paragraph of what?	12:21:17
23	Q. Page 273, the file history.	12:21:18
24	A. Page 273, the first paragraph says on	12:21:22
25	page 6.	12:21:26

1	Q. Okay. So we're on Exhibit 2004, right?	12:21:27
2	A. Uh-huh.	12:21:30
3	Q. Page 273?	12:21:31
4	A. Uh-huh.	12:21:35
5	Q. Right?	12:21:36
6	A. Uh-huh.	12:21:36
7	Q. This is page 273 of the file history of	12:21:38
8	the '109 patent, right?	12:21:41
9	A. Yeah, page 273 of 494 in the PDF file.	12:21:42
10	Q. Yep. And the first paragraph on that	12:21:46
11	page, the last sentence reads: Second, there	12:21:50
12	is nothing to suggest that Yamada first	12:21:54
13	generates a frame of image data and then	12:21:57
14	compresses that frame prior to transmitting it	12:21:59
15	to a remote client device.	12:22:01
16	Do you see that?	12:22:03
17	A. Yes.	12:22:04
18	Q. Now, am I right that -- well, strike	12:22:05
19	that. The sentence before that it refers to	12:22:14
20	the claim language: Compressing the at least	12:22:19
21	one updated image and transmitting the	12:22:21
22	compressed updated image to the client device.	12:22:23
23	Do you see that?	12:22:26
24	A. Yeah, I see a sentence beginning: For	12:22:26
25	example with respect to claim 21 Yamada does	12:22:35

1	not teach or suggest compressing and	12:22:37
2	transmitting.	12:22:46
3	Yes, I see that.	12:22:48
4	Q. I'm sorry.	12:22:49
5	The language about compressing and	12:22:51
6	transmitting from the claim, those are steps	12:22:55
7	performed by the server in the claim, right?	12:22:58
8	If you want to you can look at page 269,	12:23:25
9	where it shows claim 29 as being compressed.	12:23:28
10	A. Okay.	12:23:32
11	Q. So let's look at that language, do you	12:23:37
12	see claim 21 on page 269 of the file history of	12:23:39
13	Exhibit 2004?	12:23:43
14	A. Yes, yes.	12:23:44
15	Q. Now, there is a step there of generating	12:23:46
16	at least one updated image at the server.	12:23:48
17	Do you see that?	12:23:51
18	A. Yes.	12:23:51
19	Q. And that generating step is a step that	12:23:58
20	takes place at the server, right?	12:24:01
21	A. Yes, generating at least one updated	12:24:03
22	image at the server.	12:24:06
23	Q. And then the next step in the claim is:	12:24:08
24	Compressing the at least one updated image.	12:24:12
25	Do you see that?	12:24:16

1	A. Yes.	12:24:16
2	Q. And in pending claim 21 from the file	12:24:17
3	history, the generating and compressing steps	12:24:21
4	take place at the server, right?	12:24:24
5	A. Claim 21 is a method claim. It's a	12:24:26
6	method of hosting an interactive software	12:24:33
7	application comprising these steps. So the	12:24:35
8	generating step says the method generates at	12:24:40
9	least one updated image at the server.	12:24:44
10	And the compressing and transmitting	12:24:50
11	requirement next says: Wherein the server	12:24:54
12	transmits the updated image as a compressed	12:24:58
13	frame that can be decompressed.	12:25:01
14	But it doesn't explicitly say that the	12:25:03
15	server does the compression.	12:25:06
16	Q. Okay. Well, you do agree with me that	12:25:08
17	the generating step and the transmitting step	12:25:10
18	in pending claim 21 in the '109 file history,	12:25:13
19	those steps take place at the server, right?	12:25:18
20	A. Yes. The method generates at least one	12:25:21
21	updated image at the server, and wherein the	12:25:26
22	server transmits the updated image as a	12:25:30
23	compressed frame.	12:25:33
24	MR. HAAG: Why don't we take a break.	12:25:33
25	THE VIDEOGRAPHER: We are going off the	12:25:40

1 record, the time is 12:25 p.m.

12:25:43

2 (Recess ensued from 12:25 p.m. to

12:25:45

3 12:59 p.m.)

12:58:38

4 (Previously marked Deposition Exhibit

12:58:38

5 1005 was reviewed.)

12:59:29

6 THE VIDEOGRAPHER: We are back on the

12:59:29

7 record. The time is 12:59 p.m.

12:59:31

8 BY MR. HAAG:

12:59:33

9 Q. Dr. Hart, if you could pull up your
10 version of Exhibit 1005?

12:59:42

12:59:45

11 A. Okay.

12:59:51

12 Q. And do you recognize this as the Saha
13 patent?

12:59:52

12:59:55

14 A. Yes, yes, I do.

12:59:55

15 Q. This is one of the patents that you have
16 some opinions about, right?

12:59:57

01:00:01

17 A. Yes.

01:00:02

18 Q. I'd like you to look at -- you'll
19 understand me if I refer to Exhibit 1005 as
20 Saha?

01:00:03

01:00:14

01:00:17

21 A. Yes.

01:00:18

22 Q. I'd like you to look at column 2,
23 starting at line 17 of Saha.

01:00:19

01:00:25

24 A. Okay.

01:00:38

25 Q. And in column 2, right around line 19,

01:00:40

1	Saha refers to "successive frames in a video	01:00:54
2	sequence."	01:01:00
3	Do you see that?	01:01:00
4	A. Yes.	01:01:01
5	Q. What does that mean?	01:01:02
6	A. It's referring to neighboring frames in	01:01:03
7	a video sequence.	01:01:17
8	Q. So Saha is discussing frames in terms of	01:01:18
9	successive frames that make up a video	01:01:22
10	sequence. Is that fair to say?	01:01:26
11	A. Yes. This terminology of frames in MPEG	01:01:27
12	is talking about the images that make up a	01:01:33
13	video sequence.	01:01:36
14	Q. So here in Saha, in this usage of frame,	01:01:41
15	a frame is referring to an image in a video	01:01:46
16	sequence; is that fair?	01:01:53
17	A. Yes, as opposed to an instance of a	01:01:54
18	display coming from an application, yeah.	01:01:59
19	Q. At column 2, right around line 21, Saha	01:02:04
20	refers to an MPEG stream; do you see that?	01:02:22
21	A. Yes.	01:02:26
22	Q. What is an MPEG stream?	01:02:34
23	A. In this context it's talking about an	01:02:35
24	MPEG data. The MPEG data is a encoding of an	01:02:42
25	animation sequence of images. So together that	01:02:50

1	data is called a stream.	01:02:59
2	Q. By MPEG stream in Saha, does that mean a	01:03:00
3	stream of MPEG frames?	01:03:03
4	A. I think the term stream in this context	01:03:04
5	means that the data describes things that	01:03:09
6	change over time. That you would need	01:03:15
7	additional data to figure out what's happening	01:03:19
8	later in time. That's the notion of a stream.	01:03:23
9	Q. Am I right that an MPEG stream in Saha	01:03:26
10	is a stream of frames?	01:03:29
11	MR. LI: Objection. Form.	01:03:35
12	THE WITNESS: Well, certainly not frames	01:03:37
13	in the sense of, you know, frame as being used	01:03:41
14	here to discuss an I frame predicted P frame,	01:03:44
15	and the bidirectional interpolated B frame,	01:03:48
16	those frames are discussing individual images	01:03:52
17	in an animated sequence, and some kind of	01:03:55
18	motion picture sequence where the images may	01:04:00
19	change from image to image.	01:04:02
20	BY MR. HAAG:	01:04:05
21	Q. Now, there is a sentence, it's right	01:04:06
22	around line 19 or 20 in column 2 of Saha that	01:04:10
23	reads: MPEG compression uses this inherent	01:04:15
24	redundancy to encode or compress frames in the	01:04:18
25	sequence.	01:04:21

1	Do you see that?	01:04:22
2	A. Yes, I do.	01:04:23
3	Q. So Saha discloses compressing frames,	01:04:25
4	using MPEG, correct?	01:04:32
5	A. Yes.	01:04:33
6	Q. And Saha discloses compressed frames,	01:04:34
7	correct?	01:04:40
8	A. Well, compressed frames is a term from	01:04:40
9	the '109 Claim 1 and so a compressed frame as	01:04:46
10	used in Claim 1, you know, we've got a	01:04:53
11	construction for frame there, and that's not	01:04:59
12	necessarily the same connotation or usage of	01:05:02
13	the term frame in Saha here.	01:05:06
14	Q. So when Saha refers to compressing	01:05:12
15	frames, in your view, does that refer to	01:05:15
16	compressed frames?	01:05:20
17	MR. LI: Objection. Form.	01:05:24
18	THE WITNESS: Not necessarily. So the	01:05:25
19	compressed frames used in '109, Claim 1, refers	01:05:27
20	to frames, a frame that we've constructed --	01:05:33
21	construed, sorry, to be a single instance of	01:05:40
22	the display, where the display is the output --	01:05:43
23	Let me look up the specific language.	01:05:51
24	It's specifically to the full image generated	01:06:09
25	by the application. It's unclear that in Saha,	01:06:12

1	you know, we're talking about any application.	01:06:17
2	Q. Is it fair to say that you don't have an	01:06:23
3	opinion one way or the other as to whether	01:06:27
4	Saha's compressed frames qualify as compressed	01:06:31
5	frames from the '109 patent?	01:06:34
6	MR. LI: Objection. Form.	01:06:36
7	THE WITNESS: I believe I have opinions	01:06:37
8	on that, specifically in the embodiment from	01:06:42
9	the '109 that described the compression of	01:06:45
10	frames using MPEG or H.261 or other compression	01:06:49
11	formats. So I don't think it's fair to say	01:06:54
12	that I don't have an opinion on that.	01:06:58
13	I think just Saha's use of the term	01:07:03
14	frame doesn't necessarily mean it applies to	01:07:07
15	something called frame in an entirely different	01:07:11
16	document.	01:07:14
17	Q. So in your view the term frame in Saha	01:07:15
18	does not mean a frame as used in the '109	01:07:19
19	patent; is that fair?	01:07:21
20	MR. LI: Objection to form.	01:07:23
21	THE WITNESS: Not necessarily. I'm not	01:07:24
22	saying that it means the same thing as a frame,	01:07:27
23	and I'm not saying that it means something	01:07:29
24	entirely different. It depends on how it's	01:07:31
25	being used, in what context. Saha is talking	01:07:33

1	about images in an animation sequence. There	01:07:37
2	is no application that I see here generating	01:07:42
3	those frames.	01:07:46
4	I would need to look at the specific	01:07:47
5	application to determine if those frames were	01:07:49
6	appropriate based on Claim 1.	01:07:53
7	Q. So in Saha, right around column 2,	01:07:57
8	line 20, where it refers to compressed frames,	01:08:00
9	in your view, those frames that have been	01:08:04
10	compressed in Saha do not qualify as the '109	01:08:08
11	patents compressed frames; is that right?	01:08:12
12	A. Not at --	01:08:15
13	MR. LI: Objection to form.	01:08:17
14	THE WITNESS: Not as I sit here, without	01:08:18
15	any additional information knowing where those	01:08:20
16	frames come from. Right now all I know is that	01:08:23
17	those frames are images of a sequence of	01:08:26
18	images. I don't know what generated those	01:08:28
19	images. I don't know what they represent. I	01:08:31
20	don't know if they meet the requirements of a	01:08:34
21	frame as used in Claim 1 of the '109.	01:08:37
22	BY MR. HAAG:	01:08:43
23	Q. You do agree with me that Saha's frame	01:09:05
24	is a single, still image in a video sequence of	01:09:09
25	images, correct?	01:09:13

1	A. Yeah, I think I would agree with that,	01:09:14
2	that what's being discussed in Saha as a frame	01:09:26
3	is an image of a video sequence of images.	01:09:30
4	Q. And there's a discussion in Saha at	01:09:36
5	column 2, right around line 25 of I frames. Do	01:09:48
6	you see that?	01:09:52
7	A. Yes.	01:09:52
8	Q. And it says: The I (Intra) frames,	01:09:54
9	contain the video data for the entire frame of	01:10:00
10	video and are typically placed every 10 to 15	01:10:03
11	frames.	01:10:07
12	Do you see that?	01:10:08
13	A. Yes.	01:10:08
14	Q. You agree that in I frame in Saha is for	01:10:11
15	an entire frame of video?	01:10:17
16	A. Where an entire frame of video means one	01:10:19
17	of the images in a video sequence of images.	01:10:25
18	Q. So the answer to my question is yes?	01:10:30
19	MR. LI: Objection to form.	01:10:32
20	THE WITNESS: With that understanding of	01:10:33
21	what frame means in that -- in Saha.	01:10:36
22	BY MR. HAAG:	01:11:12
23	Q. Now, you're also familiar that in MPEG,	01:11:13
24	and also as described in Saha, a frame can be a	01:11:17
25	B frame or a P frame, right?	01:11:21

1	A. Right.	01:11:24
2	Q. Is it your position that a B frame in	01:11:26
3	MPEG cannot be used to encode a live stream?	01:11:30
4	A. I'd have to see, you know, what the	01:11:33
5	parameters of the encoding would be. If you	01:11:41
6	use a B frame to encode a stream of video, then	01:11:44
7	that's an interpolated frame. It interpolates	01:11:49
8	a frame, an image before it in the sequence and	01:11:52
9	an image after it, and then creates a -- you	01:11:55
10	know, uses some of each in order to make an in	01:11:58
11	between frame.	01:12:01
12	In order to do that, you have to have a	01:12:02
13	later frame. And so that later frame means	01:12:05
14	that you can't send that middle frame until	01:12:08
15	you've got that later frame, and that	01:12:11
16	introduces what can be a significant amount of	01:12:15
17	delay in the encoding process.	01:12:17
18	Q. So is it your position that a B frame in	01:12:22
19	MPEG cannot be used to encode a live stream?	01:12:25
20	Yes, or no, or you don't know?	01:12:28
21	MR. LI: Objection. Form.	01:12:30
22	THE WITNESS: I don't think I've	01:12:32
23	expressed an opinion that says you cannot use	01:12:33
24	it on a live stream. I think the opinion that	01:12:37
25	I've expressed is that it's not a good idea	01:12:39

1	because of the lagged latency delays that it	01:12:42
2	introduces in the broadcast of that live	01:12:46
3	stream, especially in the context of an	01:12:51
4	interactive viewing experience.	01:12:54
5	BY MR. HAAG:	01:12:57
6	Q. Can a P frame in MPEG be used to encode	01:12:58
7	a live stream?	01:13:02
8	MR. LI: Objection. Form.	01:13:03
9	THE WITNESS: So in my report I	01:13:05
10	discuss -- I discuss that. In order to do that	01:13:12
11	prediction, there is a significant amount of	01:13:16
12	search involved to determine motion, that	01:13:19
13	motion prediction, in order to generate the	01:13:23
14	predicted frame. That search takes	01:13:25
15	computational time.	01:13:28
16	As of 2001, I think I cited to some	01:13:30
17	laboratory research that started to investigate	01:13:34
18	software methods for doing that. But software	01:13:36
19	methods for doing that were not in general	01:13:40
20	practice. And so anything generate -- doing	01:13:42
21	that search process in order to create	01:13:45
22	predicted frames in a realtime setting, a	01:13:47
23	person of ordinary skill in the art would have	01:13:51
24	expected that to be a hardware component.	01:13:53
25	And, you know, anything doing live	01:13:57

1	encoding with predicted frames would likely	01:13:58
2	have pointed to some hardware, some specific	01:14:02
3	hardware component to do that compression.	01:14:05
4	BY MR. HAAG:	01:14:22
5	Q. I'd like you to look at the '109 patent,	01:14:22
6	at column 4, line 10, okay?	01:14:28
7	A. Okay.	01:14:31
8	Q. And if you could read for us the	01:14:43
9	sentence at column 4, lines 10 to 12 from the	01:14:46
10	'109 patent, please.	01:14:50
11	A. I'm sorry, what was that?	01:14:51
12	Q. Let me just read it. In column 4,	01:14:55
13	line 10 of the '109 patent there is a sentence	01:14:59
14	that reads: In generating the image modifying	01:15:01
15	data at the client and processing the image	01:15:04
16	modifying data at the Visual Server, the	01:15:06
17	typical data processing segment is a stream --	01:15:08
18	or is a frame.	01:15:12
19	Do you see that?	01:15:13
20	A. Yes, I see that.	01:15:14
21	Q. It uses the word frame there, right?	01:15:16
22	A. Yes.	01:15:19
23	Q. Am I right that at column 4 lines 10	01:15:21
24	through 12, the '109 patent does not	01:15:24
25	characterize the frame in terms of the display?	01:15:27

1	MR. LI: Objection. Form.	01:15:31
2	THE WITNESS: It's talk -- it's using	01:15:34
3	here frame to mean an instant of time. And so	01:15:37
4	it's not really talking about display at that	01:15:44
5	point. It's talking about an instant of time	01:15:47
6	to communicate the image modifying data at the	01:15:52
7	client, from the client going back to the	01:15:57
8	server.	01:16:00
9	BY MR. HAAG:	01:16:00
10	Q. And by an instance in time, you mean one	01:16:00
11	of a series of frames that make up a sequence;	01:16:03
12	is that right?	01:16:06
13	A. I think the use of frame is trying to	01:16:06
14	relate that instant of time to what's currently	01:16:11
15	being displayed on the client. But frame here	01:16:15
16	is talking about an interval of time -- an	01:16:20
17	instance of time. I mean, there are many terms	01:16:25
18	that will be used in a variety of contexts, so	01:16:29
19	that's why it's important to pay attention to	01:16:31
20	the context, in the way a person of ordinary	01:16:33
21	skill in the art would, and would understand	01:16:35
22	frame in this sense to be really talking about	01:16:38
23	user interface time scale as opposed to the	01:16:40
24	display process.	01:16:45
25	Q. If you could now look at column 4, lines	01:16:49

1	48 to 5 of the '109 patent. Are you there,	01:16:52
2	sir?	01:17:02
3	A. Yes.	01:17:02
4	Q. And there is a sentence there that	01:17:03
5	begins: In one embodiment of the system.	01:17:04
6	Do you see that?	01:17:06
7	A. Yes.	01:17:07
8	Q. And then that sentence ends with:	01:17:07
9	Transmitting the image modifying data from the	01:17:15
10	client to the Visual Server is data sufficient	01:17:18
11	to generate an image frame.	01:17:21
12	Do you see that?	01:17:23
13	A. Which line are you at?	01:17:25
14	Q. Line 55.	01:17:32
15	A. Okay. Yes, I see that.	01:17:34
16	Q. So you've read to yourself column 4	01:17:37
17	lines 48 to 55?	01:17:41
18	A. Yes.	01:17:44
19	Q. And there was use of the term frame at	01:17:44
20	the end of that sentence, right?	01:17:51
21	A. Yes.	01:17:52
22	Q. Am I right that this use of the term	01:17:52
23	frame at column 4, lines 48 to 55 does not	01:17:54
24	characterize the frame in terms of the display?	01:18:01
25	MR. LI: Objection. Form.	01:18:04

1	Mischaracterizes.	01:18:05
2	THE WITNESS: Well, certainly at the	01:18:09
3	end, line 55, it's talking about generating an	01:18:10
4	image frame. So I'm not sure I would agree	01:18:14
5	with your statement.	01:18:17
6	BY MR. HAAG:	01:18:32
7	Q. In your view, is an MPEG frame within	01:18:32
8	the scope of a compressed frame as that term is	01:18:36
9	used in the '109 patent?	01:18:40
10	A. So, yes, I believe that's within the	01:18:41
11	scope. There are some embodiments in the '109	01:18:50
12	describing the output of the Visual Server	01:18:53
13	being compressed, using, for example, MPEG or	01:18:57
14	using, for example, H.261 as a compressed frame	01:19:02
15	as specified in Claim 1.	01:19:05
16	The reason that '109 is within scope	01:19:09
17	there for MPEG is I know that the image being	01:19:13
18	compressed is the -- let me come up with the	01:19:17
19	specific language here.	01:19:24
20	That frame refers specifically to the	01:19:25
21	full image generated by the application at any	01:19:32
22	given instance of time.	01:19:36
23	Q. So you agree with me that an MPEG frame	01:19:37
24	can be within the scope of the term compressed	01:19:40
25	frame in the '109 patent?	01:19:44

1	MR. LI: Objection. Form.	01:19:46
2	Mischaracterizes.	01:19:47
3	THE WITNESS: It can be in scope. It	01:19:51
4	depends on the embodiment. For example, in the	01:19:53
5	'109 patent there's embodiments where the frame	01:19:56
6	generated by the application running on the	01:20:00
7	Visual Server is a frame of an MPEG stream.	01:20:04
8	BY MR. HAAG:	01:20:15
9	Q. If you could look now at column 6,	01:20:15
10	line 64.	01:20:46
11	A. Of the '109?	01:20:50
12	Q. Yes.	01:20:52
13	A. Line 64 you said?	01:21:01
14	Q. Yeah, I think it's actually line 63.	01:21:02
15	There is a sentence column 6, starting line 63	01:21:05
16	that begins: If the system 10 is displaying a	01:21:07
17	series of images on the client 16, 18, 20, such	01:21:10
18	as in multimedia animation, the Visual Server	01:21:14
19	12 transmits the modified image to the client,	01:21:18
20	16, 18, 20, as a frame.	01:21:21
21	Do you see that?	01:21:27
22	A. Yes.	01:21:28
23	Q. And is the term frame as used there in	01:21:29
24	column 6, line 66 of the '109 patent, am I	01:21:34
25	right that it's not used in connection with the	01:21:38

1	display?	01:21:42
2	A. I'm not sure I understand that question.	01:21:48
3	Q. Where the term frame is used in column	01:21:53
4	6, line 66 of the '109 patent, am I right that	01:21:58
5	the term frame is not characterized in terms of	01:22:03
6	a display?	01:22:06
7	MR. LI: Objection. Form. He.	01:22:14
8	THE WITNESS: So, based on the context	01:23:14
9	of this particular paragraph, it's talking	01:23:16
10	about the transmission relative to the image	01:23:18
11	modifying data coming back to the server from	01:23:23
12	the client. And that data's sufficient to	01:23:26
13	generate the image frame.	01:23:33
14	So I don't know that I really analyzed	01:23:36
15	the term frame in that context because it	01:23:38
16	wasn't, you know, it wasn't utilized in any of	01:23:43
17	the issues brought forward from, for example,	01:23:48
18	Dr. Fuchs' declaration. So I'd have to look at	01:23:53
19	that paragraph in more detail to be able to	01:23:59
20	render an opinion on that at the level I	01:24:02
21	rendered my other opinions on.	01:24:04
22	Q. Am I right that the use of the term	01:24:07
23	frame in column 6, line 66, does not	01:24:09
24	characterize the frame in terms of the display?	01:24:14
25	MR. LI: Objection. Form. Asked and	01:24:17

1	answered.	01:24:18
2	THE WITNESS: I don't think I've	01:24:22
3	rendered an opinion on that particular use of	01:24:23
4	the term frame. That use of the term frame is	01:24:25
5	in the context of the Visual Server generating	01:24:28
6	and transmitting a modified image to the	01:24:35
7	client, based on the client transmitting image	01:24:38
8	modifying data to the Visual Server.	01:24:41
9	I limited my opinions and analysis in	01:24:43
10	response to the declaration of Dr. Fuchs, and	01:24:48
11	so I don't recall looking at this in that level	01:24:51
12	of detail, because I don't believe Dr. Fuchs	01:24:54
13	relied on that definition or that usage of the	01:24:59
14	term frame or that paragraph.	01:25:04
15	BY MR. HAAG:	01:25:06
16	Q. Let's look at the '109 patent at column	01:25:07
17	8, lines 42 to 47, okay?	01:25:10
18	A. Okay.	01:25:12
19	Q. Am I right that the use of the term	01:25:25
20	frame in column 8, lines 42 to 47 of the '109	01:25:34
21	patent does not characterize a frame in terms	01:25:39
22	of the display?	01:25:42
23	MR. LI: Objection. Form.	01:25:45
24	THE WITNESS: Again, this is referring	01:25:47
25	to that same process of looking at the	01:25:52

1	coordination of data transmitted from the	01:25:57
2	server to the client, and the image modifying	01:26:02
3	data going from the client back to the server.	01:26:14
4	So for the same reason I didn't include	01:26:17
5	an opinion on the previous paragraph because	01:26:20
6	that, you know, that issue was not relevant to	01:26:24
7	what was being described in Dr. Fuchs'	01:26:29
8	declaration. This same paragraph was not	01:26:34
9	relevant to anything I needed to respond to in	01:26:39
10	terms of what Dr. Fuchs referred to in his	01:26:42
11	declaration.	01:26:45
12	Q. Do you have an opinion about whether	01:26:46
13	column 8, lines 42 to 47, of the '109 patent	01:26:49
14	characterizes a frame in terms of the display?	01:26:54
15	MR. LI: Objection. Form.	01:26:58
16	THE WITNESS: I had not prepared an	01:26:59
17	opinion on that because Dr. Fuchs did not refer	01:27:03
18	to that usage of the term frame or the	01:27:06
19	interaction of frame with respect to image	01:27:10
20	modifying data coming from the client back to	01:27:14
21	the server.	01:27:18
22	BY MR. HAAG:	01:27:18
23	Q. If you could turn to column 3, lines --	01:27:19
24	let me see. If you could turn to column 3,	01:27:28
25	starting at line 43 of the '109 patent.	01:27:30

1	A. Okay.	01:27:52
2	Q. There are two sentences I'm going to	01:27:53
3	read. This is column 3, lines 43 to 48 of the	01:27:54
4	'109 patent. It reads: The Visual Server runs	01:27:58
5	standard software such as games that are the	01:28:02
6	same as versions running on standard personal	01:28:06
7	computers. The Visual Server has certain	01:28:09
8	support software modified to enable control of	01:28:11
9	the application from the client and the	01:28:14
10	delivery of the result of 3D drawing to the	01:28:17
11	client.	01:28:21
12	Do you see that?	01:28:22
13	A. Yes.	01:28:24
14	Q. Does column 3, lines 43 to 48 of the	01:28:25
15	'109 patent characterize a frame in terms of	01:28:36
16	the display?	01:28:39
17	MR. LI: Objection. Form.	01:28:39
18	THE WITNESS: It characterizes the	01:28:47
19	standard software, such as games, that are the	01:28:48
20	same versions running on standard personal	01:28:50
21	computers. That would be the application that	01:28:52
22	that construction of frame refers to. And the	01:28:57
23	result of those 3D drawings to the client,	01:29:06
24	meaning, you know, the output generated from	01:29:11
25	that application in its entirety, would be	01:29:14

1	sent -- would be compressed and sent to the	01:29:18
2	client.	01:29:21
3	So, you know, it refers to elements that	01:29:23
4	are referred to in that construction of frame.	01:29:26
5	BY MR. HAAG:	01:29:31
6	Q. Are you familiar with Windows CE?	01:29:31
7	A. Yes.	01:29:36
8	Q. And do you agree that Windows CE was	01:29:38
9	used for handheld devices and embedded systems?	01:29:42
10	MR. LI: Objection. Form.	01:29:47
11	THE WITNESS: I don't -- I don't recall	01:29:49
12	when it was used, which platforms it was used	01:29:51
13	on. I refer to its general use in, you know,	01:29:56
14	reduced functionality systems.	01:30:05
15	BY MR. HAAG:	01:30:08
16	Q. To your knowledge, what is Windows CE?	01:30:08
17	A. It was a version of Windows that, you	01:30:10
18	know, designed for platforms that have, you	01:30:20
19	know, less resources than a desktop PC.	01:30:25
20	Q. And what are examples of these devices	01:30:29
21	that had less resources than a desktop PC?	01:30:31
22	MR. LI: Objection to form.	01:30:37
23	THE WITNESS: You know, portable	01:30:38
24	devices, smaller handheld devices, low-power	01:30:41
25	devices, cheaper devices.	01:30:44

1	BY MR. HAAG:	01:30:52
2	Q. Could Windows CE be used for handheld	01:30:52
3	devices?	01:30:55
4	A. I didn't look at the -- at the operating	01:30:55
5	systems used for any particular device. I	01:31:02
6	don't recall any opinions from Dr. Fuchs that	01:31:06
7	pointed to Windows CE. So I don't believe I	01:31:08
8	did any analysis or expressed any opinions	01:31:12
9	responding to that.	01:31:16
10	Q. Do you agree that Windows CE was used	01:31:26
11	for handheld devices prior to January 2001?	01:31:28
12	A. I didn't form that analysis. I didn't	01:31:32
13	create an opinion stating such.	01:31:37
14	Q. Now, in your opinion, a person of	01:31:41
15	ordinary skill in the art would know what a	01:31:59
16	mobile device is in the context of the '109	01:32:02
17	patent; is that right?	01:32:05
18	A. Yes.	01:32:07
19	Q. I'd like to mark the next exhibit, this	01:32:11
20	is one we're going to have to mark, and it's in	01:32:16
21	the uploaded documents, it's called Devices.	01:32:22
22	And if you could make that available to	01:32:28
23	everybody, please. We're going to mark that as	01:32:31
24	Sony Exhibit 1024.	01:32:33
25	(Deposition Exhibit No. 1024 was marked	01:32:38

1	for identification.)	01:33:33
2	So I don't actually see it. Where do I	01:33:33
3	get the documents you're making available?	01:33:36
4	(Discussion with Videotech held off the	01:33:55
5	written record.)	01:33:56
6	Q. Dr. Hart, do you have Sony Exhibit 1024?	01:33:56
7	A. Yes.	01:33:59
8	Q. And does it have the marking 1024 on the	01:34:00
9	bottom?	01:34:03
10	A. Yes. Yes, it does.	01:34:04
11	Q. Okay. So on page 1 of Sony	01:34:06
12	Exhibit 1024, do you see the photo of an iPad	01:34:49
13	mini?	01:34:52
14	A. Yes.	01:34:53
15	MR. LI: Objection. I'm going to object	01:34:54
16	to the exhibit and any questions regarding it	01:34:55
17	as outside of the scope of Dr. Hart's	01:34:57
18	declaration.	01:35:00
19	BY MR. HAAG:	01:35:01
20	Q. Do you see a photo of an iPad mini on	01:35:02
21	page 1 of Exhibit 1024, Dr. Hart?	01:35:06
22	A. Yes, based on the caption.	01:35:10
23	Q. And an iPad mini is a tablet; is that	01:35:12
24	right?	01:35:18
25	A. I don't know. This is the first I've	01:35:18

1	seen of it. I'm not sure what characterization	01:35:21
2	one would make of this.	01:35:24
3	Q. You know what an iPad mini is though,	01:35:26
4	right, sir?	01:35:29
5	A. I'm seeing one here. I don't have an	01:35:30
6	iPad mini. I haven't really looked into the	01:35:32
7	iPad mini.	01:35:35
8	Q. Is an iPad mini a mobile device in your	01:35:36
9	view?	01:35:39
10	A. I don't know. This is the first time	01:35:40
11	seeing of an iPad mini. I don't know. I	01:35:42
12	haven't analyzed it.	01:35:48
13	Q. Is an iPad mini a handheld computing	01:35:49
14	device in your opinion?	01:35:53
15	A. I don't have any opinion on the iPad	01:35:53
16	mini.	01:35:56
17	Q. Is a tablet computer a handheld	01:35:57
18	computing device in your opinion?	01:36:02
19	A. I would have to see the tablet computer.	01:36:03
20	I'd have to take some time to analyze how it	01:36:06
21	was used, issues including weight, form factor,	01:36:09
22	design intent, all sorts of system issues to	01:36:14
23	determine if it met any of these definitions.	01:36:20
24	Q. How would you determine whether or not a	01:36:24
25	mobile device meets your construction of the	01:36:27

1	term "mobile device" from the '109 patent?	01:36:31
2	A. So, I mean, the first thing I would do	01:36:34
3	is look at the construction of mobile device,	01:36:59
4	if the construction offered in my declaration	01:37:06
5	is a handheld computing device.	01:37:08
6	MR. LI: So just for the record, I'm	01:37:11
7	going to object again to this exhibit. It	01:37:12
8	doesn't appear to be a document at all; rather,	01:37:14
9	it appears to be a compilation of images that	01:37:18
10	was compiled by petitioner. And so I'm going	01:37:23
11	to object to all questions regarding this	01:37:26
12	exhibit.	01:37:30
13	BY MR. HAAG:	01:37:36
14	Q. So you mentioned that your construction	01:37:37
15	of mobile device is a handheld computing	01:37:38
16	device, right?	01:37:42
17	A. Yes. Specifically a person of ordinary	01:37:43
18	skill in the art would have understood mobile	01:37:56
19	device to mean a handheld computing device, so	01:37:58
20	I would be relying on a person of ordinary	01:38:01
21	skill in the art to understanding what a	01:38:03
22	handheld computing device was.	01:38:06
23	Q. And in your view is a tablet computer a	01:38:11
24	handheld computing device?	01:38:18
25	MR. LI: Objection. Form.	01:38:19

1	THE WITNESS: I would have to see the	01:38:21
2	specific computer, its design specs, weight,	01:38:24
3	form factor, intended use.	01:38:27
4	BY MR. HAAG:	01:38:31
5	Q. And if you turn to page 2 of	01:38:31
6	Exhibit 1024, you see a photo of an iPad mini	01:38:34
7	with a keyboard attached, right?	01:38:39
8	A. Yes.	01:38:42
9	Q. And is an iPad mini with a keyboard	01:38:45
10	attached a mobile device in your view, under	01:38:48
11	your construction?	01:38:50
12	A. I don't have any opinions on the iPad	01:38:50
13	mini. This is the first I've seen of the iPad	01:38:54
14	mini. Dr. Fuchs did not express any opinions	01:38:57
15	regarding the iPad mini, and so I did not	01:39:02
16	express any opinions regarding the iPad mini as	01:39:04
17	a mobile device.	01:39:08
18	Q. Is it possible for some tablet computers	01:39:11
19	to be a mobile device in your view?	01:39:13
20	MR. LI: Objection. Form.	01:39:17
21	THE WITNESS: My opinions are based on	01:39:20
22	the opinions -- or in response to the opinions	01:39:22
23	of Dr. Fuchs and his declaration. So to the	01:39:27
24	extent Dr. Fuchs expressed a specific device as	01:39:30
25	being a mobile device or not, my opinions speak	01:39:36

1	to that. I don't have any opinions on the	01:39:40
2	general notion of whether some unknown tablet	01:39:45
3	computer is a mobile device or not.	01:39:49
4	BY MR. HAAG:	01:39:51
5	Q. And if you -- have you heard of a	01:39:55
6	convertible laptop before?	01:40:02
7	MR. LI: Objection. Form.	01:40:05
8	THE WITNESS: Not by those terms, no,	01:40:05
9	not really.	01:40:07
10	Q. Have you heard the term "2-in-1 laptop"	01:40:08
11	before?	01:40:12
12	MR. LI: Objection. Form.	01:40:13
13	THE WITNESS: I've heard of that in a	01:40:14
14	wide variety of different context. Meaning a	01:40:17
15	wide variety of different things.	01:40:21
16	BY MR. HAAG:	01:40:22
17	Q. So if you can turn to page 4 of	01:40:22
18	Exhibit 1024. This shows a picture of what it	01:40:24
19	calls a Lenovo Flex 14 2-in-1 convertible	01:40:30
20	laptop, right?	01:40:35
21	A. Okay. That's what's displayed there.	01:40:36
22	Q. And is this convertible laptop shown on	01:40:41
23	page 4 of Exhibit 1024 a mobile device within	01:40:45
24	the meaning you give the term in the '109	01:40:48
25	patent?	01:40:50

1	MR. LI: Objection. Form, relevance,	01:40:52
2	outside the scope of Dr. Hart's declaration.	01:40:54
3	THE WITNESS: The construction for	01:40:56
4	mobile device was a handheld computing device.	01:40:57
5	I don't recall the Lenovo Flex being part of	01:41:04
6	any of Dr. Fuchs' opinions in his report. So I	01:41:08
7	didn't prepare any opinions or do any analysis	01:41:11
8	of the Lenovo Flex to determine whether or not	01:41:14
9	it was a mobile device.	01:41:17
10	BY MR. HAAG:	01:41:20
11	Q. Sitting here right now, do you have any	01:41:20
12	opinions about whether a convertible 2-in-1	01:41:22
13	laptop can be a mobile device under the	01:41:25
14	definition of mobile device you've used in this	01:41:28
15	matter?	01:41:31
16	MR. LI: Objection. Form. Asked and	01:41:32
17	answered. And outside the scope of Dr. Hart's	01:41:33
18	declaration.	01:41:35
19	THE WITNESS: I don't make my opinions	01:41:40
20	lightly. They're the result of careful	01:41:42
21	analysis, and so I would not want to offer an	01:41:44
22	opinion that didn't have the proper amount of	01:41:50
23	analysis and study behind it.	01:41:52
24	BY MR. HAAG:	01:41:55
25	Q. Do you have a tablet computer?	01:41:55

1	A. I have an iPad.	01:41:58
2	Q. Is your iPad a mobile device under your	01:42:05
3	construction of the term mobile device?	01:42:09
4	A. I don't know. I didn't analyze it under	01:42:10
5	the definitions of mobile device in the context	01:42:15
6	of this case, so I don't have an opinion	01:42:19
7	whether or not it is or not. I'd have to do	01:42:22
8	that analysis.	01:42:24
9	Q. Now, I'd like you to turn to page 7 of	01:42:26
10	Exhibit 1024. Okay, sir?	01:42:39
11	A. Okay.	01:42:48
12	Q. And on page 7 of Exhibit 1024, we see a	01:42:48
13	hand holding a laptop; is that right?	01:42:52
14	MR. LI: Objection to form.	01:42:57
15	THE WITNESS: Oh, sorry.	01:42:58
16	It's your characterization that this is	01:43:04
17	a laptop. I see a hand holding a device.	01:43:04
18	BY MR. HAAG:	01:43:08
19	Q. And is the device you see on page 7 of	01:43:08
20	Exhibit 1024 a mobile device under the meaning	01:43:12
21	you've given that term in the '109 patent?	01:43:17
22	A. I don't have an opinion on this image.	01:43:20
23	This is the first time I've seen that image. I	01:43:25
24	don't know any of the details about this	01:43:28
25	system. And so my opinions are based on	01:43:31

1	Dr. Fuchs' report. This system, whatever it	01:43:34
2	is, was not mentioned in Dr. Fuchs'	01:43:38
3	declaration, so I don't have any opinions	01:43:43
4	regarding that.	01:43:44
5	Q. Do you agree with me that the term	01:43:48
6	mobile device is not used in the '109	01:43:50
7	specification?	01:43:52
8	MR. LI: Objection to form.	01:43:54
9	THE WITNESS: So the specification	01:44:08
10	includes mobile telephones, in the context of	01:44:09
11	common consumer client devices such as personal	01:44:18
12	digital assistants, mobile telephones and	01:44:21
13	set-top boxes, in column 3. And then the term	01:44:23
14	is used, I believe, in several of the claims.	01:44:27
15	And I read the claims in light of the	01:44:33
16	specification.	01:44:36
17	BY MR. HAAG:	01:44:38
18	Q. So if I can just go back to the tablet	01:44:38
19	computer that you own for a moment, okay. How	01:44:43
20	long have you owned that tablet?	01:44:47
21	A. Maybe ten years.	01:44:49
22	Q. How many times have you used it?	01:44:52
23	A. Probably use it every day.	01:44:54
24	Q. And, in spite of using that tablet every	01:44:59
25	day for about ten years, you still don't know	01:45:03

1	whether it meets your construction of mobile	01:45:05
2	device --	01:45:07
3	MR. LI: Objection, form.	01:45:08
4	Argumentative.	01:45:10
5	Q. -- is that right?	01:45:15
6	A. I'm saying I haven't done the analysis.	01:45:15
7	My opinions are based on the declaration of	01:45:18
8	Dr. Fuchs in response to Dr. Fuchs'	01:45:21
9	declaration, and so I just have not performed	01:45:27
10	that analysis. My own recollection is one	01:45:29
11	thing, but I'd want to look at more details of	01:45:31
12	the system than I would have necessarily off	01:45:34
13	the top of my head, or my particular use of a	01:45:39
14	particular piece of technology.	01:45:42
15	Q. So you can put Exhibit 1024 aside.	01:45:49
16	Do you agree with me that the term	01:46:18
17	"mobile device" is not used in the '109	01:46:21
18	specification?	01:46:24
19	MR. LI: Objection. Form. Asked and	01:46:25
20	answered.	01:46:26
21	THE WITNESS: As I mentioned before the	01:46:28
22	term mobile device is not used, mobile	01:46:30
23	telephones is, and mobile device is a claim	01:46:33
24	term that I understood based on my reading of	01:46:36
25	the specification.	01:46:40

1	BY MR. HAAG:	01:46:42
2	Q. Is a mobile telephone a portable device?	01:46:43
3	A. Sure. I mean, a mobile telephone is	01:46:53
4	portable. It's designed to be portable.	01:47:00
5	Q. Is a PDA a portable device?	01:47:03
6	A. I believe so. I mean, it's designed to	01:47:07
7	be portable.	01:47:12
8	Q. If you could turn to your declaration	01:47:17
9	now, that's Exhibit 2009. You do agree with me	01:47:20
10	that a laptop computer is a portable device?	01:47:46
11	A. Sure, it's designed to be portable. I	01:47:50
12	mean, all of this, I've stated an opinion on	01:47:54
13	this. Paragraph 54, a person of ordinary skill	01:47:59
14	in the art would have understood mobile device	01:48:03
15	to have a different meaning than portable	01:48:05
16	device. But, you know, a mobile device is an	01:48:08
17	example of a portable device. A mobile device	01:48:13
18	is something small enough to be held in one's	01:48:18
19	hand, to be used by holding it in one hand.	01:48:21
20	And that's not true of all portable devices.	01:48:26
21	Q. If you could turn to page -- if you	01:48:58
22	would turn to paragraph 32 of your declaration.	01:49:00
23	A. Paragraph 32 you said?	01:49:11
24	Q. Yes.	01:49:13
25	A. Okay.	01:49:13

1	Q. And in paragraph 32 of your declaration	01:49:14
2	you discuss MPEG, right?	01:49:17
3	A. Yes.	01:49:18
4	Q. Do you agree that MPEG is a form of	01:49:22
5	compression?	01:49:25
6	A. Yes.	01:49:25
7	Q. And you're aware that the '109	01:49:30
8	specification mentions MPEG several times?	01:49:41
9	MR. LI: Objection. Form.	01:49:47
10	THE WITNESS: MPEG is mentioned. I	01:49:48
11	don't know how many times in '109. It's	01:49:51
12	mentioned more than once.	01:50:02
13	BY MR. HAAG:	01:50:03
14	Q. So when the application for the '109	01:50:03
15	patent was filed, it referred to MPEG, right?	01:50:05
16	A. I'd have to refer to the file history	01:50:09
17	for that. It's certainly in the issued version	01:50:14
18	of the '109.	01:50:17
19	Q. I'm sorry. Just, could you just -- let	01:50:19
20	me ask my question. I just didn't hear what	01:50:22
21	you said there.	01:50:24
22	Do you agree that the application for	01:50:25
23	the '109 patent refers to MPEG?	01:50:35
24	A. I don't recall. I don't recall that	01:50:37
25	being an issue relevant to anything in the	01:50:45

1	Fuchs' declaration. So I don't think I looked	01:50:52
2	at the file history to determine if the MPEG	01:50:54
3	appeared in the original, what was filed.	01:50:56
4	Q. You do agree that MPEG was known in the	01:50:59
5	prior art before the '109 patent, right?	01:51:03
6	A. Yes, MPEG was known prior to 2001.	01:51:05
7	Q. And if we go to column 9, starting at	01:51:10
8	line 23 of the '109 patent, can you go there,	01:51:14
9	sir?	01:51:17
10	A. Line 23 of column 9. Okay.	01:51:21
11	Q. And there are a couple paragraphs	01:51:24
12	starting at column 9, line 23, those paragraphs	01:51:27
13	refer to MPEG multiple times, right?	01:51:31
14	A. Yeah, those two paragraphs refer to	01:51:33
15	MPEG, I believe three times -- four times.	01:51:42
16	Q. And the '109 patent indicates that data	01:51:44
17	can be compressed and transmitted to the client	01:51:48
18	using MPEG, right?	01:51:50
19	MR. LI: Objection. Form.	01:51:53
20	THE WITNESS: Which sentence are you	01:51:57
21	pointing at?	01:51:58
22	BY MR. HAAG:	01:51:59
23	Q. Well, I'm pointing at the two paragraphs	01:52:00
24	beginning at column 9, line 23.	01:52:02
25	A. Okay. So, I mean, one thing it says is	01:52:05

1 the use of an industry standard, image 01:52:08
2 compression protocol such as MPEG allows us to 01:52:10
3 make use of facilities that are already present 01:52:13
4 in most clients. 01:52:16

5 I think a POSITA would understand that 01:52:17
6 those facilities would be MPEG decompression. 01:52:21
7 For example, set-top boxes already need to 01:52:24
8 decode MPEG data. Mobile telephones will soon 01:52:28
9 need to support MPEG protocols for 01:52:33
10 videoconferencing or television display. 01:52:35

11 Q. So you agree with me that the '109 01:52:41
12 patent indicates that data can be compressed 01:52:44
13 using MPEG, right? 01:52:46

14 A. Right. 01:52:47

15 Q. And you agree with me that the '109 01:52:48
16 patent indicates that this compressed MPEG data 01:52:52
17 can be transmitted to a client, right? 01:52:55

18 A. Right. 01:52:59

19 Q. Do you agree that the use of MPEG can be 01:53:00
20 used for compressing and decompressing within 01:53:05
21 the scope of Claim 1 of the '109 patent? 01:53:09

22 MR. LI: Objection. Form. 01:53:13

23 THE WITNESS: I believe if where Claim 1 01:53:15
24 refers to compressing the at least one updated 01:53:20
25 image, and then later on refers to 01:53:24

1	decompressing, that compressed frame, I believe	01:53:27
2	that can be performed using the MPEG	01:53:33
3	compression standard.	01:53:36
4	Q. And so we agree that MPEG can be used	01:53:38
5	for the compressing step of Claim 1 of the '109	01:53:42
6	patent, right?	01:53:45
7	MR. LI: Objection. Form.	01:53:46
8	THE WITNESS: Yes, the compression and	01:53:48
9	decompression in Claim 1 can occur using the	01:53:52
10	MPEG standard.	01:53:56
11	Q. And am I right that Claim 1 of the '109	01:53:58
12	patent does not recite any specific compression	01:54:01
13	protocol or method?	01:54:04
14	MR. LI: Objection. Form.	01:54:06
15	THE WITNESS: Yeah, Claim 1 does not	01:54:07
16	require any specific compression format be	01:54:15
17	used, so long as the compression format meets	01:54:18
18	the requirements for Claim 1.	01:54:21
19	BY MR. HAAG:	01:54:23
20	Q. Do you agree that MPEG can be used to	01:54:44
21	generate the compressed frame in Claim 1 of the	01:54:46
22	'109 patent?	01:54:51
23	A. Yes, MPEG can be used as the standard	01:54:52
24	for a system that implements Claim 1.	01:54:56
25	Q. And do you also agree that MPEG can be	01:55:00

1	used for the compressing step of claim 8 of the	01:55:04
2	'109 patent?	01:55:10
3	A. Yes, the MPEG standard can be used as	01:55:11
4	the standard for compressing the at least one	01:55:16
5	updated image as required in claim 8.	01:55:19
6	Q. Do you agree with me that claim 8 of the	01:55:27
7	'109 patent does not use the term "compressed	01:55:48
8	frame"?	01:55:50
9	A. It uses the term frame. It doesn't use	01:55:51
10	compressed frame.	01:56:01
11	Q. And do you agree with me that MPEG can	01:56:02
12	be used for the decompressing step of claim 8	01:56:13
13	of the '109 patent?	01:56:21
14	A. Yes, the MPEG standard can be used in	01:56:24
15	the decompressing step of claim 8.	01:56:28
16	Q. And MPEG can also be used for the	01:56:31
17	decompression in Claim 1 of the '109 patent; is	01:56:39
18	that right?	01:56:43
19	A. Yes, the MPEG standard can be used for	01:56:43
20	the decompression step for Claim 1.	01:56:46
21	Q. I'd like you to look at your report or	01:56:51
22	your declaration at paragraph 87.	01:57:18
23	A. Okay.	01:57:29
24	Q. If you could just read paragraph 87 to	01:57:35
25	yourself. Let me know when you're done.	01:57:39

1	A. Okay.	01:57:45
2	Q. Now in paragraph 87 you note that	01:57:59
3	Dr. Fuchs refers to how MPEG includes	01:58:02
4	compressed frames, right?	01:58:07
5	A. Yeah, that was part of his statement	01:58:09
6	that a person of ordinary skill in the art	01:58:15
7	would have known that MPEG includes compressed	01:58:18
8	frames.	01:58:22
9	Q. And you do agree that MPEG as discussed	01:58:27
10	in the Saha patent does use the term "frame" in	01:58:32
11	connection with a compressed frame, right?	01:58:37
12	MR. LI: Objection. Form.	01:58:44
13	THE WITNESS: No. I don't agree with	01:58:45
14	that. The term "compressed frame" is a term in	01:58:47
15	Claim 1. As construed, frame is referring to	01:58:51
16	the entire display from an application. That	01:58:59
17	was not Saha's use of the term frame. And	01:59:03
18	that's what this paragraph 87 is discussing.	01:59:06
19	Q. But you do agree with me that Saha	01:59:11
20	actually uses the word "frame" in connection	01:59:13
21	with MPEG compression, right?	01:59:17
22	MR. LI: Objection. Form.	01:59:21
23	THE WITNESS: Saha's using the term	01:59:22
24	frame in a different context, discussing a	01:59:26
25	frame as a single image of a sequence of	01:59:29

1	images.	01:59:33
2	Q. And in your opinion, the word "frame" as	01:59:34
3	used in Saha that has been compressed, as used	01:59:37
4	in Saha, does not actually meet your view of	01:59:43
5	what a compressed frame is in the '109 patent,	01:59:48
6	right?	01:59:52
7	MR. LI: Objection. Form.	01:59:52
8	THE WITNESS: That's correct. It	01:59:58
9	doesn't meet my understanding of what a	01:59:58
10	compressed frame is from Claim 1, nor does it	02:00:00
11	meet what I would expect a person of ordinary	02:00:03
12	skill in the art to understand a compressed	02:00:06
13	frame to mean in Claim 1.	02:00:09
14	When you read Claim 1 in the context of	02:00:11
15	the specification, and what the specification	02:00:16
16	is referring to as a compressed -- what it	02:00:17
17	ultimately refers to a compressed frame in	02:00:21
18	Claim 1.	02:00:25
19	BY MR. HAAG:	02:00:26
20	Q. So even though Saha refers to	02:00:26
21	compressing frames, in your view, that doesn't	02:00:29
22	mean that there is a compressed frame in Saha;	02:00:34
23	is that right?	02:00:41
24	A. It's not only my view. It's also the	02:00:41
25	view of IEEE, of Microsoft, of a person of	02:00:45

1 ordinary skill in the art, in that context of a 02:00:49
2 frame, specifically when that frame is coming 02:00:54
3 from an application, one generated by the 02:00:56
4 Visual Server subscribed in the '109, that is 02:00:59
5 different from an image from a sequence of 02:01:05
6 images in an animation file. Context matters. 02:01:07

7 Q. So I want to make sure I know whether 02:01:10
8 the answer to my question is a "yes" or "no," 02:01:12
9 okay? So I'm going to try my question again. 02:01:15

10 Even though Saha refers to compressing 02:01:17
11 frames, in your view, Saha does not produce a 02:01:20
12 compressed frame; is that right? 02:01:26

13 MR. LI: Objection to form. 02:01:28

14 THE WITNESS: For the reasons I just 02:01:30
15 explained, the answer is that Saha's use of 02:01:33
16 frame does not meet the requirements of a 02:01:41
17 compressed frame for Claim 1. 02:01:44

18 Q. Even though Saha refers to compressing 02:01:46
19 frames, that's your opinion, right? 02:01:49

20 MR. LI: Objection. Form. 02:01:50

21 THE WITNESS: My opinion is based on the 02:01:54
22 context of Saha, the context of the '109, how a 02:01:56
23 person of ordinary skill would understand it, 02:02:00
24 so, yes, based on that opinion. 02:02:03

25 Q. Do you think the '109 patent requires 02:02:33

1	realtime compression?	02:02:35
2	MR. LI: Objection. Form.	02:02:37
3	THE WITNESS: I don't recall an opinion	02:02:40
4	that it requires that. I think it needs to	02:02:43
5	work with an interactive software application,	02:02:52
6	at least to meet the requirements of Claim 1.	02:02:55
7	So I'd have to look at, you know, the specifics	02:02:59
8	of a system. But I don't recall requiring	02:03:04
9	realtime.	02:03:06
10	Q. Am I right that the '109 patent	02:03:18
11	discloses the use of MPEG for realtime	02:03:20
12	compression?	02:03:23
13	MR. LI: Objection. Form.	02:03:24
14	THE WITNESS: I don't recall looking at	02:03:26
15	realtime in that context.	02:03:30
16	BY MR. HAAG:	02:03:41
17	Q. So let me see if -- I'm not sure if you	02:03:41
18	were done with my question. I was going to	02:03:43
19	direct you to part of your declaration, but I	02:03:45
20	didn't want to interrupt you if you weren't	02:03:47
21	done?	02:03:49
22	A. No, I think that's exactly what I was	02:03:49
23	asking was is this in reference to any specific	02:03:52
24	part of my declaration?	02:03:56
25	Q. Okay. Just wanted to make sure if you	02:03:57

1	had anything else to say, you could say it.	02:03:59
2	Yeah, so let's look at paragraph 77 of	02:04:05
3	your declaration. That's Exhibit 2009.	02:04:07
4	A. Okay.	02:04:13
5	Q. So right around the middle of that	02:04:13
6	paragraph, you say: Thus the '109 patent	02:04:15
7	specifically discloses that the goal is	02:04:17
8	real-time interactivity which requires	02:04:19
9	real-time compression.	02:04:22
10	Do you see that?	02:04:23
11	A. Yes, in the characterization of realtime	02:04:24
12	used in that explanation of the related art.	02:04:37
13	Q. So in your view does the '109 patent	02:04:39
14	disclose realtime compression?	02:04:44
15	A. I think it discloses a desire for -- I	02:04:46
16	think it's disclosing a desire for realtime	02:05:14
17	speeds in its depict -- in its summary of the	02:05:17
18	related art.	02:05:22
19	Q. So the '109 patent is disclosing the	02:05:27
20	desire for realtime compression? Is that your	02:05:30
21	view?	02:05:34
22	A. No, I think it's disclosing the desire	02:05:34
23	for working with interactive applications, and	02:05:40
24	it's using realtime as a characterization of	02:05:45
25	that in its -- in listing out the related art.	02:05:50

1	Q. And can MPEG as disclosed in the '109	02:05:57
2	patent be used for realtime compression?	02:06:09
3	A. I think that was the point of the patent	02:06:11
4	at column 6. I guess what is it? Line 23	02:06:31
5	through the use of adequate bandwidth,	02:06:39
6	substantial image data can be transmitted from	02:06:41
7	the Visual Server to the client approaching	02:06:44
8	realtime speeds which can allow multimedia	02:06:46
9	applications to be displayed on the client,	02:06:49
10	such as games and other graphic intensive	02:06:51
11	applications.	02:06:55
12	Q. Can MPEG as disclosed in the '109 patent	02:07:09
13	be used for realtime compression?	02:07:12
14	A. I mean, the patent here says approaching	02:07:15
15	realtime speeds. I think the requirement	02:07:21
16	specifically of Claim 1 is that it supports	02:07:25
17	interactive software applications. Those	02:07:28
18	interactive software applications in the	02:07:33
19	specification include games, video games.	02:07:35
20	And the figures, for example, Figure 2,	02:07:42
21	specifically includes the compression of image	02:07:47
22	data. It specifically isolates that function	02:08:02
23	of, for example, what would be the method	02:08:07
24	described in Claim 1 as having that specific	02:08:13
25	functionality.	02:08:16

1 So I think overall, the '109 patent, you
2 know, it doesn't require realtime compression.
3 It does require compression, and it does
4 require -- it does require a method for hosting
5 an interactive software application.

6 Q. So you don't think the '109 patent
7 requires realtime compression though, correct?

8 MR. LI: Objection. Form.

9 THE WITNESS: Not in those words, no.

10 BY MR. HAAG:

11 Q. Now, you do agree that in the '109
12 patent, MPEG can support realtime encoding,
13 right?

14 A. Did I say that it did? Can you point me
15 to -- can you point me to where I stated that?

16 Q. Why don't you read the first sentence of
17 paragraph 78 of your declaration. Actually,
18 the second sentence, I'm sorry.

19 A. Yeah, while MPEG can support realtime
20 encoding, a person of ordinary skill in the art
21 would have understood it to be used offline for
22 encoding video files.

23 I think as I mentioned elsewhere, there
24 were some laboratory examples at the time that
25 were trying to do live MPEG encoding.

1	Q. And does the and in the next sentence,	02:09:46
2	the third sentence of paragraph 78, you refer	02:09:52
3	to additional hardware system, and also to	02:09:54
4	software encoding which is just becoming	02:09:57
5	available in the research laboratory, right?	02:10:00
6	A. Right.	02:10:02
7	Q. And does the '109 specification disclose	02:10:04
8	any additional hardware system to be used for	02:10:09
9	realtime encoding?	02:10:11
10	A. I think paragraph 82, I've got a chart	02:10:13
11	comparing the '109 to, for example, Wiltshire.	02:10:23
12	So the '109 has a specific component of its	02:10:29
13	design that compresses the image data, that's	02:10:35
14	component number 66. That component is missing	02:10:39
15	from the design, for example, of Wiltshire.	02:10:43
16	So I think the specifications of these	02:10:46
17	patents, you know, clearly identify these steps	02:10:50
18	of a method. In part by using them as a box,	02:10:54
19	and in part by explaining what that box means	02:10:59
20	in the specification.	02:11:03
21	That box is there. That explanation is	02:11:04
22	there in the '109. A person of ordinary skill	02:11:06
23	in the art understands that MPEG is being used.	02:11:09
24	It's referred to several times in '109. And	02:11:12
25	there is a specific box saying compress the	02:11:15

1	image data.	02:11:19
2	So that would be quite clear to a person	02:11:20
3	of ordinary skill in the art that the MPEG	02:11:23
4	would be used as an example for compressing	02:11:26
5	that image data in Box 66.	02:11:29
6	Q. Okay. So Figure 2D of the '109 patent	02:11:34
7	has a Box 66 labeled compress the image data,	02:11:39
8	right?	02:11:43
9	A. Right.	02:11:43
10	Q. And based on that reference to	02:11:44
11	compressing the image data, in Figure 2D of the	02:11:47
12	'109 patent, you think that it contains	02:11:52
13	sufficient disclosure to enable a person of	02:11:55
14	ordinary skill in the art to use MPEG for	02:11:59
15	realtime encoding; is that right?	02:12:02
16	MR. LI: Objection. Form.	02:12:04
17	THE WITNESS: Yes, I think a person of	02:12:05
18	ordinary skill in the art, when they look at	02:12:07
19	the '109, go to implement it, if it's 2001, I	02:12:10
20	believe that box means they specifically need	02:12:16
21	to install at that point a hardware, a piece of	02:12:18
22	hardware, that performs that compression. That	02:12:21
23	that was a necessary part of the system design.	02:12:23
24	And I didn't see that design, for example, in	02:12:27
25	Wiltshire.	02:12:30

1 Q. And you don't see any details of what
2 you think this hardware is that's referred to
3 in Step 66 of Figure 2D of the '109 patent
4 here?

5 MR. LI: Objection. Form.

6 THE WITNESS: I think MPEG could have
7 been used, H.261 could have been used, another
8 compression standard could have been used. I
9 think a person of ordinary skill in the art
10 understanding that compression needed to happen
11 at point-66 in column 2D, would have understood
12 that whatever compression method they're using,
13 you know, they needed to insert it there. Then
14 the details of that compression method would be
15 based on which compression method was chosen.

16 BY MR. HAAG:

17 Q. So, in your view, because the '109
18 patent discloses MPEG and refers to compressing
19 the image data, you think a person of ordinary
20 skill in the art would have understood that an
21 additional hardware subsystem would be used for
22 that compression; is that right?

23 A. In part. For the reasons that you
24 stated, but also the explicit design and
25 requirement of Claim 1 that that image data be

1 compressed after its generated, but before it's
2 transmitted to the client.

3 Q. But there's no specific discussion of
4 the details of a hardware subsystem for
5 encoding in the '109 specification, right?

6 MR. LI: Objection. Form.

7 THE WITNESS: In this context of the
8 '109 and because the choice of compression is
9 up to the implementer, an MPEG is used as an
10 example, there was no need to go into the
11 details of what's inside Box 66. Box 66 was
12 sufficient to communicate to a person of
13 ordinary skill in the art that compression
14 needs to occur to the data -- to the image data
15 after it's generated, but before it's
16 transmitted.

17 Q. So in light of the disclosure of Box 66
18 in the '109 specification, it's your view that
19 there are no additional details needed by a
20 person of ordinary skill in the art to
21 understand how to do realtime encoding for
22 compression; is that right?

23 MR. LI: Objection. Form.

24 Mischaracterizes.

25 THE WITNESS: I thought I said before

1 that Claim 1 doesn't require realtime
2 compression. I think Box 66 provides --
3 communicates the necessary requirements of
4 Claim 1, that compression happen after
5 generation, before transmission. That it's a
6 necessary part of the implementation. And a
7 person of ordinary skill in the art would know
8 from that specification what they would need to
9 do in order to achieve that, given their chosen
10 method for compression.

11 BY MR. HAAG:

12 Q. Let me see if I can break that down. In
13 your view, Claim 1 of the '109 patent does not
14 require realtime compression, correct?

15 A. Correct.

16 Q. And in your view, Box 66 from the '109
17 specification communicates the necessary
18 requirements for compression for Claim 1 of the
19 '109 patent, right?

20 A. Yes, it communicates to a person of
21 ordinary skill in the art the necessity of the
22 compression step happening after the generation
23 step and before the transmission step. That
24 sequence is critical because that means you
25 can't take advantage of any pre-processing.

02:15:20
02:15:23
02:15:30
02:15:33
02:15:35
02:15:40
02:15:43
02:15:44
02:15:49
02:15:52
02:15:56
02:15:56
02:15:59
02:16:01
02:16:03
02:16:06
02:16:12
02:16:14
02:16:18
02:16:19
02:16:26
02:16:29
02:16:32
02:16:36
02:16:38

1	You have to do this as part of a stream, and	02:16:41
2	that makes a difference for a person of	02:16:45
3	ordinary skill in the art in selecting the	02:16:48
4	subsystem to use for Box 66, based on the	02:16:51
5	compression method chosen.	02:16:55
6	MR. HAAG: If we can take a short break.	02:17:41
7	THE VIDEOGRAPHER: We are going off the	02:17:43
8	record. The time is 2:17 p.m.	02:17:44
9	(Recess ensued from 2:17 p.m. to	02:17:45
10	2:26 p.m.)	02:26:31
11	THE VIDEOGRAPHER: We are back on the	02:26:31
12	record. The time is 2:26 p.m.	02:26:40
13	BY MR. HAAG:	02:26:42
14	Q. Dr. Hart, I'm going to turn to Wiltshire	02:27:01
15	now, okay.	02:27:03
16	A. Okay.	02:27:04
17	Q. That's Exhibit 1004. So at column 7,	02:27:05
18	lines roughly 17, there is a reference in	02:27:15
19	Wiltshire to a compressed video MPEG stream.	02:27:20
20	Do you see that?	02:27:24
21	A. Yeah, in the list of things that an	02:27:24
22	image may include.	02:27:37
23	Q. Do you agree with me that if the server	02:27:38
24	in Wiltshire transmits a compressed video MPEG	02:27:41
25	stream to the client, the client would need to	02:27:47

1	decompress it for display?	02:27:51
2	A. I don't think Wiltshire was disclosing	02:27:53
3	the transmission of a compressed MPEG video	02:27:59
4	stream to the client.	02:28:03
5	Q. Well, Wiltshire does refer to an image	02:28:09
6	that can be transmitted from the server to the	02:28:13
7	client, right?	02:28:18
8	A. Right.	02:28:20
9	Q. And it says the image may include any	02:28:21
10	type of graphical information including a	02:28:25
11	bitmap, a JPEG file, a TIFF file or even an	02:28:28
12	encoded audio/video stream such as a compressed	02:28:32
13	video MPEG stream, right?	02:28:35
14	A. I see that.	02:28:37
15	Q. So if it's what's sent to the client	02:28:38
16	from the server in Wiltshire includes a	02:28:41
17	compressed video MPEG stream, am I right that	02:28:44
18	the client would decompress it for display?	02:28:50
19	A. No.	02:28:53
20	MR. LI: Objection. Form.	02:28:55
21	THE WITNESS: No.	02:28:56
22	BY MR. HAAG:	02:28:57
23	Q. So what would the client do with a	02:28:57
24	compressed video MPEG stream in Wiltshire if	02:28:58
25	the client didn't decompress it for display?	02:29:02

1 A. I don't believe Wiltshire is disclosing
2 the transmitting a compressed video MPEG
3 stream. I believe Wiltshire is disclosing that
4 it sends an image from the server host computer
5 to the client terminal computer. An image.
6 That image can include some multimedia assets.
7 It can include a bitmap, it can include a JPEG
8 file, it can include a TIFF file.

02:29:05
02:29:09
02:29:15
02:29:18
02:29:22
02:29:24
02:29:27
02:29:30

9 And when it says or even an encoded
10 audio/video stream such as a compressed video
11 MPEG stream, I believe that's a compressed
12 video MPEG stream stored on the server that's
13 being decompressed and composed on the server
14 and a single image is being pulled out of that
15 so it can be sent to the client by being
16 included into the image.

02:29:32
02:29:34
02:29:38
02:29:40
02:29:44
02:29:47
02:29:50
02:29:54

17 Q. So in your view, the server in Wiltshire
18 does not transmit anything that includes a
19 compressed video MPEG stream to the client; is
20 that right?

02:29:56
02:30:04
02:30:06
02:30:09

21 A. That's not what I said. I believe that
22 it's sending an image. This particular line in
23 Wiltshire says, an image is sent. Not a
24 sequence of images, just an image is sent.
25 That image may include a bitmap, JPEG file,

02:30:09
02:30:14
02:30:21
02:30:24
02:30:27

1	TIFF file, and when it says or even an encoded	02:30:33
2	audio/video stream such as a compressed video	02:30:36
3	MPEG stream, I believe it's referring	02:30:39
4	specifically to an image extracted from that	02:30:41
5	encoded audio/video stream. And if it sends a	02:30:44
6	different image extracted for each of the	02:30:49
7	subsequent images, then it's basically	02:30:52
8	transmitting an uncompressed version of that	02:30:54
9	MPEG stream.	02:30:56
10	Q. So in your view, what's disclosed in	02:30:57
11	Wiltshire could include the server transmitting	02:31:01
12	an image that includes a decompressed video	02:31:08
13	MPEG stream? Did I get that right?	02:31:11
14	A. No, I think the image that is sent from	02:31:13
15	the server host computer to the client terminal	02:31:16
16	computer can include a single image from a	02:31:19
17	compressed video MPEG stream.	02:31:23
18	Q. But you don't read Wiltshire as	02:31:28
19	disclosing that what is transmitted from the	02:31:30
20	server to the client can actually include a	02:31:32
21	compressed video M pregnant stream; is that	02:31:37
22	right?	02:31:40
23	A. That's not what I said. I said it can	02:31:40
24	include an image that's where the source of	02:31:43
25	that image is that it belongs in an encoded	02:31:47

1	audio/video stream such as a compressed video	02:31:50
2	MPEG stream. But it does not include -- the	02:31:54
3	image is not including that compressed video	02:31:56
4	MPEG stream as a whole. It's including	02:31:59
5	something extracted from that.	02:32:02
6	What's not being transmitted is a	02:32:04
7	compressed video MPEG stream.	02:32:07
8	Q. So if I go back a couple questions ago,	02:32:09
9	I asked you: So what would the client do with	02:32:11
10	a compressed video MPEG stream in Wiltshire if	02:32:14
11	the client didn't compress it for display?	02:32:16
12	Your answer began: I don't believe	02:32:18
13	Wiltshire is disclosing the transmitting a	02:32:21
14	compressed video MPEG stream.	02:32:24
15	A. Right.	02:32:28
16	Q. Do you recall saying that?	02:32:29
17	A. Yes.	02:32:29
18	Q. So does Wiltshire disclose transmitting	02:32:31
19	a compressed video MPEG stream from the server	02:32:34
20	to the client?	02:32:38
21	A. Not in those terms, no.	02:32:38
22	Q. I'd like you to look at Figure 1A of	02:32:51
23	Wiltshire, okay?	02:32:54
24	A. Okay.	02:32:55
25	Q. Okay. Just let me know when you get	02:33:16

1	there.	02:33:18
2	A. Okay. I'm at 1A.	02:33:18
3	Q. And this is a figure you reviewed in	02:33:20
4	forming your opinions, right?	02:33:22
5	A. Yes.	02:33:23
6	Q. And line 130 in Wiltshire is a	02:33:24
7	communication pathway, right? And if it helps,	02:33:29
8	you can look at column 3, right around line 65.	02:33:37
9	A. Yeah, and it's also referred there in	02:33:41
10	column 7. Yes, it's a communication pathway.	02:33:44
11	Q. So line 130 in Wiltshire is a	02:33:48
12	communication pathway, right?	02:33:52
13	A. Yes.	02:33:53
14	Q. And we agree that line 130 in Wiltshire	02:33:54
15	connects a client to a server, right?	02:34:00
16	A. Right. Through a network interface,	02:34:04
17	yes.	02:34:07
18	Q. And that communication pathway in	02:34:08
19	Wiltshire can be the internet, right?	02:34:11
20	A. I believe so.	02:34:14
21	Q. And if you look at Wiltshire at column	02:34:16
22	3, line 67 to column 4, line 3, there is a	02:34:33
23	discussion of what the communication pathways	02:34:40
24	can be in Wiltshire, right?	02:34:42
25	A. Yeah, electrical cables, optical fibers,	02:34:43

1	RF links, IR links, and protocol interfaces,	02:34:48
2	such as local or LAN, local area network, wide	02:34:53
3	area network, or any combination thereof.	02:34:57
4	Q. And so you agree with me the	02:35:00
5	communication pathway in Wiltshire can include	02:35:02
6	wireless links?	02:35:05
7	MR. LI: Objection. Form.	02:35:08
8	THE WITNESS: It specifically says RF	02:35:09
9	links and IR links. Both of those would be	02:35:11
10	wireless.	02:35:15
11	BY MR. HAAG:	02:35:15
12	Q. So the answer to my question is yes?	02:35:15
13	A. Well, it doesn't say WiFi, for example.	02:35:18
14	So RF links and IR links, I think, by saying RF	02:35:24
15	links and IR links it's saying wirelessly, but	02:35:30
16	it's not saying WiFi.	02:35:33
17	Q. WiFi is an RF link, right?	02:35:36
18	A. Yes. But it doesn't say WiFi here.	02:35:40
19	Q. In the communication pathway 130 in	02:35:50
20	Wiltshire is what connects the server to a	02:36:17
21	client via a network interface, right?	02:36:21
22	A. Right.	02:36:23
23	Q. I'd like you to look at Claim 1 of the	02:36:30
24	'109 patent, Exhibit 1001.	02:36:35
25	A. Okay.	02:36:40

1	Q. Do you agree with me that Claim 1 of the	02:36:41
2	'109 patent requires only a single client	02:36:44
3	device and not multiple client devices?	02:36:47
4	A. Yeah, it says from a client device, yes.	02:36:48
5	Q. So you agree with me that Claim 1 of the	02:37:10
6	'109 patent requires only a single client	02:37:14
7	device; is that right?	02:37:16
8	MR. LI: Objection to form.	02:37:17
9	THE WITNESS: Yes.	02:37:18
10	Q. And do you agree with me that claim 2 of	02:37:18
11	the '109 patent also requires only a single	02:37:21
12	client device and not multiple client devices?	02:37:24
13	MR. LI: Objection. Form.	02:37:28
14	THE WITNESS: It also speaks of the	02:37:30
15	client device in the singular and it's the	02:37:32
16	method as recited in Claim 1.	02:37:36
17	BY MR. HAAG:	02:37:44
18	Q. So claim 2 of the '109 patent does not	02:37:45
19	require multiple client devices, right?	02:37:47
20	A. Right.	02:37:49
21	Q. And Claim 1 of the '109 patent also does	02:37:50
22	not require multiple client devices, right?	02:37:53
23	A. Right.	02:37:55
24	Q. Do you agree with me that ADSL is	02:37:55
25	capable of transmitting an MPEG video stream?	02:38:02

1	A. Yes.	02:38:08
2	Q. And do you agree with me that in	02:38:09
3	Wiltshire, ADSL would be capable of	02:38:24
4	transmitting an MPEG stream to a single client?	02:38:28
5	MR. LI: Objection. Form.	02:38:35
6	THE WITNESS: It's unclear that	02:38:37
7	Wiltshire discloses sending an MPEG signal from	02:38:40
8	the server to the client. There is the	02:38:45
9	possibility that prior to running the	02:38:51
10	application some items could be cached or	02:38:52
11	prestored, in which case the client could	02:38:57
12	download an MPEG asset from the server, and	02:39:00
13	that could occur over the ADSL.	02:39:02
14	But I didn't see anything in Wiltshire	02:39:05
15	that specifically spoke of transmitting an MPEG	02:39:07
16	signal over a network 130 that could be an ADSL	02:39:12
17	to a client terminal computer.	02:39:18
18	(Previously marked Deposition Exhibit	02:39:18
19	1006 was reviewed.)	02:39:18
20	Q. (Phone ringing).	02:39:18
21	Sorry about that. I've got my phone on	02:40:28
22	mute now.	02:40:32
23	Do you have Exhibit 1006? That's the	02:40:33
24	Chen paper?	02:40:48
25	A. Yes.	02:41:00

1	Q. I'd like you to turn to page 69 of	02:41:09
2	Exhibit 1006. And that page 69 also has in the	02:41:17
3	middle of it, page 5 of 8, do you see that?	02:41:42
4	A. Yes, I do.	02:41:44
5	Q. What does the A stand for in ADSL?	02:41:46
6	A. Asymmetrical.	02:42:04
7	Q. And if we look at -- there is a	02:42:13
8	paragraph on page 69, the left-hand column that	02:42:26
9	begins with "Researchers."	02:42:29
10	Do you see that?	02:42:31
11	A. Yes.	02:42:32
12	Q. And in -- strike that. Am I right that	02:42:33
13	Chen discloses a first bandwidth of 16 to 64	02:42:39
14	kb/s for upstream transmissions?	02:42:45
15	A. Yeah, 16 to 64 kb/s, yes.	02:42:48
16	Q. And am I right that Chen discloses a	02:42:58
17	second bandwidth of 1.544 Mb/s for downstream	02:43:00
18	transmissions?	02:43:06
19	A. Yes.	02:43:07
20	Q. Do you agree that Chen discloses that	02:43:08
21	the bandwidth for upstream transmissions is	02:43:11
22	less than the bandwidth for downstream	02:43:13
23	transmissions?	02:43:16
24	A. Yes.	02:43:17
25	Q. Do you agree with me that ADSL as	02:43:18

1	disclosed in Chen would be capable of	02:43:42
2	supporting one downstream MPEG stream of 1.3	02:43:44
3	Mb/s?	02:43:49
4	A. Yes.	02:43:50
5	Q. Do you agree with me that there is no	02:43:57
6	requirement that an MPEG stream use all of 1.3	02:43:59
7	Mb/s for bandwidth, right?	02:44:05
8	MR. LI: Objection. Form.	02:44:08
9	THE WITNESS: I'm not sure where that	02:44:11
10	question is coming from. I think Chen is using	02:44:12
11	1.3 Mb/s to represent an MPEG stream, and that	02:44:15
12	comes directly from the MPEG spec.	02:44:22
13	BY MR. HAAG:	02:44:24
14	Q. Is there a requirement that an MPEG	02:44:28
15	stream use at least 1.3 Mb/s bandwidth, in your	02:44:30
16	view?	02:44:35
17	A. No, and that's not what Chen is saying	02:44:35
18	either. Chen is looking at the recommendation	02:44:38
19	from the MPEG spec for full motion video.	02:44:44
20	Q. Do you agree with me that it is possible	02:44:49
21	to have an MPEG stream take up less than 1.3	02:44:52
22	Mb/s?	02:44:57
23	MR. LI: Objection to form.	02:44:58
24	THE WITNESS: I think it's possible. I	02:44:59
25	think it would fall below the recommended --	02:45:01

1	the recommendations of the MPEG spec.	02:45:06
2	Q. Now, if you go back to before 2001, do	02:45:11
3	you think Pong would require a downstream	02:45:18
4	bandwidth of 1.3 Mb/s?	02:45:21
5	MR. LI: Objection. Form. Lacks	02:45:25
6	foundation.	02:45:27
7	THE WITNESS: I would have to see the	02:45:28
8	system used to deploy Pong in order to generate	02:45:29
9	the frames for that, how those frames were	02:45:34
10	being generated and compressed in order to make	02:45:38
11	any assessment like that. I don't recall that	02:45:43
12	example being used in Dr. Fuchs' report, and so	02:45:46
13	I didn't really analyze that particular	02:45:50
14	example.	02:45:53
15	BY MR. HAAG:	02:47:03
16	Q. On page 69 of Chen in Exhibit 1006, in	02:47:03
17	the right-hand column, in the first paragraph	02:47:07
18	shown in that right-hand column, the last	02:47:12
19	sentence reads: Most recently ADSL has been	02:47:14
20	considered as an ideal vehicle for internet	02:47:18
21	access and telecommunicating applications.	02:47:21
22	Do you see that?	02:47:27
23	A. Telecommuting applications.	02:47:27
24	Q. Oh, yes, thank you.	02:47:30
25	So Chen discloses that ADSL would be	02:47:33

1	ideal for internet access, right?	02:47:37
2	MR. LI: Objection. Form.	02:47:41
3	THE WITNESS: It was the result of a	02:48:03
4	market trial to obtain user feedback about the	02:48:05
5	technology and its potential applications.	02:48:07
6	BY MR. HAAG:	02:48:10
7	Q. But you agree -- I'm sorry. Were you	02:48:13
8	done?	02:48:15
9	A. No. So market trials have likewise	02:48:15
10	indicated strong user interest. And so it's in	02:48:20
11	that context that Chen is concluding in that	02:48:24
12	paragraph by saying that ADSL has been	02:48:27
13	considered as an ideal vehicle for internet	02:48:30
14	access and telecommuting applications.	02:48:32
15	Q. Do you agree that Chen discloses that	02:48:36
16	ADSL is an ideal vehicle for internet access?	02:48:39
17	MR. LI: Objection. Form.	02:48:48
18	THE WITNESS: That sentence is there	02:48:49
19	concluding the results of those market trials.	02:48:50
20	BY MR. HAAG:	02:49:46
21	Q. So I'd like you to look at paragraph in	02:49:46
22	the left-hand column of Chen, right about in	02:49:48
23	the middle that begins with "the capabilities	02:49:53
24	of ADSL"; do you see that?	02:49:56
25	A. Yes, I do.	02:49:57

1 Q. About halfway through that paragraph on
2 page 69 of Chen it reads: The capabilities of
3 ADSL are also well suited to applications such
4 as network computing where software and
5 database records could be stored on network
6 servers and retrieved at a speed equivalent to
7 CD-ROM access, and tele-education where a
8 specialist can be shared with a large student
9 population through downstream channels.

02:50:00

02:50:03

02:50:06

02:50:08

02:50:11

02:50:14

02:50:17

02:50:21

02:50:30

10 Do you see that?

02:50:33

11 A. Yes.

02:50:34

12 Q. So Chen discloses that ADSL is well
13 suited for tele-education, right?

02:50:34

02:50:37

14 MR. LI: Objection. Form.

02:50:40

15 THE WITNESS: Yeah, capabilities of ADSL
16 are well suited for tele-education.

02:50:48

02:50:52

17 BY MR. HAAG:

02:50:54

18 Q. Now, the tele-education is where a
19 specialist can be shared with a large student
20 population through downstream channels as
21 described in Chen, right?

02:50:54

02:50:58

02:51:04

02:51:06

22 A. That is the example that Chen uses, yes.

02:51:07

23 Q. Now that's a commercial use of ADSL; is
24 that right?

02:51:10

02:51:13

25 A. Chen doesn't say that it's a commercial

02:51:13

1 use. Tele-education could be from a public
2 school system. It's unclear if this would be a
3 commercial use.

4 Q. But tele-education as it's described
5 here in Chen is not limited to purely
6 residential use, right?

7 MR. LI: Objection. Form.

8 THE WITNESS: I don't see why it
9 wouldn't work for residential use, especially
10 given the pandemic. We have a large number of
11 students isolating at home receiving
12 tele-education from residences.

13 Q. So in this tele-education discussion in
14 Chen, there are multiple different students,
15 each using a downstream channel, using ADSL; is
16 that right?

17 MR. LI: Objection. Form.

18 THE WITNESS: It says that a specialist
19 can be shared with a large student population
20 through downstream channels.

21 So that would be a large student
22 population.

23 BY MR. HAAG:

24 Q. So that means that ADSL is used for
25 those downstream channels, right?

02:51:21
02:51:23
02:51:31
02:51:32
02:51:38
02:51:41
02:51:43
02:51:44
02:51:47
02:51:51
02:51:54
02:51:56
02:52:04
02:52:07
02:52:13
02:52:18
02:52:18
02:52:20
02:52:24
02:52:27
02:52:31
02:52:32
02:52:34
02:52:35
02:52:37

1	A. There's not enough detail in this	02:52:39
2	sentence to really tell where ADSL is being	02:52:43
3	deployed in that particular example.	02:52:46
4	Q. How would you read ADSL as being	02:52:48
5	deployed in that example, as someone of skill	02:52:51
6	in the art?	02:52:53
7	MR. LI: Objection. Form.	02:52:54
8	THE WITNESS: It's a bit vague. I don't	02:52:55
9	know if, you know, this could be where each of	02:52:59
10	the students has their own ADSL connection or	02:53:04
11	if they're talking about a single ADSL channel	02:53:08
12	going to a remote classroom.	02:53:12
13	BY MR. HAAG:	02:53:15
14	Q. Are you familiar with the term WAN,	02:53:57
15	W-A-N?	02:54:00
16	A. Yes, wide area network.	02:54:01
17	Q. And what is a wide area network?	02:54:04
18	A. It's a network designed to span a wide	02:54:13
19	area, as opposed to a LAN, a local area	02:54:20
20	network.	02:54:24
21	Q. So does a wide area network connect	02:54:24
22	devices in geographically dispersed locations?	02:54:31
23	Is that fair to say?	02:54:35
24	A. Depending on how dispersed they are,	02:54:37
25	whatever scale you're looking at. I think	02:54:41

1	that's the distinction is distances that would	02:54:43
2	distinguish a wide area network from a local	02:54:47
3	area network.	02:54:50
4	Q. Do you agree that ADSL could be used in	02:54:50
5	a wide area network to connect internet	02:54:58
6	devices?	02:55:02
7	MR. LI: Objection. Form.	02:55:02
8	THE WITNESS: I don't recall looking at	02:55:05
9	that particular question. ADSL is designed,	02:55:14
10	you know, to use existing copper connections to	02:55:17
11	a residence for an internet connection.	02:55:25
12	BY MR. HAAG:	02:55:32
13	Q. So do you have any opinions about	02:55:34
14	whether ADSL could be used for a wide area	02:55:36
15	connection?	02:55:39
16	A. I don't recall anything specifically	02:55:39
17	focusing on wide area networks versus local	02:55:42
18	area networks.	02:55:46
19	Q. So I'm trying to figure out if you have	02:55:49
20	any opinions about whether ADSL could be used	02:55:51
21	for a wide area network. Do you have any	02:55:56
22	opinions on that one way or the other?	02:55:58
23	A. I think I just said that I don't recall	02:56:00
24	looking at the question of wide area networks.	02:56:02
25	Do I have an opinion in response to anything	02:56:06

1	Dr. Fuchs said -- opined on regarding wide area	02:56:09
2	networks versus local area networks?	02:56:13
3	Q. So, I don't understand what you're	02:56:18
4	saying here. You said you don't recall looking	02:56:20
5	into the question of wide area networks.	02:56:22
6	So are you saying you don't have any	02:56:25
7	opinions about whether ADSL could be used for a	02:56:27
8	wide area network?	02:56:30
9	A. Certainly none that come to mind. I can	02:56:31
10	look at my report, but I don't recall any	02:56:37
11	opinions specifically on wide area networks	02:56:40
12	versus local area networks.	02:56:42
13	Q. Were you familiar with ADSL in 2001?	02:56:44
14	A. Yes, I believe I was.	02:56:56
15	Q. And in 2001 or earlier, was ADSL used by	02:56:59
16	businesses?	02:57:03
17	A. My familiarity with ADSL would have been	02:57:04
18	in its use for residences.	02:57:11
19	Q. So you don't know whether ADSL was used	02:57:16
20	for businesses; is that right?	02:57:20
21	A. I don't recall any use of ADSL use for	02:57:22
22	businesses in the 2001 timeframe.	02:57:26
23	Q. Do you agree that in Wiltshire, the game	02:57:40
24	runs on the server?	02:57:58
25	MR. LI: Objection. Form.	02:58:00

1	THE WITNESS: So in Wiltshire the game,	02:58:06
2	meaning a stakes game, is -- let's see -- yeah,	02:58:10
3	is run on a server, yes.	02:58:26
4	Q. And because the game is run on the	02:58:29
5	server in Wiltshire, that means that	02:58:32
6	Wiltshire's client doesn't require as much	02:58:34
7	capability as the server; is that fair?	02:58:36
8	MR. LI: Objection. Form.	02:58:39
9	THE WITNESS: That was one of the	02:58:50
10	advantages. Another was maintenance of these	02:58:51
11	software, update of the software. There's a	02:58:55
12	variety of advantages to running a -- you know,	02:59:00
13	running a stakes games in a casino environment	02:59:05
14	using Wiltshire's embodiments.	02:59:08
15	Q. But you do agree that Wiltshire's client	02:59:13
16	wouldn't require as much capability as	02:59:16
17	Wiltshire's server; is that right?	02:59:19
18	MR. LI: Object to form.	02:59:22
19	THE WITNESS: I don't know that. I	02:59:24
20	don't recall that being a --	02:59:26
21	Yeah, in the abstract, it says: The	02:59:35
22	cost of the hardware and software required for	02:59:37
23	each client terminal computer is greatly	02:59:38
24	reduced.	02:59:40
25	BY MR. HAAG:	02:59:40

1	Q. So is the answer to my question, yes?	02:59:44
2	A. Yeah, that was one of the benefits,	02:59:46
3	among others, that motivated Wiltshire in the	02:59:49
4	abstract.	02:59:53
5	Q. So you agree that Wiltshire's client	02:59:55
6	doesn't require as much capability as its	02:59:57
7	server?	03:00:00
8	MR. LI: Objection. Form. Asked and	03:00:00
9	answered.	03:00:02
10	THE WITNESS: Yeah, I mean, in the	03:00:17
11	abstract, it says that the gaming programs are	03:00:18
12	executed entirely on the server host computer	03:00:22
13	with only wagering input and display output	03:00:25
14	operations being executed on the client	03:00:27
15	terminal computers. And with the reduced costs	03:00:29
16	being a benefit of that design, then that does	03:00:33
17	reduce the, you know, the computational	03:00:38
18	dependence of the client computer.	03:00:44
19	BY MR. HAAG:	03:00:46
20	Q. So I'd like you to focus on the 2000	03:00:46
21	timeframe for my next question, okay?	03:00:49
22	A. Okay.	03:00:50
23	Q. In the 2000 timeframe, am I right that a	03:00:51
24	laptop could be used for many of the same	03:00:55
25	processes as a desktop computer?	03:00:58

1	MR. LI: Objection. Form.	03:01:02
2	THE WITNESS: No, I don't think that was	03:01:05
3	true then or now. It really depends on what	03:01:08
4	you're -- you know, what you're using. What	03:01:12
5	software you're running, what features you	03:01:14
6	need.	03:01:17
7	BY MR. HAAG:	03:01:17
8	Q. You had a laptop in 2000, right?	03:01:18
9	A. Yes.	03:01:20
10	Q. Can you tell me what you used your	03:01:22
11	laptop for in 2000 and earlier?	03:01:25
12	A. So in 2000, I would use -- I'm sorry?	03:01:27
13	Q. I didn't say anything.	03:01:38
14	A. Okay. So in 2000 I would have used my	03:01:39
15	laptop for email writing, and I would have used	03:01:44
16	a desktop, for example, for gaming, for	03:01:49
17	graphics research. I had a much more powerful	03:01:52
18	graphics card in my desktop system than I did	03:01:56
19	in my laptop.	03:01:59
20	Q. And in 2000 did you ever use your	03:02:01
21	desktop for emails?	03:02:04
22	MR. LI: Objection. Form, relevance.	03:02:11
23	THE WITNESS: Yes.	03:02:13
24	Q. So aside from writing emails, what else	03:02:14
25	did you use your laptop for in 2000?	03:02:16

1	MR. LI: Objection. Form, relevance.	03:02:19
2	THE WITNESS: Writing papers.	03:02:22
3	BY MR. HAAG:	03:02:26
4	Q. Anything else?	03:02:26
5	A. Writing grants.	03:02:26
6	Q. Anything else?	03:02:34
7	A. Writing reviews.	03:02:34
8	Q. Anything else?	03:02:41
9	A. Writing recommendations.	03:02:42
10	Q. All right. Can you tell me everything	03:02:49
11	else you can think of that you used your laptop	03:02:51
12	for in 2000?	03:02:54
13	MR. LI: Objection. Form. Asked and	03:02:56
14	answered.	03:02:57
15	THE WITNESS: I don't have an exhaustive	03:02:58
16	list of everything that I would have used my	03:03:00
17	laptop for. As a, you know, a professor at	03:03:02
18	that time, I was doing a significant amount of	03:03:07
19	writing, and email correspondence.	03:03:09
20	BY MR. HAAG:	03:03:13
21	Q. Nothing else comes to mind aside from	03:03:13
22	what you mentioned you used your laptop for in	03:03:15
23	2000?	03:03:18
24	A. Off the top of my head, it was primarily	03:03:19
25	used for writing. Reading and writing.	03:03:22

1 Q. When is the first time you've heard of
2 the '109 patent?

3 A. It would have been regarding this case.

4 Q. So you never --

5 A. I believe there was a case prior to the
6 IPRs, and I would have heard of it from that.

7 Q. And you never heard of the '109 patent
8 before your work on this litigation; is that
9 right?

10 MR. LI: Objection. Form. Lacks
11 foundation.

12 THE WITNESS: That's correct. I don't
13 normally, as a researcher, I don't ordinarily
14 look at patents. I look at research
15 publications similar to Chen.

16 BY MR. HAAG:

17 Q. And who first provided you a copy of the
18 '109 patent?

19 A. Counsel.

20 Q. That's counsel for the patent owner?

21 A. Yes.

22 Q. Have you ever cited the '109 patent in
23 any of your publications?

24 A. No. I -- I don't know that I've ever
25 cited a patent in a research publication. It's

1	very rare that one would do that.	03:04:33
2	Q. Are you aware of any industry	03:04:35
3	recognition for the '109 patent?	03:04:37
4	A. I don't believe I looked at that, no.	03:04:40
5	Q. Have you ever written any articles about	03:05:03
6	any of the inventors of the '109 patent?	03:05:09
7	A. No.	03:05:13
8	Q. Now, I know you've seen a patent that's	03:05:15
9	related to the '109 patent. I think it's the	03:05:22
10	'093, do you recall that?	03:05:24
11	A. Yes.	03:05:25
12	Q. And before you saw the '109 patent or	03:05:31
13	the '093 patent, had you ever heard of any of	03:05:33
14	the inventors of the '109 patent?	03:05:38
15	A. Yes.	03:05:39
16	Q. Who?	03:05:42
17	A. For example, David Baldwin, Osman Kent.	03:05:42
18	Q. Have you ever spoken with any of the	03:05:50
19	inventors of the '109 patent regarding any	03:05:52
20	issues relating to the '109 patent?	03:05:55
21	MR. LI: Objection form. I'm going to	03:05:59
22	instruct the witness not to answer on the basis	03:06:00
23	of the attorney-client privilege and the	03:06:02
24	attorney work product doctrine.	03:06:04
25	MR. HAAG: I'm not asking about the	03:06:05

1	substance of the discussion. I'm just asking	03:06:09
2	if he's talked to them generally related to the	03:06:10
3	'109 patent.	03:06:13
4	MR. LI: Okay. Dr. Hart, you can answer	03:06:14
5	"yes" or "no."	03:06:16
6	THE WITNESS: No.	03:06:17
7	BY MR. HAAG:	03:06:18
8	Q. So I just want to make sure I understand	03:06:24
9	that.	03:06:25
10	Am I right that you have not spoken with	03:06:26
11	any of the inventors of the '109 patent	03:06:27
12	regarding any issues related to the '109	03:06:29
13	patent?	03:06:31
14	A. No, I have not.	03:06:32
15	Q. No more questions at this time.	03:06:35
16	MR. LI: So why don't we go ahead and	03:06:50
17	take a short break.	03:06:51
18	THE VIDEOGRAPHER: We are going off the	03:06:53
19	record. The time is 3:06 p.m.	03:06:55
20	(Recess ensued from 3:06 p.m. to	03:06:57
21	3:13 p.m.)	03:13:39
22	THE VIDEOGRAPHER: We are back on the	03:13:41
23	record. The time is 3:13 p.m.	03:13:48
24	MR. LI: Dr. Hart, so I have no further	03:13:51
25	questions. And we reserve the right to read	03:13:55

1	and sign.	03:13:58
2	MR. HAAG: All right, Dr. Hart. Thank	03:13:59
3	you for your time today.	03:14:02
4	THE WITNESS: Thank you.	03:14:04
5	THE VIDEOGRAPHER: This ends the video	03:14:06
6	deposition of John C. Hart. We are going off	03:14:08
7	the record. The time is 3:14 p.m.	03:14:10
8	(Deposition concluded at 3:14 p.m., 174)	03:14:12
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1 CERTIFICATE OF CERTIFIED SHORTHAND REPORTER

2
3 I, Debra Bollman Farfan, Certified
4 Shorthand Reporter within and for the State of
5 California, Registered Diplomat Reporter, and
6 Certified Realtime Reporter do hereby certify:

7 That JOHN C. HART, Ph.D., the witness whose
8 deposition is hereinbefore set forth, was duly
9 sworn by me before the commencement of such
10 deposition and that such deposition was taken
11 before me and is a true record of the testimony
12 given by such witness.

13 I further certify that the adverse party,
14 SONY INTERACTIVE ENTERTAINMENT, LLC, was
15 represented by counsel at the deposition.

16 I further certify that the deposition of
17 JOHN C. HART, Ph.D., occurred remotely via
18 videoconference on June 24, 2020, commencing at
19 9:54 a.m. to 3:14 P.M.

20 I further certify that I am not related to
21 any of the parties to this action by blood or
22 marriage, I am not employed by or an attorney
23 to any of the parties to this action, and that
24 I am in no way interested, financially or
25 otherwise, in the outcome of this matter.

1 IN WITNESS WHEREOF, I have hereunto set
2 my hand this 10th day of November, 2021.

3
4 
5

6 Debra Bollman Farfan, RDR-RMR-CRR

7 CA CSR No. 11648
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