



Planet Depos®
We Make It *Happen™*

HIGHLY CONFIDENTIAL

Transcript of John C. Hart, Ph.D.

Date: November 18, 2024

Case: Hanshow America Inc., et al. -v- Ses-Imagotag, Inc. (PTAB)

Planet Depos

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

www.planetdepos.com

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

WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

1 UNITED STATES PATENT AND TRADEMARK OFFICE

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

5 HANSHOW AMERICA INC.,
6 HANSHOW TECHNOLOGY CO., LTD.,
7 Petitioner,
8 v.

9 SES-IMAGOTAG INC.,
10 Patent Owner.

11 -----
12 Case IPR2024-00188
13 U.S. Patent No. 11,405,669
14 -----

15 * HIGHLY CONFIDENTIAL *

16
17 REMOTE DEPOSITION of JOHN C. HART, Ph.D.

18 Monday, November 18, 2024

19 9:05 a.m. CST

20 Job No.: 560354

21 Pages: 1 - 126

22 Reported By: Michelle M. Yohler, CSR, RMR, CRR

1 The deposition of JOHN C. HART, Ph.D., held
2 remotely pursuant to notice before Michelle M.
3 Yohler, CSR, RMR, CRR, a certified shorthand
4 reporter, CSR No. 84-4531.

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

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

2 ON BEHALF OF THE PETITIONER:

3 MR. HAO TAN

4 MS. ZHANGYUAN (ELLEN) JI

5 MR. SHEN WANG

6 ARCH & LAKE LLP

7 203 North LaSalle Street, Suite 2100

8 Chicago, Illinois 60601

9 312.558.1369

10 haotan@archlakelaw.com

11

12 ON BEHALF OF THE PATENT OWNER:

13 MR. GRANT E. KINSEL

14 PERKINS COIE, LLP

15 1201 Third Avenue, Suite 4900

16 Seattle, Washington 98101-3099

17 206.359.8000

18 gkinsel@perkinscoie.com

19 -and-

20

21

22 (Continued)

1 A P P E A R A N C E S C O N T I N U E D

2 ON BEHALF OF THE PATENT OWNER:

3 MR. DAVID R. PEKAREK KROHN

4 PERKINS COIE, LLP

5 33 East Main Street, Suite 201

6 Madison, Wisconsin 53703-3095

7 608.663.7460

8 dpekarekkrohn@perkinscoie.com

9

10

11 ALSO PRESENT:

12 Mr. James Williams, Technician

13

14

15

16

17

18

19

20

21

22

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

E X A M I N A T I O N S

WITNESS	PAGE
JOHN C. HART, PH.D.	
By Mr. Tan.....	6

E X H I B I T S

EXHIBITS	PAGE
No. 1001 '669 Patent.....	33
No. 1002 Prosecution History.....	81
No. 1004 Swafford Patent Application	
Publication.....	116
No. 1005 Masumoto Patent Application.....	109
No. 2004 Declaration of John Hart, Ph.D....	26

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

2 (Technician read-on.)

3 MS. REPORTER: Before I swear the witness
4 in, can I please have all attorneys identify
5 themselves and who they represent for the record,
6 starting with the taking attorney.

7 MR. TAN: This is Hao Tan from Arch &
8 Lake. I also have my colleagues Shen Wang and
9 Ellen Ji.

10 MR. KINSEL: Grant Kinsel for the witness
11 and VusionGroup. I think Dave Pekarek Krohn is
12 also on the line with me.

13 (WHEREUPON, the witness was duly sworn.)

14 JOHN C. HART, Ph.D.,
15 called as a witness herein, having been first duly
16 sworn, was examined and testified as follows:

17 EXAMINATION

18 BY MR. TAN:

19 Q Dr. Hart, good morning. Thank you for
20 joining this remote deposition. My name is Hao
21 Tan. As I just said, I represent the petitioner,
22 Hanshow.

1 So could you please identify your name and
2 current occupation just for the record.

3 A Sure. My name is John C. Hart. My
4 occupation, I am a professor in the department --
5 or in the School of Data and Computer -- the
6 School of Data and Computing Sciences. We
7 recently went through a name change at the
8 University of Illinois. And I also serve as an
9 expert witness through John C. Hart &
10 Associates LLC.

11 Q So how long have you been working with,
12 you know, University of Illinois?

13 A Since 2000. So 24 years now.

14 Q How long have you been working, you know,
15 through the John C. Hart Associates LLC?

16 A Oh, I think I started that -- it's been
17 about ten years now.

18 Q Do you understand why you're here today?

19 A Yes, I do.

20 Q Do you understand that you are here to
21 testify for the IPR deposition -- IPR petition
22 number IPR 2024-00188?

1 A I understand I'm here for an IPR. I
2 believe that's the number. I don't have it in
3 front of me, but I believe that's the number.

4 Q And do you understand that IPR is
5 regarding the patent owned by the patent owner
6 with the number ending in '669?

7 A Okay. Yes, the '669.

8 Q So have you been deposed before?

9 A Yes.

10 Q How many times?

11 A It must be over 20.

12 Q So you're very familiar with this process,
13 right?

14 A Yes.

15 Q I'm going to ask you questions, and you
16 will be providing answers. And, you know, we
17 should not talk over each other, and, you know,
18 unless your counsel ask you not to answer the
19 question, you will answer my questions.

20 A Yes, that's my understanding.

21 Q So, Dr. Hart, you said you've been
22 testifying about 20 times. Do you remember when

1 was your first deposition?

2 A It would be in my vitae. I don't recall
3 the specific date.

4 Q Just roughly.

5 A About ten years ago.

6 Q Okay. Okay. So you been also deposed by
7 Zoom remotely before, right?

8 A Yes.

9 Q Okay. So, you know, I'm just hoping this
10 technology can work all the time, but as you and
11 me all know, you know, sometimes it may have some
12 glitches.

13 So I ask you to provide every answer
14 verbally, you know, especially in this setting so
15 that people -- you know, the court reporter can
16 record what you say.

17 Is that okay with you?

18 A Yes.

19 Q And it is important for both of us to
20 speak slowly and clearly, you know, so that the
21 record is also clear.

22 Is that okay?

1 A Yes.

2 Q And we will take a break every hour or so,
3 you know, but if you need breaks sooner, you know,
4 for lunch. I know it's, you know, 9:11 a.m. in
5 Chicago, but it's kind of early for both Grant and
6 me, so we'll go have a lunch break, you know, if
7 we don't -- if another hour by then. But let me
8 know if you need a break.

9 Do you understand that you will be
10 testifying under oath during today's deposition as
11 though you were testifying in open court?

12 A Yes, I am under oath.

13 Q Is there any reason why you cannot fully
14 and truthfully answer questions during today's
15 deposition?

16 A No.

17 Q Is there anyone else in your room?

18 A No.

19 Q And do you have a clean copy of the, you
20 know, exhibit files so far in your computer or
21 somewhere?

22 A Yes, I have a clean copy of all of the

1 exhibits, including my report.

2 Q Okay. That's good. I mean, just in case.

3 A Okay.

4 Q So what did you do to prepare for today's
5 deposition?

6 A I met with counsel.

7 Q Do you mind which counsel? Are they here?

8 A David and Grant from Perkins Coie.

9 Q So when did you meet with them?

10 A Friday was the last time we met.

11 Q How many times before Friday?

12 A Let's see. I think there was one time
13 before, I believe I had a couple phone calls with
14 David over the weekend, and that was it. I mean,
15 and also the preparation of the report. I don't
16 recall what other meetings we may have had before
17 Monday.

18 Q So, roughly speaking, how many hours did
19 you spend on preparing -- on the preparation?

20 MR. KINSEL: Dr. Hart, you're doing fine
21 so far, but I want to caution you not to reveal
22 any communications you may have had with counsel.

1 You can certainly answer the question about how
2 long you spoke with us and how many times you did
3 it, but I'm instructing you not to reveal any
4 communications you may have had with counsel.

5 BY MR. TAN:

6 Q You may answer.

7 A I don't recall the exact amount of time.
8 It's somewhere over ten hours. Maybe ten hours,
9 some time -- someplace around ten hours.

10 Q So did you review any documents before
11 today's deposition?

12 A Yes.

13 Q What are they?

14 A My report, and I don't recall specifically
15 which of the references cited in my report, the
16 materials cited in Section 3, but a good number of
17 those materials as well.

18 Q So did you write your own report?

19 A Yes, I did.

20 Q Did you identify those references by
21 yourself, the exhibits you cited?

22 A No, I --

1 MR. KINSEL: Hold on, Dr. Hart. Give me a
2 second to object, okay?

3 THE WITNESS: Sure.

4 MR. KINSEL: Objection to form.
5 Go ahead.

6 BY THE WITNESS:

7 A No, I had help with the report; for
8 example, putting together my understanding of the
9 law, the materials cited, assembling the report
10 with all the sections and everything, but it is my
11 report, these are my opinions.

12 BY MR. TAN:

13 Q So, Dr. Hart, I understand that you're a
14 professor at University of Illinois right now.
15 Where did you get your undergraduate degree?

16 A Aurora University.

17 Q Is that in Illinois?

18 A Yes.

19 Q What was your major back then?

20 A Computer science.

21 Q And when did you graduate from Aurora?

22 A 1987.

1 Q Did you go to any graduate school after
2 that?

3 A Yes, I did.

4 Q Which one?

5 A The University of Illinois at Chicago.

6 Q From when to when?

7 A I worked on, let's see, for graduate work,
8 it was 1987 to 1991, and then I stayed there an
9 additional year as a post-doc.

10 Q What was your Ph.D. thesis about?

11 A Computer graphics.

12 Q When you say "computer graphics," could
13 you be a little more specific?

14 A Sure. It was on rendering on -- using
15 computer graphics to make images of scenes, shapes
16 that did not actually exist.

17 Q What do you mean by scenes did not
18 actually exist?

19 A For example, when you go to the movies and
20 see a Pixar animation, those scenes don't actually
21 exist. They're constructed in a database on the
22 computer, and then a simulation of the way light

1 reflects off of those objects is conducted.

2 That's called rendering.

3 Q What was your Ph.D. thesis title?

4 A Let's see. It was -- I don't recall it at
5 the time. It was on the rendering of linear
6 fractals, but I don't recall the exact title.
7 Computer display of linear fractals, maybe. I
8 don't have it in front of me right now.

9 Q Okay. Yeah, what do you mean by linear
10 track?

11 MR. KINSEL: Objection to form.

12 Do you understand the question, Dr. Hart?

13 THE WITNESS: No, I do not.

14 BY MR. TAN:

15 Q Yeah, you say "linear track tails," so I'm
16 just trying to understand your answer.

17 A A computer display of linear fractals.

18 Q Linear fractals?

19 A Yes.

20 Q Could you spell that out maybe just for
21 Michelle and us.

22 A F-r -- yeah, f-r-a-c-t-a-l-s.

1 Q What does that mean?

2 A A fractal is something that has detail, no
3 matter how closely you look at it. Very often
4 that detail is self-similar. You often see them
5 in nature, coast lines, trees. As you examine
6 something closer, it doesn't get smooth, it
7 gets -- it remains rough, detailed.

8 I'll also mention that Dr. Tentzeris, one
9 of his areas that he mentions is fractal antennae
10 design.

11 Q Yeah, that's not what I'm asking. I'm
12 asking about your background right now.

13 So who was your focus of post-doc research
14 at U of I Chicago?

15 A I continued that work, as well as some
16 work on virtual reality.

17 Q What kind of virtual reality research or
18 projects you were working on back then?

19 A It's known as the CAVE. It's basically a
20 room of video displays where all the walls,
21 ceiling, floor are video displays of some sort so
22 that you don't have to wear a head-mounted

1 display. You would see what you would see from
2 your position in that room, what you would see
3 from that position is projected on the walls,
4 ceiling, floor.

5 Q So basically you don't need to have glass
6 or other kind of equipment; you just use your
7 naked eye and you can see everything?

8 A That's correct. Participants still wear
9 glasses in order to accommodate stereo vision, but
10 they can see -- they can see their hands and
11 everything else. It's -- they would wear stereo
12 glasses, is --

13 Q Why is it called the CAVE? Just curious.

14 A It's an acronym. I forget -- it's the
15 Cave Audio-Visual Experience -- Automatic Virtual
16 Environment. It's also based on the Allegory of
17 the Cave, I think, from, is it, Plato.

18 Q Interesting.

19 And you said you spent another three years
20 for the post-doc; is that right?

21 A No, just one --

22 Q Just --

1 A -- I got it -- I got my Ph.D. in November,
2 and I completed -- I stuck around through the
3 following summer just to be able to get on the
4 academic job cycle.

5 Q So did you start -- where did you start
6 after your post-doc?

7 A I was a professor -- started as an
8 assistant professor in the School of Electrical
9 Engineering and Computer Science at Washington
10 State University. I was there from 1992 to 2000.

11 Q Ah, that's -- so you spent eight years in
12 Seattle area, right?

13 A It was --

14 Q You want --

15 A -- Pullman -- it's Pullman -- it's
16 Pullman, Washington, so the other side of the
17 state, south of Spokane.

18 Q Okay. Was there you met with Grant? Just
19 curious.

20 A No, I have spent time in Seattle, but I
21 have not met Grant before, before this matter.

22 Q I moved here about three years ago, so I

1 never met with you, of course.

2 So after eight years in Washington, did
3 you move to -- move back to Illinois?

4 A Yes, I did.

5 Q Which school or college?

6 A The University of Illinois
7 Urbana-Champaign.

8 Q So have you been working there since then?

9 A Yes.

10 Q So what was your job title in UIUC?

11 A By the time I moved, I was an associate
12 professor, and so I continued as an associate
13 professor at Illinois, and then was promoted to
14 full professor, I believe, in 2006.

15 Q So what was your research area of focus
16 when you were at Washington State University?

17 A Computer graphics.

18 Q Could you be a little bit more specific?

19 A I worked in a wide range of areas in
20 computer graphics ranging from modeling,
21 construction of shapes represented
22 computationally, rendering, some visualization

1 using computers to be able to provide insight into
2 data.

3 A wide variety of topics. I worked on
4 some multimedia systems, collaborated with some
5 people working in multimedia.

6 Q Did you change or, you know, move to any
7 other area after you moved to -- moved back to
8 Illinois?

9 A No, in Illinois, I pursued the same
10 general areas I had -- I was also pursuing at
11 Washington State.

12 Q So still in computer graphics?

13 A Generally, including scientific
14 visualization, medical visualization, data
15 visualization, multimedia systems, and a wide
16 range of other applications of computer graphics.
17 Virtual reality.

18 Q So --

19 A Generally visual -- visual computing is
20 often a term used for that.

21 Q After you got your full professor, did you
22 start your own LLC to do the consulting, you know,

1 type of work?

2 A I was --

3 MR. KINSEL: Objection --

4 BY THE WITNESS:

5 A -- consulting -- oh.

6 MR. KINSEL: Objection to form.

7 Go ahead.

8 THE WITNESS: Thanks.

9 BY THE WITNESS:

10 A I was consulting before I started the LLC.

11 I started the LLC just to be able to manage the
12 accounting.

13 BY MR. TAN:

14 Q So how were you compensated in this
15 proceeding through the LLC?

16 MR. KINSEL: Objection to form.

17 BY THE WITNESS:

18 A I believe I'm working through a company --
19 I think it's IMS -- who finds experts, and so I
20 submit invoices to IMS that then get submitted to
21 patent owners.

22

1 BY MR. TAN:

2 Q Do you only work for patent owners?

3 A No, I've worked on a wide variety of
4 cases. Ones involving patents, I've worked in
5 some cases on the owners of the patents and the
6 other cases on people challenging the patents.

7 Q So do you work exclusively for IMS for
8 your expert, you know, consulting service?

9 A No.

10 Q How did you get to know this patent and
11 this petition?

12 MR. KINSEL: Objection to form.

13 Do you understand the question?

14 THE WITNESS: Yes. Enough I believe.

15 BY THE WITNESS:

16 A It was brought to my attention that there
17 was a matter that could benefit from my -- from my
18 expertise.

19 BY MR. TAN:

20 Q Through IMS?

21 A Yes.

22 Q When was that?

1 A I don't have those records in front of me.

2 I recall it's --

3 Q Roughly speaking.

4 A -- months. Months, maybe a year or two.

5 I don't recall.

6 Q So in your research, do you have a lab for
7 your, you know, computer graphics research
8 projects at U of I?

9 A Yes, I've had a variety of labs. We don't
10 depend on labs as much currently because computing
11 has become so ubiquitous that students,
12 researchers, don't need the same lab facilities
13 that we used to when we had, you know, large
14 dedicated graphics work stations for this work.
15 Much of the work we do now, we can do on standard,
16 you know, gaming-class PCs.

17 Q So when you say "gaming-class PCs," do you
18 mean -- what do you mean?

19 A Computers with a graphics card.

20 Q Any computer with a graphic card?

21 A No, it needs to be -- very often it will
22 need to be a powerful enough computer to be able

1 to run code commensurate with modern video games.

2 Q Do you get to play lots of video games?

3 A Some, not -- you know, not many. I've
4 worked a lot more on features for video games
5 without actually playing those video games.

6 I've worked in other matters where I've
7 had to play the video game in order to look at the
8 technology.

9 Q What is that matter and what is that video
10 game?

11 A I think it -- I remember Spiderman. I had
12 to play a video game on Spiderman.

13 Q When you say "another matter," is that
14 also a petition?

15 A No, I believe that was a trial in the
16 Eastern District of Texas.

17 Q And that's about the video game called
18 Spiderman?

19 A Yes, that was one of the video games
20 involved in that trial.

21 Q What was your opinion there, is it for the
22 patent owner or -- you know, potential infringer

1 defendants or the plaintiff?

2 MR. KINSEL: Objection to form.

3 BY MR. TAN:

4 Q Yeah, let me --

5 A Um.

6 Q Yeah, go ahead if you understand.

7 A It was -- from my recollection, I believe
8 that was a case where I was working for the patent
9 owner.

10 Q So let's turn to the declaration you have,
11 Dr. Hart.

12 MR. TAN: I believe that's already marked,
13 Ellen.

14 BY MR. TAN:

15 Q You know, Dr. Hart, do you have a clean
16 copy in your -- on your computer?

17 A Yes. Would you like me --

18 MR. KINSEL: Let me stop you there for a
19 second. When you say it's marked, how has it been
20 marked? Previous --

21 MR. TAN: No, I think --

22 MR. KINSEL: -- deposition? What are you

1 saying?

2 MR. TAN: No, I'm saying it's an exhibit
3 with your exhibit number. I'm not saying it's
4 previous deposition. It's marked as Exhibit 2004,
5 right?

6 MR. KINSEL: I believe so. But I think
7 you're using "marked" in an ambiguous way. Are
8 you saying it's been marked in this deposition or,
9 just, it's part of the record and --

10 MR. TAN: It's part of the record.

11 MR. KINSEL: Okay.

12 (WHEREUPON, Exhibit No. 2004 was first
13 referenced.)

14 BY MR. TAN:

15 Q So you have Exhibit 2004?

16 A I can -- yes, I can produce a copy, an
17 unmarked -- or an unmodified copy of Exhibit 2004.
18 Give me just one moment.

19 There it is. Okay.

20 Q So can you go back to the very end,
21 Page 131.

22 A Okay.

1 Q Dr. Hart, is that your signature above
2 your name, the printed name?

3 A Yes, my signature appears on Page 131.

4 Q You drafted the whole declaration, right?

5 A I wrote the whole declaration. These are
6 my opinions.

7 Q So you reviewed the documents you
8 identified, you know, as references 2001, 2002,
9 2003, and 2005 on -- in the exhibit list, right?

10 I think that's on Page 6, the exhibit
11 list.

12 A So I'm looking at materials considered on
13 Page 7, and I have here listed Exhibit 2001,
14 Exhibit 2003. And that's it in the 2000s.

15 Q Yeah, in the 200S.

16 And you also reviewed, as shown on Page 7,
17 the petition material listed, right? Starting
18 from the '669 patent.

19 A Yes, I reviewed the materials cited there
20 on Page 7.

21 Q Does any part of the '669 patent state or
22 describe a peer-to-peer system?

1 A So I use the term "peer-to-peer" to
2 describe the '669. I don't recall quoting the
3 term "peer-to-peer" from the '669 patent
4 specification, but it would have been -- I say
5 that, "This topology resembles what a person of
6 ordinary skill in the art would have understood to
7 be a peer-to-peer network."

8 Q So on Page 9, in the section "Background,"
9 Paragraph 21, underneath "Overview of the
10 Technology," you talk about ESL.

11 Do you see that?

12 A Yes, I see the word -- I see the
13 abbreviation "ESL."

14 Q What's your understanding of ESL?

15 A It stands for Electronic Shelf Labels, a
16 display on a shelf.

17 Q Does the ESL communicate with each other?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A This paragraph, Paragraph 21, is just
21 describing electronic shelf labels that are
22 displays on a shelf.

1 "Unlike paper or sticker labels,
2 electronic shelf labels and larger displays (which
3 the '669 patent collectively calls 'display
4 devices' or 'playback devices') can present
5 dynamic video and images."

6 BY MR. TAN:

7 Q So my question is, Dr. Hart, in your
8 understanding does the ESL generally communicate
9 with each other or communicate with some other
10 devices?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A I thought I answered that question. In
14 Paragraph 21, I'm talking about electronic shelf
15 labels. And I'm not talking about electronic
16 shelf labels as something that needs to
17 communicate with each other; I'm describing
18 electronic shelf labels as being unlike paper or
19 sticker labels, electronic shelf labels and larger
20 displays can present dynamic video and images.

21 BY MR. TAN:

22 Q What is the advantage of electronic shelf

1 label compared to, you know, paper sticker or
2 paper labels?

3 MR. KINSEL: Objection to form.

4 BY THE WITNESS:

5 A I don't see a specific statement on that.
6 One reason would be that, as prices change, the
7 fact that these electronic shelf labels can
8 present dynamic video and images, one advantage is
9 that, as prices change, those prices can change on
10 the shelf label. Another advantage is to be able
11 to show video.

12 BY MR. TAN:

13 Q And how does the electronic shelf label
14 change its price in stores automatically?

15 MR. KINSEL: Objection to form.

16 BY MR. TAN:

17 Q I'm not specifically asking about this
18 paragraph, Dr. Hart, so just your understanding.

19 MR. KINSEL: Objection to form.

20 BY THE WITNESS:

21 A So my understanding is that I'm here to
22 respond to questions about my opinions on this

1 matter. That's a pretty general question. I
2 focused my analysis, for example, on the '669 and
3 how it managed its electronic shelf labels.

4 BY MR. TAN:

5 Q Yeah, so just help me to understand,
6 Dr. Hart. The electronic shelf label, you would
7 agree that has to communicate with the server or
8 some device to get the past information, right?

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A So I don't have the '669 patent in front
12 of me --

13 BY MR. TAN:

14 Q (Indiscernible.)

15 A -- from my --

16 MR. KINSEL: Hang on. Let Dr. Hart
17 complete his answer, please.

18 BY THE WITNESS:

19 A I don't have the '669 patent in front of
20 me, and I don't recall specifically addressing
21 that in my report or I don't see in my report
22 where I specifically address that issue.

1 BY MR. TAN:

2 Q Do you have the exhibit, you know -- the
3 exhibit, you know, the clean copy of the '669
4 patent, which was, I believe, Exhibit 1001, with
5 you in your computer?

6 A Yes, I do.

7 MR. KINSEL: Can I ask -- let me stop you
8 for a second. Are you not going to mark any
9 exhibits in this deposition? Why aren't you --
10 are you going to use any exhibits that you're
11 marking, or is Dr. Hart responsible for providing
12 information here?

13 Normally the way a deposition works is you
14 would present an exhibit to Dr. Hart that he can
15 be questioned about. I mean, I don't have any
16 objection to Dr. Hart using the stuff that's in
17 his computer, but I don't know how we're going to
18 make a record when none of this stuff is being
19 marked as exhibits.

20 MR. TAN: So here's my plan, but we can
21 mark it if you insist. I think for any documents
22 in the record, I don't want to remark it with a

1 different number. It kind of make things more
2 confusing, but --

3 MR. KINSEL: If that's the way you want to
4 do it, that's fine. I just -- you know, it's
5 unusual, but go ahead.

6 Dr. Hart, if you have the '669 in front of
7 you, you can pull it up.

8 (WHEREUPON, Exhibit No. 1001 was first
9 referenced.)

10 BY THE WITNESS:

11 A Okay.

12 BY MR. TAN:

13 Q So looking at the '669 patent, do you see
14 claim 1 mention anything about ESL?

15 MR. KINSEL: Objection to form.

16 BY THE WITNESS:

17 A Claim 1 includes electronic shelf labels
18 in its text.

19 BY MR. TAN:

20 Q Can you read that out? The part including
21 the electronic shelf label.

22 A The wherein element. "Wherein the display

1 devices (6A, 6B) are designed to display product
2 information or product price-related information
3 by means of virtual electronic shelf labels
4 displayed within a section of a..."

5 Q So the electronic --

6 A "Within a section" -- I'm sorry -- "within
7 a section of a screen's (5) display area
8 overlapping with a video content or substituting a
9 video content of said section."

10 Q So you would agree that ESL system using
11 hub and spoke to synchronize video was known to a
12 POSITA prior to the '669 patent, right?

13 MR. KINSEL: Objection to form.

14 BY THE WITNESS:

15 A In Paragraph 24, I state that prior to the
16 '669 patent, ESLs utilized a hub-and-spoke model
17 to synchronize video.

18 BY MR. TAN:

19 Q Can you answer yes or no, Dr. Hart, that
20 means systems using hub and spoke to synchronize
21 video were known to a POSITA prior to the '669
22 patent?

1 MR. KINSEL: Objection to form.

2 And you can answer it how you feel is
3 appropriate, Dr. Hart.

4 BY THE WITNESS:

5 A As I said before, prior to the '669
6 patent, ESLs utilized a hub-and-spoke model to
7 synchronize video.

8 BY MR. TAN:

9 Q So when you say "prior to '669 patent,"
10 what do you mean?

11 A Well, one thing is that I cite the '669
12 patent, column 1, lines 20 through 36, when I say,
13 "But hub-and-spoke systems required expensive
14 implementation hardware, had high bandwidth
15 requirements, and relied on precise
16 server-synchronized clock signals to ensure the
17 sever-streamed video buffers correctly."

18 So the patent specification is referring
19 to hub-and-spoke systems, and when I say prior to
20 the '669 patent, I'm saying that the '669 patent
21 discusses those hub-and-spoke systems in its
22 specification.

1 Q Is that part you just cited, you know,
2 without in the background section of the '669
3 patent?

4 A I'm not sure I understand the question.
5 Can you repeat the question?

6 Q Sure. So you cited the section underneath
7 the heading "Background" in the '669 patent,
8 right?

9 MR. KINSEL: Objection to form.
10 BY THE WITNESS:

11 A Yes. Yes, I was discussing an opinion at
12 the top of Page 12 in Paragraph 24 in the
13 background section of my declaration.

14 BY MR. TAN:

15 Q Does that section mention hub and spoke?

16 MR. KINSEL: Objection to form.

17 BY THE WITNESS:

18 A That section, the background section of
19 the '669 patent, column 1, 20 through 36 begins,
20 "A known video playback system comprises a central
21 server for distributing video streams" -- "for
22 distributing a video stream to any number of

1 devices."

2 That is what I refer to as a hub-and-spoke
3 system on Page 12, along with a figure.

4 BY MR. TAN:

5 Q So you would agree that hub-and-spoke
6 system was known back then, right?

7 A As I said before, prior to the '669
8 patents, ESLs utilized a hub-and-spoke model to
9 synchronize video.

10 Q You also compare the hub-and-spoke system
11 to a peer-to-peer system in your opinion; is that
12 right?

13 A In Paragraph 33, I say, "This topology" --
14 meaning the configuration described in the '669
15 patent -- "resembles what a person of ordinary
16 skill in the art would have understood to be a
17 peer-to-peer network."

18 Q What is a peer-to-peer network?

19 A A peer-to-peer network consists of a
20 plurality of devices, each communicating directly
21 with each other, eliminating the need for a
22 central hub or master.

1 Q So in this paragraph, you gave an example
2 about Napster music file-sharing established in
3 1999; is that right?

4 MR. KINSEL: Objection to form.

5 I'm sorry, Counsel, can you tell us what
6 paragraph you're referring to?

7 MR. TAN: The paragraph Dr. Hart just read
8 out, Paragraph 33 on Page 19.

9 MR. KINSEL: Thank you.

10 BY THE WITNESS:

11 A That paragraph includes the statement,
12 "Such networks were populized" -- "popularized by
13 the Napster music file-sharing service established
14 in 1999."

15 BY MR. TAN:

16 Q When was the priority date of the '669
17 patent?

18 A At the bottom of Paragraph 33, I state
19 that the priority date of the '669 patent was
20 November 10, 2017.

21 Q Thank you.

22 So you would agree that peer-to-peer

1 system was known prior to the '669 patent, right?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A A peer-to-peer networking system for file
5 sharing was used in, for example, 1999 for the
6 process of distributing large files across
7 multiple networked computers.

8 BY MR. TAN:

9 Q Yeah, can you answer my question?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A I'm sorry. I thought I just did.

13 BY MR. TAN:

14 Q So my question is, you would agree that
15 the peer-to-peer system was known prior to the
16 '669 patent, right?

17 MR. KINSEL: Objection to form.

18 BY MR. TAN:

19 Q Because 1999 was before the priority date
20 of the '669 patent.

21 MR. KINSEL: Now there's two questions
22 pending. Do you know -- which one do you want him

1 to answer?

2 BY MR. TAN:

3 Q Dr. Hart, do you understand, or do you
4 want me to repeat the question?

5 A Please repeat the question.

6 Q Because 1999 was before 2017, so you would
7 agree that file sharing, the peer-to-peer system
8 was known prior to the '669 patent?

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A There was a peer-to-peer file-sharing
12 network used in 1999, which was before the date of
13 2017 -- the year of 2017.

14 BY MR. TAN:

15 Q So you reviewed the prosecution history of
16 the '669 patent, right?

17 A Yes.

18 Q Dr. Hart, have you filed any patents for
19 yourself?

20 A I'm sorry, I -- can you repeat the
21 question? I didn't hear the end of that.

22 Q Yeah. Let me scratch that.

1 Do you have any patents yourself?

2 A Yes.

3 Q Are you familiar with the patent
4 prosecution process?

5 A Yes.

6 Q Do you understand that the Patent Office
7 will issue an Office Action when -- may issue an
8 Office Action when they examine your patent?

9 A I believe so. I'm not a lawyer, but I
10 have seen the communications, for example, in the
11 prosecution history.

12 Q So the '669 patent was filed as an
13 application 16/762,709 in 2020, right?

14 MR. KINSEL: Objection to form.

15 BY THE WITNESS:

16 A I have that application number 16/762,709
17 was filed on May 8, 2020.

18 BY MR. TAN:

19 Q So the original claim you included in your
20 report on Pages 21 and 22 are slightly different
21 from the granted claim, right?

22 A So the original claim 1 is different --

1 the original claim 1 that I have listed on Page 21
2 is different than the claim 1 of the '669 patent.

3 Q And do you understand that applicant or
4 patent owner added additional limitation to
5 original claim 1 to get it allowed, right?

6 A So on April 11, 2022, applicant filed a
7 reply and amended -- and amendment canceling
8 pending independent claim 1 and pending dependent
9 claim 14 to advance prosecution. And then
10 amending the other pending claims to depend
11 directly or indirectly from allowable claim 17.

12 Q So applicant amended the claims to get the
13 claims allowed, right?

14 MR. KINSEL: Objection to form.

15 BY THE WITNESS:

16 A I have in quotes in Paragraph 50 that, "On
17 April 11, 2022, applicant filed a reply and
18 amendment, canceling independent claim 1 and
19 pending claim" -- "pending dependent claim 14 to
20 advance prosecution."

21 BY MR. TAN:

22 Q What do you mean by "to advance

1 prosecution" here?

2 A Exactly that, to move forward. Advance
3 means to move forward.

4 Q To get the patent application to become a
5 patent?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A That's my understanding of ultimately the
9 goal of a patent application is to get a patent to
10 have a patent granted.

11 BY MR. TAN:

12 Q Dr. Hart, you mentioned "motivation to
13 combine" many times in your declaration. Do you
14 know the rule governing the analysis of motivation
15 to combine?

16 MR. KINSEL: Objection to form.

17 BY THE WITNESS:

18 A So my understanding of legal standards is
19 as stated -- or as summarized in Section 8
20 beginning at Paragraph 76.

21 BY MR. TAN:

22 Q So what's your understanding of motivation

1 to combine?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A I understand that there are many
5 rationales for combining prior art references.
6 For example, I have been informed that it is
7 considered obvious to combine prior art elements
8 according to known methods to yield predictable
9 results, substitute one known element for another
10 to obtain predictable results; use the prior art
11 elements in a predictable way according to their
12 established functions; apply a known technique to
13 a known device, method, or product; ready for
14 improvement to yield predictable results; choose
15 from a finite number of identified predictable
16 solutions with a reasonable expectation of
17 success; or if there is some teaching,
18 suggestions, or motivation in the prior art that
19 would have led a person of ordinary skill in the
20 art to modify a prior art reference or combine
21 prior art teachings to arrive at the claimed
22 invention.

1 BY MR. TAN:

2 Q So, Dr. Hart, do you drive a car?

3 A Yes, I do.

4 Q Do you have a general understanding of how
5 the brakes work in a car?

6 A I understand I put my foot on a lever and
7 the car goes slower.

8 Q So the lever can also be called a pedal,
9 right?

10 A Yes.

11 Q So let's assume using a sensor to detect
12 is known in, you know, the driving and using the
13 computer to control the engine is known. Would
14 you agree that it is obvious to use the sensor to
15 detect the pedal's position and transmit it to a
16 computer to control the engine?

17 MR. KINSEL: Objection to form.

18 BY THE WITNESS:

19 A I don't believe I have an opinion stating
20 as such. I didn't consider the operation of a car
21 in examining the '669 patent.

22 I would have to look at the specifics of

1 the operation of the car and the materials
2 involved in the car to make any sort of opinion on
3 the obviousness of a brake pedal.

4 BY MR. TAN:

5 Q So you don't agree with that?

6 MR. KINSEL: Objection to form. Misstates
7 his testimony.

8 BY THE WITNESS:

9 A I don't have an opinion in my report on
10 the '669 patent on the operation of the brake
11 pedal of an automobile.

12 BY MR. TAN:

13 Q So if I tell you that is the Supreme Court
14 ruling of KSR about obviousness, would that change
15 your opinion at all?

16 MR. KINSEL: Objection to form.

17 BY THE WITNESS:

18 A The opinions I've provided on the '669
19 patent have resulted from careful analysis of all
20 the materials. I would need to see any opinions,
21 any relevant materials in order to form such an
22 opinion.

1 BY MR. TAN:

2 Q You understand common sense may have been
3 used as a motivation to combine things, right?

4 MR. KINSEL: Objection to form.

5 BY THE WITNESS:

6 A I don't recall the specific term "common
7 sense" in what I listed in the -- in Paragraph 86.

8 I did include some teaching, suggestion,
9 or motivation in the prior art that would have led
10 a person of ordinary skill in the art to modify a
11 prior art reference or combine prior art teachings
12 to arrive at a claimed invention.

13 Common sense is not something I would
14 attribute to a person of ordinary skill in the
15 art. A person of ordinary skill in the art is not
16 common at the level of every -- every individual
17 on the street.

18 MR. TAN: So, Dr. Hart, I think we have
19 been going about an hour. Let's take a quick
20 break. Ten minutes? Is that --

21 THE WITNESS: Okay.

22 MR. TAN: -- okay with you?

1 THE WITNESS: Yes, it is.

2 MS. REPORTER: Off the record.

3 MR. TAN: Thank you.

4 (WHEREUPON, a recess was had at
5 10:10 a.m.)

6 BY MR. TAN:

7 Q Dr. Hart, in the break, did you talk to
8 anyone?

9 A No, I did not.

10 Q So you reviewed the '669 patent to provide
11 your opinion, right?

12 A Yes, I reviewed the '669 patent.

13 Q And you understand the claims of the '669
14 patent defines the claim scope?

15 A In my report, I have opinions on claim 1,
16 claim 7, and claim 11.

17 Q So you reviewed those claims, and you
18 understand the claim scope of claims 1, 7, and 11?

19 MR. KINSEL: Objection to form.

20 BY THE WITNESS:

21 A Yes, I reviewed claims 1, 7, and 11 and
22 provided opinions on them.

1 BY MR. TAN:

2 Q And you understand the claims is the --
3 are the legal, you know -- legally defines the
4 patent claim -- the patent scope, what it covers,
5 right?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A I'm not sure I understand that question.

9 BY MR. TAN:

10 Q Dr. Hart, are you an attorney?

11 A I am not an attorney.

12 Q But you provided your opinion regarding
13 the claim scope of the '669 patent, right?

14 MR. KINSEL: Objection to form.

15 BY THE WITNESS:

16 A So there is a section on construction,
17 Section 7 of my declaration. I provided some
18 opinions on claim construction. For example, the
19 term "designed to."

20 Paragraph 65 begins, "The Board suggested
21 that the parties may wish to address whether the
22 proper scope of claim 1 does not require either

1 transmission or determination, but rather requires
2 that the playback devices be designed to transmit
3 and determine."

4 And I provided opinions on that term of
5 "designed to" in response to the Board's
6 suggestion regarding the proper scope of claim 1.

7 Q Have you provided your personal opinion
8 regarding the "designed to" construction in
9 claim 1, right?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A I provided a professional opinion on the
13 claim term "designed to."

14 BY MR. TAN:

15 Q So the claim term "designed to" is used in
16 many places in the claims, right?

17 MR. KINSEL: Objection to form.

18 BY THE WITNESS:

19 A The examples I used were from claim 1.

20 BY MR. TAN:

21 Q How many times does claim 1 use the term
22 "designed to"?

1 MR. KINSEL: Objection to form.

2 BY THE WITNESS:

3 A So in claim 1, it states, "Wherein the
4 devices (6A, 6B) are designed to transmit video
5 playback progress data via the communication stage
6 to the other device (6B, 6A) and to determine
7 based on the received progress data whether it is
8 in synchronous or asynchronous playback progress
9 with the other devices (6B, 6A)."

10 So "designed to" appears twice there:
11 "Designed to transmit" and "designed to
12 determine."

13 BY MR. TAN:

14 Q How --

15 A It also appears -- sorry. It also appears
16 a third time in the following wherein clause:
17 "Wherein the display devices (6A, 6B) are designed
18 to display product information..." et cetera.

19 Q How about claim 3; does it recite
20 "designed to"?

21 A I don't recall providing any opinions on
22 claim 3.

1 Q Do you have a copy of claim 3 in front of
2 you in the '669 patent?

3 A Yes.

4 Q Does it recite "designed to"?

5 A The words "designed to" appear in claim 3.

6 Q So did you understand "designed to," in
7 all these claims, have the same meaning or
8 different meaning?

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A My analysis on "designed to" focused on
12 claim 1, claim 7, and claim 11 where claim 7 and
13 11 are dependent claims on claim 1.

14 So I focused my analysis on the use of
15 "designed to" in claim 1, including the
16 prosecution history for what ultimately became
17 claim 1.

18 BY MR. TAN:

19 Q My question is slightly different,
20 Dr. Hart. I'm asking you, in your opinion, the
21 meaning of "designed to," is it the same in all
22 three claims you considered, 1, 7, and 11?

1 A I'm sorry. I didn't think that was the
2 question you asked before. Can you repeat that
3 question?

4 Q Sure. Is the meaning "designed to" the
5 same in your opinion in all the three claims you
6 considered for the '669 patent?

7 MR. KINSEL: Objection to form.

8 BY THE WITNESS:

9 A I don't see an opinion on claims 7 or 11
10 regarding designed to. I was responding to the
11 Board's suggestion, and the Board's suggestion was
12 regarding claim 1, so limited -- I limited my
13 analysis to what the Board was asking, and I
14 considered "designed to" with respect to claim 1.

15 So my opinion is focused on claim 1. I
16 don't -- I don't see anything in my opinions that
17 specifies anything on that construction regarding
18 claims 11 or 7. I don't know that the -- I don't
19 recall the Board having any issue with that term
20 with respect to claims 7 and 11.

21 BY MR. TAN:

22 Q What is your construction of "designed to"

1 in claim 1?

2 A In my opinion, "designed to" does require
3 each of the playback devices be expressly
4 configured to transmit and determine during
5 operation of the system, not just that they be
6 merely capable of doing so.

7 Q What do you mean by "expressly"?

8 A Expressly configured, as opposed to being
9 merely capable of doing so.

10 Q Does the patent -- the '669 patent
11 disclose the word or use the word "expressly"
12 anywhere?

13 MR. KINSEL: Objection to form.

14 BY THE WITNESS:

15 A I just did a quick search through the
16 patent and did not see an example of the word
17 "expressly" in the '669 patent.

18 BY MR. TAN:

19 Q How about the term "during operation of
20 the system"; is that term used by the '669 patent?

21 MR. KINSEL: Objection to form.

22

1 BY THE WITNESS:

2 A The term "operation of the system" is
3 used.

4 BY MR. TAN:

5 Q Is it used with the term "during"?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A The term -- the phrase "operation of the
9 system" is used, line 40, column 5, and it's also
10 used in line 46 of column 6.

11 In both cases, it's -- it says, "In the
12 following, the operation of the system 1 is
13 explained by a method of synchronizing the
14 playback of the video over both devices 6A and
15 6B." That's the column 5 example.

16 And in column 6, "In the following, the
17 operation of the system 1 is now explained by the
18 aid of Figure 6."

19 BY MR. TAN:

20 Q So talking about figures, let's look at
21 Figure 1 of the '669 patent.

22 Dr. Hart, do you have that in front of

1 you?

2 A Yes.

3 Q What is number 7 here on the right upper
4 corner of Figure 1?

5 A You're asking what is number 7?

6 Q Mm-hm. What does number 7 identify?

7 A The video content film to be displayed on
8 the screen's 5 is supplied by a server 7 via radio
9 signal to both devices 6A and 6B.

10 Q So the device -- display devices 6A and 6B
11 are both connected with the server 7 via radio
12 signals, right?

13 MR. KINSEL: Objection to form.

14 BY THE WITNESS:

15 A The screen's 5 are supplied by a server 7
16 via a radio signal to both devices 6A and 6B. I'm
17 not sure what you meant by "connected."

18 BY MR. TAN:

19 Q Yeah, communicated. I mean communicate
20 when I say "connected."

21 So the double-arrowed S, is that the
22 signal being transmitted between the server 7 and

1 the display devices 6A and 6B?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A I don't see that figure labeled S as
5 being -- that symbol, that portion of the
6 illustration in Figure 1 as being identified in
7 the specification describing Figure 1.

8 BY MR. TAN:

9 Q If you were a POSITA at the time of the
10 invention and looking at this, what's your
11 understanding of that?

12 A My understanding is that the video content
13 film to be displayed on the screen's 5 is supplied
14 by server 7 via radio signal to both devices 6A
15 and 6B.

16 Q And where is that video signal identified
17 in the drawing?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A Can you repeat that question?

21 BY MR. TAN:

22 Q Yeah, the claim requires, you know, video

1 data, right? And the video data is supplied by
2 the server to the display devices 6A and 6B?

3 MR. KINSEL: Objection to form.

4 BY MR. TAN:

5 Q Is the video data identified or otherwise
6 described in the drawing Figure 1?

7 MR. KINSEL: Objection to form.

8 BY THE WITNESS:

9 A I don't recall expressing an opinion on
10 that subject. I didn't -- I don't recall looking
11 at Figure 1 as needing those details to understand
12 claim 1.

13 BY MR. TAN:

14 Q So you don't think video 1 is related to
15 claim 1; that's the reason you did not review that
16 carefully?

17 MR. KINSEL: Objection to form. Misstates
18 the witness's testimony.

19 BY THE WITNESS:

20 A That's not what I said. I said that I
21 didn't need to dig into those details regarding
22 Figure 1 in order to understand claim 1.

1 BY MR. TAN:

2 Q So you don't dig into the details of
3 Figure 1?

4 MR. KINSEL: Objection to form. Misstates
5 the witness's testimony.

6 BY THE WITNESS:

7 A That's not what I said.

8 BY MR. TAN:

9 Q So looking -- come back to the -- to your
10 declaration, Dr. Hart. Turn to Page 21 where you
11 reproduce language in claim 1.

12 A Page 21 has original claim 1.

13 Q Let's look at Page 37 then, top of 67.

14 A I'm sorry, which page should I be on?

15 Q Page 37, Paragraph 67.

16 A Okay.

17 Q So you talked about limitation 1.3a
18 requires the playback device 6A and 6B communicate
19 data with each other.

20 Do you see that?

21 A Yes, I see that.

22 Q Do you understand claim 1 can have more

1 than two playback devices?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A The preamble to claim 1 is -- specifies a
5 video playback system 1 comprising a number of
6 playback devices.

7 BY MR. TAN:

8 Q So in Paragraph 72 of your opinion, you
9 specifically list playback device 6A and playback
10 device 6B designed to do both transmitting video
11 playback progress data and also to determine based
12 on the progress data whether it is synchronous or
13 asynchronous with the other device.

14 Do you see that?

15 A I do see that. I would like to mention
16 that there is a small error in this Paragraph 72.
17 It should read, "A playback device (6A) designed
18 to transmit video playback progress-data via the
19 communication stage to the other device (6B) and
20 to determine based on the received progress data
21 whether it is in a synchronous or asynchronous
22 playback process with the other device 6B.

1 " And a playback device (6B) designed to
2 transmit video playback progress-data via the
3 communication stage to the other device (6A), and
4 to determine based on the received progress data
5 whether it is in a synchronous or asynchronous
6 playback progress with the other device 6A."

7 BY MR. TAN:

8 Q But that's not the claim language in
9 claim 1, right?

10 A No, that's my opinion in Paragraph 72,
11 that claim element 1.3 requires that.

12 Q So in 1.3, there are two subparts, right?
13 Let's call the first part the transmit part, the
14 second part the determine part.

15 Do you understand? Do you agree?

16 A I understand that you're referring to one
17 part as the transmit part and the other part as
18 the determine part.

19 Q So in the transmit part in the patent, at
20 the end of transmit, it's -- it says "to the other
21 device (6B, 6A)," right?

22 MR. KINSEL: Objection to form.

1 BY THE WITNESS:

2 A That element states, "To transmit video
3 playback progress data via the communication stage
4 to the other device (6B, 6A)."

5 BY MR. TAN:

6 Q So are you suggesting to remove 6A from
7 this when you have 6A in front here in
8 Paragraph 72 at the beginning --

9 MR. KINSEL: Objection to form -- sorry.
10 Objection to form.

11 BY THE WITNESS:

12 A That is not my opinion. What my opinion
13 states is what a person of ordinary skill in the
14 art would have understood from claim element 1.3
15 using the parenthetical examples of 6A and 6B and
16 then later 6B and 6A. In claim 1, you can expand
17 that out to the understanding I've opined at
18 Paragraph 72.

19 BY MR. TAN:

20 Q I'm trying to understand your correction
21 of Paragraph 72. So in your correction, did you
22 remove anything from the current reference numbers

1 listed in Paragraph 72 here?

2 A So there's a couple corrections. One is,
3 instead of "Design: Transmit," that should be
4 "Design: To transmit."

5 In -- there's a parenthetical "(6B, 6A)."
6 That should just be "6B."

7 And in this -- after the capitalized bold
8 "And" where we're discussing a playback device 6B,
9 that should be "Designed: To transmit."

10 And in that portion of the -- of the
11 opinion, instead of "(6B, 6A)," the -- what should
12 be in the parenthesis there, it should be "6A."

13 Q Is there any other part of the declaration
14 you'd like to correct?

15 A Yes.

16 Q And what is that?

17 A Before Paragraph 193 on Page 108, there
18 should be a section heading labeled "iii. Takashi
19 does not disclose claim element 1.4."

20 Q Anything else?

21 A I don't believe so, no.

22 Q So help me to understand -- come back to

1 Paragraph 72. If there is a third playback device
2 6C, how would you rather understand the claim?

3 MR. KINSEL: Objection to form.

4 BY THE WITNESS:

5 A I'm sorry, can you repeat the question?

6 BY MR. TAN:

7 Q Sure. If there is a third device 6C,
8 what's your construction of claim element 1.3?

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A First, I'm not offering my opinion at
12 Paragraph 72 as a construction of a claim element.
13 It's describing what I would expect a person of
14 ordinary skill in the art to understand the
15 interaction between playback device 6A and
16 playback device 6B as being reciprocal.

17 And that reciprocity means that the roles
18 of 6A and 6B can be reversed. And I'm
19 demonstrating that reversal using the element 6A
20 and 6B describing 6A as the playback device and
21 the other device as being 6B.

22 Or when the playback device is 6B, the

1 other device being 6A.

2 A person of ordinary skill in the art
3 could have understood that claim 1 refers --
4 claim 1 requires a video playback system
5 comprising a number of playback devices and would
6 have understood 6A and 6B to be any two of them.

7 And so 6A and 6B would have been two of a
8 number of playback devices.

9 Had there been three -- had there been --
10 had a video playback system comprising a number 3
11 of playback devices, 6A, 6B, and 6C, a person of
12 ordinary skill in the art would have been able to
13 understand using this same language, except,
14 instead of 6A and 6B, it would be 6A and 6C or 6B
15 and 6C, in addition to 6A and 6B.

16 BY MR. TAN:

17 Q So when the playback device 6A transmit
18 video playback progress data while the
19 communication stage to the other devices, would
20 that be 6B and 6C if there are three devices here?

21 MR. KINSEL: Objection to form.
22

1 BY THE WITNESS:

2 A So a person of ordinary skill in the art
3 would have seen Figure 6, which has three devices,
4 6A, 6B, and 6C.

5 BY MR. TAN:

6 Q My question is, Dr. Hart, when the first
7 playback device 6A transmit video playback
8 progress data via the communication stage to the
9 other device, does the other device include 6B and
10 6C if there are three devices in the system?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A So in that Figure 6 embodiment, "In this
14 simultaneous playback mode, the devices 6A
15 through 6C make use of the measures according to
16 the invention to keep playback on the different
17 delay devices 6A through 6C for the two individual
18 videos, the background video, and the
19 advertisement video synchronized."

20 A person of ordinary skill in the art
21 would have understood that by the operation of
22 this system, 6A would need to transmit video

1 playback data via a communication stage to the
2 other device. That other device would be 6B, and
3 that other device would be 6C, and would determine
4 based on the receipt progress data whether it is
5 synchronous or asynchronous playback progress with
6 the other device where that other device would
7 have been 6B and where that other device would
8 have been 6C.

9 These devices are operating in a
10 reciprocal fashion. They are both transmitting --
11 they've been designed to transmit and to receive
12 progress data and to determine based on that
13 received progress data.

14 And so they're transmitting to each other
15 and they're receiving from each other. So 6A is
16 transmitting to 6B and 6C and 6A is determining
17 based on received progress data from 6B and 6C.

18 Q So what about if there are, say, 100
19 playback devices in the system; does that mean 6A
20 would transmit playback data to all the other
21 playback devices --

22 MR. KINSEL: Objection to form.

1 BY MR. TAN:

2 Q -- transmitting data to each other?

3 MR. KINSEL: Objection to form.

4 BY THE WITNESS:

5 A I would have to see the details of such a
6 system.

7 Claim 1 specifies a video playback system
8 comprising a number of playback devices. It
9 demonstrates that by showing the relationship
10 between any two.

11 A person of ordinary skill in the art
12 would have understood claim 1, if it's going to
13 synchronize all of these devices -- all of these
14 playback devices, then pair-wise, they need to be
15 designed to video playback progress data via the
16 communication stage to the other devices and to
17 determine based on the received progress data
18 whether it is in a synchronous or asynchronous
19 playback progress with the other devices.

20 Q Thank you.

21 So you -- when you construe or interpret
22 claim element 1.3, you relied on the reference

1 numbers 6A and 6B here, right?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A The understanding that I had and that a
5 person of ordinary skill in the art understands,
6 when looking at claim 1 and its references to 6A
7 and 6B, and in other cases 6B and 6A -- the order
8 is important -- is that these are pair-wise
9 examples. That this is a reciprocal relationship,
10 and one device is communicating this with each
11 other to the other devices.

12 BY MR. TAN:

13 Q So if a person of ordinary skill in the
14 art don't have the reference numbers, would they
15 reach the same construction or understanding?

16 MR. KINSEL: Objection to form.

17 BY THE WITNESS:

18 A I don't believe I was asked to consider
19 that. My opinions are on the '669 patent in
20 claim 1 and in response to Dr. Tentzeris' report,
21 and I don't recall that ever being considered.

22

1 BY MR. TAN:

2 Q So you never considered 6A, 6B is not part
3 of the claim language?

4 MR. KINSEL: Objection to form.

5 BY THE WITNESS:

6 A I provided opinions on claim 1 as written.

7 BY MR. TAN:

8 Q Which include 6A and 6B.

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A I considered the entirety of claim 1.

12 BY MR. TAN:

13 Q Including all the reference numbers,
14 right?

15 A I considered the entirety of claim 1.

16 Q So who added the arrow in this -- under
17 these Paragraph 67 between the reference numbers
18 (6A, 6B) and then (6B, 6A)? Did you add that?

19 A Yes, that's part of my opinion in
20 Paragraph 67 to highlight the order -- as I said
21 before that the order is important.

22 That, in one section of the claim, the

1 reference is to (6A, 6B), and in the other
2 reference, it's to (6B, 6A). This is
3 demonstrating the reciprocal understanding of
4 "designed to" and transmitting and determining,
5 and that what goes for -- the relationship between
6 6A and 6B is also a reciprocal of the relationship
7 between 6B and 6A.

8 Q So you consider the reference numbers --
9 the order of the reference numbers are important
10 for you to under- -- for a POSITA to understand
11 the claim scope, right?

12 A I understood that, and a person of
13 ordinary skill in the art would have understood
14 that.

15 Q So in the next page, in Paragraph 68 of
16 your report, so about six lines from the end of
17 Paragraph 68, you said, "Further, the '669
18 patent's playback devices are designed to
19 'independently' determine 'that they're in a
20 synchronous or asynchronous playback progress'
21 with other playback devices."

22 Would you agree --

1 A Yes, I --

2 Q Sorry.

3 A Yes, I see that.

4 Q Would you agree the term "independently"
5 is not recited in claim 1?

6 A That's why I put it in quotes,
7 "independently," to emphasize the understanding
8 that's a -- how a person of ordinary skill in the
9 art would have understood each of the playback
10 devices to determine that they are in synchronous
11 or asynchronous playback progress.

12 Q Looking at claim 3 of the '669 patent,
13 that is the only claim that recites "determine
14 independently" in all 15 claims, right?

15 MR. KINSEL: Objection to form.

16 BY THE WITNESS:

17 A I see that claim 3 now has the word
18 "independent" in that. That is coincidental. I
19 didn't provide any opinions on claim 3, and I did
20 not use that context of the word "independent" as
21 it's being used in claim 3 in formulating my use
22 of the word "independently" with respect to

1 claim 1 and how I and a person of ordinary skill
2 in the art would have understood claim 1.

3 BY MR. TAN:

4 Q So you said a moment ago that you used
5 quotes on the word "independently," and you cite
6 to the patent section 2, lines 29 through
7 lines 33.

8 Could you read that part.

9 A Column 2, lines 29 through 33 state,
10 "According to a fundamental aspect of an
11 invention, it is a particular advantage that the
12 devices are designed to determine independently
13 from a video distribution server which distributed
14 the video data to the devices that they are in a
15 synchronous or asynchronous playback progress."

16 Q So the word "independently" is followed by
17 "from a video distribution server," right?

18 A Yes, this paragraph is stating that the
19 devices are designed to determine independently
20 from a video distribution server, which
21 distributed the video data to the devices that
22 they are in a synchronous or asynchronous playback

1 progress.

2 What that is stating is that the video
3 distribution server is not acting as a hub; that
4 the video distribution server is not acting as a
5 hub for the purpose of synchronizing the video
6 displayed on the playback devices.

7 Q So that means the determination has
8 nothing to do with the video distribution server
9 once it received all the video data and it can
10 determine independently from the video
11 distribution server about whether it's
12 synchronized or asynchronized, right?

13 A What this portion --

14 MR. KINSEL: Sorry. Let me get my
15 objection in.

16 Objection to form.

17 Sorry. Go ahead, Doctor.

18 BY THE WITNESS:

19 A What this section of the '669 patent is
20 stating at column 2, lines 29 through 33 and what
21 I am stating in Paragraph 68 is that the playback
22 devices are designed to independently determine

1 that they are synchronous or asynchronous -- that
2 they are in a synchronous or asynchronous playback
3 progress independently of any centralized server.

4 There's no hub. The playback devices are
5 operating independently in this case of that video
6 distribution server, and they're acting
7 independently of anything that could be serving as
8 a hub. They are working in this reciprocal
9 relationship together with each other to determine
10 if they are in synchronous or asynchronous
11 playback progress.

12 BY MR. TAN:

13 Q So in Paragraph 70 of your report, on
14 Page 39, you cited texts from an Office Action
15 response. So you understand that the examiner did
16 not agree with applicant's arguments in the first
17 two responses, right?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A So I addressed that subject in
21 Paragraph 49.

22

1 BY MR. TAN:

2 Q So you understand the examiner did not
3 agree with those arguments, right?

4 MR. KINSEL: Objection to form.

5 BY THE WITNESS:

6 A I can respond to that. I would basically
7 read Paragraph 49. My opinions are that, "The
8 examiner never reconciled that Asami taught only a
9 single device capable of making synchronization
10 determinations.

11 "Specifically, based on my review, the
12 examiner appears to have focused on the fact that
13 the first and second playback devices in Asami
14 could communicate bidirectionally.

15 "However, as I explain above, applicant's
16 argument regarding Asami -- best understood in the
17 context of the September 13, 2021 response to
18 Office Action -- was that it disclosed a system in
19 which the first playback device and the second
20 playback device engaged in neither a bidirectional
21 nor a reciprocal exchange of playback progress
22 data that allowed each of the playback devices to

1 make an independent determination of its
2 synchronization status with the other devices.

3 "Regardless, I believe that applicant's
4 basic point regarding then-pending claim 1 (and
5 therefore issued claim 1) remains the same - i.e.,
6 it requires devices designed to perform a
7 'bidirectional' and specifically 'reciprocal'
8 exchange of playback progress data between
9 playback devices so that each device could
10 independently determine synchronization."

11 BY MR. TAN:

12 Q Could devices in a hub-and-spoke system
13 communicate bidirectionally?

14 MR. KINSEL: Objection to form.

15 BY THE WITNESS:

16 A I would have to see the hub-and-spoke
17 model to make any sort of assertions or opinions
18 on that. I would have to see the details of such
19 a design.

20 BY MR. TAN:

21 Q So is it your understanding that the
22 devices -- that the spoke devices connected to a

1 hub cannot communicate bidirectionally?

2 MR. KINSEL: Objection to form. Misstates
3 the witness's testimony.

4 BY THE WITNESS:

5 A I would have to see an example of a system
6 to make any determinations about that system. I
7 would need to see more details about a system.

8 I looked at Asami and I looked at the '669
9 and other systems, but I would need to see that
10 specific system.

11 BY MR. TAN:

12 Q The Asami system does have bidirectional
13 communication, right?

14 MR. KINSEL: Objection to form.

15 BY THE WITNESS:

16 A Asami disclosed a system in which the
17 first playback device and the second playback
18 device engaged in neither a bidirectional nor a
19 reciprocal exchange of playback progress data that
20 allowed each of the playback devices to make an
21 independent determination of its synchronization
22 status with the other devices."

1 BY MR. TAN:

2 Q So you don't agree with the examiner's
3 understanding that the devices in Asami system
4 while in the cascade communication mode can
5 communicate with each other bidirectionally?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A I don't recall having an opinion stating
9 that.

10 The opinion I have is that, "Asami
11 disclosed a system in which the first playback
12 device and the second playback device engaged in
13 neither a bidirectional nor a reciprocal exchange
14 of playback progress data that allowed each of the
15 playback devices to make an independent
16 determination of its synchronization status with
17 the other devices."

18 That's the opinion I provided.

19 BY MR. TAN:

20 Q That is in the response to the Office
21 Action that you cited, but that's not the reason
22 that the USPTO issued this patent, right?

1 MR. KINSEL: Objection to form.

2 BY THE WITNESS:

3 A I'm not sure I understood that question.
4 Could you repeat it?

5 BY MR. TAN:

6 Q Sure. So patent owner argued that the
7 Asami system in which the first playback device
8 and second playback device engaged in neither a
9 bidirectional nor a reciprocal exchange of
10 playback progress data, but the examiner did not
11 agree with that, right?

12 MR. KINSEL: Objection to form.

13 BY THE WITNESS:

14 A I saw the results of the examiner's
15 decisions. I don't recall seeing from the
16 examiner any statements that specific.

17 BY MR. TAN:

18 Q The examiner issued a Final Office Action
19 after reviewing this argument; is that right?

20 MR. KINSEL: Objection to form.

21 BY THE WITNESS:

22 A I'd have to see the file history to -- I

1 don't think I reproduced any of the examiner's
2 specific statements.

3 I don't recall the examiner providing any
4 statements at the level of detail that you're
5 describing.

6 BY MR. TAN:

7 Q Sure. Let's review the prosecution
8 history. I think that's Exhibit 1002 in the file
9 history.

10 Do you have that with you?

11 A Yes, I do.

12 (WHEREUPON, Exhibit No. 1002 was first
13 referenced.)

14 BY MR. TAN:

15 Q Actually, in your declaration, in
16 Paragraph 28, you stated the examiner issued a
17 Final Office Action on March 17, 2022, right?

18 A The examiner issued a Final Office Action
19 on 3/17/2022.

20 Q And the examiner disagreed with
21 applicant's arguments in that Final Office Action,
22 right?

1 A I'm sorry. What was that?

2 Q The examiner disagreed with applicant's
3 arguments in that Final Office Action, right?

4 MR. KINSEL: Objection to form.

5 BY THE WITNESS:

6 A What I say in that opinion is that, "As to
7 Asami, the examiner disagreed with the applicant's
8 argument that Asami only teaches unidirectional
9 communication from the management device to the
10 playback device, devices 10. Instead, examiner
11 noted that Asami teaches that in cascade mode,
12 there is bidirectional communication."

13 But then I state that Asami disclosed a
14 system in which the first playback device and the
15 second playback device engaged in neither a
16 bidirectional nor a reciprocal exchange of
17 playback progress data that allowed each of the
18 playback devices to make an independent
19 determination of its synchronization status with
20 the other devices.

21 BY MR. TAN:

22 Q But that argument in Paragraph 49, that's

1 before the examiner issued the Final Office Action
2 in 2022 because that's in the context of
3 September 13, 2021, right?

4 MR. KINSEL: Objection to form.

5 BY THE WITNESS:

6 A In Paragraph 49, I say that it's best
7 understood in the context of the September 13th,
8 2021 response to Office Action.

9 BY MR. TAN:

10 Q So let's go to Paragraph 55 of your
11 report, which is on Page 30.

12 Are you there?

13 A Yes.

14 Q Do you have a general understanding of the
15 classification numbers you used here?

16 A Yes. I'm not a lawyer, but I had a
17 general understanding of these numbers.

18 Q And you drafted this report, right?

19 A Yes, I did.

20 Q How many expert reports have you drafted
21 so far?

22 A More than -- more than 20.

1 Q Do you always look at the classification
2 numbers when you do the analysis?

3 A I look at the entire patent front to back,
4 including the classification numbers. If the
5 classification numbers contain relevant
6 information, then I will include them in my
7 report.

8 Q Is this the first time you include the
9 classification number in the expert report?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A No, I don't -- I don't recall specific
13 previous examples, but I do recall looking and
14 utilizing those classification numbers in previous
15 reports.

16 BY MR. TAN:

17 Q Why do you use the classification numbers?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A I found Dr. Tentzeris' definition of a
21 personal -- person of ordinary skill in the art to
22 be too vague.

1 BY MR. TAN:

2 Q Specifically here, I think line 4, you
3 identified H04N 21/2387 Pictorial Communication
4 television.

5 What's your understanding of Pictorial
6 Communication television?

7 A That this is subject matter on the
8 communication of pictures such as you would see in
9 a television.

10 Q Is television -- scratch that.

11 Does television receive program video data
12 wirelessly?

13 MR. KINSEL: Objection to form.

14 BY THE WITNESS:

15 A In some cases, a television could receive
16 a broadcast signal. In other cases, a television
17 could receive digital information via a Wi-Fi
18 connection. So there are cases where a television
19 could receive information wirelessly.

20 BY MR. TAN:

21 Q Is that related to wireless communication?

22 MR. KINSEL: Objection to form.

1 BY THE WITNESS:

2 A I'm not sure I understand the question.

3 BY MR. TAN:

4 Q When the TV receive wireless signals, is
5 that relevant to wireless communication?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A No. When I say "pictorial
9 communication" -- for example, television, digital
10 output, a display device, content storage
11 operation -- I mean seeing what a person of
12 ordinary skill in the art would recognize as
13 multimedia systems.

14 Multimedia systems can include networking
15 and the network transmission of information and
16 can include things like various methods for
17 compression, encoding, decoding, storage and
18 management of images and video, audio, and so on.
19 The details of the specific physical layer of
20 their transmission is not a significant aspect of
21 what people consider multimedia systems.

22

1 BY MR. TAN:

2 Q I'm just asking you about H04N 21/2387,
3 about Pictorial Communication (example
4 Television), so your answer is not responsive.

5 MR. KINSEL: Objection to form.

6 Do you have a question or is that a
7 statement?

8 BY MR. TAN:

9 Q So you just mentioned encoding, decoding.
10 Does the '669 patent talk about video encoding?

11 A I don't see any specific examples, doing a
12 quick search through the '669.

13 I believe a person of ordinary skill in
14 the art reading the '669 patent would have
15 understood that the storage of the video content
16 could have been in a compressed format?

17 Q Does claim 1 of the '669 patent talk about
18 encoding or decoding?

19 MR. KINSEL: Objection to form.

20 BY THE WITNESS:

21 A It talks about each playback device 6A and
22 6B comprises a memory to store video data

1 representing said video.

2 BY MR. TAN:

3 Q So the answer's no, right?

4 MR. KINSEL: Objection to form. Misstates
5 the witness's testimony.

6 BY THE WITNESS:

7 A Claim 1 does not contain the word
8 "encoding" or "decoding." A person of ordinary
9 skill in the art at this time would have
10 understood that "memory to store video data" could
11 include compressed video data.

12 MR. TAN: Thank you, Dr. Hart. I think
13 we've been going for more than another hour.
14 Let's take a break.

15 (WHEREUPON, a recess was had 11:32 a.m.
16 CST.)

17 BY MR. TAN:

18 Q Dr. Hart, did you talk with anyone during
19 lunch regarding the substantive -- you know,
20 substance of this deposition?

21 A No.

22 Q So going back to '669 patent. So it does

1 have a server in this video playback system,
2 right?

3 MR. KINSEL: Objection to form.

4 BY THE WITNESS:

5 A Which patent? Which patent are you
6 referring to?

7 BY MR. TAN:

8 Q The '669 patent.

9 A The specification speaks of a video
10 distribution server.

11 Q And also in claims 2 and 3, it
12 specifically recites the system comprising a
13 server for distribution of the video data, if you
14 look at claim 2, right?

15 A I don't have any opinions regarding
16 claims 2 or 3. All of my opinions focus on
17 claims 1, 7, and 11.

18 Q I understand that, Dr. Hart.

19 So is that your opinion, that the video
20 playback system does not need a video server?

21 MR. KINSEL: Objection to form.

22

1 BY THE WITNESS:

2 A Can you repeat that?

3 BY MR. TAN:

4 Q Does the video playback system need the
5 video distribution server to work?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A I don't think I have -- I don't recall any
9 opinions I made on the requirement of a video
10 distribution server.

11 Claim 1 requires that each playback device
12 comprises of memory to store video data
13 representing said video, but I don't see anything
14 in claim 1 referring to a video distribution
15 server.

16 BY MR. TAN:

17 Q So you don't see that in claim 1. How
18 about in claim 2?

19 A I don't think I had any -- I don't recall
20 having any opinions about claim 2.

21 BY MR. TAN:

22 Q But as a POSITA looking at claim 2, does

1 it require a video distribution server?

2 MR. KINSEL: Objection to form.

3 BY THE WITNESS:

4 A Claim 2 contains the words "video
5 distribution server."

6 BY MR. TAN:

7 Q So help me to understand here, in a
8 hub-and-spoke system, is the hub generally
9 referred to as something like a server?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A You would have to point me to some opinion
13 I have where I refer to it as a server. I believe
14 I referred to it as a master, but I don't believe
15 I referred to the hub as a server.

16 But that's just off the top of my head.
17 You'd have to point me to where that might be.

18 BY MR. TAN:

19 Q So looking at the drawing on Page 12 of
20 your declaration. You have hub and you have A, B,
21 C, D, E, F, G, H spokes.

22 A I see that.

1 Q So you also have, "A single video source
2 would ensure" -- you know, call it parentheses --
3 "HUB would ensure synchronization by streaming
4 video to each display."

5 So in that case, is the single video
6 source a server?

7 A So there's some subtle differences between
8 what I'm describing in 24 and what the '669
9 describes in the background section, column 1,
10 lines 20 through 40.

11 And so the background uses the term -- the
12 '669 background uses the term "central server" in
13 discussing a synchronized clock signal but also in
14 discussing delivering a timing signal delivered by
15 the server.

16 I don't think I used the term "server" in
17 my discussion, so I don't know that I'd need that
18 identification of needing to call the hub a server
19 with respect to the opinions I have in
20 paragraph 24.

21 Q Okay. Let me try to understand your
22 opinion, Dr. Hart.

1 So just below this hub-and-spoke diagram
2 you had -- right? -- you have the, kind of,
3 orange/red dot in the center marked as "HUB." You
4 have, "But hub-and-spoke systems require expensive
5 implementation hardware, had high bandwidth
6 requirements, and relied on precise
7 server-synchronized clock signals to ensure the
8 server-streamed video buffers correctly."

9 And then you say, "In such systems." So
10 my question is, when you say "in such systems" and
11 then you say this hub, is that the server or it's
12 not?

13 A So in that second sentence, "In such
14 systems, a hub-and-spoke system" you would have a
15 single video source that I am indicating as hub
16 that would ensure synchronization by streaming
17 video to each display.

18 So in that sentence, the hub is a video
19 source, and the spokes indicate streaming video to
20 each display.

21 Q So in such systems, the "such system" is
22 not the system in the previous sentence?

1 MR. KINSEL: Objection to form.

2 BY THE WITNESS:

3 A The previous sentence is talking about
4 hub-and-spoke systems. They're expensive, they
5 have high bandwidth requirements, and rely on
6 precise synchronization clock signals.

7 I think it speaks of server-streamed video
8 buffers there, but in the specific example of the
9 next section, "In such systems, a single video
10 source would ensure synchronization." So I'm
11 talking about a specific example where you have a
12 single video source, and that would ensure
13 synchronization by streaming video to each
14 display.

15 BY MR. TAN:

16 Q So that's not a server, the hub in the
17 second sentence?

18 A I'm just not using the term "server" to
19 describe a hub in that second sentence.

20 Q But it is a server, right?

21 A I don't know how calling something a
22 server in that context is any more relevant. I

1 believe the opinions are articulated in a way that
2 it's clear what is -- what the hub is doing and
3 what the hub is sending to the spokes.

4 Q So you're defining it as a hub or you call
5 it hub, but it has the same function as a server,
6 right?

7 A Well, these --

8 MR. KINSEL: Objection to form.

9 BY THE WITNESS:

10 A -- sentences are being -- these opinions
11 are being very clear about what the function of
12 the hub is in the particular hub-and-spoke model
13 I'm referring to in each sentence.

14 BY MR. TAN:

15 Q So if we removed the hub from the diagram,
16 would that diagram become, like, a peer-to-peer
17 system?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A That just wouldn't make sense. You would
21 have a bunch of isolated displays, A through H,
22 not connected to anybody. If there's no hub, then

1 there's no connection, no way of connecting, in
2 this particular example, any of the displays to
3 any of the other displays. Each of the displays
4 would be isolated in that diagram.

5 BY MR. TAN:

6 Q Let me reask the question.

7 So the hub is removed but all these
8 devices are still connected directly, just remove
9 the dot in the center, would that become
10 peer-to-peer system?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A This figure on the top of Page 12 in
14 Paragraph 24 is an illustration in the form of a
15 graph. A graph has nodes and edges. There is a
16 node labeled "HUB." There are nodes labeled A
17 through H, and there is an edge connecting the hub
18 to each of those nodes labeled A through H.

19 If you remove the hub, then it's unclear
20 from that example you would have a graph with an
21 edge connected to a node A but the other node not
22 connected to anything.

1 BY MR. TAN:

2 Q Yeah, so I'm asking if we replace the hub
3 with maybe just a dot, just, you know, direct
4 connection between A and B and B and F, would that
5 diagram become peer-to-peer system?

6 A I don't know. That's too irregular to
7 consider base on that specification. I'd need to
8 see something with a bit more specificity on what
9 you were describing.

10 Q What would you use to describe -- using a
11 diagram to describe the peer-to-peer system?

12 MR. KINSEL: Objection to form.

13 BY THE WITNESS:

14 A So in Paragraph 33, discussing where I
15 said, "This topology resembles what a person of
16 ordinary skill in the art would have understood to
17 be a peer-to-peer network," the opinion goes on to
18 say, "These peer-to-peer networks consist of a
19 plurality of devices each communicating directly
20 with each other eliminating the need for a central
21 hub or master."

22

1 BY MR. TAN:

2 Q So each device have to communicate
3 directly with each other, right?

4 A That's what I say: "These peer-to-peer
5 networks consist of a plurality of devices each
6 communicating directly with each other."

7 Q So in the diagram that we just see on
8 Page -- I don't have the page number. So we have
9 to remove the hub and also connect each dot
10 directly with each other; is that right?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A So the figure in Paragraph 24 at the top
14 of Page 12 depicts an illustration -- it's a graph
15 illustrating a hub-and-spoke model.

16 That is not a peer-to-peer network. A
17 peer-to-peer network consists of a plurality of
18 devices each communicating directly with each
19 other. So that diagram would need to show all of
20 the devices in a way such that each device could
21 communicate directly with each other.

22

1 BY MR. TAN:

2 Q And there's no hub in the center, right?
3 In such a peer-to-peer system?

4 A In a peer-to-peer network consisting of
5 those devices each communicating directly with
6 each other, it eliminates the need for a central
7 hub or master.

8 Q So can you give me, like, an example of
9 something you call a hub to help me understand the
10 term?

11 A Well, that example is on Page 12,
12 Paragraph 24 in that graph depicting a hub that is
13 connected to displays A through H.

14 Q So is a wireless hub some kind of hub that
15 you would consider in a hub-and-spoke system?

16 A I don't think I -- I don't recall any
17 opinions that limit the kind of communication
18 connection you would have between devices or
19 between a device and a hub.

20 Q So you would agree that a wireless hub
21 could be a hub, right?

22 A I would have to --

1 MR. KINSEL: Objection to form.

2 BY THE WITNESS:

3 A -- see the hub -- sorry.

4 I would have to see the hub in order to --
5 I would have to see the details of the system in
6 order to make such an assessment.

7 BY MR. TAN:

8 Q It's the system that's connecting your
9 laptop wirelessly to the network; is that a hub?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A I'm not sure how that context maps to the
13 hub-and-spoke models that are being referred to in
14 the background section of '669.

15 BY MR. TAN:

16 Q So you don't agree that's a hub?

17 MR. KINSEL: Objection to form.

18 BY THE WITNESS:

19 A This is in the context of video and
20 synchronizing of streaming video. I am not sure
21 what's being synchronized, where the video is, how
22 the video's being transmitted. It's unclear in

1 that example what's going on that I have to
2 compare it to this discussion in my opinions on
3 '669 in the background of '669.

4 BY MR. TAN:

5 Q Looking at the video on the screen, do you
6 see synchronized video here?

7 A Which screen?

8 Q Your screen. The Zoom video.

9 A I have three screens in front of me.

10 Q Yeah, are the videos synchronized between
11 you and me and Grant?

12 MR. KINSEL: Objection to form.

13 BY THE WITNESS:

14 A I'm not sure what you're asking. I'm here
15 physically in the room. I see a video of you and
16 I see a video of Grant.

17 BY MR. TAN:

18 Q You see -- you're communicating with us
19 synchronously, right? You can see my hand move,
20 and you can see Grant's face?

21 MR. KINSEL: Objection to form.

22

1 BY MR. TAN:

2 Q And that's the --

3 A So --

4 Q Go ahead.

5 A Synchronization is a claim term. It's in
6 a very specific context with respect to claim 1.
7 I don't see that context at play in, for example,
8 the Zoom system or whatever videoconferencing
9 system we're using now. I'd have to look at the
10 details under the hood to see how that
11 videoconferencing system is working.

12 We've got several different devices.
13 There's a Cisco device here. This is a PC. I
14 don't know what Zoom's doing under the hood to be
15 able to make a -- an analysis as to how that is
16 working and what synchronization -- especially
17 synchronization in the context of claim 1 is
18 happening.

19 Q Would you agree that we are communicate
20 [sic] directly?

21 MR. KINSEL: Objection to form. I don't
22 even know how you can answer that. I don't even

1 know what that's supposed to mean.

2 MR. TAN: Counsel, don't coach your
3 witness.

4 MR. KINSEL: I'm not. I just -- the
5 question is so out there, it's hard to even
6 understand what you're trying to ask.

7 But if you can answer it, go for it.

8 BY THE WITNESS:

9 A I was going to say, "communication" is
10 also a claim term. You have a communication
11 stage, and those communication stages are designed
12 to transmit and -- where the devices are -- yeah,
13 the communication stage to communicate data with
14 each other wherein the devices are designed to
15 transmit and to determine, and so it would need to
16 use those communication stages.

17 There's a lot of detail there on how that
18 would map to our verbal communication through
19 electronic means in this deposition.

20 BY MR. TAN:

21 Q So you don't agree that we are communicate
22 directly through this videoconference system?

1 MR. KINSEL: Objection to form.

2 BY THE WITNESS:

3 A So communicating directly, those terms are
4 ones that I've used -- they're either claim terms
5 or they're terms I've used in my opinions to
6 describe what's happening in the '669, what a
7 person of ordinary skill in the art would
8 understand a peer-to-peer system to be doing.

9 If I were to use them in the context of
10 our conversations here and us physically
11 communicating verbally, there's a lot of details
12 there that I haven't mapped through. I'd need to
13 do a lot more analysis to even try to draw that
14 analogy to see if that analogy worked or not.

15 BY MR. TAN:

16 Q So as a POSITA, you don't understand the
17 term "communicate directly"?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A I think I understand the term
21 "communicating directly" in the context of the
22 '669. I think a person of ordinary skill in the

1 art would have understood that concept of
2 communicating directly in reading the '669.

3 I think we're trying to discuss using
4 "communicating directly" in a totally different
5 context, and it's that context that would require
6 a significant amount of analysis in order to
7 provide an opinion on with respect to the '669
8 patent.

9 BY MR. TAN:

10 Q So with respect to the '669 patent,
11 communicate directly, does it have to be so direct
12 that no server, no other devices is in between the
13 two communicating devices?

14 A So that's why the differentiation between
15 the hub-and-spoke model and the peer-to-peer model
16 it's not one of how the underlying network works.
17 It doesn't have anything to do with the physical
18 layer of the network or the details of how two
19 objects are physically connected, whether they're
20 with a wire or they're wireless; it has to do with
21 the operation of the system.

22 In this case, you have a system with

1 devices designed to transmit and designed to
2 determine, and so the -- those devices are
3 designed to transmit and designed to determine
4 because they do that reciprocal action directly
5 with each other.

6 I don't know the pathway along the
7 physical network. I don't think a person of
8 ordinary skill in the art would need to know that
9 detail to understand claim 1 and to understand the
10 '669. They just know that these devices are
11 designed to transmit and to receive with each
12 other directly without the need to go through a
13 specific third device that you would consider a
14 hub or a master.

15 Q So can each go through some other devices
16 to communicate with each other in the context of
17 '669 patent?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A I don't recall an opinion stating anything
21 like that. The '669 in claim 1 relies on these
22 playback devices that communicate with each other.

1 So they do not need to coordinate with a master or
2 a hub in order to synchronize; they communicate
3 with each other.

4 How that happens in the underlying
5 network, who knows. They are communicating with
6 each other without the need of a master or a hub.

7 BY MR. TAN:

8 Q So just help me to understand here,
9 Dr. Hart. The devices communicating with each
10 other, they don't care about whether there is any
11 physical connection of how to implement the
12 communication underneath the application layer; is
13 that true?

14 A The claim just requires a communication
15 stage to communicate data with each other.

16 Q So the "communicate with each other" don't
17 need to be, you know, directly, right? If it goes
18 through another device. So it could be
19 indirectly?

20 A The point of claim 1 is that you do not
21 need a hub or a master coordinating so that you're
22 communicating with the master in order to transmit

1 or in order to determine.

2 Your use -- claim 1 requires a
3 communication stage to communicate data with each
4 other wherein the devices are designed to transmit
5 and are designed to determine.

6 Q So if there's only -- there are only two
7 devices communicating with each other, would that
8 be hub-and-spoke or peer-to-peer system?

9 MR. KINSEL: Objection to form.

10 BY THE WITNESS:

11 A I would have to see the system to make
12 that determination, the one you described. There
13 would be a lot of details there on the operation
14 of that system, how it's operating to be able to
15 make that distinction.

16 BY MR. TAN:

17 Q So if a master device and a slave device
18 communicate directly with each other, would that
19 be covered by claim 1?

20 MR. KINSEL: Objection to form.

21 BY THE WITNESS:

22 A I would have to -- I would have to see an

1 example of that and know a lot more details in
2 order to make such an assessment.

3 BY MR. TAN:

4 Q But in that system, the master and the
5 slave communicate directly with each other, right?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A I'm not sure which system you're referring
9 to. That's very vague. I would need to see a lot
10 more details of such a system to make such an
11 assessment.

12 BY MR. TAN:

13 Q Let's look at the reference Masumoto. I
14 believe that's in the file records as
15 Exhibit 1005.

16 Do you have that?

17 A Yes, let me bring it up.

18 (WHEREUPON, Exhibit No. 1005 was first
19 referenced.)

20 BY THE WITNESS:

21 A Okay.

22

1 BY MR. TAN:

2 Q Is there a hub in the Masumoto system?

3 A Masumoto doesn't refer to a hub by name,
4 but a person of ordinary skill in the art would
5 have recognized Masumoto as operating in a
6 hub-and-spoke model.

7 Masumoto, specifically its fifth
8 embodiment, identifies I -- one of the displays to
9 operate as a master and the rest of the displays
10 to operate as a non-master where the master
11 display operates similar to the hub in the
12 hub-and-spoke model and the non-master displays
13 operate similar to the spokes in that
14 hub-and-spoke model.

15 Q So are you saying because there is a
16 master device, then the system is a hub-and-spoke
17 system?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A My opinions are on how Masumoto operates.

21 BY MR. TAN:

22 Q And where is that in your opinion?

1 A I have a summary -- sorry.

2 MR. KINSEL: That's okay.

3 Objection to form.

4 BY THE WITNESS:

5 A I have a summary of Masumoto beginning at
6 Paragraph 96.

7 BY MR. TAN:

8 Q So the master device in Masumoto is not a
9 fixed designation; it can change from one to the
10 other; do you agree?

11 A So Masumoto's multi-display system
12 determines either at installation or when the
13 system is powered on which display should be the
14 master display by measuring which display has the
15 highest processing capability.

16 Q And the master display in Masumoto
17 communicate directly with the other display
18 devices, right?

19 MR. KINSEL: Objection to form.

20 BY THE WITNESS:

21 A So the fifth embodiment the fifth
22 exemplary uses a single master display that

1 requests timing information from the other
2 displays and the displays send that timing
3 information only to it.

4 BY MR. TAN:

5 Q So if there is only one other device, does
6 that mean the master display communicate directly
7 with the other device as claim 1 of '669 states?

8 MR. KINSEL: Objection to form.

9 BY THE WITNESS:

10 A I'm not sure claim 1 requires -- claim 1
11 doesn't have the term "direct" or "directly."

12 BY MR. TAN:

13 Q Oh, I thought your construction is that it
14 has to have "directly." Is that true?

15 MR. KINSEL: Objection --

16 BY THE WITNESS:

17 A Well, then I mis- --

18 MR. KINSEL: Objection --

19 THE WITNESS: Sorry.

20 MR. KINSEL: -- form.

21 Go ahead.

22

1 BY THE WITNESS:

2 A Then I'm misunderstanding your question.
3 Could you reask the question?

4 BY MR. TAN:

5 Q Let me read it again.

6 One other device, does that mean the
7 master display communicate directly with the other
8 device as claim 1 of '669 states?

9 A And my answer was that claim 1 doesn't
10 state "communicate directly" or "directly
11 communicate." That's not -- those aren't words in
12 claim 1.

13 The word "directly" is not in claim 1.
14 Claim 1 doesn't state that. It's not one of the
15 words in claim 1.

16 Q Okay. Thank you.

17 A Unless I'm -- unless I'm missing it
18 somewhere.

19 Q Also look at Masumoto, does the
20 information display size anywhere?

21 A So in the descriptions of the related art,
22 PTL3 describes how to configure a large

1 pseudo-single display.

2 Q Which paragraph is that?

3 A For example, Paragraph 6 and Paragraph 13.

4 Q So what's your understanding of this large
5 pseudo-single display?

6 A I'm sorry, can you repeat that question?

7 Q What's your understanding of the large
8 pseudo-single display in Paragraph 6?

9 A That is describing some related work.
10 It's listed as related. And assembling displays
11 into a large -- you know, a bunch of displays into
12 a single large display.

13 Further, in Paragraph 148, under
14 Industrial Applicability, "The present disclosure
15 is applicable to multi-display apparatuses to
16 which multiple displays are network-connected to
17 configure a single screen. More specifically, the
18 present disclosure is applicable to those
19 configured with multiple liquid crystal displays
20 including video wall systems and signage systems.

21 So a video wall -- a person of ordinary
22 skill in the art understands a video wall is a

1 solution when you want a large display and it's
2 infeasible to purchase a single display of that
3 size. So I think it makes sense that you would be
4 using display -- you would be using an assembly of
5 multiple displays in order to create one very
6 large display.

7 Q So looking at Figure 1 of Masumoto, is the
8 pseudo large display the combination of 210, 220,
9 230, and 240?

10 MR. KINSEL: Objection to form.

11 BY THE WITNESS:

12 A So in my Paragraph 96 [as read],
13 "Masumoto's large display apparatus 1 uses an
14 image transmitter server 100 to transmit a video
15 signal to component displays 210 through 240.
16 Each display, quote/unquote, cuts out and displays
17 a portion from the received image, unquote, sent
18 to all four displays."

19 So the idea is that display A, display B,
20 display C, and display D each display a quadrant
21 of that single large display.

22

1 BY MR. TAN:

2 Q Thank you.

3 So let's look at Swafford, which is in the
4 file record as Exhibit 1004.

5 Do you have that?

6 (WHEREUPON, Exhibit No. 1004 was first
7 referenced.)

8 BY THE WITNESS:

9 A Yes, it's coming up.

10 BY MR. TAN:

11 Q Take your time.

12 A There it goes. Okay.

13 Q Let's look at Figure 28A.

14 A 28A. I'm going to rotate the file.

15 Q I'll need that.

16 So, Dr. Hart, is this system a
17 peer-to-peer system or a hub-and-spoke system?

18 MR. KINSEL: Objection to form.

19 BY THE WITNESS:

20 A There it is. 28A.

21 I don't think I have an opinion -- I don't
22 recall an opinion about Figure 28A. I don't know

1 that Dr. Tentzeris had an opinion about
2 Figure 28A. I'm not sure what the relevance is to
3 Dr. Tentzeris' report regarding 28A.

4 BY MR. TAN:

5 Q But as a POSITA looking at Figure 28A and
6 the related paragraphs, would you agree this is a
7 peer-to-peer system or hub-and-spoke system or --

8 MR. KINSEL: Objection to form.

9 BY MR. TAN:

10 Q -- combination of both?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A Okay. "Figure 28A illustrates example
14 block diagrams of systems for communicating and
15 distributing content according to one or more
16 illustrative aspects of the disclosure."

17 I don't think it's -- let's see. What
18 else?

19 Paragraph 270 of Swafford says, "The
20 examples described herein are merely
21 illustrative." I don't know that there is detail
22 here to go much further than that, just off the

1 top of my head.

2 I don't recall having any opinion about
3 this figure. I don't recall Dr. Tentzeris having
4 a particular opinion about this example, and I
5 would have to analyze it to determine if it -- if
6 there was enough detail there to make any opinion
7 about what you ask.

8 BY MR. TAN:

9 Q So what is the problem that the '669
10 patent is trying to solve here?

11 MR. KINSEL: Objection to form.

12 BY THE WITNESS:

13 A I have a summary beginning at Paragraph 26
14 in my report. Paragraph 26 describes some
15 existing systems at the time that the '669 refers
16 to.

17 And then Paragraph 27, "By enabling
18 synchronization through bidirectional,
19 specifically reciprocal, communication between the
20 displays themselves, the displays could more
21 efficiently download all or large portions of the
22 video from the source and display the synchronized

1 video independently from the source without
2 relying on a constant stream of video coming from
3 the source. This would reduce the communication
4 bandwidth required for the network as well as the
5 processing and power needs of the displays."

6 BY MR. TAN:

7 Q So help me to understand. How does
8 claim 1 of the '669 patent realize or implement
9 the solution so that it's not rely -- relying on a
10 constant stream of video coming from the source.
11 Is that by using the storage to store the video
12 locally?

13 MR. KINSEL: Objection to form.

14 BY THE WITNESS:

15 A So claim 1 requires a memory to store
16 video data representing said video, but then it
17 needs a communication stage to communicate data
18 with each other. Whereas, the devices are
19 designed to transmit their playback progress data
20 to each other, and they're also designed to
21 determine, based on the received progress data,
22 whether each is in a synchronous or asynchronous

1 playback progress with the other devices.

2 BY MR. TAN:

3 Q And how would this reduce the
4 communication bandwidth?

5 A Well, in that previous example, in -- in
6 the example I refer to in Paragraph 27, if you had
7 a hub that was streaming all of the video to the
8 playback devices, you would -- you might be
9 playing the same video several times in a row, and
10 each time you would be sending all of that video
11 information to the hubs ten times.

12 If that video was going to repeat ten
13 times, you could store that video on each of the
14 displays and simply play it ten times in a row.

15 If those displays were not communicating
16 with each or otherwise synchronized, one of the
17 videos could be in a sync- -- you know, could
18 become asynchronous with respect to the others,
19 could be in asynchronous playback progress with
20 the other devices. So you need some way of making
21 sure each of those playback devices is
22 synchronized with the other playback devices.

1 Q So in the system of Masumoto and the
2 master/slave communication also just transmit the
3 progress of the video, not the video itself, would
4 that also solve the same -- you know, realize the
5 same advantage of saving bandwidth of network?

6 MR. KINSEL: Objection to form.

7 BY THE WITNESS:

8 A I don't know if I have an opinion on the
9 exact amount of bandwidth used by each of the
10 systems.

11 I don't know that Dr. Tentzeris analyzed
12 the amount of bandwidth used by each of the
13 systems, so I don't think I responded to any of
14 his opinions on that particular aspect. If I did,
15 I just don't recall.

16 BY MR. TAN:

17 Q But a POSITA, even before the invention
18 date, would understand that it's beneficial to
19 have lower network bandwidth requirements, right?

20 MR. KINSEL: Objection to form.

21 BY THE WITNESS:

22 A I think that may be one consideration.

1 There are many other considerations: Reliability,
2 expense, heat, configurations, availability.

3 There's a number of considerations a person of
4 skill in the art might consider for such a system.

5 BY MR. TAN:

6 Q Thank you.

7 Let's look at claim 1 of the '669 patent
8 again.

9 A Okay.

10 Q So element 1.4 recites virtual electronic
11 shelf label, right?

12 MR. KINSEL: Objection --

13 BY THE WITNESS:

14 A I see those four -- I see those four words
15 in the -- in that claim.

16 BY MR. TAN:

17 Q Is this electronic shelf label disclosed
18 in the '669 patent?

19 MR. KINSEL: Objection to form.

20 BY THE WITNESS:

21 A When you say "this virtual electronic
22 shelf label," are you talking about the specifics

1 in claim -- in claim 1?

2 BY MR. TAN:

3 Q Yeah, claim 1.

4 A Because the -- well, so the term
5 "electronic shelf label" happened several times in
6 the specification. So the term is referred to in
7 the specification.

8 I read the claim in light of the
9 specification.

10 Q Do you see the virtual shelf label in any
11 of the figures of the '669 patent?

12 MR. KINSEL: Objection to form.

13 BY THE WITNESS:

14 A Figure 6.

15 BY MR. TAN:

16 Q So is the content 24 in Figure 6 the
17 virtual shelf label?

18 A I was looking at the description of
19 Figure 6 in column 7, line 18: "In addition to
20 this, Figure 6 also shows electronic shelf label
21 content 24 (of virtual electronic shelf labels)
22 displayed at the appropriate position where" --

1 and I think it means "said mountaineering
2 products are located on the shelf floors 3."

3 MR. TAN: Okay. Dr. Hart, I think I'm
4 almost done, but let me check with my colleague
5 real quick. So maybe another ten-minute break?

6 THE WITNESS: Okay. Thank you.

7 (WHEREUPON, a recess was had.)

8 MR. TAN: Dr. Hart, thank you so much for,
9 you know, attending this remote deposition.

10 And I'll pass the witness.

11 MR. KINSEL: No questions.

12 (WHEREUPON, the deposition was concluded
13 at 1:23 p.m. CST)

14

15

16

17

18

19

20

21

22

1 CERTIFICATE OF SHORTHAND REPORTER

2

3 I, Michelle M. Yohler, Certified
4 Shorthand Reporter, Registered Professional
5 Reporter, Registered Merit Reporter, Certified
6 Realtime Reporter, within and for the State of
7 Illinois do hereby certify:

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

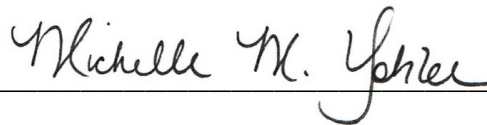
15 I further certify that the adverse party,
16 SES-IMAGOTAG INC., was represented by counsel at
17 the deposition.

18 I further certify that the deposition of
19 JOHN C. HART, Ph.D., occurred remotely on Monday,
20 November 18, 2024, commencing at 9:05 a.m. CST to
21 1:23 p.m. CST.

22

1 I further certify that I am not related to
2 any of the parties to this action by blood or
3 marriage, I am not employed by or an attorney to
4 any of the parties to this action, and that I am
5 in no way interested, financially or otherwise, in
6 the outcome of this matter.

7
8 IN WITNESS WHEREOF, I have hereunto set
9 my hand this 20th day of November, 2024.

10
11
12
13 

14 Michelle M. Yohler, CSR, RMR, CRR
15 Certified Shorthand Reporter
16 CSR No.: 84-4531
17
18
19
20
21
22

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

127

A			
abbreviation	74:3, 74:4,	ago	already
28:13	75:6	9:5, 18:22,	25:12
able	action	73:4	also
18:3, 20:1,	41:7, 41:8,	agree	4:11, 6:8,
21:11, 23:22,	75:14, 76:18,	31:7, 34:10,	6:12, 7:8, 9:6,
30:10, 65:12,	79:21, 80:18,	37:5, 38:22,	9:21, 11:15,
102:15, 108:14	81:17, 81:18,	39:14, 40:7,	16:8, 17:16,
about	81:21, 82:3,	45:14, 46:5,	20:10, 24:14,
7:17, 8:22,	83:1, 83:8,	61:15, 71:22,	27:16, 37:10,
9:5, 12:1,	106:4, 126:2,	72:4, 75:16,	45:8, 51:15,
14:10, 16:12,	126:4	76:3, 79:2,	55:9, 60:11,
18:22, 24:17,	actually	80:11, 99:20,	71:6, 89:11,
28:10, 29:14,	14:16, 14:18,	100:16, 102:19,	92:1, 92:13,
29:15, 30:17,	14:20, 24:5,	103:21, 111:10,	98:9, 103:10,
30:22, 32:15,	81:15	117:6	113:19, 119:20,
33:14, 38:2,	add	ah	121:2, 121:4,
46:14, 47:19,	70:18	18:11	123:20
51:19, 54:19,	added	ahead	always
55:20, 59:17,	42:4, 70:16	13:5, 21:7,	84:1
67:18, 71:16,	addition	25:6, 33:5,	ambiguous
74:11, 78:6,	65:15, 123:19	74:17, 102:4,	26:7
78:7, 87:2,	additional	112:21	amended
87:3, 87:10,	14:9, 42:4	aid	42:7, 42:12
87:17, 87:21,	address	55:18	amending
90:18, 90:20,	31:22, 49:21	all	42:10
94:3, 94:11,	addressed	6:4, 9:10,	amendment
95:11, 107:10,	75:20	9:11, 10:22,	42:7, 42:18
116:22, 117:1,	addressing	13:10, 16:20,	america
118:2, 118:4,	31:20	46:15, 46:19,	1:5
118:7, 122:22	advance	52:7, 52:21,	amount
above	42:9, 42:20,	53:5, 67:20,	12:7, 105:6,
27:1, 76:15	42:22, 43:2	68:13, 70:13,	121:9, 121:12
academic	advantage	72:14, 74:9,	analogy
18:4	29:22, 30:8,	89:16, 96:7,	104:14
accommodate	30:10, 73:11,	98:19, 115:18,	analysis
17:9	121:5	118:21, 120:7,	31:2, 43:14,
according	adverse	120:10	46:19, 52:11,
44:8, 44:11,	125:15	allegory	52:14, 53:13,
66:15, 73:10,	advertisement	17:16	84:2, 102:15,
117:15	66:19	allowable	104:13, 105:6
accounting	after	42:11	analyze
21:12	14:1, 18:6,	allowed	118:5
acronym	19:2, 20:7,	42:5, 42:13,	analyzed
17:14	20:21, 63:7,	76:22, 78:20,	121:11
across	80:19	79:14, 82:17	animation
39:6	again	almost	14:20
	113:5, 122:8	124:4	another
		along	10:7, 17:19,
		37:3, 106:6	

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

128

24:13, 30:10, 44:9, 88:13, 107:18, 124:5 answer 8:18, 8:19, 9:13, 10:14, 12:1, 12:6, 15:16, 31:17, 34:19, 35:2, 39:9, 40:1, 87:4, 102:22, 103:7, 113:9 answer's 88:3 answered 29:13 answers 8:16 antennae 16:9 any 10:13, 11:22, 12:3, 12:10, 14:1, 20:6, 23:20, 27:21, 32:8, 32:10, 32:15, 32:21, 36:22, 40:18, 41:1, 46:2, 46:20, 46:21, 51:21, 53:19, 63:13, 65:6, 68:10, 72:19, 75:3, 77:17, 78:6, 80:16, 81:1, 81:3, 87:11, 89:15, 90:8, 90:19, 90:20, 94:22, 96:2, 96:3, 99:16, 107:10, 118:2, 118:6, 121:13, 123:10, 126:2, 126:4 anybody 95:22 anyone 10:17, 48:8,	88:18 anything 33:14, 53:16, 53:17, 62:22, 63:20, 75:7, 90:13, 96:22, 105:17, 106:20 anywhere 54:12, 113:20 apparatus 115:13 apparatuses 114:15 appeal 1:3 appear 52:5 appears 27:3, 51:10, 51:15, 76:12 applicability 114:14 applicable 114:15, 114:18 applicant 42:3, 42:6, 42:12, 42:17 applicant's 75:16, 76:15, 77:3, 81:21, 82:2, 82:7 application 5:11, 5:13, 41:13, 41:16, 43:4, 43:9, 107:12 applications 20:16 apply 44:12 appropriate 35:3, 123:22 april 42:6, 42:17 arch 3:6, 6:7 area 18:12, 19:15,	20:7, 34:7 areas 16:9, 19:19, 20:10 aren't 32:9, 113:11 argued 80:6 argument 76:16, 80:19, 82:8, 82:22 arguments 75:16, 76:3, 81:21, 82:3 around 12:9, 18:2 arrive 44:21, 47:12 arrow 70:16 art 28:6, 37:16, 44:5, 44:7, 44:10, 44:18, 44:20, 44:21, 47:9, 47:10, 47:11, 47:15, 62:14, 64:14, 65:2, 65:12, 66:2, 66:20, 68:11, 69:5, 69:14, 71:13, 72:9, 73:2, 84:21, 86:12, 87:14, 88:9, 97:16, 104:7, 105:1, 106:8, 110:4, 113:21, 114:22, 122:4 articulated 95:1 asami 76:8, 76:13, 76:16, 78:8, 78:12, 78:16, 79:3, 79:10, 80:7, 82:7, 82:8, 82:11,	82:13 asked 53:2, 69:18 asking 16:11, 16:12, 30:17, 52:20, 53:13, 56:5, 87:2, 97:2, 101:14 aspect 73:10, 86:20, 121:14 aspects 117:16 assembling 13:9, 114:10 assembly 115:4 assertions 77:17 assessment 100:6, 109:2, 109:11 assistant 18:8 associate 19:11, 19:12 associates 7:10, 7:15 assume 45:11 asynchronized 74:12 asynchronous 51:8, 60:13, 60:21, 61:5, 67:5, 68:18, 71:20, 72:11, 73:15, 73:22, 75:1, 75:2, 75:10, 119:22, 120:18, 120:19 attending 124:9 attention 22:16 attorney 6:6, 49:10,
---	---	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

129

49:11, 126:3 attorneys 6:4 attribute 47:14 audio 86:18 audio-visual 17:15 aurora 13:16, 13:21 automatic 17:15 automatically 30:14 automobile 46:11 availability 122:2 avenue 3:15 B back 13:19, 16:18, 19:3, 20:7, 26:20, 37:6, 59:9, 63:22, 84:3, 88:22 background 16:12, 28:8, 36:2, 36:7, 36:13, 36:18, 66:18, 92:9, 92:11, 92:12, 100:14, 101:3 bandwidth 35:14, 93:5, 94:5, 119:4, 120:4, 121:5, 121:9, 121:12, 121:19 base 97:7 based 17:16, 51:7, 60:11, 60:20, 61:4, 67:4,	67:12, 67:17, 68:17, 76:11, 119:21 basic 77:4 basically 16:19, 17:5, 76:6 became 52:16 because 23:10, 39:19, 40:6, 83:2, 106:4, 110:15, 123:4 become 23:11, 43:4, 95:16, 96:9, 97:5, 120:18 been 6:15, 7:11, 7:14, 7:16, 8:8, 8:21, 9:6, 19:8, 25:19, 26:8, 28:4, 44:6, 47:2, 47:19, 65:7, 65:9, 65:12, 67:7, 67:8, 67:11, 87:16, 88:13 before 1:3, 2:2, 6:3, 8:8, 9:7, 11:11, 11:13, 11:16, 12:10, 18:21, 21:10, 35:5, 37:7, 39:19, 40:6, 40:12, 53:2, 63:17, 70:21, 83:1, 121:17, 125:10, 125:12 beginning 43:20, 62:8, 111:5, 118:13 begins 36:19, 49:20 behalf 3:2, 3:12, 4:2	being 29:18, 32:18, 54:8, 56:22, 57:5, 57:6, 64:16, 64:21, 65:1, 69:21, 72:21, 95:10, 95:11, 100:13, 100:21, 100:22 believe 8:2, 8:3, 11:13, 19:14, 21:18, 22:14, 24:15, 25:7, 25:12, 26:6, 32:4, 41:9, 45:19, 63:21, 69:18, 77:3, 87:13, 91:13, 91:14, 95:1, 109:14 below 93:1 beneficial 121:18 benefit 22:17 best 76:16, 83:6 between 56:22, 64:15, 68:10, 70:17, 71:5, 71:7, 77:8, 92:7, 97:4, 99:18, 99:19, 101:10, 105:12, 105:14, 118:19 bidirectional 76:20, 77:7, 78:12, 78:18, 79:13, 80:9, 82:12, 82:16, 118:18 bidirectionally 76:14, 77:13, 78:1, 79:5 bit 19:18, 97:8	block 117:14 blood 126:2 board 1:3, 49:20, 53:13, 53:19 board's 50:5, 53:11 bold 63:7 both 9:19, 10:5, 55:11, 55:14, 56:9, 56:11, 56:16, 57:14, 60:10, 67:10, 117:10 bottom 38:18 brake 46:3, 46:10 brakes 45:5 break 10:2, 10:6, 10:8, 47:20, 48:7, 88:14, 124:5 breaks 10:3 bring 109:17 broadcast 85:16 brought 22:16 buffers 35:17, 93:8, 94:8 bunch 95:21, 114:11 C call 61:13, 92:2, 92:18, 95:4, 99:9
--	---	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

130

called 6:15, 15:2, 17:13, 24:17, 45:8 calling 94:21 calls 11:13, 29:3 canceled 42:7, 42:18 cannot 10:13, 78:1 capability 111:15 capable 54:6, 54:9, 76:9 capitalized 63:7 car 45:2, 45:5, 45:7, 45:20, 46:1, 46:2 card 23:19, 23:20 care 107:10 careful 46:19 carefully 58:16 cascade 79:4, 82:11 case 1:12, 11:2, 25:8, 75:5, 92:5, 105:22 cases 22:4, 22:5, 22:6, 55:11, 69:7, 85:15, 85:16, 85:18 caution 11:21 cave 16:19, 17:13, 17:15, 17:17 ceiling 16:21, 17:4	center 93:3, 96:9, 99:2 central 36:20, 37:22, 92:12, 97:20, 99:6 centralized 75:3 certainly 12:1 certificate 125:1 certified 2:3, 125:3, 125:5, 126:15 certify 125:7, 125:15, 125:18, 126:1 cetera 51:18 challenging 22:6 change 7:7, 20:6, 30:6, 30:9, 30:14, 46:14, 111:9 check 124:4 chicago 3:8, 10:5, 14:5, 16:14 choose 44:14 cisco 102:13 cite 35:11, 73:5 cited 12:15, 12:16, 12:21, 13:9, 27:19, 36:1, 36:6, 75:14, 79:21 claimed 44:21, 47:12 claims 42:10, 42:12,	42:13, 48:13, 48:17, 48:18, 48:21, 49:2, 50:16, 52:7, 52:13, 52:22, 53:5, 53:9, 53:18, 53:20, 72:14, 89:11, 89:16, 89:17 classification 83:15, 84:1, 84:4, 84:5, 84:9, 84:14, 84:17 clause 51:16 clean 10:19, 10:22, 25:15, 32:3 clear 9:21, 95:2, 95:11 clearly 9:20 clock 35:16, 92:13, 93:7, 94:6 closely 16:3 closer 16:6 coach 103:2 coast 16:5 code 24:1 coie 3:14, 4:4, 11:8 coincidental 72:18 collaborated 20:4 colleague 124:4 colleagues 6:8 collectively 29:3	college 19:5 column 35:12, 36:19, 55:9, 55:10, 55:15, 55:16, 73:9, 74:20, 92:9, 123:19 com 3:10, 3:18, 4:8 combination 115:8, 117:10 combine 43:13, 43:15, 44:1, 44:7, 44:20, 47:3, 47:11 combining 44:5 come 59:9, 63:22 coming 116:9, 119:2, 119:10 commencement 125:10 commencing 125:20 commensurate 24:1 common 47:2, 47:6, 47:13, 47:16 communicate 28:17, 29:8, 29:9, 29:17, 31:7, 56:19, 59:18, 76:14, 77:13, 78:1, 79:5, 98:2, 98:21, 102:19, 103:13, 103:21, 104:17, 105:11, 106:16, 106:22, 107:2, 107:15, 107:16, 108:3, 108:18, 109:5, 111:17, 112:6,
---	--	--	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

131

113:7, 113:10, 113:11, 119:17 communicated 56:19 communicating 37:20, 69:10, 97:19, 98:6, 98:18, 99:5, 101:18, 104:3, 104:11, 104:21, 105:2, 105:4, 105:13, 107:5, 107:9, 107:22, 108:7, 117:14, 120:15 communication 51:5, 60:19, 61:3, 62:3, 65:19, 66:8, 67:1, 68:16, 78:13, 79:4, 82:9, 82:12, 85:3, 85:6, 85:8, 85:21, 86:5, 86:9, 87:3, 99:17, 103:9, 103:10, 103:11, 103:13, 103:16, 103:18, 107:12, 107:14, 108:3, 118:19, 119:3, 119:17, 120:4, 121:2 communications 11:22, 12:4, 41:10 company 21:18 compare 37:10, 101:2 compared 30:1 compensated 21:14 complete 31:17 completed 18:2	component 115:15 compressed 87:16, 88:11 compression 86:17 comprises 36:20, 87:22, 90:12 comprising 60:5, 65:5, 65:10, 68:8, 89:12 computationally 19:22 computer 7:5, 10:20, 13:20, 14:11, 14:12, 14:15, 14:22, 15:7, 15:17, 18:9, 19:17, 19:20, 20:12, 20:16, 23:7, 23:20, 23:22, 25:16, 32:5, 32:17, 45:13, 45:16 computers 20:1, 23:19, 39:7 computing 7:6, 20:19, 23:10 concept 105:1 concluded 124:12 conducted 15:1 confidential 1:15 configuration 37:14 configurations 122:2 configure 113:22, 114:17 configured 54:4, 54:8,	114:19 confusing 33:2 connect 98:9 connected 56:11, 56:17, 56:20, 77:22, 95:22, 96:8, 96:21, 96:22, 99:13, 105:19 connecting 96:1, 96:17, 100:8 connection 85:18, 96:1, 97:4, 99:18, 107:11 consider 45:20, 69:18, 71:8, 86:21, 97:7, 99:15, 106:13, 122:4 consideration 121:22 considerations 122:1, 122:3 considered 27:12, 44:7, 52:22, 53:6, 53:14, 69:21, 70:2, 70:11, 70:15 consist 97:18, 98:5 consisting 99:4 consists 37:19, 98:17 constant 119:2, 119:10 constructed 14:21 construction 19:21, 49:16, 49:18, 50:8, 53:17, 53:22, 64:8, 64:12,	69:15, 112:13 construe 68:21 consulting 20:22, 21:5, 21:10, 22:8 contain 84:5, 88:7 contains 91:4 content 34:8, 34:9, 56:7, 57:12, 86:10, 87:15, 117:15, 123:16, 123:21 context 72:20, 76:17, 83:2, 83:7, 94:22, 100:12, 100:19, 102:6, 102:7, 102:17, 104:9, 104:21, 105:5, 106:16 continued 3:22, 16:15, 19:12 control 45:13, 45:16 conversations 104:10 coordinate 107:1 coordinating 107:21 copy 10:19, 10:22, 25:16, 26:16, 26:17, 32:3, 52:1 corner 56:4 correct 17:8, 63:14 correction 62:20, 62:21 corrections 63:2
--	--	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

132

correctly 35:17, 93:8 could 7:1, 14:12, 15:20, 19:18, 22:17, 65:3, 73:8, 75:7, 76:14, 77:9, 77:12, 80:4, 85:15, 85:17, 85:19, 87:16, 88:10, 98:20, 99:21, 107:18, 113:3, 118:20, 120:13, 120:17, 120:19 counsel 8:18, 11:6, 11:7, 11:22, 12:4, 38:5, 103:2, 125:16 couple 11:13, 63:2 course 19:1 court 9:15, 10:11, 46:13 covered 108:19 covers 49:4 create 115:5 crr 1:22, 2:3, 126:14 crystal 114:19 csr 1:22, 2:3, 2:4, 126:14, 126:16 cst 1:19, 88:16, 124:13, 125:20, 125:21 curious 17:13, 18:19	current 7:2, 62:22 currently 23:10 cuts 115:16 cycle 18:4 D data 7:5, 7:6, 20:2, 20:14, 51:5, 51:7, 58:1, 58:5, 59:19, 60:11, 60:12, 60:20, 61:4, 62:3, 65:18, 66:8, 67:1, 67:4, 67:12, 67:13, 67:17, 67:20, 68:2, 68:15, 68:17, 73:14, 73:21, 74:9, 76:22, 77:8, 78:19, 79:14, 80:10, 82:17, 85:11, 87:22, 88:10, 88:11, 89:13, 90:12, 103:13, 107:15, 108:3, 119:16, 119:17, 119:19, 119:21 database 14:21 date 9:3, 38:16, 38:19, 39:19, 40:12, 121:18 dave 6:11 david 4:3, 11:8, 11:14 day 126:9 decisions 80:15	declaration 5:14, 25:10, 27:4, 27:5, 36:13, 43:13, 49:17, 59:10, 63:13, 81:15, 91:20 decoding 86:17, 87:9, 87:18, 88:8 dedicated 23:14 defendants 25:1 defines 48:14, 49:3 defining 95:4 definition 84:20 degree 13:15 delay 66:17 delivered 92:14 delivering 92:14 demonstrates 68:9 demonstrating 64:19, 71:3 department 7:4 depend 23:10, 42:10 dependent 42:8, 42:19, 52:13 depicting 99:12 depicts 98:14 deposed 8:8, 9:6 deposition 1:17, 2:1, 6:20, 7:21, 9:1,	10:10, 10:15, 11:5, 12:11, 25:22, 26:4, 26:8, 32:9, 32:13, 88:20, 103:19, 124:9, 124:12, 125:9, 125:11, 125:17, 125:18 describe 27:22, 28:2, 94:19, 97:10, 97:11, 104:6 described 37:14, 58:6, 108:12, 117:20 describes 92:9, 113:22, 118:14 describing 28:21, 29:17, 57:7, 64:13, 64:20, 81:5, 92:8, 97:9, 114:9 description 123:18 descriptions 113:21 design 16:10, 63:3, 63:4, 77:19 designation 111:9 designed 34:1, 49:19, 50:2, 50:5, 50:8, 50:13, 50:15, 50:22, 51:4, 51:10, 51:11, 51:17, 51:20, 52:4, 52:5, 52:6, 52:11, 52:15, 52:21, 53:4, 53:10, 53:14, 53:22, 54:2, 60:10, 60:17,
--	--	--	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

133

61:1, 63:9, 67:11, 68:15, 71:4, 71:18, 73:12, 73:19, 74:22, 77:6, 103:11, 103:14, 106:1, 106:3, 106:11, 108:4, 108:5, 119:19, 119:20 detail 16:2, 16:4, 81:4, 103:17, 106:9, 117:21, 118:6 detailed 16:7 details 58:11, 58:21, 59:2, 68:5, 77:18, 78:7, 86:19, 100:5, 102:10, 104:11, 105:18, 108:13, 109:1, 109:10 detect 45:11, 45:15 determination 50:1, 74:7, 77:1, 78:21, 79:16, 82:19, 108:12 determinations 76:10, 78:6 determine 50:3, 51:6, 51:12, 54:4, 60:11, 60:20, 61:4, 61:14, 61:18, 67:3, 67:12, 68:17, 71:19, 72:10, 72:13, 73:12, 73:19, 74:10, 74:22, 75:9, 77:10, 103:15, 106:2, 106:3, 108:1, 108:5,	118:5, 119:21 determines 111:12 determining 67:16, 71:4 device 31:8, 44:13, 51:6, 56:10, 59:18, 60:9, 60:10, 60:13, 60:17, 60:19, 60:22, 61:1, 61:3, 61:6, 61:21, 62:4, 63:8, 64:1, 64:7, 64:15, 64:16, 64:20, 64:21, 64:22, 65:1, 65:17, 66:7, 66:9, 67:2, 67:3, 67:6, 67:7, 69:10, 76:9, 76:19, 76:20, 77:9, 78:17, 78:18, 79:12, 80:7, 80:8, 82:9, 82:10, 82:14, 82:15, 86:10, 87:21, 90:11, 98:2, 98:20, 99:19, 102:13, 106:13, 107:18, 108:17, 110:16, 111:8, 112:5, 112:7, 113:6, 113:8 devices 29:4, 29:10, 34:1, 37:1, 37:20, 50:2, 51:4, 51:9, 51:17, 54:3, 55:14, 56:9, 56:10, 56:16, 57:1, 57:14, 58:2, 60:1, 60:6, 65:5,	65:8, 65:11, 65:19, 65:20, 66:3, 66:10, 66:14, 66:17, 67:9, 67:19, 67:21, 68:8, 68:13, 68:14, 68:16, 68:19, 69:11, 71:18, 71:21, 72:10, 73:12, 73:14, 73:19, 73:21, 74:6, 74:22, 75:4, 76:13, 76:22, 77:2, 77:6, 77:9, 77:12, 77:22, 78:20, 78:22, 79:3, 79:15, 79:17, 82:10, 82:18, 82:20, 96:8, 97:19, 98:5, 98:18, 98:20, 99:5, 99:18, 102:12, 103:12, 103:14, 105:12, 105:13, 106:1, 106:2, 106:10, 106:15, 106:22, 107:9, 108:4, 108:7, 111:18, 119:18, 120:1, 120:8, 120:20, 120:21, 120:22 devices' 29:4 diagram 93:1, 95:15, 95:16, 96:4, 97:5, 97:11, 98:7, 98:19 diagrams 117:14 differences 92:7 different 33:1, 41:20,	41:22, 42:2, 52:8, 52:19, 66:16, 102:12, 105:4 differentiation 105:14 dig 58:21, 59:2 digital 85:17, 86:9 direct 97:3, 105:11, 112:11 directly 37:20, 42:11, 96:8, 97:19, 98:3, 98:6, 98:10, 98:18, 98:21, 99:5, 102:20, 103:22, 104:3, 104:17, 104:21, 105:2, 105:4, 105:11, 106:4, 106:12, 107:17, 108:18, 109:5, 111:17, 112:6, 112:11, 112:14, 113:7, 113:10, 113:13 disagreed 81:20, 82:2, 82:7 disclose 54:11, 63:19 disclosed 76:18, 78:16, 79:11, 82:13, 122:17 disclosure 114:14, 114:18, 117:16 discuss 105:3 discusses 35:21 discussing 36:11, 63:8, 92:13, 92:14,
---	---	--	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

134

97:14 discussion 92:17, 101:2 display 15:7, 15:17, 17:1, 28:16, 29:3, 33:22, 34:1, 34:7, 51:17, 51:18, 56:10, 57:1, 58:2, 86:10, 92:4, 93:17, 93:20, 94:14, 110:11, 111:13, 111:14, 111:16, 111:17, 111:22, 112:6, 113:7, 113:20, 114:1, 114:5, 114:8, 114:12, 115:1, 115:2, 115:4, 115:6, 115:8, 115:13, 115:16, 115:19, 115:20, 115:21, 118:22 displayed 34:4, 56:7, 57:13, 74:6, 123:22 displays 16:20, 16:21, 28:22, 29:2, 29:20, 95:21, 96:2, 96:3, 99:13, 110:8, 110:9, 110:12, 112:2, 114:10, 114:11, 114:16, 114:19, 115:5, 115:15, 115:16, 115:18, 118:20, 119:5, 120:14, 120:15 distinction 108:15 distributed 73:13, 73:21 distributing 36:21, 36:22,	39:6, 117:15 distribution 73:13, 73:17, 73:20, 74:3, 74:4, 74:8, 74:11, 75:6, 89:10, 89:13, 90:5, 90:10, 90:14, 91:1, 91:5 district 24:16 doctor 74:17 documents 12:10, 27:7, 32:21 doing 11:20, 54:6, 54:9, 87:11, 95:2, 102:14, 104:8 done 124:4 dot 93:3, 96:9, 97:3, 98:9 double-arrowed 56:21 download 118:21 dpekarekkrohn@pe- rkinscoie 4:8 dr 6:19, 8:21, 11:20, 13:1, 13:13, 15:12, 16:8, 25:11, 25:15, 27:1, 29:7, 30:18, 31:6, 31:16, 32:11, 32:14, 32:16, 33:6, 34:19, 35:3, 38:7, 40:3, 40:18, 43:12, 45:2, 47:18,	48:7, 49:10, 52:20, 55:22, 59:10, 66:6, 69:20, 84:20, 88:12, 88:18, 89:18, 92:22, 107:9, 116:16, 117:1, 117:3, 118:3, 121:11, 124:3, 124:8 drafted 27:4, 83:18, 83:20 draw 104:13 drawing 57:17, 58:6, 91:19 drive 45:2 driving 45:12 duly 6:13, 6:15, 125:10 during 10:10, 10:14, 54:4, 54:19, 55:5, 88:18 dynamic 29:5, 29:20, 30:8 E each 8:17, 28:17, 29:9, 29:17, 37:20, 37:21, 54:3, 59:19, 67:14, 67:15, 68:2, 69:10, 72:9, 75:9, 76:22, 77:9, 78:20, 79:5, 79:14, 82:17, 87:21, 90:11, 92:4, 93:17, 93:20, 94:13,	95:13, 96:3, 96:18, 97:19, 97:20, 98:2, 98:3, 98:5, 98:6, 98:9, 98:10, 98:18, 98:20, 98:21, 99:5, 99:6, 103:14, 106:5, 106:11, 106:15, 106:16, 106:22, 107:3, 107:6, 107:9, 107:15, 107:16, 108:3, 108:7, 108:18, 109:5, 115:16, 115:20, 119:18, 119:20, 119:22, 120:10, 120:13, 120:16, 120:21, 121:9, 121:12 early 10:5 east 4:5 eastern 24:16 edge 96:17, 96:21 edges 96:15 efficiently 118:21 eight 18:11, 19:2 either 49:22, 104:4, 111:12 electrical 18:8 electronic 28:15, 28:21, 29:2, 29:14, 29:15, 29:18, 29:19, 29:22, 30:7, 30:13, 31:3, 31:6, 33:17, 33:21,
---	--	--	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

135

34:3, 34:5, 103:19, 122:10, 122:17, 122:21, 123:5, 123:20, 123:21 element 33:22, 44:9, 61:11, 62:2, 62:14, 63:19, 64:8, 64:12, 64:19, 68:22, 122:10 elements 44:7, 44:11 eliminates 99:6 eliminating 37:21, 97:20 ellen 3:4, 6:9, 25:13 else 10:17, 17:11, 63:20, 117:18 embodiment 66:13, 110:8, 111:21 emphasize 72:7 employed 126:3 enabling 118:17 encoding 86:17, 87:9, 87:10, 87:18, 88:8 end 26:20, 40:21, 61:20, 71:16 ending 8:6 engaged 76:20, 78:18, 79:12, 80:8, 82:15 engine 45:13, 45:16 engineering 18:9	enough 22:14, 23:22, 118:6 ensure 35:16, 92:2, 92:3, 93:7, 93:16, 94:10, 94:12 entire 84:3 entirety 70:11, 70:15 environment 17:16 equipment 17:6 error 60:16 esl 28:10, 28:13, 28:14, 28:17, 29:8, 33:14, 34:10 esls 34:16, 35:6, 37:8 especially 9:14, 102:16 established 38:2, 38:13, 44:12 et 51:18 even 102:22, 103:5, 104:13, 121:17 ever 69:21 every 9:13, 10:2, 47:16 everything 13:10, 17:7, 17:11 exact 12:7, 15:6, 121:9 exactly 43:2	examination 6:17 examine 16:5, 41:8 examined 6:16 examiner 75:15, 76:2, 76:8, 76:12, 80:10, 80:16, 80:18, 81:3, 81:16, 81:18, 81:20, 82:2, 82:7, 82:10, 83:1 examiner's 79:2, 80:14, 81:1 examining 45:21 example 13:8, 14:19, 31:2, 38:1, 39:5, 41:10, 44:6, 49:18, 54:16, 55:15, 78:5, 86:9, 87:3, 94:8, 94:11, 96:2, 96:20, 99:8, 99:11, 101:1, 102:7, 109:1, 114:3, 117:13, 118:4, 120:5, 120:6 examples 50:19, 62:15, 69:9, 84:13, 87:11, 117:20 except 65:13 exchange 76:21, 77:8, 78:19, 79:13, 80:9, 82:16 exclusively 22:7 exemplary 111:22	exhibit 10:20, 26:2, 26:3, 26:4, 26:12, 26:15, 26:17, 27:9, 27:10, 27:13, 27:14, 32:2, 32:3, 32:4, 32:14, 33:8, 81:8, 81:12, 109:15, 109:18, 116:4, 116:6 exhibits 5:8, 11:1, 12:21, 32:9, 32:10, 32:19 exist 14:16, 14:18, 14:21 existing 118:15 expand 62:16 expect 64:13 expectation 44:16 expense 122:2 expensive 35:13, 93:4, 94:4 experience 17:15 expert 7:9, 22:8, 83:20, 84:9 expertise 22:18 experts 21:19 explain 76:15 explained 55:13, 55:17 expressing 58:9 expressly 54:3, 54:7,
--	---	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

136

54:8, 54:11, 54:17 eye 17:7	109:14, 116:4, 116:14 file-sharing 38:2, 38:13, 40:11 filed 40:18, 41:12, 41:17, 42:6, 42:17 files 10:20, 39:6 film 56:7, 57:13 final 80:18, 81:17, 81:18, 81:21, 82:3, 83:1 financially 126:5 finds 21:19 fine 11:20, 33:4 finite 44:15 first 6:15, 9:1, 26:12, 33:8, 61:13, 64:11, 66:6, 75:16, 76:13, 76:19, 78:17, 79:11, 80:7, 81:12, 82:14, 84:8, 109:18, 116:6 fixed 111:9 floor 16:21, 17:4 floors 124:2 focus 16:13, 19:15, 89:16 focused 31:2, 52:11, 52:14, 53:15, 76:12	followed 73:16 following 18:3, 51:16, 55:12, 55:16 follows 6:16 foot 45:6 forget 17:14 format 87:16 formulating 72:21 forth 125:9 forward 43:2, 43:3 found 84:20 four 115:18, 122:14 fractal 16:2, 16:9 fractals 15:6, 15:7, 15:17, 15:18 friday 11:10, 11:11 front 8:3, 15:8, 23:1, 31:11, 31:19, 33:6, 52:1, 55:22, 62:7, 84:3, 101:9 full 19:14, 20:21 fully 10:13 function 95:5, 95:11 functions 44:12 fundamental 73:10 further 71:17, 114:13,	117:22, 125:15, 125:18, 126:1 G game 24:7, 24:10, 24:12, 24:17 games 24:1, 24:2, 24:4, 24:5, 24:19 gaming-class 23:16, 23:17 gave 38:1 general 20:10, 31:1, 45:4, 83:14, 83:17 generally 20:13, 20:19, 29:8, 91:8 give 13:1, 26:18, 99:8 given 125:13 gkinsel@perkinsc- oie 3:18 glass 17:5 glasses 17:9, 17:12 glitches 9:12 go 10:6, 13:5, 14:1, 14:19, 21:7, 25:6, 26:20, 33:5, 74:17, 83:10, 102:4, 103:7, 106:12, 106:15, 112:21, 117:22 goal 43:9 goes 45:7, 71:5,
---	---	--	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

137

97:17, 107:17, 116:12 going 8:15, 32:8, 32:10, 32:17, 47:19, 68:12, 88:13, 88:22, 101:1, 103:9, 116:14, 120:12 good 6:19, 11:2, 12:16 governing 43:14 graduate 13:21, 14:1, 14:7 grant 3:13, 6:10, 10:5, 11:8, 18:18, 18:21, 101:11, 101:16 grant's 101:20 granted 41:21, 43:10 graph 96:15, 96:20, 98:14, 99:12 graphic 23:20 graphics 14:11, 14:12, 14:15, 19:17, 19:20, 20:12, 20:16, 23:7, 23:14, 23:19	haotan@archlakel- aw 3:10 happened 123:5 happening 102:18, 104:6 happens 107:4 hard 103:5 hardware 35:14, 93:5 hart 1:17, 2:1, 5:3, 5:14, 6:14, 6:19, 7:3, 7:9, 7:15, 8:21, 11:20, 13:1, 13:13, 15:12, 25:11, 25:15, 27:1, 29:7, 30:18, 31:6, 31:16, 32:11, 32:14, 32:16, 33:6, 34:19, 35:3, 38:7, 40:3, 40:18, 43:12, 45:2, 47:18, 48:7, 49:10, 52:20, 55:22, 59:10, 66:6, 88:12, 88:18, 89:18, 92:22, 107:9, 116:16, 124:3, 124:8, 125:8, 125:19 head 91:16, 118:1 head-mounted 16:22 heading 36:7, 63:18 hear 40:21 heat 122:2	held 2:1 help 13:7, 31:5, 63:22, 91:7, 99:9, 107:8, 119:7 here 7:18, 7:20, 8:1, 11:7, 18:22, 27:13, 30:21, 32:12, 43:1, 56:3, 62:7, 63:1, 65:20, 69:1, 83:15, 85:2, 91:7, 101:6, 101:14, 102:13, 104:10, 107:8, 117:22, 118:10 here's 32:20 hereby 125:7 herein 6:15, 117:20 hereinbefore 125:9 hereunto 126:8 high 35:14, 93:5, 94:5 highest 111:15 highlight 70:20 highly 1:15 history 5:10, 40:15, 41:11, 52:16, 80:22, 81:8, 81:9 hn 85:3, 87:2 hold 13:1	hood 102:10, 102:14 hoping 9:9 hour 10:2, 10:7, 47:19, 88:13 hours 11:18, 12:8, 12:9 however 76:15 hub 34:11, 34:20, 36:15, 37:22, 74:3, 74:5, 75:4, 75:8, 78:1, 91:8, 91:15, 91:20, 92:3, 92:18, 93:3, 93:11, 93:15, 93:18, 94:16, 94:19, 95:2, 95:3, 95:4, 95:5, 95:12, 95:15, 95:22, 96:7, 96:16, 96:17, 96:19, 97:2, 97:21, 98:9, 99:2, 99:7, 99:9, 99:12, 99:14, 99:19, 99:20, 99:21, 100:3, 100:4, 100:9, 100:16, 106:14, 107:2, 107:6, 107:21, 110:2, 110:3, 110:11, 120:7 hub-and-spoke 34:16, 35:6, 35:13, 35:19, 35:21, 37:2, 37:5, 37:8, 37:10, 77:12, 77:16, 91:8, 93:1, 93:4,
H			
hand 101:19, 126:9 hands 17:10 hang 31:16 hanshow 1:5, 1:6, 6:22 hao 3:3, 6:7, 6:20			

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

138

93:14, 94:4, 95:12, 98:15, 99:15, 100:13, 105:15, 108:8, 110:6, 110:12, 110:14, 110:16, 116:17, 117:7 hubs 120:11	implement 107:11, 119:8 implementation 35:14, 93:5 important 9:19, 69:8, 70:21, 71:9 improvement 44:14 ims 21:19, 21:20, 22:7, 22:20 inc 1:5, 1:9, 125:16 include 47:8, 66:9, 70:8, 84:6, 84:8, 86:14, 86:16, 88:11 included 41:19 includes 33:17, 38:11 including 11:1, 20:13, 33:20, 52:15, 70:13, 84:4, 114:20 independent 42:8, 42:18, 72:18, 72:20, 77:1, 78:21, 79:15, 82:18 independently 71:19, 72:4, 72:7, 72:14, 72:22, 73:5, 73:12, 73:16, 73:19, 74:10, 74:22, 75:3, 75:5, 75:7, 77:10, 119:1 indicate 93:19 indicating 93:15 indirectly 42:11, 107:19	individual 47:16, 66:17 industrial 114:14 infeasible 115:2 information 31:8, 32:12, 34:2, 51:18, 84:6, 85:17, 85:19, 86:15, 112:1, 112:3, 113:20, 120:11 informed 44:6 infringer 24:22 insight 20:1 insist 32:21 installation 111:12 instead 63:3, 63:11, 65:14, 82:10 instructing 12:3 interaction 64:15 interested 126:5 interesting 17:18 interpret 68:21 invention 44:22, 47:12, 57:10, 66:16, 73:11, 121:17 invoices 21:20 involved 24:20, 46:2 involving 22:4 ipr 1:12, 7:21,	7:22, 8:1, 8:4 irregular 97:6 isolated 95:21, 96:4 issue 31:22, 41:7, 53:19 issued 77:5, 79:22, 80:18, 81:16, 81:18, 83:1 itself 121:3
I			J
idea 115:19 identification 92:18 identified 27:8, 44:15, 57:6, 57:16, 58:5, 85:3 identifies 110:8 identify 6:4, 7:1, 12:20, 56:6 iii 63:18 illinois 3:8, 7:8, 7:12, 13:14, 13:17, 14:5, 19:3, 19:6, 19:13, 20:8, 20:9, 125:7 illustrates 117:13 illustrating 98:15 illustration 57:6, 96:14, 98:14 illustrative 117:16, 117:21 image 115:14, 115:17 images 14:15, 29:5, 29:20, 30:8, 86:18			james 4:12 ji 3:4, 6:9 job 1:20, 18:4, 19:10 john 1:17, 2:1, 5:3, 5:14, 6:14, 7:3, 7:9, 7:15, 125:8, 125:19 joining 6:20
			K
			keep 66:16 kind 10:5, 16:17, 17:6, 33:1, 93:2, 99:14, 99:17 know 7:12, 7:14, 8:16, 8:17, 9:9, 9:11, 9:14, 9:15, 9:20, 10:3, 10:4, 10:6, 10:8, 10:20, 20:6, 20:22, 22:8,

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

139

22:10, 23:7, 23:13, 23:16, 24:3, 24:22, 25:15, 27:8, 30:1, 32:2, 32:3, 32:17, 33:4, 36:1, 39:22, 43:14, 45:12, 49:3, 53:18, 57:22, 88:19, 92:2, 92:17, 94:21, 97:3, 97:6, 102:14, 102:22, 103:1, 106:6, 106:8, 106:10, 107:17, 109:1, 114:11, 116:22, 117:21, 120:17, 121:4, 121:8, 121:11, 124:9 known 16:19, 34:11, 34:21, 36:20, 37:6, 39:1, 39:15, 40:8, 44:8, 44:9, 44:12, 44:13, 45:12, 45:13 knows 107:5 krohn 4:3, 6:11 ksr 46:14	96:16, 96:18 labels 28:15, 28:21, 29:1, 29:2, 29:15, 29:16, 29:18, 29:19, 30:2, 30:7, 31:3, 33:17, 34:3, 123:21 labs 23:9, 23:10 lake 3:6, 6:8 language 59:11, 61:8, 65:13, 70:3 laptop 100:9 large 23:13, 39:6, 113:22, 114:4, 114:7, 114:11, 114:12, 115:1, 115:6, 115:8, 115:13, 115:21, 118:21 larger 29:2, 29:19 lasalle 3:7 last 11:10 later 62:16 law 13:9 lawyer 41:9, 83:16 layer 86:19, 105:18, 107:12 led 44:19, 47:9 legal 43:18, 49:3 legally 49:3 let's 11:12, 14:7,	15:4, 25:10, 45:11, 47:19, 55:20, 59:13, 61:13, 81:7, 83:10, 88:14, 109:13, 116:3, 116:13, 117:17, 122:7 level 47:16, 81:4 lever 45:6, 45:8 light 14:22, 123:8 limit 99:17 limitation 42:4, 59:17 limited 53:12 line 6:12, 55:9, 55:10, 85:2, 123:19 linear 15:5, 15:7, 15:9, 15:15, 15:17, 15:18 lines 16:5, 35:12, 71:16, 73:6, 73:7, 73:9, 74:20, 92:10 liquid 114:19 list 27:9, 27:11, 60:9 listed 27:13, 27:17, 42:1, 47:7, 63:1, 114:10 little 14:13, 19:18 llc 7:10, 7:15, 20:22, 21:10, 21:11, 21:15	llp 3:6, 3:14, 4:4 locally 119:12 located 124:2 long 7:11, 7:14, 12:2 look 16:3, 24:7, 45:22, 55:20, 59:13, 84:1, 84:3, 89:14, 102:9, 109:13, 113:19, 116:3, 116:13, 122:7 looked 78:8 looking 27:12, 33:13, 57:10, 58:10, 59:9, 69:6, 72:12, 84:13, 90:22, 91:19, 101:5, 115:7, 117:5, 123:18 lot 24:4, 103:17, 104:11, 104:13, 108:13, 109:1, 109:9 lots 24:2 lower 121:19 lunch 10:4, 10:6, 88:19
L			M
lab 23:6, 23:12 label 30:1, 30:10, 30:13, 31:6, 33:21, 122:11, 122:17, 122:22, 123:5, 123:10, 123:17, 123:20 labeled 57:4, 63:18,			made 90:9 madison 4:6 main 4:5 major 13:19

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

140

make 14:15, 32:18, 33:1, 46:2, 66:15, 77:1, 77:17, 78:6, 78:20, 79:15, 82:18, 95:20, 100:6, 102:15, 108:11, 108:15, 109:2, 109:10, 118:6 makes 115:3 making 76:9, 120:20 manage 21:11 managed 31:3 management 82:9, 86:18 many 8:10, 11:11, 11:18, 12:2, 24:3, 43:13, 44:4, 50:16, 50:21, 83:20, 122:1 map 103:18 mapped 104:12 maps 100:12 march 81:17 mark 32:8, 32:21 marked 25:12, 25:19, 25:20, 26:4, 26:7, 26:8, 32:19, 93:3 marking 32:11 marriage 126:3 master 37:22, 91:14,	97:21, 99:7, 106:14, 107:1, 107:6, 107:21, 107:22, 108:17, 109:4, 110:9, 110:10, 110:16, 111:8, 111:14, 111:16, 111:22, 112:6, 113:7, 121:2 masumoto 5:13, 109:13, 110:2, 110:3, 110:5, 110:7, 110:20, 111:5, 111:8, 111:16, 113:19, 115:7, 121:1 masumoto's 111:11, 115:13 material 27:17 materials 12:16, 12:17, 13:9, 27:12, 27:19, 46:1, 46:20, 46:21 matter 16:3, 18:21, 22:17, 24:9, 24:13, 31:1, 85:7, 126:6 matters 24:6 maybe 12:8, 15:7, 15:20, 23:4, 97:3, 124:5 mean 11:2, 11:14, 14:17, 15:9, 16:1, 23:18, 32:15, 35:10, 42:22, 54:7, 56:19, 67:19, 86:11, 103:1, 112:6, 113:6 meaning 37:14, 52:7,	52:8, 52:21, 53:4 means 34:3, 34:20, 43:3, 64:17, 74:7, 103:19, 124:1 meant 56:17 measures 66:15 measuring 111:14 medical 20:14 meet 11:9 meetings 11:16 memory 87:22, 88:10, 90:12, 119:15 mention 16:8, 33:14, 36:15, 60:15 mentioned 43:12, 87:9 mentions 16:9 merely 54:6, 54:9, 117:20 merit 125:5 met 11:6, 11:10, 18:18, 18:21, 19:1 method 44:13, 55:13 methods 44:8, 86:16 michelle 1:22, 2:2, 15:21, 125:3, 126:14 might 91:17, 120:8,	122:4 mind 11:7 minutes 47:20 mis 112:17 missing 113:17 misstates 46:6, 58:17, 59:4, 78:2, 88:4 misunderstanding 113:2 mm-hm 56:6 mode 66:14, 79:4, 82:11 model 34:16, 35:6, 37:8, 77:17, 95:12, 98:15, 105:15, 110:6, 110:12, 110:14 modeling 19:20 models 100:13 modern 24:1 modify 44:20, 47:10 moment 26:18, 73:4 monday 1:18, 11:17, 125:19 months 23:4 more 14:13, 19:18, 24:4, 33:1, 59:22, 78:7, 83:22, 88:13, 94:22, 97:8, 104:13, 109:1, 109:10, 114:17,
--	---	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

141

117:15, 118:20 morning 6:19 motivation 43:12, 43:14, 43:22, 44:18, 47:3, 47:9 mountaineering 124:1 move 19:3, 20:6, 43:2, 43:3, 101:19 moved 18:22, 19:11, 20:7 movies 14:19 much 23:10, 23:15, 117:22, 124:8 multi-display 111:11, 114:15 multimedia 20:4, 20:5, 20:15, 86:13, 86:14, 86:21 multiple 39:7, 114:16, 114:19, 115:5 music 38:2, 38:13 must 8:11	23:22, 37:21, 46:20, 58:21, 66:22, 68:14, 78:7, 78:9, 89:20, 90:4, 92:17, 97:7, 97:20, 98:19, 99:6, 103:15, 104:12, 106:8, 106:12, 107:1, 107:6, 107:17, 107:21, 109:9, 116:15, 120:20 needing 58:11, 92:18 needs 23:21, 29:16, 119:5, 119:17 neither 76:20, 78:18, 79:13, 80:8, 82:15 network 28:7, 37:17, 37:18, 37:19, 40:12, 86:15, 97:17, 98:16, 98:17, 99:4, 100:9, 105:16, 105:18, 106:7, 107:5, 119:4, 121:5, 121:19 network-connected 114:16 networked 39:7 networking 39:4, 86:14 networks 38:12, 97:18, 98:5 never 19:1, 70:2, 76:8 next 71:15, 94:9 node 96:16, 96:21	nodes 96:15, 96:16, 96:18 non-master 110:10, 110:12 none 32:18 normally 32:13 north 3:7 noted 82:11 nothing 74:8 notice 2:2 november 1:18, 18:1, 38:20, 125:20, 126:9 number 7:22, 8:2, 8:3, 8:6, 12:16, 26:3, 33:1, 36:22, 41:16, 44:15, 56:3, 56:5, 56:6, 60:5, 65:5, 65:8, 65:10, 68:8, 84:9, 98:8, 122:3 numbers 62:22, 69:1, 69:14, 70:13, 70:17, 71:8, 71:9, 83:15, 83:17, 84:2, 84:4, 84:5, 84:14, 84:17	21:3, 21:6, 21:16, 22:12, 25:2, 28:18, 29:11, 30:3, 30:15, 30:19, 31:9, 32:16, 33:15, 34:13, 35:1, 36:9, 36:16, 38:4, 39:2, 39:10, 39:17, 40:9, 41:14, 42:14, 43:6, 43:16, 44:2, 45:17, 46:6, 46:16, 47:4, 48:19, 49:6, 49:14, 50:10, 50:17, 51:1, 52:9, 53:7, 54:13, 54:21, 55:6, 56:13, 57:2, 57:18, 58:3, 58:7, 58:17, 59:4, 60:2, 61:22, 62:9, 62:10, 64:3, 64:9, 65:21, 66:11, 67:22, 68:3, 69:2, 69:16, 70:4, 70:9, 72:15, 74:15, 74:16, 75:18, 76:4, 77:14, 78:2, 78:14, 79:6, 80:1, 80:12, 80:20, 82:4, 83:4, 84:10, 84:18, 85:13, 85:22, 86:6, 87:5, 87:19, 88:4, 89:3, 89:21, 90:6, 91:2, 91:10, 94:1, 95:8, 95:18, 96:11, 97:12, 98:11,
N			
naked 17:7 name 6:20, 7:1, 7:3, 7:7, 27:2, 110:3 napster 38:2, 38:13 nature 16:5 need 10:3, 10:8, 17:5, 23:12,			
		O	
		oath 10:10, 10:12 object 13:2 objection 13:4, 15:11,	

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

142

100:1, 100:10, 100:17, 101:12, 101:21, 102:21, 104:1, 104:18, 106:18, 108:9, 108:20, 109:6, 110:18, 111:3, 111:19, 112:8, 112:15, 112:18, 115:10, 116:18, 117:8, 117:11, 118:11, 119:13, 121:6, 121:20, 122:12, 122:19, 123:12 objects 15:1, 105:19 obtain 44:10 obvious 44:7, 45:14 obviousness 46:3, 46:14 occupation 7:2, 7:4 occurred 125:19 offering 64:11 office 1:1, 41:6, 41:7, 41:8, 75:14, 76:18, 79:20, 80:18, 81:17, 81:18, 81:21, 82:3, 83:1, 83:8 often 16:3, 16:4, 20:20, 23:21 oh 7:16, 21:5, 112:13 okay 8:7, 9:6, 9:9, 9:17, 9:22, 11:2, 11:3, 13:2, 15:9,	18:18, 26:11, 26:19, 26:22, 33:11, 47:21, 47:22, 59:16, 92:21, 109:21, 111:2, 113:16, 116:12, 117:13, 122:9, 124:3, 124:6 once 74:9 one 11:12, 14:4, 16:8, 17:21, 24:19, 26:18, 30:6, 30:8, 35:11, 39:22, 44:9, 61:16, 63:2, 69:10, 70:22, 105:16, 108:12, 110:8, 111:9, 112:5, 113:6, 113:14, 115:5, 117:15, 120:16, 121:22 ones 22:4, 104:4 only 22:2, 72:13, 76:8, 82:8, 108:6, 112:3, 112:5 open 10:11 operate 110:9, 110:10, 110:13 operates 110:11, 110:20 operating 67:9, 75:5, 108:14, 110:5 operation 45:20, 46:1, 46:10, 54:5, 54:19, 55:2, 55:8, 55:12, 55:17, 66:21,	86:11, 105:21, 108:13 opined 62:17 opinion 24:21, 36:11, 37:11, 45:19, 46:2, 46:9, 46:15, 46:22, 48:11, 49:12, 50:7, 50:12, 52:20, 53:5, 53:9, 53:15, 54:2, 58:9, 60:8, 61:10, 62:12, 63:11, 64:11, 70:19, 79:8, 79:10, 79:18, 82:6, 89:19, 91:12, 92:22, 97:17, 105:7, 106:20, 110:22, 116:21, 116:22, 117:1, 118:2, 118:4, 118:6, 121:8 opinions 13:11, 27:6, 30:22, 46:18, 46:20, 48:15, 48:22, 49:18, 50:4, 51:21, 53:16, 69:19, 70:6, 72:19, 76:7, 77:17, 89:15, 89:16, 90:9, 90:20, 92:19, 95:1, 95:10, 99:17, 101:2, 104:5, 110:20, 121:14 opposed 54:8 orange 93:3 order 17:9, 24:7, 46:21, 58:22,	69:7, 70:20, 70:21, 71:9, 100:4, 100:6, 105:6, 107:2, 107:22, 108:1, 109:2, 115:5 ordinary 28:6, 37:15, 44:19, 47:10, 47:14, 47:15, 62:13, 64:14, 65:2, 65:12, 66:2, 66:20, 68:11, 69:5, 69:13, 71:13, 72:8, 73:1, 84:21, 86:12, 87:13, 88:8, 97:16, 104:7, 104:22, 106:8, 110:4, 114:21 original 41:19, 41:22, 42:1, 42:5, 59:12 other 8:17, 11:16, 17:6, 18:16, 20:7, 20:16, 22:6, 24:6, 28:17, 29:9, 29:17, 37:21, 42:10, 51:6, 51:9, 59:19, 60:13, 60:19, 60:22, 61:3, 61:6, 61:17, 61:20, 62:4, 63:13, 64:21, 65:1, 65:19, 66:9, 67:2, 67:3, 67:6, 67:7, 67:14, 67:15, 67:20, 68:2, 68:16, 68:19, 69:7, 69:11, 71:1, 71:21, 75:9,
--	--	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

143

77:2, 78:9, 78:22, 79:5, 79:17, 82:20, 85:16, 96:3, 96:21, 97:20, 98:3, 98:6, 98:10, 98:19, 98:21, 99:6, 103:14, 105:12, 106:5, 106:12, 106:15, 106:16, 106:22, 107:3, 107:6, 107:10, 107:15, 107:16, 108:4, 108:7, 108:18, 109:5, 111:10, 111:17, 112:1, 112:5, 112:7, 113:6, 113:7, 119:18, 119:20, 120:1, 120:20, 120:22, 122:1 others 120:18 otherwise 58:5, 120:16, 126:5 out 15:20, 33:20, 38:8, 62:17, 103:5, 115:16 outcome 126:6 output 86:10 over 8:11, 8:17, 11:14, 12:8, 55:14 overlapping 34:8 overview 28:9 own 12:18, 20:22 owned 8:5	owner 1:10, 3:12, 4:2, 8:5, 24:22, 25:9, 42:4, 80:6 owners 21:21, 22:2, 22:5 P page 5:2, 5:8, 26:21, 27:3, 27:10, 27:13, 27:16, 27:20, 28:8, 36:12, 37:3, 38:8, 42:1, 59:10, 59:12, 59:13, 59:14, 59:15, 63:17, 71:15, 75:14, 83:11, 91:19, 96:13, 98:8, 98:14, 99:11 pages 1:21, 41:20 pair-wise 68:14, 69:8 paper 29:1, 29:18, 30:1, 30:2 paragraph 28:9, 28:20, 29:14, 30:18, 34:15, 36:12, 37:13, 38:1, 38:6, 38:7, 38:8, 38:11, 38:18, 42:16, 43:20, 47:7, 49:20, 59:15, 60:8, 60:16, 61:10, 62:8, 62:18, 62:21, 63:1, 63:17, 64:1, 64:12, 70:17, 70:20, 71:15, 71:17,	73:18, 74:21, 75:13, 75:21, 76:7, 81:16, 82:22, 83:6, 83:10, 92:20, 96:14, 97:14, 98:13, 99:12, 111:6, 114:2, 114:3, 114:8, 114:13, 115:12, 117:19, 118:13, 118:14, 118:17, 120:6 paragraphs 117:6 parentheses 92:2 parenthesis 63:12 parenthetical 62:15, 63:5 part 26:9, 26:10, 27:21, 33:20, 36:1, 61:13, 61:14, 61:17, 61:18, 61:19, 63:13, 70:2, 70:19, 73:8 participants 17:8 particular 73:11, 95:12, 96:2, 118:4, 121:14 parties 49:21, 126:2, 126:4 party 125:15 pass 124:10 past 31:8 patent 1:1, 1:3, 1:10, 1:13, 3:12, 4:2, 5:9, 5:11, 5:13,	8:5, 21:21, 22:2, 22:10, 24:22, 25:8, 27:18, 27:21, 28:3, 29:3, 31:11, 31:19, 32:4, 33:13, 34:12, 34:16, 34:22, 35:6, 35:9, 35:12, 35:18, 35:20, 36:3, 36:7, 36:19, 37:15, 38:17, 38:19, 39:1, 39:16, 39:20, 40:8, 40:16, 41:3, 41:6, 41:8, 41:12, 42:2, 42:4, 43:4, 43:5, 43:9, 43:10, 45:21, 46:10, 46:19, 48:10, 48:12, 48:14, 49:4, 49:13, 52:2, 53:6, 54:10, 54:16, 54:17, 54:20, 55:21, 61:19, 69:19, 72:12, 73:6, 74:19, 79:22, 80:6, 84:3, 87:10, 87:14, 87:17, 88:22, 89:5, 89:8, 105:8, 105:10, 106:17, 118:10, 119:8, 122:7, 122:18, 123:11 patent's 71:18 patents 22:4, 22:5, 22:6, 37:8, 40:18, 41:1 pathway 106:6
---	--	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

144

pc 102:13 pcs 23:16, 23:17 pedal 45:8, 46:3, 46:11 pedal's 45:15 peer-to-peer 27:22, 28:1, 28:3, 28:7, 37:11, 37:17, 37:18, 37:19, 38:22, 39:4, 39:15, 40:7, 40:11, 95:16, 96:10, 97:5, 97:11, 97:17, 97:18, 98:4, 98:16, 98:17, 99:3, 99:4, 104:8, 105:15, 108:8, 116:17, 117:7 pekarek 4:3, 6:11 pending 39:22, 42:8, 42:10, 42:19 people 9:15, 20:5, 22:6, 86:21 perform 77:6 perkins 3:14, 4:4, 11:8 person 28:5, 37:15, 44:19, 47:10, 47:14, 47:15, 62:13, 64:13, 65:2, 65:11, 66:2, 66:20, 68:11, 69:5, 69:13, 71:12, 72:8, 73:1, 84:21, 86:11,	87:13, 88:8, 97:15, 104:7, 104:22, 106:7, 110:4, 114:21, 122:3 personal 50:7, 84:21 petition 7:21, 22:11, 24:14, 27:17 petitioner 1:7, 3:2, 6:21 ph 1:17, 2:1, 5:3, 5:14, 6:14, 14:10, 15:3, 18:1, 125:8, 125:19 phone 11:13 phrase 55:8 physical 86:19, 105:17, 106:7, 107:11 physically 101:15, 104:10, 105:19 pictorial 85:3, 85:5, 86:8, 87:3 pictures 85:8 pixar 14:20 places 50:16 plaintiff 25:1 plan 32:20 plato 17:17 play 24:2, 24:7, 24:12, 102:7, 120:14 playback 29:4, 36:20,	50:2, 51:5, 51:8, 54:3, 55:14, 59:18, 60:1, 60:5, 60:6, 60:9, 60:11, 60:17, 60:18, 60:22, 61:1, 61:2, 61:6, 62:3, 63:8, 64:1, 64:15, 64:16, 64:20, 64:22, 65:4, 65:5, 65:8, 65:10, 65:11, 65:17, 65:18, 66:7, 66:14, 66:16, 67:1, 67:5, 67:19, 67:20, 67:21, 68:7, 68:8, 68:14, 68:15, 68:19, 71:18, 71:20, 71:21, 72:9, 72:11, 73:15, 73:22, 74:6, 74:21, 75:2, 75:4, 75:11, 76:13, 76:19, 76:20, 76:21, 76:22, 77:8, 77:9, 78:17, 78:19, 78:20, 79:11, 79:12, 79:14, 79:15, 80:7, 80:8, 80:10, 82:10, 82:14, 82:15, 82:17, 82:18, 87:21, 89:1, 89:20, 90:4, 90:11, 106:22, 119:19, 120:1, 120:8, 120:19, 120:21, 120:22 playing 24:5, 120:9 please 6:4, 7:1,	31:17, 40:5 plurality 37:20, 97:19, 98:5, 98:17 point 77:4, 91:12, 91:17, 107:20 popularized 38:12 populized 38:12 portion 57:5, 63:10, 74:13, 115:17 portions 118:21 posita 34:12, 34:21, 57:9, 71:10, 90:22, 104:16, 117:5, 121:17 position 17:2, 17:3, 45:15, 123:22 post-doc 14:9, 16:13, 17:20, 18:6 potential 24:22 power 119:5 powered 111:13 powerful 23:22 preamble 60:4 precise 35:15, 93:6, 94:6 predictable 44:8, 44:10, 44:11, 44:14, 44:15 preparation 11:15, 11:19 prepare 11:4
---	---	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

145

preparing 11:19 present 4:11, 29:4, 29:20, 30:8, 32:14, 114:14, 114:18 pretty 31:1 previous 25:20, 26:4, 84:13, 84:14, 93:22, 94:3, 120:5 price 30:14 price-related 34:2 prices 30:6, 30:9 printed 27:2 prior 34:12, 34:15, 34:21, 35:5, 35:9, 35:19, 37:7, 39:1, 39:15, 40:8, 44:5, 44:7, 44:10, 44:18, 44:20, 44:21, 47:9, 47:11 priority 38:16, 38:19, 39:19 problem 118:9 proceeding 21:15 process 8:12, 39:6, 41:4, 60:22 processing 111:15, 119:5 produce 26:16 product 34:1, 34:2,	44:13, 51:18 products 124:2 professional 50:12, 125:4 professor 7:4, 13:14, 18:7, 18:8, 19:12, 19:13, 19:14, 20:21 program 85:11 progress 51:5, 51:7, 51:8, 60:11, 60:12, 60:20, 61:4, 61:6, 62:3, 65:18, 66:8, 67:4, 67:5, 67:12, 67:13, 67:17, 68:15, 68:17, 68:19, 71:20, 72:11, 73:15, 74:1, 75:3, 75:11, 76:21, 77:8, 78:19, 79:14, 80:10, 82:17, 119:19, 119:21, 120:1, 120:19, 121:3 progress-data 60:18, 61:2 projected 17:3 projects 16:18, 23:8 promoted 19:13 proper 49:22, 50:6 prosecution 5:10, 40:15, 41:4, 41:11, 42:9, 42:20, 43:1, 52:16, 81:7 provide 9:13, 20:1,	48:10, 72:19, 105:7 provided 46:18, 48:22, 49:12, 49:17, 50:4, 50:7, 50:12, 70:6, 79:18 providing 8:16, 32:11, 51:21, 81:3 pseudo 115:8 pseudo-single 114:1, 114:5, 114:8 pt13 113:22 publication 5:12 pull 33:7 pullman 18:15, 18:16 purchase 115:2 purpose 74:5 pursuant 2:2 pursued 20:9 pursuing 20:10 put 45:6, 72:6 putting 13:8	39:14, 40:4, 40:5, 40:21, 49:8, 52:19, 53:2, 53:3, 57:20, 64:5, 66:6, 80:3, 86:2, 87:6, 93:10, 96:6, 103:5, 113:2, 113:3, 114:6 questioned 32:15 questions 8:15, 8:19, 10:14, 30:22, 39:21, 124:11 quick 47:19, 54:15, 87:12, 124:5 quote 115:16 quotes 42:16, 72:6, 73:5 quoting 28:2
		Q	R
		quadrant 115:20 question 8:19, 12:1, 15:12, 22:13, 29:7, 29:13, 31:1, 36:4, 36:5, 39:9,	radio 56:8, 56:11, 56:16, 57:14 range 19:19, 20:16 ranging 19:20 rather 50:1, 64:2 rationales 44:5 reach 69:15 read 33:20, 38:7, 60:17, 73:8, 76:7, 113:5, 115:12, 123:8 read-on 6:2

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

146

reading 87:14, 105:2 ready 44:13 real 124:5 reality 16:16, 16:17, 20:17 realize 119:8, 121:4 realtime 125:6 reask 96:6, 113:3 reason 10:13, 30:6, 58:15, 79:21 reasonable 44:16 recall 9:2, 11:16, 12:7, 12:14, 15:4, 15:6, 23:2, 23:5, 28:2, 31:20, 47:6, 51:21, 53:19, 58:9, 58:10, 69:21, 79:8, 80:15, 81:3, 84:12, 84:13, 90:8, 90:19, 99:16, 106:20, 116:22, 118:2, 118:3, 121:15 receipt 67:4 receive 67:11, 85:11, 85:15, 85:17, 85:19, 86:4, 106:11 received 51:7, 60:20, 61:4, 67:13, 67:17, 68:17, 74:9, 115:17,	119:21 receiving 67:15 recently 7:7 recess 48:4, 88:15, 124:7 reciprocal 64:16, 67:10, 69:9, 71:3, 71:6, 75:8, 76:21, 77:7, 78:19, 79:13, 80:9, 82:16, 106:4, 118:19 reciprocity 64:17 recite 51:19, 52:4 recited 72:5 recites 72:13, 89:12, 122:10 recognize 86:12 recognized 110:5 recollection 25:7 reconciled 76:8 record 6:5, 7:2, 9:16, 9:21, 26:9, 26:10, 32:18, 32:22, 48:2, 116:4, 125:12 records 23:1, 109:14 red 93:3 reduce 119:3, 120:3 refer 37:2, 91:13, 110:3, 120:6	reference 44:20, 47:11, 62:22, 68:22, 69:14, 70:13, 70:17, 71:1, 71:2, 71:8, 71:9, 109:13 referenced 26:13, 33:9, 81:13, 109:19, 116:7 references 12:15, 12:20, 27:8, 44:5, 69:6 referred 91:9, 91:14, 91:15, 100:13, 123:6 referring 35:18, 38:6, 61:16, 89:6, 90:14, 95:13, 109:8 refers 65:3, 118:15 reflects 15:1 regarding 8:5, 49:12, 50:6, 50:8, 53:10, 53:12, 53:17, 58:21, 76:16, 77:4, 88:19, 89:15, 117:3 regardless 77:3 registered 125:4, 125:5 related 58:14, 85:21, 113:21, 114:9, 114:10, 117:6, 126:1 relationship 68:9, 69:9, 71:5, 71:6, 75:9 relevance 117:2	relevant 46:21, 84:5, 86:5, 94:22 reliability 122:1 relied 35:15, 68:22, 93:6 relies 106:21 rely 94:5, 119:9 relying 119:2, 119:9 remains 16:7, 77:5 remark 32:22 remember 8:22, 24:11 remote 1:17, 6:20, 124:9 remotely 2:2, 9:7, 125:19 remove 62:6, 62:22, 96:8, 96:19, 98:9 removed 95:15, 96:7 rendering 14:14, 15:2, 15:5, 19:22 repeat 36:5, 40:4, 40:5, 40:20, 53:2, 57:20, 64:5, 80:4, 90:2, 114:6, 120:12 replace 97:2 reply 42:7, 42:17 report 11:1, 11:15,
--	--	--	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

147

12:14, 12:15, 12:18, 13:7, 13:9, 13:11, 31:21, 41:20, 46:9, 48:15, 69:20, 71:16, 75:13, 83:11, 83:18, 84:7, 84:9, 117:3, 118:14 reported 1:22 reporter 2:4, 6:3, 9:15, 48:2, 125:1, 125:4, 125:5, 125:6, 126:15 reports 83:20, 84:15 represent 6:5, 6:21 represented 19:21, 125:16 representing 88:1, 90:13, 119:16 reproduce 59:11 reproduced 81:1 requests 112:1 require 49:22, 54:2, 91:1, 93:4, 105:5 required 35:13, 119:4 requirement 90:9 requirements 35:15, 93:6, 94:5, 121:19 requires 50:1, 57:22, 59:18, 61:11, 65:4, 77:6, 90:11, 107:14,	108:2, 112:10, 119:15 research 16:13, 16:17, 19:15, 23:6, 23:7 researchers 23:12 resembles 28:5, 37:15, 97:15 respect 53:14, 53:20, 72:22, 92:19, 102:6, 105:7, 105:10, 120:18 respond 30:22, 76:6 responded 121:13 responding 53:10 response 50:5, 69:20, 75:15, 76:17, 79:20, 83:8 responses 75:17 responsible 32:11 responsive 87:4 rest 110:9 resulted 46:19 results 44:9, 44:10, 44:14, 80:14 reveal 11:21, 12:3 reversal 64:19 reversed 64:18 review 12:10, 58:15, 76:11, 81:7	reviewed 27:7, 27:16, 27:19, 40:15, 48:10, 48:12, 48:17, 48:21 reviewing 80:19 right 8:13, 9:7, 13:14, 15:8, 16:12, 17:20, 18:12, 26:5, 27:4, 27:9, 27:17, 31:8, 34:12, 36:8, 37:6, 37:12, 38:3, 39:1, 39:16, 40:16, 41:13, 41:21, 42:5, 42:13, 45:9, 47:3, 48:11, 49:5, 49:13, 50:9, 50:16, 56:3, 56:12, 58:1, 61:9, 61:12, 61:21, 69:1, 70:14, 71:11, 72:14, 73:17, 74:12, 75:17, 76:3, 78:13, 79:22, 80:11, 80:19, 81:17, 81:22, 82:3, 83:3, 83:18, 88:3, 89:2, 89:14, 93:2, 94:20, 95:6, 98:3, 98:10, 99:2, 99:21, 101:19, 107:17, 109:5, 111:18, 121:19, 122:11 rmr 1:22, 2:3, 126:14 roles 64:17	room 10:17, 16:20, 17:2, 101:15 rotate 116:14 rough 16:7 roughly 9:4, 11:18, 23:3 row 120:9, 120:14 rule 43:14 ruling 46:14 run 24:1 S said 6:21, 8:21, 17:19, 34:9, 35:5, 37:7, 58:20, 59:7, 70:20, 71:17, 73:4, 88:1, 90:13, 97:15, 119:16, 124:1 same 20:9, 23:12, 52:7, 52:21, 53:5, 65:13, 69:15, 77:5, 95:5, 120:9, 121:4, 121:5 saving 121:5 saw 80:14 say 9:16, 14:12, 15:15, 23:17, 24:13, 25:19, 28:4, 35:9, 35:12, 35:19, 37:13, 56:20, 67:18, 82:6,
---	---	--	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

148

83:6, 86:8, 93:9, 93:10, 93:11, 97:18, 98:4, 103:9, 122:21 saying 26:1, 26:2, 26:3, 26:8, 35:20, 110:15 says 55:11, 61:20, 117:19 scenes 14:15, 14:17, 14:20 school 7:5, 7:6, 14:1, 18:8, 19:5 science 13:20, 18:9 sciences 7:6 scientific 20:13 scope 48:14, 48:18, 49:4, 49:13, 49:22, 50:6, 71:11 scratch 40:22, 85:10 screen 101:5, 101:7, 101:8, 114:17 screen's 34:7, 56:8, 56:15, 57:13 screens 101:9 search 54:15, 87:12 seattle 3:16, 18:12, 18:20 second 13:2, 25:19, 32:8, 61:14, 76:13, 76:19,	78:17, 79:12, 80:8, 82:15, 93:13, 94:17, 94:19 section 12:16, 28:8, 34:4, 34:6, 34:7, 34:9, 36:2, 36:6, 36:13, 36:15, 36:18, 43:19, 49:16, 49:17, 63:18, 70:22, 73:6, 74:19, 92:9, 94:9, 100:14 sections 13:10 see 11:12, 14:7, 14:20, 15:4, 16:4, 17:1, 17:2, 17:7, 17:10, 28:11, 28:12, 30:5, 31:21, 33:13, 46:20, 53:9, 53:16, 54:16, 57:4, 59:20, 59:21, 60:14, 60:15, 68:5, 72:3, 72:17, 77:16, 77:18, 78:5, 78:7, 78:9, 80:22, 85:8, 87:11, 90:13, 90:17, 91:22, 97:8, 98:7, 100:3, 100:4, 100:5, 101:6, 101:15, 101:16, 101:18, 101:19, 101:20, 102:7, 102:10, 104:14, 108:11, 108:22, 109:9, 117:17, 122:14, 123:10	seeing 80:15, 86:11 seen 41:10, 66:3 self-similar 16:4 send 112:2 sending 95:3, 120:10 sense 47:2, 47:7, 47:13, 95:20, 115:3 sensor 45:11, 45:14 sent 115:17 sentence 93:13, 93:18, 93:22, 94:3, 94:17, 94:19, 95:13 sentences 95:10 september 76:17, 83:3, 83:7 serve 7:8 server 31:7, 36:21, 56:8, 56:11, 56:15, 56:22, 57:14, 58:2, 73:13, 73:17, 73:20, 74:3, 74:4, 74:8, 74:11, 75:3, 75:6, 89:1, 89:10, 89:13, 89:20, 90:5, 90:10, 90:15, 91:1, 91:5, 91:9, 91:13, 91:15, 92:6, 92:12, 92:15, 92:16, 92:18,	93:11, 94:16, 94:18, 94:20, 94:22, 95:5, 105:12, 115:14 server-streamed 93:8, 94:7 server-synchroni- zed 35:16, 93:7 service 22:8, 38:13 serving 75:7 ses-imagotag 1:9, 125:16 set 125:9, 126:8 setting 9:14 sever-streamed 35:17 several 102:12, 120:9, 123:5 shapes 14:15, 19:21 sharing 39:5, 40:7 shelf 28:15, 28:16, 28:21, 28:22, 29:2, 29:14, 29:16, 29:18, 29:19, 29:22, 30:7, 30:10, 30:13, 31:3, 31:6, 33:17, 33:21, 34:3, 122:11, 122:17, 122:22, 123:5, 123:10, 123:17, 123:20, 123:21, 124:2 shen 3:5, 6:8 shorthand 2:3, 125:1, 125:4, 126:15
--	---	---	---

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

149

should 8:17, 59:14, 60:17, 63:3, 63:6, 63:9, 63:11, 63:12, 63:18, 111:13 show 30:11, 98:19 showing 68:9 shown 27:16 shows 123:20 sic 102:20 side 18:16 signage 114:20 signal 56:9, 56:16, 56:22, 57:14, 57:16, 85:16, 92:13, 92:14, 115:15 signals 35:16, 56:12, 86:4, 93:7, 94:6 signature 27:1, 27:3 signature-plkal 126:12 significant 86:20, 105:6 similar 110:11, 110:13 simply 120:14 simulation 14:22 simultaneous 66:14 since 7:13, 19:8 single 76:9, 92:1, 92:5, 93:15,	94:9, 94:12, 111:22, 114:12, 114:17, 115:2, 115:21 six 71:16 size 113:20, 115:3 skill 28:6, 37:16, 44:19, 47:10, 47:14, 47:15, 62:13, 64:14, 65:2, 65:12, 66:2, 66:20, 68:11, 69:5, 69:13, 71:13, 72:8, 73:1, 84:21, 86:12, 87:13, 88:9, 97:16, 104:7, 104:22, 106:8, 110:4, 114:22, 122:4 slave 108:17, 109:5, 121:2 slightly 41:20, 52:19 slower 45:7 slowly 9:20 small 60:16 smooth 16:6 solution 115:1, 119:9 solutions 44:16 solve 118:10, 121:4 some 9:11, 12:9, 16:15, 16:21, 19:22, 20:4, 22:5, 24:3,	29:9, 31:8, 44:17, 47:8, 49:17, 85:15, 91:12, 92:7, 99:14, 106:15, 114:9, 118:14, 120:20 someplace 12:9 something 16:2, 16:6, 29:16, 47:13, 91:9, 94:21, 97:8, 99:9 sometimes 9:11 somewhere 10:21, 12:8, 113:18 sooner 10:3 sorry 34:6, 38:5, 39:12, 40:20, 51:15, 53:1, 59:14, 62:9, 64:5, 72:2, 74:14, 74:17, 82:1, 100:3, 111:1, 112:19, 114:6 sort 16:21, 46:2, 77:17 source 92:1, 92:6, 93:15, 93:19, 94:10, 94:12, 118:22, 119:1, 119:3, 119:10 south 18:17 speak 9:20 speaking 11:18, 23:3 speaks 89:9, 94:7	specific 9:3, 14:13, 19:18, 30:5, 47:6, 78:10, 80:16, 81:2, 84:12, 86:19, 87:11, 94:8, 94:11, 102:6, 106:13 specifically 12:14, 30:17, 31:20, 31:22, 60:9, 76:11, 77:7, 85:2, 89:12, 110:7, 114:17, 118:19 specification 28:4, 35:18, 35:22, 57:7, 89:9, 97:7, 123:6, 123:7, 123:9 specificity 97:8 specifics 45:22, 122:22 specifies 53:17, 60:4, 68:7 spell 15:20 spend 11:19 spent 17:19, 18:11, 18:20 spiderman 24:11, 24:12, 24:18 spokane 18:17 spoke 12:2, 34:11, 34:20, 36:15, 77:22 spokes 91:21, 93:19, 95:3, 110:13
--	---	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

150

stage 51:5, 60:19, 61:3, 62:3, 65:19, 66:8, 67:1, 68:16, 103:11, 103:13, 107:15, 108:3, 119:17 stages 103:11, 103:16 standard 23:15 standards 43:18 stands 28:15 start 18:5, 20:22 started 7:16, 18:7, 21:10, 21:11 starting 6:6, 27:17 state 18:10, 18:17, 19:16, 20:11, 27:21, 34:15, 38:18, 73:9, 82:13, 113:10, 113:14, 125:6 stated 43:19, 81:16 statement 30:5, 38:11, 87:7 statements 80:16, 81:2, 81:4 states 1:1, 51:3, 62:2, 62:13, 112:7, 113:8 stating 45:19, 73:18, 74:2, 74:20, 74:21, 79:8, 106:20 stations 23:14	status 77:2, 78:22, 79:16, 82:19 stayed 14:8 stereo 17:9, 17:11 sticker 29:1, 29:19, 30:1 still 17:8, 20:12, 96:8 stop 25:18, 32:7 storage 86:10, 86:17, 87:15, 119:11 store 87:22, 88:10, 90:12, 119:11, 119:15, 120:13 stores 30:14 stream 36:22, 119:2, 119:10 streaming 92:3, 93:16, 93:19, 94:13, 100:20, 120:7 streams 36:21 street 3:7, 4:5, 47:17 stuck 18:2 students 23:11 stuff 32:16, 32:18 subject 58:10, 75:20, 85:7 submit 21:20 submitted 21:20	subparts 61:12 substance 88:20 substantive 88:19 substitute 44:9 substituting 34:8 subtle 92:7 success 44:17 suggested 49:20 suggesting 62:6 suggestion 47:8, 50:6, 53:11 suggestions 44:18 suite 3:7, 3:15, 4:5 summarized 43:19 summary 111:1, 111:5, 118:13 summer 18:3 supplied 56:8, 56:15, 57:13, 58:1 supposed 103:1 supreme 46:13 sure 7:3, 13:3, 14:14, 36:4, 36:6, 49:8, 53:4, 56:17, 64:7, 80:3, 80:6, 81:7, 86:2, 100:12, 100:20, 101:14,	109:8, 112:10, 117:2, 120:21 swafford 5:11, 116:3, 117:19 swear 6:3 sworn 6:13, 6:16, 125:10 symbol 57:5 sync 120:17 synchronization 76:9, 77:2, 77:10, 78:21, 79:16, 82:19, 92:3, 93:16, 94:6, 94:10, 94:13, 102:5, 102:16, 102:17, 118:18 synchronize 34:11, 34:17, 34:20, 35:7, 37:9, 68:13, 107:2 synchronized 66:19, 74:12, 92:13, 100:21, 101:6, 101:10, 118:22, 120:16, 120:22 synchronizing 55:13, 74:5, 100:20 synchronous 51:8, 60:12, 60:21, 61:5, 67:5, 68:18, 71:20, 72:10, 73:15, 73:22, 75:1, 75:2, 75:10, 119:22 synchronously 101:19 system 27:22, 34:10,
---	--	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

151

36:20, 37:3, 37:6, 37:10, 37:11, 39:1, 39:4, 39:15, 40:7, 54:5, 55:2, 55:9, 55:12, 55:17, 60:5, 65:4, 65:10, 66:10, 66:22, 67:19, 68:6, 68:7, 76:18, 77:12, 78:5, 78:6, 78:7, 78:10, 78:12, 78:16, 79:3, 79:11, 80:7, 82:14, 89:1, 89:12, 89:20, 90:4, 91:8, 93:14, 93:21, 93:22, 95:17, 96:10, 97:5, 97:11, 99:3, 99:15, 100:5, 100:8, 102:8, 102:9, 102:11, 103:22, 104:8, 105:21, 105:22, 108:8, 108:11, 108:14, 109:4, 109:8, 109:10, 110:2, 110:16, 110:17, 111:11, 111:13, 116:16, 116:17, 117:7, 121:1, 122:4 system" 54:20 systems 20:4, 20:15, 34:20, 35:13, 35:19, 35:21, 78:9, 86:13, 86:14, 86:21, 93:4, 93:9, 93:10, 93:14, 93:21, 94:4,	94:9, 114:20, 117:14, 118:15, 121:10, 121:13 T tails 15:15 takashi 63:18 take 10:2, 47:19, 88:14, 116:11 taken 125:11 taking 6:6 talk 8:17, 28:10, 48:7, 87:10, 87:17, 88:18 talked 59:17 talking 29:14, 29:15, 55:20, 94:3, 94:11, 122:22 talks 87:21 taught 76:8 teaches 82:8, 82:11 teaching 44:17, 47:8 teachings 44:21, 47:11 technician 4:12, 6:2 technique 44:12 technology 1:6, 9:10, 24:8, 28:10 television 85:4, 85:6, 85:9, 85:10, 85:11, 85:15, 85:16, 85:18,	86:9, 87:4 tell 38:5, 46:13 ten 7:17, 9:5, 12:8, 12:9, 47:20, 120:11, 120:12, 120:14 ten-minute 124:5 tentzeris 16:8, 69:20, 84:20, 117:1, 117:3, 118:3, 121:11 term 20:20, 28:1, 28:3, 47:6, 49:19, 50:4, 50:13, 50:15, 50:21, 53:19, 54:19, 54:20, 55:2, 55:5, 55:8, 72:4, 92:11, 92:12, 92:16, 94:18, 99:10, 102:5, 103:10, 104:17, 104:20, 112:11, 123:4, 123:6 terms 104:3, 104:4, 104:5 testified 6:16 testify 7:21 testifying 8:22, 10:10, 10:11 testimony 46:7, 58:18, 59:5, 78:3, 88:5, 125:12 texas 24:16 text 33:18	texts 75:14 th 83:7, 126:9 thank 6:19, 38:9, 38:21, 48:3, 68:20, 88:12, 113:16, 116:2, 122:6, 124:6, 124:8 thanks 21:8 themselves 6:5, 118:20 then-pending 77:4 therefore 77:5 thesis 14:10, 15:3 thing 35:11 things 33:1, 47:3, 86:16 think 6:11, 7:16, 11:12, 17:17, 21:19, 24:11, 25:21, 26:6, 27:10, 32:21, 47:18, 53:1, 58:14, 81:1, 81:8, 85:2, 88:12, 90:8, 90:19, 92:16, 94:7, 99:16, 104:20, 104:22, 105:3, 106:7, 115:3, 116:21, 117:17, 121:13, 121:22, 124:1, 124:3 third 3:15, 51:16, 64:1, 64:7, 106:13
--	--	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

152

thought 29:13, 39:12, 112:13 three 17:19, 18:22, 52:22, 53:5, 65:9, 65:20, 66:3, 66:10, 101:9 through 7:7, 7:9, 7:15, 18:2, 21:15, 21:18, 22:20, 35:12, 36:19, 54:15, 66:15, 66:17, 73:6, 73:9, 74:20, 87:12, 92:10, 95:21, 96:17, 96:18, 99:13, 103:18, 103:22, 104:12, 106:12, 106:15, 107:18, 115:15, 118:18 time 9:10, 11:10, 11:12, 12:7, 12:9, 15:5, 18:20, 19:11, 51:16, 57:9, 84:8, 88:9, 116:11, 118:15, 120:10 times 8:10, 8:22, 11:11, 12:2, 43:13, 50:21, 120:9, 120:11, 120:13, 120:14, 123:5 timing 92:14, 112:1, 112:2 title 15:3, 15:6, 19:10 today 7:18	today's 10:10, 10:14, 11:4, 12:11 together 13:8, 75:9 top 36:12, 59:13, 91:16, 96:13, 98:13, 118:1 topics 20:3 topology 28:5, 37:13, 97:15 totally 105:4 track 15:10, 15:15 trademark 1:1 transmission 50:1, 86:15, 86:20 transmit 45:15, 50:2, 51:4, 51:11, 54:4, 60:18, 61:2, 61:13, 61:17, 61:19, 61:20, 62:2, 63:3, 63:4, 63:9, 65:17, 66:7, 66:22, 67:11, 67:20, 103:12, 103:15, 106:1, 106:3, 106:11, 107:22, 108:4, 115:14, 119:19, 121:2 transmitted 56:22, 100:22 transmitter 115:14 transmitting 60:10, 67:10, 67:14, 67:16, 68:2, 71:4 trees 16:5	trial 1:3, 24:15, 24:20 true 107:13, 112:14, 125:12 truthfully 10:14 try 92:21, 104:13 trying 15:16, 62:20, 103:6, 105:3, 118:10 turn 25:10, 59:10 tv 86:4 twice 51:10 two 23:4, 39:21, 60:1, 61:12, 65:6, 65:7, 66:17, 68:10, 75:17, 105:13, 105:18, 108:6 type 21:1 U ubiquitous 23:11 uiuc 19:10 ultimately 43:8, 52:16 um 25:5 unclear 96:19, 100:22 under 10:10, 10:12, 70:16, 71:10, 102:10, 102:14, 114:13 undergraduate 13:15	underlying 105:16, 107:4 underneath 28:9, 36:6, 107:12 understand 7:18, 7:20, 8:1, 8:4, 10:9, 13:13, 15:12, 15:16, 22:13, 25:6, 31:5, 36:4, 40:3, 41:6, 42:3, 44:4, 45:6, 47:2, 48:13, 48:18, 49:2, 49:8, 52:6, 58:11, 58:22, 59:22, 61:15, 61:16, 62:20, 63:22, 64:2, 64:14, 65:13, 71:10, 75:15, 76:2, 86:2, 89:18, 91:7, 92:21, 99:9, 103:6, 104:8, 104:16, 104:20, 106:9, 107:8, 119:7, 121:18 understanding 8:20, 13:8, 28:14, 29:8, 30:18, 30:21, 43:8, 43:18, 43:22, 45:4, 57:11, 57:12, 62:17, 69:4, 69:15, 71:3, 72:7, 77:21, 79:3, 83:14, 83:17, 85:5, 114:4, 114:7 understands 69:5, 114:22 understood 28:6, 37:16, 62:14, 65:3,
---	---	--	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

153

65:6, 66:21, 68:12, 71:12, 71:13, 72:9, 73:2, 76:16, 80:3, 83:7, 87:15, 88:10, 97:16, 105:1 unidirectional 82:8 united 1:1 university 7:8, 7:12, 13:14, 13:16, 14:5, 18:10, 19:6, 19:16 unless 8:18, 113:17 unlike 29:1, 29:18 unmarked 26:17 unmodified 26:17 unquote 115:16, 115:17 unusual 33:5 upper 56:3 urbana-champaign 19:7 use 17:6, 28:1, 32:10, 44:10, 45:14, 50:21, 52:14, 54:11, 66:15, 72:20, 72:21, 84:17, 97:10, 103:16, 104:9, 108:2 uses 92:11, 92:12, 111:22, 115:13 using 14:14, 20:1, 26:7, 32:16, 34:10, 34:20,	45:11, 45:12, 62:15, 64:19, 65:13, 94:18, 97:10, 102:9, 105:3, 115:4, 119:11 uspto 79:22 utilized 34:16, 35:6, 37:8 utilizing 84:14 V vague 84:22, 109:9 variety 20:3, 22:3, 23:9 various 86:16 verbal 103:18 verbally 9:14, 104:11 via 51:5, 56:8, 56:11, 56:16, 57:14, 60:18, 61:2, 62:3, 66:8, 67:1, 68:15, 85:17 video's 100:22 videoconference 103:22 videoconferencing 102:8, 102:11 videos 66:18, 101:10, 120:17 virtual 16:16, 16:17, 17:15, 20:17, 34:3, 122:10, 122:21, 123:10, 123:17, 123:21	vision 17:9 visual 20:19 visualization 19:22, 20:14, 20:15 vitae 9:2 vusiongroup 6:11 W wall 114:20, 114:21, 114:22 walls 16:20, 17:3 wang 3:5, 6:8 want 11:21, 18:14, 32:22, 33:3, 39:22, 40:4, 115:1 washington 3:16, 18:9, 18:16, 19:2, 19:16, 20:11 way 14:22, 26:7, 32:13, 33:3, 44:11, 95:1, 96:1, 98:20, 120:20, 126:5 we'll 10:6 we're 32:17, 63:8, 102:9, 105:3 we've 88:13, 102:12 wear 16:22, 17:8, 17:11 weekend 11:14 went 7:7	whatever 102:8 whereas 119:18 wherein 33:22, 51:3, 51:16, 51:17, 103:14, 108:4 whereof 126:8 whereupon 6:13, 26:12, 33:8, 48:4, 81:12, 88:15, 109:18, 116:6, 124:7, 124:12 whether 49:21, 51:7, 60:12, 60:21, 61:5, 67:4, 68:18, 74:11, 105:19, 107:10, 119:22 whole 27:4, 27:5 wi-fi 85:17 wide 19:19, 20:3, 20:15, 22:3 williams 4:12 wire 105:20 wireless 85:21, 86:4, 86:5, 99:14, 99:20, 105:20 wirelessly 85:12, 85:19, 100:9 wisconsin 4:6 wish 49:21 within 34:4, 34:6, 125:6
--	--	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

154

without 24:5, 36:2, 106:12, 107:6, 119:1 witness's 58:18, 59:5, 78:3, 88:5 word 28:12, 54:11, 54:16, 72:17, 72:20, 72:22, 73:5, 73:16, 88:7, 113:13 words 52:5, 91:4, 113:11, 113:15, 122:14 work 9:10, 14:7, 16:15, 16:16, 21:1, 22:2, 22:7, 23:14, 23:15, 45:5, 90:5, 114:9 worked 14:7, 19:19, 20:3, 22:3, 22:4, 24:4, 24:6, 104:14 working 7:11, 7:14, 16:18, 19:8, 20:5, 21:18, 25:8, 75:8, 102:11, 102:16 works 32:13, 105:16 wouldn't 95:20 write 12:18 written 70:6 wrote 27:5 Y yeah 15:9, 15:15,	15:22, 16:11, 25:4, 25:6, 27:15, 31:5, 39:9, 40:22, 56:19, 57:22, 97:2, 101:10, 103:12, 123:3 year 14:9, 23:4, 40:13 years 7:13, 7:17, 9:5, 17:19, 18:11, 18:22, 19:2 yield 44:8, 44:14 yohler 1:22, 2:3, 125:3, 126:14 yourself 12:21, 40:19, 41:1 Z zhangyuan 3:4 zoom 9:7, 101:8, 102:8 zoom's 102:14 . .1369 3:9 .7460 4:7 .8000 3:17 0 00188 1:12, 7:22 04 85:3, 87:2 05 1:19, 125:20	1 1 58:15, 77:5, 124:13, 125:21 1.3 59:17, 61:11, 61:12, 62:14, 64:8, 68:22 1.4 63:19, 122:10 10 38:20, 48:5, 82:10 100 67:18, 115:14 1001 5:9, 32:4, 33:8 1002 5:10, 81:8, 81:12 1004 5:11, 116:4, 116:6 1005 5:13, 109:15, 109:18 108 63:17 109 5:13 11 10:4, 42:6, 42:17, 48:16, 48:18, 48:21, 52:12, 52:13, 52:22, 53:9, 53:18, 53:20, 88:15, 89:17 11,405,669 1:13 116 5:12 12 36:12, 37:3, 91:19, 96:13, 98:14, 99:11 1201 3:15	126 1:21 13 76:17, 83:3, 83:7, 114:3 131 26:21, 27:3 14 42:9, 42:19 148 114:13 15 72:14 16 41:13, 41:16 17 42:11, 81:17, 81:19 18 1:18, 123:19, 125:20 19 38:8 193 63:17 1987 13:22, 14:8 1991 14:8 1992 18:10 1999 38:3, 38:14, 39:5, 39:19, 40:6, 40:12 2 20 8:11, 8:22, 35:12, 36:19, 83:22, 92:10, 126:9 200 27:15 2000 7:13, 18:10, 27:14 2001 27:8, 27:13
---	---	---	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

155

2002 27:8 2003 27:9, 27:14 2004 5:14, 26:4, 26:12, 26:15, 26:17 2005 27:9 2006 19:14 201 4:5 2017 38:20, 40:6, 40:13 2020 41:13, 41:17 2021 76:17, 83:3, 83:8 2022 42:6, 42:17, 81:17, 81:19, 83:2 2024 1:12, 1:18, 7:22, 125:20, 126:9 203 3:7 206.359 3:17 21 28:9, 28:20, 29:14, 41:20, 42:1, 59:10, 59:12, 85:3, 87:2 210 115:8, 115:15 2100 3:7 22 41:20 220 115:8	23 124:13, 125:21 230 115:9 2387 85:3, 87:2 24 7:13, 34:15, 36:12, 92:8, 92:20, 96:14, 98:13, 99:12, 123:16, 123:21, 126:9 240 115:9, 115:15 26 5:14, 118:13, 118:14 27 118:17, 120:6 270 117:19 28 81:16, 116:13, 116:14, 116:20, 116:22, 117:2, 117:3, 117:5, 117:13 29 73:6, 73:9, 74:20 3 3 51:19 30 83:11 3095 4:6 3099 3:16 312.558 3:9 32 88:15 33 4:5, 5:9, 37:13, 38:8,	38:18, 73:7, 73:9, 74:20, 97:14 36 35:12, 36:19 37 59:13, 59:15 39 75:14 4 40 55:9, 92:10 4531 2:4, 126:16 46 55:10 49 75:21, 76:7, 82:22, 83:6 4900 3:15 5 5 34:7 50 42:16 53703 4:6 55 83:10 560354 1:20 6 60601 3:8 608.663 4:7 65 49:20 669 5:9, 8:6, 8:7, 27:18, 27:21, 28:2, 28:3, 29:3, 31:2, 31:11, 31:19,	32:3, 33:6, 33:13, 34:12, 34:16, 34:21, 35:5, 35:9, 35:11, 35:20, 36:2, 36:7, 36:19, 37:7, 37:14, 38:16, 38:19, 39:1, 39:16, 39:20, 40:8, 40:16, 41:12, 42:2, 45:21, 46:10, 46:18, 48:10, 48:12, 48:13, 49:13, 52:2, 53:6, 54:10, 54:17, 54:20, 55:21, 69:19, 71:17, 72:12, 74:19, 78:8, 87:10, 87:12, 87:14, 87:17, 88:22, 89:8, 92:8, 92:12, 100:14, 101:3, 104:6, 104:22, 105:2, 105:7, 105:10, 106:10, 106:17, 106:21, 112:7, 113:8, 118:9, 118:15, 119:8, 122:7, 122:18, 123:11 67 59:13, 59:15, 70:17, 70:20 68 71:15, 71:17, 74:21 6a 34:1, 51:4, 51:6, 51:9, 51:17, 55:14, 56:9, 56:10, 56:16, 57:1, 57:14, 58:2, 59:18, 60:9,
--	--	--	--

HIGHLY CONFIDENTIAL
Transcript of John C. Hart, Ph.D.
Conducted on November 18, 2024

156

60:17, 61:3, 61:6, 61:21, 62:4, 62:6, 62:7, 62:15, 62:16, 63:5, 63:11, 63:12, 64:15, 64:18, 64:19, 64:20, 65:1, 65:6, 65:7, 65:11, 65:14, 65:15, 65:17, 66:4, 66:7, 66:14, 66:17, 66:22, 67:15, 67:16, 67:19, 69:1, 69:6, 69:7, 70:2, 70:8, 70:18, 71:1, 71:2, 71:6, 71:7, 87:21 6b 34:1, 51:4, 51:6, 51:9, 51:17, 55:15, 56:9, 56:10, 56:16, 57:1, 57:15, 58:2, 59:18, 60:10, 60:19, 60:22, 61:1, 61:21, 62:4, 62:15, 62:16, 63:5, 63:6, 63:8, 63:11, 64:16, 64:18, 64:20, 64:21, 64:22, 65:6, 65:7, 65:11, 65:14, 65:15, 65:20, 66:4, 66:9, 67:2, 67:7, 67:16, 67:17, 69:1, 69:7, 70:2, 70:8, 70:18, 71:1, 71:2, 71:6, 71:7, 87:22	6c 64:2, 64:7, 65:11, 65:14, 65:15, 65:20, 66:4, 66:10, 66:15, 66:17, 67:3, 67:8, 67:16, 67:17 7 70 75:13 72 60:8, 60:16, 61:10, 62:8, 62:18, 62:21, 63:1, 64:1, 64:12 76 43:20 762,709 41:13, 41:16 8 81 5:10 84 2:4, 126:16 86 47:7 9 9 1:19, 10:4, 125:20 96 111:6, 115:12 98101 3:16	
--	--	--