IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

TOUCHSTREAM TECHNOLOGIES, INC. *
*
VS. *
*
GOOGLE LLC *

July 19, 2023

CIVIL ACTION NO. W-21-CV-569

BEFORE THE HONORABLE ALAN D ALBRIGHT
JURY TRIAL PROCEEDINGS
Volume 3 of 5

APPEARANCES:

For the Plaintiff:
Ryan D. Dykal, Esq.
Lauren Douville, Esq.
Jordan T. Bergsten, Esq.
Robert McClendon, Esq.
Philip Alexander Eckert, Esq.
Shook, Hardy & Bacon, LLP
2555 Grand Boulevard
Kansas City, MO 64108

Gary M. Miller, Esq.
Justin R. Donoho, Esq.
Samuel G. Bernstein, Esq.
Shook, Hardy & Bacon LLP
111 S. Wacker Drive, Suite 4700
Chicago, IL 60606

Sharon A. Israel, Esq.
Shook, Hardy & Bacon L.L.P.
600 Travis Street, Suite 3400
Houston, TX 77002

For the Defendant:
Tharan Gregory Lanier, Esq.
Michael C. Hendershot, Esq.
Evan M. McLean, Esq.
Gurneet Singh, Esq.
Jones Day
1755 Embarcadero Road
Palo Alto, CA 943034

Comcast, Ex. 1183
Comcast v. Touchstream
IPR2024-00324

Tracy Ann Stitt, Esq.
Jennifer L. Swize, Esq.
Edwin O. Garcia, Esq.
John R. Boule III, Esq,
Jones Day
51 Louisiana Avenue, N.W.
Washington, DC 20001

Michael E. Jones, Esq.
Shaun William Hassett, Esq.
Potter Minton PC
110 North College, Suite 500
Tyler, TX 75702

Court Reporter: Kristie M. Davis, CRR, RMR
PO Box 20994
Waco, Texas 76702-0994
(254) 340-6114

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(Hearing begins.)

THE COURT: Please remain standing for the jury.

(Jury entered the courtroom.)

THE COURT: Thank you. You may be seated.

Counsel?

MR. MILLER: May I proceed, Your Honor.

THE COURT: Please.

MR. DYKAL: Thanks.

DIRECT EXAMINATION CONTINUED

BY MR. MILLER:

Q. Good morning, Mr. Chandler.

A. Good morning.

Q. Could we -- I think we ended on 65 actually.

A. Oh, I need to advance that. Yes. Whoops. Bear with me. Yes.

Q. Yep. Right there.

So we were talking about your opinion that the Chromecast -- Google Chromecast-enabled devices would be discounted 50 percent. And I think where we left off is you were talking about the fact you looked at some Google usage data, so data indicating how much people use these products to cast, and you found some problems with that data.

Do you recall that?

A. Yeah. I discussed a number of irregularities, such as some spikes, and inconsistency in the data that just made it unreliable.

Q. All right. Had you found just very reliable good data like that, usage data, does that tell the whole story about the value of cast to these products?

A. No. Not at all. That's just one factor that would have been informative and helpful to see, but it really doesn't speak to the value by itself.

There's a lot of other considerations such as the -- there was a wow factor to cast, and that's something that people clearly enjoyed and purchased because this is the fastest-selling TV item in history according to Google.

In addition, you know, Google valued this as the foundation to their ecosystem and wanted to get it in as many devices in front of as many users as possible. So those are other aspects, all of which needs to be taken into consideration.

Q. Okay. Thank you.

So let's turn to the third bucket of products. These are the third-party Chromecast-enabled devices.

And what did you determine would be the result of the hypothetical negotiation with respect to the

third-party devices?

A. Well, I -- in my view and as I described, in the hypothetical negotiation, Google would have pushed for a discount and a further discount for devices that it essentially licenses its Chromecast technology to.

And this is akin to, in my field, in the field of licensing, there's a term called "sublicensing," where a patent owner will license something, such as the patents-in-suit, to Google. And if a company like Google further licenses that technology, in this case, the Chromecast built-in, to other parties such as TV manufacturers, like Sony and Vizio, that's referred to as a sublicense.

In the -- in the field of licensing, it's well-known historically and among professionals like myself that a patent owner is entitled to a share of that value that is generated by those third parties, those sublicensees.

And the typical range, historically -- and it's, again, well-known within the industry -- is between 25 percent and 50 percent of that value going back to the original IP owner.

In this case, in my view, Google would have argued for the lower discount. Touchstream still would have pointed out, well, this enables you to get cast in

front of many, many more people. And, in fact, if you're not making a device and you're just giving it away for free, you're not losing money on those devices that you were losing money on. So in a sense, you're already -- you're gaining, in a sense, as well as many users.

But in my view, the size of Google and their ability to invest and to get this into the market would have prevailed. And conservatively, I believe that Touchstream would have accepted a 25 percent share of that revenue, and that for -- so a 75 percent discount or $3.84 per activated device.

Q. So taking all that together and just -- where do we come down, then, for each of the devices, just to remind the jury?

A. Well, this is a summary slide of each of those three categories, those three buckets for the Chromecast devices.

The dongles, $15.36 per activated unit, one-time payment.

The royalty rate for Google Chromecast-enabled devices, a 50 percent discount, $7.68 per activated device.

And for the third-party Chromecast-enabled devices that we just discussed, a 75 percent discount

for $3.84 per activated device.

Q. Again, and just to remind the jury, the way, for example, on the Chromecast devices, you arrived at the $15.36 is 32 cents per month for each month and the life of the products for four years, and that adds up --

A. For four years. Yeah. As we discussed yesterday. 48 months.

Q. Okay. Thanks.

What was the next step in your analysis?

A. Well, the next step is to revisit and to determine the actual number of device activations. And I believe I showed these numbers early on in the presentation.

But in summary, there have been over 139 million Chromecast-enabled devices that have been activated.

Q. And the final step then?

A. Well, of those, 25 were Chromecast -- approximately 25 million were Chromecast dongles, approximately 30 million were Chromecast -- Google Chromecast-enabled devices, and approximately 84 and a half million were third-party Chromecast-enabled devices.

Q. Okay. I was skipping ahead.

And then the final step in the analysis?

A. Well, final step in this analysis, as I mentioned, this is a straightforward calculation: Multiply the devices that were activated by the royalty rate for that type of device and then, you know, add those totals together.

Q. Okay. So you've been talking about how you think the hypothetical negotiation would go and a heavy reliance on the Quadriga license agreement that --

A. Yes.

Q. -- certainly Touchstream would be pushing, correct?

A. Yes.

Q. And this is one of the ways you arrived at the this number, correct?

A. Yes. That's correct.

Q. Is there an alternative way that you think the jury might consider how the -- how the hypothetical negotiation would have gone?

A. There's other ways. One way would be to apply a royalty rate percentage and then make adjustments from there.

And, you know, we heard yesterday, it was brought up that Touchstream entered into a settlement agreement with a company called Vizbee, and that

08:38 settlement agreement was for a lump sum. And I've
08:39 reviewed that agreement. And it specifically states
08:39 that that lump sum was in lieu of a 10 percent running
08:39 royalty of future revenues for -- that Vizbee would
08:39 earn.
08:39 So another way would be to apply a running
08:39 royalty.
08:39 Q. Based on the 10 percent?
08:39 A. Based on the 10 percent from the Vizbee
08:39 agreement.
08:39 Q. Okay. Thank you.
08:39 Okay. So summing all this up, everything you
08:39 said yesterday, everything you said today, in your
08:39 professional opinion, what is the appropriate damage
08:39 number in this case?
08:39 A. In my opinion, based on all the considerations
08:39 that I outlined yesterday and today, my opinion, the
08:39 appropriate reasonable royalty for Google to pay
08:39 Touchstream for its use and the value derived from the
08:39 patented invention, the three patents-in-suit,
08:40 $941,419,212.
08:40 Q. Okay. Thank you.
08:40 MR. MILLER: Your Honor, we'd like to
move into evidence some of the exhibits that
08:40 Mr. Chandler talked about. The following: PTX-871,

PTX-891, PTX-307, PTX-487, JTX-167, PTX-511, PTX-182, PTX-314, and PTX-285.

MR. JONES: Your Honor, with regard to those exhibits that we've already raised a continuing objection about, we continue to assert those objections. But besides that, we have no objection.

THE COURT: They're all admitted, and your objections are noted.

MR. JONES: Thank you, Your Honor.

MR. MILLER: I have no further questions, Mr. Chandler. Thank you very much for your time.

THE WITNESS: Thank you.

MR. JONES: May I approach the witness, Your Honor?

THE COURT: Yes, sir.

MR. JONES: Mr. Chandler, another book.

THE WITNESS: Oh, thank you.

CROSS-EXAMINATION

BY MR. JONES:

Q. Mr. Chandler, good morning. My name is Mike Jones, and it's my privilege to represent Google in this matter.

A. Good morning. Nice to meet you.

Q. Mr. Chandler, you've established clearly that in this case, your testimony is about damages, right,

sir?

A. I've established my testimony is about damages, but I'm also testifying on matters of licensing, as I mentioned at the beginning.

Q. Thank you.

And licenses are -- the licensing testimony's applicable to your damages figure, correct, sir?

A. I'm also -- yes. It is. But I'm also testifying as a licensing expert.

Q. Thank you, sir.

And as a damages expert, you are offering no opinion whatsoever on the issue of invalidity, right, sir?

A. That's correct. As a -- as a basis of my analysis, I am required and asked to assume that the patents are valid.

Q. Okay. And I'm not arguing with you about that. I'm just saying you're offering no opinion on invalidity; you're offering no opinion on infringement, right, sir?

A. That's correct. And in infringement, as with validity, it's one of the foundational assumptions of damages analysis. One must assume validity and infringement. And others are offering opinions on those matters.

08:42 Q. Certainly. And you know in this case that those issues, the issue of infringement and the issue of validity is a contested issue that will be decided by the jury, right, sir?

08:42 A. I understand that's part of the reason we're here today. Yes.

08:42 Q. Thank you, sir.

08:42 And in the event the jury were to decide that the patents were not valid, then you would agree with me the damages are zero, right, sir?

08:42 A. Well, given that my assumption -- foundational assumption is that validity --

08:42 THE COURT: Let me explain to you the way it works. When you're on direct, you get to talk as long as you want.

08:43 THE WITNESS: Yes, Your Honor.

08:43 THE COURT: When Mr. Jones is asking you questions, you want to favor the jury with a direct answer. Okay?

08:43 THE WITNESS: Yes, Your Honor.

08:43 THE COURT: Thank you.

08:43 BY MR. JONES:

08:43 Q. I'll try to make my questions very pointed, sir.

08:43 And if the jury were to find that Google does

not infringe, then damages would be zero, right, sir?

A. Yes. That's correct.

Q. Now, we've established that you are not a technical expert in this case, right?

A. That is correct.

Q. And you talked about the SIPCO license in your direct testimony, right, sir?

A. Yes. I did.

Q. And you know that a technical expert, Dr. Mayer-Patel, has analyzed it and written a report that it is technically comparable to the technology in question in this suit, right, sir?

A. Yes. I read his report.

Q. And you have seen no opinion in a report from Touchstream's expert, Dr. Kevin Almeroth, saying he is wrong and that the technology is not comparable, right, sir?

A. Not in his report.

Q. Okay. Thank you, sir.

Now, since -- since 2011, you believe Touchstream has been a leader in the casting technology industry, correct?

A. I'm not sure that's what I've testified to.

Q. I just asked you your belief, sir. I really wasn't asking about your testimony.

08:44 1 You -- you believe that since 2011,
08:44 2 Touchstream has been a leader in casting technology,
08:44 3 right, sir?
08:44 4 A. I don't fully agree with that --
08:44 5 Q. Okay.
08:44 6 A. -- characterization.
08:44 7 Q. Thank you, sir.
08:44 8 Now, you discuss in your report, where you
08:44 9 gave us your opinions, the marketplace applicable to
08:44 10 these -- to these patents and your analysis, correct?
08:44 11 You discussed the market?
08:44 12 A. I did.
08:45 13 Q. And the two types of markets you discussed,
08:45 14 the first one is the media streaming market device,
08:45 15 right, sir?
08:45 16 A. I'm not sure that I discussed two types of
08:45 17 markets. I just -- I believe I just discussed the
08:45 18 media streaming opportunity.
08:45 19 Q. I've got -- I've got your report from -- in
08:45 20 front of you. So maybe I can refresh your memory.
08:45 21 A. Yes.
08:45 22 Q. If you would go to your November the 14th,
08:45 23 2022 report.
08:45 24 A. Yes. I have it here.
08:45 25 Q. On Page 14 of that original report, do you

have a section entitled Media Streaming Device Market?

A. Yes. I do.

Q. And in that section -- or let me just ask this question.

A. Uh-huh.

Q. Do -- do you agree that Google was in that market?

A. Google entered that market with Chromecast. Certainly.

Q. And you note or you know that Apple launched its first digital media player, Apple TV, in 2007, right, sir?

A. Yes. I believe I mentioned them as well.

Q. And in March of 2012, with the launch of AirPlay, Apple led the market, that particular market, correct, sir?

A. Yes.

Q. Did Apple ever take a license to any of Touchstream's patents, sir?

A. I'm not aware that they did.

Q. Now, Roku launched Roku DV -- DVP N1000 in 2007, right, sir?

A. In 2007?

Q. Yes.

A. It sounds -- sounds correct.

Q. And it's in that marketplace, right, sir?
A. Yes. It's in the media streaming market.
Q. At any time has Roku ever taken a license to the patents-in-suit or any patents of Touchstream?
A. I'm not aware of whether or not they're practicing the patents.
Q. In your work in this case, have you seen any license by Roku and Touchstream, sir?
A. No. I have not. No.
Q. Thank you, sir.
Now, Xbox was another player in the field, right, sir?
A. It's my understanding they were in the field in a -- in a slightly different way. Yes.
Q. And did Xbox ever take a license to Touchstream's patents?
A. Again, I don't -- they did not. I don't know that they were practicing the patents-in-suit one way or the other.
Q. But, again, my question to you is really simple, sir.
My question to you is, did they ever take a license to Touchstream's patents?
A. No. They did not.
Q. PlayStation was another player in the field,

right, sir?

A. I'm not sure. I'm not sure. I'm not familiar with the PlayStation too well.

Q. If you would, I would direct your attention back to your report in Paragraph 45.

A. Yes.

Q. And doesn't it discuss PlayStation there?

A. Yes. It does.

Q. And did PlayStation ever take a license to Touchstream's patents, sir?

A. No. They did not.

Q. Samsung was another player in the media streaming device market, right, sir?

A. Yes. That's correct.

Q. Did they ever take a license to Touchstream's patents at any time?

A. No. I've not seen any license.

Q. Amazon entered the market in April of 2013 with the launch of Fire TV, right, sir?

A. That's correct. Yes.

Q. Did they ever take a license to any of Touchstream's patents?

A. No. I've not seen any licenses with Amazon.

Q. Now, you've also analyzed the Smart TV market in connection with your work in this case, right, sir?

08:48 A. Yes. I have.
08:48 Q. And Roku launched Roku TV with TCL and Hisense, right, sir?
08:48 A. That's correct.
08:48 Q. Did TCL ever take a license to any of the patents in this suit or any of Touchstream's patents?
08:49 A. No. They've not entered into a license.
08:49 Q. Did Hisense take a license to any of the patents in this suit or Touchstream's patents?
08:49 A. No. They've not.
08:49 Q. Now, LG launched Smart TVs with Smart TV interface, right, sir?
08:49 A. Yes. That's correct.
08:49 Q. Did they ever take a license to any of Touchstream's patents?
08:49 A. No. They've not.
08:49 Q. Smart -- Samsung launched, in May of 2015, a Smart TV that ran on Tizen OS.
08:49 In connection with that project, did Samsung take any kind of licenses of Touchstream patents?
08:49 A. No. They've not entered into a license.
08:49 Q. Amazon partnered with Insignia, Toshiba, JVC, and Grundig on Fire TV, correct, sir?
08:49 A. Yes. That's correct. Pardon me.
08:49 Q. Did Insignia take any license from Touchstream

at any time?

A. No.

Q. Did Toshiba take any license from Touchstream at any time?

A. No.

Q. Did JVC take any license from Touchstream at any time?

A. No.

Q. Did Grundig take any license from Touchstream at any time?

A. No.

MR. JONES: If we could, Mr. McDonald, could we go to Slide 7?

BY MR. JONES:

Q. So here, we look at all -- and I won't go back through them, but we look at all the people I just talked about that were in the media streaming device market and the Smart TV market.

And I think you and I can agree that none of these players ever took a license to any of Touchstream's patents, right, sir?

A. Yes. That's correct.

Q. And a number of these players did joint ventures with each other. We've heard that discussion, right, sir?

A. Yes.

Q. And none of these players in the industry did any kind of joint venture in this area with Touchstream, right, sir?

A. That's correct.

Q. Now, I'd like to turn your attention next to HP.

Touchstream worked on a product with HP, right, sir?

A. That's correct.

Q. And this was not a consumer product, right, sir?

A. I believe that's correct.

Q. And Touchstream's software was to go into an HP product for its businesses, right, sir?

A. Offhand I don't recall that, but I'll take your representation.

Q. Thank you.

And you do know, in fact, that the relationship ended, right, sir?

A. Yes.

Q. And you were in the courtroom and you heard Mr. Mitschele's testimony yesterday that it did not end because of Chromecast, right, sir?

A. That's correct.

Q. And the moneys paid pursuant to that HP agreement for the work that was done by Touchstream were about $2 million, right, sir?

A. That's my understanding. Yes.

Q. And HP never, at any point, took a license to any of Touchstream's patents, right, sir?

A. I believe that's correct.

Q. Now, I'd like to turn next to Touchstream's licensing history.

Touchstream had an established history of licensing patents covering its technology, right, sir?

A. That's correct. They have -- well, established history. It entered into a handful of licenses.

Q. Thank you, sir.

And Touchstream's licensing history for the patents-in-suit would have been highly material to the discussions of the parties to the hypothetical negotiation, right, sir?

A. It could have been, and I reviewed those in my analysis.

Q. Thank you.

And there are --

MR. JONES: Go to Slide 2.

BY MR. JONES:

08:53 Q. And the sum total of all the licenses in the nine or so years that these patents have been out there, there are four of them, right, sir? There's Quadriga, Vizbee, FetchIT, and Mash, right, sir?

08:53 A. That's correct.

08:53 Q. So if we want to look at the licensing history, all of it, of Touchstream, we look at these four agreements, right?

08:53 A. Yes. I did review all those and commented on those in this report.

08:53 Q. And for your quantification of your damages figure in this case, you take, for the quantification, information from one of these agreements and that's Quadriga, right, sir?

08:53 A. That's correct. For all the reasons I've outlined in my report.

08:53 Q. Let's drill down a little bit on Quadriga.

08:53 Now, the name of the Quadriga agreement is Quadriga Software Development and License Agreement, right, sir?

08:54 A. That's correct.

08:54 Q. And it is Exhibit 567 of the -- of the trial in this case. That's the -- that's the exhibit number, I believe, and I think you have it in your notebook before you?

A. Yes. I just moved to that. Yes.

Q. I'd like to bring up a excerpt from Exhibit 567, which is the Quadriga Software Development and License Agreement.

MR. JONES: Could we bring up Slide 3?

Thank you, sir.

BY MR. JONES:

Q. And let's go to --

MR. JONES: Is this Slide 3, Mr. McDonald? There you go. Thank you, sir.

I'm sorry. Thank you, Mr. McDonald.

BY MR. JONES:

Q. Now, this comes from the background section of that agreement, Sections B, C, and D.

Do you see that, sir?

A. I do. Yes. From the Page 1.

Q. And it talks about what's going on here. And it says in Section B that: Shodogg is an experienced software designer -- excuse me -- software designer, developer, and programmer, right, sir?

A. Yes. And I believe I heard Mr. Mitschele's testimony to that effect.

Q. Thank you, sir.

And it says that: Quadriga wishes to have Shodogg modify Shodogg's existing video content

application, correct, sir?

A. Yes. That's correct.

Q. So Quadriga wanted Shodogg to come up with a new product, right?

A. Yes. That's my understanding.

Q. Thank you.

And Shodogg, it says next in Section D, wishes to work with Quadriga to provide cloud-based software services to enable its video content application and to market and sell the modified application on the terms and conditions of this agreement.

So what they were doing is they were hiring Touchstream to help them develop a product to market and sell, right, sir?

A. Yes. Yes. That's -- I agree with that fully.

MR. JONES: Now, if we could go next to Slide 6, Mr. McDonald?

BY MR. JONES:

Q. And it says here in Slide 6, which comes from Paragraph 13.1 of Exhibit 567, that: During the initial period, the parties shall work together in good faith in relation to the announcement, marketing, and commercial launch of the licensed materials...

And that's the software product, right, sir?

A. I believe it is. Yes.

Q. ...as part of Quadriga's proprietary audio/visual technology. Right, sir?

A. Yes. Their proprietary technology.

Q. Okay. And so what they were doing is they were developing a proprietary audio/visual technology product for Quadriga that after they developed it, after they made it, they were going to approach major hotels, trade shows, and they were going to launch that product, right, sir?

A. I'm just reading through this.

Q. Certainly.

A. Yes. They agreed to work together in approaching and making announcements and launching it, and that's -- I understand what took place.

Q. And you would agree with me, would you not, sir, that those circumstances are certainly very different from the bare patent license for U.S. only that would result from the hypothetical negotiation. Those are very different circumstances, right, sir?

A. And I mentioned that yesterday as well.

Q. Thank you, sir.

Now, the Quadriga agreement was a worldwide license, right, sir?

A. Yes. It was.

Q. And the license we're talking about, the

hypothetical negotiation, is U.S. only, right, sir?

A. It's U.S. only -- it's U.S.-only patents. What's made can be sold worldwide, certainly, if made in the United States.

Q. And the Quadriga agreement ended, right, sir?

A. Yes. I believe it did.

Q. And it ended because -- not because of anything about Chromecast. It ended because they couldn't come up with enough hotel rooms to make it work, right, sir?

A. Offhand I don't recall the exact reason, but I'll take -- I'll take your representation of that.

Q. Thank you, sir.

Now, during the entire time that Quadriga worked with Touchstream and Touchstream did all this work for Quadriga, developing this proprietary product, the total fees paid were approximately $1 million, right, sir?

A. That's what I understand. Yes.

Q. Now, let's go and look at the second agreement.

MR. JONES: And you can take that down, Mr. McDonald, if you don't mind.

BY MR. JONES:

Q. Let's go talk for a few minutes and drill down

on that second agreement that is part of the licensing hearing, Vizbee.

Now, you recall Mr. Mitschele's testimony from yesterday, to put the Vizbee agreement in context, that Vizbee was a competitor with Touchstream, right, sir?

A. Yeah. That's -- that's correct.

Q. And there was a competition for the Turner business and Vizbee won out, and as a result of that, there was a lawsuit where Touchstream sued Vizbee for patent infringement, right, sir?

A. That's broadly what happened. Yes.

Q. And this particular agreement relates to a settlement of that litigation, right, sir, which involved these same patents?

A. Yes. It was a settlement agreement.

Q. Now, that particular agreement, the economics are comparable to hypothetical negotiations, right, sir?

A. I don't -- I don't fully agree with that. No.

Q. Okay. Well, if you could, let's go to Paragraph -- or I'll just direct your attention to Paragraph 2000 -- excuse me -- Paragraph 206.

A. Can I ask what exhibit this is, please?

Q. Yeah. It'd be the November 22nd -- no. November 14th, 2022 report.

09:00 A. Oh, my report. Okay. My report.

09:00 Q. Paragraph 206. Thank you. I'm sorry. I'm getting my numbers all mixed up.

09:00 A. Uh-huh. And what was the paragraph again, please?

09:00 Q. 206.

09:00 A. Okay.

09:01 Q. And does that refresh your memory that the economics and the technology was comparable to the hypothetical negotiation?

09:01 A. The technology, certainly, and then the economics because the products were -- were similar as well.

09:01 Q. Now, Vizbee plays no part in your quantification of damages, the formulas that you've used in order to calculate damages in this case, right, sir?

09:01 A. I took Vizbee into consideration, and as I -- as I mentioned in my report -- pardon me -- as well as in my deposition, it's representative because this agreement clearly states that the payment is in lieu of 10 percent of future royalties, as I noted earlier today.

09:01 And, also, I took into consideration other agreements that were in that range. And in my view, as

I outlined in my report, a 10 percent royalty would be an appropriate royalty rate to apply if a clear revenue base were available.

Q. Excuse me. And I don't mean to be argumentative, but my question's just very pointed.

And my question is simply this: Vizbee does not play any part in the quantification formulas that you've just discussed to the jury that you used to calculate your damages figure, right, sir?

A. That's correct. Yes.

Q. Thank you, sir. That's my question.

Let's move on. Let's drill down a little bit on FetchIT.

FetchIT was a media casting entity engaged in developing and deploying software and digital rights management applications, right, sir?

A. That's correct.

Q. And its founder was a Mr. Charles -- and I'm going to blow this name, and I just apologize ahead of time -- Siemonsma, right?

A. Yes. I'll take your representation of that.

Q. And I won't make you say it. I'll take the blame for it.

And he had been part of the Touchstream team, and he left and he entered into this deal with them,

right, sir?

A. Yes. That's correct.

Q. And the license rights involved the patents-in-suit but also certain software issues, correct?

A. That's my recollection. I'm refreshing myself as I read this here, yes.

Q. And no royalties whatsoever were ever paid pursuant to this agreement, correct, sir?

A. That's correct.

Q. And then let's go to the fourth one and drill down on it real quick.

The fourth one is the Mash agreement, right?

A. The Mash agreement, yes, and this was also with a related party. Yeah.

Q. And -- okay. And like you say, the founder of Mash was a member of the Touchstream team at one time, right, sir?

A. Yes. A member of the -- of the team.

Q. And it was a license to use certain technology in the consumer music market, right, sir?

A. I believe it was in the consumer music market but strictly confined to Australia.

Q. And no royalties whatsoever were paid pursuant to that agreement, correct, sir?

09:04 A. That's correct.

MR. JONES: Now, if we could, Mr. McDonald, could we go back to Slide 2, I believe it is?

BY MR. JONES:

Q. So after we drill down on the history, the licensing history of Touchstream, which you've told us would be talked about at the hypothetical negotiation table, what we see is that history shows us that there's been one agreement, Quadriga, where approximately $1 million have been paid in royalty.

There's been a second agreement where there was a litigation settlement where $2.3 million was paid.

And then there are two other agreements where nothing was ever paid, right, sir?

A. That's correct.

Q. Thank you, sir.

Now, it is your opinion that Touchstream is not entitled to lost profits, right, sir?

A. That's correct.

Q. Now, there are three types of products in question in this case, right, sir?

A. Three general categories. Yes.

Q. I tell you what, why don't we run at it this

way: Basically, you look at -- with regard to the products, you put them in three buckets, right?

A. Yes.

Q. And your correction to me was very apropos because those buckets, at least two of them, contain vastly disparate, vastly different types of products, right?

A. Yes.

Q. Thank you, sir.

A. I wouldn't say "vastly," but they're -- they're all involved in media streaming, so -- but there's differences. I just -- just -- my correction.

Q. Well, they're as different as Smart TVs from speakers. How about that?

A. That's fair.

Q. Okay. Thank you, sir.

Now, the first bucket is Google-branded -- Google-branded Chromecast devices such as dongle products, right, sir?

A. Yes.

Q. And your royalty for them is $15.36 per activated dongle product, right, sir?

A. That's correct.

Q. How much do these products cost?

A. Well, they cost a lot. What they sell for is

a different -- are you asking what they sell for or what they cost? Because there's a difference.

Q. Yes, sir. I'm asking for -- and I appreciate you correcting me on the question. I'll try to be more specific.

I am asking you this: How much do the consumers that buy those products pay for them?

A. Google sells them as low -- has sold them as low as $30 and less than $100 is my recollection as I sit here.

Q. Thank you, sir.

Now, the next bucket we have talked about are Google-branded Chromecast products with additional functionality, and that would include such things as Google TV, Nest audio and display devices, smart speakers, things like that, correct?

A. Yes. That's correct.

Q. And you would agree with me that the things that we find in this bucket have much more functionality than just Chromecast, right, sir?

A. Yes. I described that yesterday. Yes.

Q. And the royalty fee that you apply to them on a per-activated unit basis is $7.68, right, sir?

A. Yes. That's correct.

Q. And with regard to the third bucket, which,

again, can be all types of different products that are Chromecast-enabled that are not made by Google, such as Smart TVs and smart speakers and all those kinds of things, for them, you have a $3.84 fee, right?

A. Yes. Applied to the Chromecast built-in portion of that product.

Q. Thank you. Thank you, sir.

Now, the fee in the second and third buckets stays the same without changing with regard to the different functionality of the various different products in those buckets, right, sir?

A. Correct. It remains low. And to clarify, it's tied to the Chromecast built-in aspect of those devices.

Q. Now, with regard to the Buckets 1 and 2, there's no doubt that these devices have substantial functionalities beyond those accused of infringing in this case, right?

A. There are additional functionalities and many multiuses, as I described yesterday.

Q. And, now, going to Bucket 3, you applied a 25 percent distribution of what you referred to as a sublicense to Touchstream, right, sir?

A. I discounted by 75 percent.

Q. Okay.

A. The reasons I described yesterday -- or today.

Q. So the licensing fee, you said you were giving 25 percent to Touchstream, right?

A. I was giving a discount of 75 percent, and that works out to be 25 percent to Touchstream for the sublicensing example that I gave, just to clarify.

Q. Okay. You like to say that better that way. That's fine.

Now, you told us that you based this upon a general rule of thumb in the industry or general knowledge or general knowledge of the industry that in these types of situations, it would somewhere be in the range of 25 to 50 percent split, right?

A. That's one of the factors that I mentioned, among a number of considerations. I just want to clarify.

Q. And this generalized 25 to 50 percent experience that you've had in the industry, it -- it is not just in the electronics industry, it's just not in the casting industry. It's across all industries, right, sir?

A. In my experience -- and I've been doing this for 25 years -- that range can be -- it's typically within 25 and 50. But, again, that's one consideration.

THE COURT: Perhaps you didn't understand me when I asked you earlier to answer his question directly.

THE WITNESS: Yes, Your Honor.

THE COURT: If your lawyer feels he needs to have you give the additional information you're trying to give to the jury, he gets to do that when he's on redirect. But for now, I want you to answer Mr. Jones' questions.

THE WITNESS: Yes, Your Honor.

BY MR. JONES:

Q. And, again, my question to you -- and I'll restate it.

My question to you is this: This 25 percent to 50 percent range that you've talked about, that, in your experience, is across all industries that you've ever been involved in.

And you told us you'd been involved in a bunch, right, sir?

A. That's broadly correct. I've seen exceptions. I just want to clarify.

Q. Thank you.

Now, you would agree with me, sir, that in doing a reasonable royalty analysis such as you've done, it is important to evaluate the economic benefits

of the functionality accused of infringement, right, sir?

A. Yes. That's correct. Broadly correct.

Q. And -- and what we want to do is we want to look at the benefits specifically applicable to the functionalities provided by the patents-in-suit, right, sir?

A. Broadly speaking, yes.

Q. And you want to value those benefits as opposed to unrelated aspects of the accused products, aspects of the accused products that have nothing to do with the patented functionality, right, sir?

A. No. That's correct.

Q. Now, I think you'll recall in the fourth section of your slides, you have a section called Benefits to Google, right, sir?

A. Yes.

Q. And you presented that to the jury, right, sir?

A. Yes. I did.

Q. And in it you give your opinions on the economics benefits to Google of the three patents-in-suit, right, sir?

A. In it and throughout my presentation. Yes.

Q. Now, on Slide 33 -- and I don't think we need

09:12 to go back to it. I'm not going to take the time to do
09:13 that.
09:13 But on Slide 33, you have in the Google
09:13 Benefits section a statement: YouTube ad revenues
09:13 nearly doubled from 15 -- and it's a capital B, but you
09:13 mean billion -- in 2019 to 28.8B in 2021. Right?
09:13 There's that statement?
09:13 A. Yes. I just opened that up for my reference.
09:13 Yes. I did say that.
09:13 Q. And -- and you told us that that statement was
09:13 applicable to Georgia-Pacific Factors 6, 8, 9, 10, and
09:13 11, right, sir?
09:13 A. The collective slide is -- is relevant to
09:13 that.
09:13 Q. Okay. But that statement's also relevant to
09:13 those factors, right, sir? Or did I get it wrong? I'm
09:13 not trying to mischaracterize --
09:13 A. Well, there's more on the slides than
09:13 just this thing. I just want to clarify.
09:13 Q. Yeah. I know there's more on the slides.
09:13 But I'm talking -- I'm -- I'm zeroing you in
09:13 not on the whole slide but on this statement, right,
09:13 sir?
09:13 A. Yes. Broadly --
09:13 Q. Okay.

09:13 A. -- broadly considered in those factors. Yes.
09:13 Q. Thank you, sir.
09:14 Now -- and, again, I'm not arguing with you, but on your slide, you did not state your authority for these figures, did you, sir?
09:14 A. On this slide -- I speak to some of them later, some of these points later.
09:14 Q. That's not my question to you, sir.
09:14 My question to you is simply this: On your slide, did you cite to authority for those figures, where you got those figures? Is that depicted on your slide?
09:14 A. Not on this slide.
09:14 Q. Thank you, sir.
09:14 I believe you did cite to authority in your report. And to refresh your memory, could you turn to me to Paragraph 151 of your report dated November the 14th, 2022?
09:14 A. Okay. Would it be possible to put the slide up so I could see that for reference as I'm doing this?
09:14 Q. Would you like me to put up your report for you? Is that what you're asking, sir?
09:14 A. No. The slide you're referring to.
09:14 Q. Yes, if we can get it.
09:15 MR. JONES: Do we have those,

09:15 Mr. McDonald?

(Off-the-record discussion.)

BY MR. JONES:

Q. You have your slides in front of you, right, sir? I mean, I'm not trying to be difficult.

A. I have it here, but if we're discussing that slide, I just didn't know if it would be helpful for all to see. But I just --

Q. Why don't we just move on, if we could?

A. Yes. It's not a concern.

Q. I mean, I'm talking about that one simple report.

A. What report -- what paragraph are we talking about?

Q. It's the November 14th, 2022 report, and it's Paragraph 151. And it's the page where you had Table 4.

A. Yes. Uh-huh.

Q. And you have this same information in your report on that table, right, sir?

A. Yes.

Q. And you cite to authority for that statement, and you cite to certain 10-Ks for 2019 and 2021, right, sir?

A. Yes. I do.

09:15 Q. And when we talk about 10-Ks, these are 10-Ks
09:16 for Google which are filings that are done with the
09:16 Security and Exchange Commission, right, sir?
09:16 A. Technically with Alphabet, their parent
09:16 company.
09:16 Q. Okay. Yeah. Okay. You're right. Thank you
09:16 for the correction.
09:16 So -- but -- but Alphabet's the parent of
09:16 Google, but it's -- it's combined financial statements
09:16 for all of Alphabet, right, and they're in 10-Ks that
09:16 are filed with the Security and Exchange Commission,
09:16 correct?
09:16 A. That is correct.
09:16 Q. And, again, you would agree with me that
09:16 Security and Exchange Commissions are important
09:16 documents because they're relied upon by investors,
09:16 right, sir?
09:16 A. That's correct. That's why Alphabet puts them
09:16 out. Yes.
09:16 Q. Right. And that's why you, as an expert
09:16 witness with regard to licensing and damages, rely upon
09:16 such things, right, sir?
09:16 A. Yes. Absolutely.
09:16 Q. Thank you, sir.
09:16 Now, if you look at Footnote 212 of your

report, you cite to the December 31st, 2019 10-K of Alphabet and the December 31st, 2021 10-K of Alphabet, right, sir?

A. That's correct.

Q. Now, if we could, let's look at the first one.

MR. JONES: And we could go to Slide 8.

BY MR. JONES:

Q. And we see here, this is the first page of that 10-K that you relied upon, right, sir?

A. That is the initial page. Yeah. The date is, yes, right there in the center.

Q. Right, sir. So we're on the same -- same page?

A. Same page.

Q. Good deal.

MR. JONES: And if we go to the next slide.

BY MR. JONES:

Q. We can see that this is where you took at least one of your figures from -- for YouTube revenues, the 2019 figure, right?

A. That is correct.

Q. Right, sir.

That's where you got your figure, at least one of them?

A. That's one aspect of this 10-K that I cite. Yes.

Q. Right. And we see that YouTube revenues have been going up.

Well, now, there's also an explanation in this document of why YouTube revenues have been going up, right, sir?

A. There's a discussion of that on this page and elsewhere in the --

Q. Okay. Thank you.

A. -- 10-K.

Q. Well, let's go to the discussion on this page, the same page you got your -- you got your figure from.

MR. JONES: Could we blow up the YouTube ads paragraph?

BY MR. JONES:

Q. And it says here: YouTube ads revenues increased 3.9 million from 2018 to 2019 and increased 3 million from 2017 to 2018. The largest contributors to the growth during both periods were our direct response and brand advertising products, both of which benefitted -- both of which benefitted from improvements to ad formats and delivery and increased advertiser spending. Right, sir?

A. And that is before 2019, which is the time

frame that I started with. Correct. That's --

Q. I understand that. But when we look at 2017, 2018, and 2019, YouTube ad revenues are going up. And they are describing here --

MR. JONES: If we could go back to that part you just highlighted.

BY MR. JONES:

Q. They are describing here why they went up during those years, right, sir?

A. They are, but that's not --

Q. My question to you is very pointed.

A. For those years --

Q. Yes. For those years.

A. -- 2017 to 2019. Correct.

Q. And I want to be very precise in my question.

For the years 2017 through 2019, they are saying that those ad revenues went up, and you would agree with me, Chromecast was out all of those years, right, sir?

A. Yes. In those years. Yes. Uh-huh.

Q. And they describe why they went up, and there is nothing whatsoever mentioned in that description about casting technology or functionality in any way, right, sir?

A. It says these are the largest contributors in

those years. 2017 to 2019 were those factors.

Q. Right. They don't mention -- that's not my question to you. My question to you is very precise.

They don't mention casting technology in any shape, form, or fashion or any Chromecast technology in any shape, form, or fashion in that paragraph, right, sir?

A. For those years, 2017 to 2019.

Q. Okay. Thank you, sir.

Well, let's go on then and go to some other years. Okay?

And then the next 10-K you relied upon to support those billion-dollar figures was dated December the 31st, 2021.

MR. JONES: And if we could, Mr. McDonald, let's go to Slide 10.

BY MR. JONES:

Q. And this is, again, the 10-K that you cited in your footnote that you relied upon, right, sir?

A. Yes. It is.

Q. And if we could go to the next page, we see this is where you got your last figure with regard to the statement that you made, right, sir?

A. Yes. YouTube ad revenue of $28.845 billion.

MR. JONES: And if we could go to the

next slide, Slide 12.

BY MR. JONES:

Q. We have an explanation about why YouTube ads went up these years, right, sir?

A. It has much of the same wording. Correct.

Q. Okay. Well, let's -- let's read it and see what their explanation was, why the YouTube ads revenues went up, as you told us they went up when you said that was a benefit to Google from the patents in question.

It says this: YouTube ads revenues increased 9.1 billion from 2020 to 2021. Growth was driven by our direct response and brand advertising products. Growth for our direct response advertising products was primarily driven by increased advertiser revenue -- excuse me; I'm just botching everything today -- by increased advertiser spending as well as improvements to ad formats and delivery.

A. And delivery. Yes.

Q. Growth for our brand advertising products was primarily driven by increased spending by our advertisers and the adverse effect of COVID-19 on 2020 revenues.

Right, sir?

A. Yes. That's correct.

09:23 Q. And nowhere -- nowhere in their explanation do they talk about casting functionality, right, sir?

09:23 A. They don't specifically mention casting.

09:23 Q. They don't mention any Chromecast technology, do they, sir, in there?

09:23 A. They mention ad delivery. They're higher level than that.

09:23 Q. Okay. And, in fact, they talk about such things as the adverse effect of COVID-19 on these increases.

09:23 That certainly has nothing to do with the patents in question in this case, right, sir?

09:23 A. Certainly it affects media viewing, perhaps.

09:23 Q. Now, when you did your report, you didn't quote these sections, did you, sir?

09:23 A. I referenced the numbers. That's correct.

09:24 Q. And when you did your slide, you didn't make any mention of the explanations that had been given for the increases, did you, sir?

09:24 A. These are broad -- I did not. You're correct.

09:24 Q. And certainly you would agree with me that at the hypothetical negotiation, when the parties, Touchstream and Google, sat down to negotiate over the benefits of the patented technology, that they would talk about such things as are expressed in this

document?

A. Among other things, that's absolutely correct.

Q. You would agree with me that the revenues that you've cited to for YouTube are generalized revenues, right, sir?

A. The ad revenues specifically, yes.

Q. And they're generalized ad revenues, right, sir?

A. Yes. I'm trying to --

Q. Thank you, sir.

A. -- answer your question. It's a little vague.

Q. Well -- well, let's go at it this way.

A. Uh-huh.

Q. They are not in any way broken down as to ad revenues generated when casting is done. Fair enough?

A. It's fair. I think we heard yesterday Google doesn't track that, Google findings.

Q. Again, I'm talking about the revenues that you've cited to that we're -- just got through talking about, right, sir? Are you and I on the same page?

A. Yes. Yes.

Q. You would agree these revenues are generalized, and they're not broken down in any way with regard to ad spends when casting is done, right, sir?

09:25 A. That's correct. Google doesn't track that.
09:25 Q. And you cite to no study or analysis or survey that is directed to showing what portion of this growth is related to casting, right, sir?
09:25 A. That's correct.
09:25 Q. And you cite to no expert, technical or otherwise, who has attributed this growth or any part of it to casting, right, sir?
09:26 A. That's correct. Google doesn't track that.
09:26 Q. Now, I'd like to move finally -- and I think we're just about through here.
09:26 You looked at all of the licenses produced by Google in this case, correct, sir?
09:26 A. All the ones that were produced. Yes.
09:26 Q. And all of the ones that were produced, that you read, they were all lump sum agreements, right, sir?
09:26 A. Yes. They provided only lump sum agreements. Yes.
09:26 MR. JONES: Thank you, sir. Thank you for your patience with me. I thank you for your time.
09:26 THE WITNESS: Thank you.
09:26 MR. JONES: I pass the witness, Your Honor.
09:26 MR. MILLER: Could you pull up Slide 12,

the one you had up a moment ago, please? This was -- and could you zoom in on the same part that we were on?

REDIRECT EXAMINATION

BY MR. MILLER:

Q. Okay. So you were asked some questions about this dramatic increase from roughly 15 billion in YouTube ads to roughly 30 billion in YouTube ads during this period between '19 and '21, and you were directed to this 10-K that talked about the reasons. And you correctly noted they don't specifically mention cast in here, Chromecast.

But let me ask you something. It says here: Growth for our direct response advertising products was primarily driven by one thing, increased advertising spending.

Was one of the goals at Google for rolling out Chromecast to increase advertiser spending?

A. Yes. It certainly was.

Q. And let me see. And then it says: As well as improvements to ad formats.

Was one of the goals of Chromecast to improve the ad formats?

A. Yes. It certainly was.

Q. Including, for example, targeting ads to people more directly by -- because they got their data?

A. Yes. As I -- I discussed yesterday.

Q. All right. And is one of the ways that Google was -- a new way that Google was delivering ads -- this last one, delivery, was that through Chromecast?

MR. JONES: Your Honor, I would object to the questions being leading, Your Honor.

THE COURT: Sustained.

BY MR. MILLER:

Q. So in your -- you said that in your opinion, this was -- this discussion at a high level encompassed -- well, can you explain?

Do you think that at a high level, this would encompass Chromecast?

A. In my opinion, these words certainly describe that at a high level, and this is a condensed -- really just three sentences describing that, and they're staying at a very high level.

As we discussed and I mentioned, in ad delivery, one form of ad delivery is through Chromecast. Improved formats and delivery certainly is a broad generalization of what Chromecast does.

Q. Okay. Thank you very much. One final question.

So when we looked at the total damage number that you think's appropriate in this case, it wasn't

09:29 just for a one-year period, right? What was the
09:29 period -- the damage period you were looking at?
09:29 A. The damage period was from 2015 to 2022. And
09:29 as I described, it -- it's a reasonable royalty for
09:29 Google's use of the patented invention and the value
09:29 they've derived from that usage.
09:29 Q. Okay. So it's for a -- you're taking the 32
09:29 cents per month and the life of the product, but it's
09:29 also over a 9-year period?
09:29 A. Over a period going back to 2015. That's
09:29 correct.
09:29 Q. Okay.
09:29 MR. MILLER: No further questions. Thank
09:29 you.
09:29 MR. JONES: No further questions, Your
09:29 Honor.
09:29 THE COURT: You may step down, sir.
09:29 Who's your next witness?
09:29 MR. DYKAL: Touchstream has no further
09:29 witnesses, and we rest.
09:29 THE COURT: Ladies and gentlemen of the
09:29 jury, we're going to take a short recess. Please
09:29 remember my instructions, and we'll be back as quickly
09:29 as we can.
09:29 THE BAILIFF: All rise.

09:29 (Jury exited the courtroom.)

09:30 THE COURT: You may be seated.

09:30 Does either counsel have any -- a motion to make?

09:30 MR. LANIER: We do have a motion, Your Honor. Thank you.

09:30 Your Honor, Google moves for judgment as a matter of law on four bases. I'll identify them quickly and explain and -- excuse me -- happy to discuss as much as Your Honor would like.

09:30 We move for judgment as a matter of law under Rule 50(a) for no willful infringement against their willful infringement claim; for infringement or no infringement under the doctrine of equivalents; no infringement, literal or direct, because no -- because there has been no proof of divided or joint infringement; and no literal infringement -- or no infringement literal or under the doctrine of equivalents because the accused products does not have -- do not have all the claim limitations.

09:31 And finally, we're moving to dismiss their request for injunctive relief.

09:31 And I could follow up on each one of these points. I'll do a couple of them I think I can address very briefly.

09:31 THE COURT: I don't think you need to -- I don't think we need to take up the injunction issue.

09:31 MR. LANIER: All right. Then we'll leave that aside for now, Your Honor. For the --

09:31 THE COURT: I don't think that's a Rule 50(a) motion.

09:31 MR. LANIER: Understood, Your Honor. Thank you.

09:31 So for doctrine of equivalents, the basis for the motion is very simple. There has -- there was not a mention of equivalents, no discussion, no testimony from Dr. Almeroth, no evidence, no opinion.

09:31 They've also, as we understand it, withdrawn those jury instructions, but we believe we're entitled to judgment as a matter of law on the doctrine of equivalents.

09:31 THE COURT: Let me hear from them on that real quick.

09:31 MS. ISRAEL: Your Honor, Sharon Israel on behalf of Touchstream.

09:31 With respect to doctrine of equivalents, Touchstream withdraws its allegations for infringement under doctrine of equivalents. I think that issue is moot.

09:32 THE COURT: Okay. Thank you.

09:32 MR. LANIER: Thank you, Your Honor.

09:32 On willful infringement, we move for judgment against their willful infringement claim. As Your Honor will recall from the pretrial conference, Your Honor permitted them to present that case to see what evidence there was.

09:32 There was less evidence presented at trial than there was at the summary judgment stage. They advanced two bases for the -- essentially for the summary -- for willful infringement.

09:32 One was citation to patents. And as we've mentioned before and briefed and Your Honor has also decided that citation to patents during prosecution is insufficient proof of knowledge to support a willfulness claim.

09:32 That's Your Honor's decision in RFCyber Corp versus Apple in 2022.

09:32 Additionally, they alleged willfulness based on alleged exposure to their inventions or their ideas in these meetings that happened. There is actually no evidence of what actually was said, disclosed, taught, discussed.

09:33 And finally, and most importantly, the record is unequivocal -- it's not an absence of evidence, it's proof -- that there was no notice of

infringement of any kind prior to suit.

The most they have is a LinkedIn message that says, We have patented technology. There were no patents-in-suit during the meetings -- or no patents during the time of the meetings. There was no notice of infringement of any kind.

There's also no evidence that has been presented in their case of an intent to infringe. We've briefed this thoroughly at summary judgment. We'll write this all down, but we really do believe, Your Honor, this claim should not go to the jury.

I can stop on that one.

THE COURT: Let me hear from the defendant -- I'm sorry -- the plaintiff with respect only to -- the only thing I care about is any evidence that, since the defendant was given notice by the filing of the lawsuit, that they have acted in a manner that would constitute willfulness. What evidence --

MR. DYKAL: Well, they've continued releasing products.

THE COURT: And they've continued to defend the lawsuit.

MR. DYKAL: They have.

THE COURT: And so anything else?

MS. ISRAEL: Yes, Your Honor. If I may.

09:34 You're just asking about post --

THE COURT: Post.

MS. ISRAEL: -- suit?

THE COURT: Yes.

MS. ISRAEL: May I discuss some of the evidence that was presented at trial?

THE COURT: Yes. But I just need post. I understand the issues prior to the filing of the lawsuit. I want to know what you believe the evidence at trial has been of willfulness since they were given notice of the suit.

MS. ISRAEL: There's no further evidence -- there was no evidence presented with respect to just what happened prior to -- post-filing suit. There is sufficient evidence in the record with respect to what happened prior to the filing of suit.

I'd be happy to go through that evidence.

THE COURT: I just wanted to know what you were going to say.

I'm going to deny the motion. I'm denying the motion for directed verdict on willfulness.

MR. LANIER: I'm sorry. I just didn't hear.

THE COURT: I'm denying the motion for directed verdict on willfulness.

09:35 MR. LANIER: Thank you, Your Honor.

09:35 THE COURT: Anything else?

09:35 MR. LANIER: Yes, Your Honor.

09:35 No proof of divided infringement. All of the claims -- so it's a motion for a judgment of -- as a matter of law on direct infringement. That's the only kind of infringement asserted in this case.

09:35 All the claims require actions performed by a user. There's no evidence, no proof, anything regarding action by a user, how often it happens, does it happen, or that Google controls that.

09:35 Secondly, many -- all of the asserted claims, many have specific limitations that require specific commands, but Touchstream presented no evidence that Google controls those commands.

09:35 And, in fact, there is evidence that third parties with those media players, who provide the media players, provide the commands. And so there is no evidence that Google controls that. And Your Honor recalls this issue also from summary judgment as well.

09:36 But not even at a technical basis, putting aside the legal arguments that were rejected, on a technical basis, there's no evidence of Google's control.

09:36 It's a case for divided or joint

infringement. Google has to control to be held liable for infringement.

THE COURT: I'm going to deny that as well.

Are those all the motions?

MR. LANIER: Those are the bases for our motions. Thank you, Your Honor.

THE COURT: Okay. And you're going to submit something additional in writing?

MR. LANIER: Yes. We are, Your Honor.

THE COURT: That's fine.

The plaintiff will certainly be entitled to respond to that once they get it.

MR. LANIER: Thank you, Your Honor.

THE COURT: So your first witness will be?

MR. LANIER: Our first witness will be Majd Bakar.

THE COURT: Okay. Well, let's just go ahead and bring the jury back in.

MR. DYKAL: Your Honor, one housekeeping matter. Touchstream would request that we submit the demonstratives used with Dr. Almeroth and Dr. Chandler, not as evidence for the jury but for completeness of the record, as demonstrative exhibits.

09:37 THE COURT: I don't know what you're asking me to do. I don't know what you mean by "submit." I'm saying they -- you've used them. They're demonstratives, and we have a record of them. And the jury will not get them.

09:37 MR. DYKAL: Okay.

09:37 THE COURT: If that's what the question is.

09:37 MR. DYKAL: We were just -- you know, for the record, if we want to reference what was shown to the jury on appeal, but if you don't want to do that, that's fine.

09:37 THE COURT: No. No. I'm saying they're in the record. As you've been talking about them, they're part of the record --

09:37 MR. DYKAL: Okay.

09:37 THE COURT: -- is the way I understand it.

09:37 MR. LANIER: That's our understanding as well, Your Honor.

09:37 THE COURT: Yeah. So they don't need to be -- they're not being admitted, and so they don't need to be moved in. But the record will reflect what was used during the trial.

09:37 MR. DYKAL: Okay. Thank you.

09:37 MR. LANIER: Your Honor, I believe Mr. Bakar's outside. Can he come in before the jury comes back?

09:37 THE COURT: If you'll bring him in, we'll bring the jury in.

09:38 (Brief off-the-record discussion.)

09:38 THE COURT: I screwed up. We're going to take a short break. We'll be back.

09:38 MR. LANIER: Thank you, Your Honor.

09:38 THE COURT: We'll be back in about five minutes.

09:38 (Recess taken.)

09:44 MR. LANIER: I apologize. Before the jury comes back, I had omitted -- sorry. Are we back on?

Thank you.

09:44 I had omitted to mention one of the bases for our Rule 50 motion. I apologize for doing that. I wanted to mention it briefly before the jury came back.

09:44 We ask for a judgment under Rule 50 of no infringement because there is no server system or of the claimed server system in the accused products. All the asserted claims require performance of particular operations by a server system.

09:44 We began to address this in detail at

09:44 summary judgment, but no reasonable jury could find the accused products have a server system.

In summary, it's because the server system is required to be -- or reading those claims, ought to be separate and distinct from both the phone and the display device. And as Dr. Almeroth demonstrated, his server system is not.

We're prepared to brief that in more detail. That's the other basis for our motion.

09:45 THE COURT: Okay. Thank you.

MR. LANIER: Thank you, Your Honor.

09:45 THE COURT: Are we ready to go?

MR. LANIER: Otherwise, we are ready to go.

09:46 THE BAILIFF: All rise.

(Jury entered the courtroom.)

THE COURT: Thank you.

You may be seated.

Counsel, I know I heard the plaintiff say that they had no more witness, but I don't recall if you said you rested or not. I just don't remember.

MR. DYKAL: Yes. We rest.

THE COURT: Okay. Thank you.

Counsel, do you have witnesses to call on behalf of Google?

09:46 MR. LANIER: We do, Your Honor. Thank you very much.

09:46 For our first witness, Google calls Majd Bakar.

09:46 (The witness was sworn.)

09:46 DIRECT EXAMINATION

09:46 BY MR. LANIER:

09:47 Q. Mr. Bakar, would you introduce yourself to the jury and tell them what you do for a living?

09:47 A. Sure. Hi. My name is Majd Bakar. And I am VP of engineering on the Fitbit project at Google.

09:47 Q. Where do you live?

09:47 A. I live in Mountain View, California.

09:47 Q. Have you ever testified in a court before?

09:47 A. No. This is my first time.

09:47 Q. You're a little nervous?

09:47 A. A bit.

09:47 Q. Tell me if I go too fast or I skip anything. I've got a bit of a frog in my throat this morning. So forgive me for that.

09:47 How long have you been at Google?

09:47 A. Around 12 years and a half.

09:47 Q. We'll talk about your time at Google and what you did, but just to get to know you a little more, would you briefly describe your educational background?

09:47 A. Sure. So I have a bachelor of electrical
09:47 engineering and a master of biomedical engineering from
09:47 McGill University in Montreal, Canada.
09:47 Q. After schooling, did you go to work?
09:47 A. Yes.
09:47 Q. Where'd you work before coming to Google?
09:48 A. I worked at Nortel Networks. It's a telecom
09:48 company in Montreal. And then I moved to the Bay area
09:48 in California. I worked for a startup. And after
09:48 that, I was hired at WebTV. It's a group at Microsoft,
09:48 worked there for 12 years.
09:48 Q. Before joining Google, how long had you been
09:48 working for technologies that focused on delivering
09:48 content over the Internet?
09:48 A. Since early 2000s.
09:48 Q. When did you start at Google?
09:48 A. April 2011.
09:48 Q. What was your job when you started?
09:48 A. I was hired into the Google TV group as
09:48 engineering manager.
09:48 Q. What was your basic responsibility when you
09:48 were hired?
09:48 A. I was responsible for the Google TV platform
09:48 as well as -- my first assignment was to look at the --
09:48 what is interaction model in the living room.

Q. You said "interaction model in the living room." What does that mean?

A. So usually interaction model is how user interface with computers or other electronic devices. What -- usually when you are working with a computer or your phone or tablet, you can use either a touchscreen or you can use a mouse and a keyboard.

In the living room, usually you're sitting away from the TV, around 10 feet away, and using a keyboard and mouse is not easy, touching the screen is not easy. So I was looking at what would be the right way to interface with the TV.

Q. Did the Chromecast product and project flow from that work in looking at the living room in the home?

A. Yes.

Q. Are you one of the founders of Chromecast at Google?

A. Yes.

Q. In very simple terms, would you -- we'll dig in a little, but would you explain what Chromecast is?

A. So Chromecast is a small streaming device that plugs into the back of your TV in the HDMI port, and it doesn't come with a remote control. And the idea is that you can use your phone as a remote control. You

can discover content on your phone.

And then once you decide what content you want to watch, you just cast it to your Chromecast, and it -- the video or the music will play on the Chromecast.

Q. Who came up with the idea for Chromecast?

A. I did.

Q. When did you come up with that idea?

A. Around 2010.

Q. How did you come up with it?

A. So it came to me when I was observing how my wife was watching Netflix. Netflix was a -- in 2010 was a streaming service. It was the biggest. But it started initially on the PC, where you go into your browser and you watch content on your -- on your PC. But then they introduced a TV experience through Xbox and PlayStation.

I was working at Microsoft. I had an Xbox. And we had it connected to the TV. But what I observed is my wife would go -- open up her laptop, go to the Netflix website, search for whatever content she wants to watch.

And then once she find the video or the TV show that she wants to watch, she adds it to the Netflix queue, go into the queue, find that content in

the queue, and then say, Okay, pull this content to the top of the queue.

Closes the laptop and then goes to the Xbox. Open the Netflix app. Go to the queue. And voilà, the video she wanted to watch is at the top of the queue. She just click play.

I was asking her, like, Why are you doing this?

And she said, Well, because it's very hard for me to -- on the TV screen to find the content. It's either hard to read or if I want to type a search term, it's very hard.

So I was like, There must be an easier way to do that.

And this is where I was thinking, why not use the phone as the way to discover the content and control it?

Q. Is that what started you thinking about what became Chromecast?

A. Yes.

Q. And were you thinking about that before you came to Google?

A. Yes.

Q. Did that discussion about your idea for what became Chromecast come up early in your time at Google?

09:51 A. Yes.
09:51 Q. Did you raise it, in fact, when you were interviewing for jobs at Google?
09:51 A. Exactly. During my interview, I proposed that.
09:52 Q. And were people receptive when you proposed it during your interviews?
09:52 A. Yes.
09:52 Q. So let's talk a little about what you were doing when you actually started at Google.
09:52 Was that April of 2011 again?
09:52 A. Yes.
09:52 Q. Okay. What team did you join when you joined Google?
09:52 A. A team called Google TV.
09:52 Q. What was the state of Google TV at the time you joined in April of 2011?
09:52 A. So Google TV was a product that launched in 2010, year before I joined. We had partners with Sony and Logitech. They were building up set-top boxes or TVs, and they had Google TV built into them. And we were developing the second version of Google TV.
09:52 Q. Just keep your voice up a tiny bit, sir. I apologize.
09:52 A. Google TV. Sorry.

09:52 Q. Thank you.

09:52 Did you end up working on what became Chromecast in parallel with working on Google TV itself?

09:52 A. Yes.

09:52 Q. Okay. Let's -- let's talk specifically about putting that Google TV idea together or the Chromecast idea together.

09:53 After you got started at Google in April of 2011, did you start working specifically on what became Chromecast?

09:53 A. Yes.

09:53 Q. How did you go about doing that?

09:53 A. So I -- so the first few months, I was like learning how to work at Google and ramping up on the technology there. I -- the first thing that I did is I put together a -- what we called a "concept card" to describe what is this idea I was talking about. And then from there, I pitched this to the leadership team. And when it got approved, I moved into building -- developing the plan further.

09:53 Q. All right. We'll talk about each of those steps for a minute.

09:53 But early on in your work with Chromecast, did you start working with some other people at Google

about the project?

A. Yes.

Q. Who were those people?

A. The product manager, his name is Ambarish Kenghe, and a business development lead. Her name is Shanna Prevé.

Q. Did you work hard with them on putting Chromecast together?

A. Yes.

Q. Did you like working with them?

A. I loved working with them.

Q. Are they still your good friends?

A. My best friends.

Q. So you talked about putting together a concept card to work with a team.

Do you recall that?

A. Yes.

Q. Okay. I'm going to come to that in a minute, but I just want to ask a couple more questions about Chromecast itself before we get there.

Have you heard -- we've heard a term that "Cast protocol" or "Chromecast protocol."

Are you familiar with that?

A. Yes.

Q. What is the Cast or Chromecast protocol?

09:54 A. So the Cast protocol is the less -- the set of
09:54 parameters and definition of what the phone would send
09:54 to the Chromecast to tell it what content to start
09:54 streaming and what is -- everything that is needed for
09:54 this content to work, from the user's identity to
09:54 content identity to digital write management -- that
09:55 needs to be all set up correctly -- as well as the list
09:55 of command that can be sent from the phone to the
09:55 Chromecast to control playback, like pause, fast
09:55 forward, fast rewind, or volume control.
09:55 Q. So is it -- is the protocol like a set of
09:55 rules, how it operates?
09:55 A. Yes.
09:55 Q. Okay. Are you familiar with a term -- well,
09:55 who came up with that protocol on your team?
09:55 A. The engineering team and the product
09:55 management team.
09:55 Q. Were you leading that engineering team?
09:55 A. Yes.
09:55 Q. And Mr. Kenghe was leading the product
09:55 management team?
09:55 A. Correct.
09:55 Q. And you -- did you work together to come up
09:55 with the protocol?
09:55 A. Yes.

09:55 Q. When did you come up with that protocol?
09:55 A. In the second half of 2011. So should be -- it's not like an exact date, but it should be in that time frame.
09:55 Q. Okay. And are you familiar in this context with the term called "architecture" or "system architecture"?
09:55 A. Yes.
09:55 Q. Does Chromecast have a basic architecture?
09:55 A. Yes.
09:55 Q. Who came up with that basic architecture?
09:56 A. Myself and my team. We build that architecture.
09:56 Q. And when did you come up with that architecture?
09:56 A. Around the, I would say, October time frame of 2011.
09:56 Q. Okay. And what is the basic architecture of Chromecast as you first developed it?
09:56 A. Well, it revolves around the idea that you have a -- the phone and the application on the phone, so the Netflix, the Hulus, the HBOs applications that are on the phone, and they -- they have a SDK, software development kit, that is incorporated into their application that allow them to discover Chromecasts

that are on the network and be able to cast to it.

Q. Did you develop a prototype of Chromecast?

A. Yes.

Q. Did you start by building the thing, or did you do something else first?

A. So we started with the software prototype. We build this on existing hardware that allow us an easier way to develop our thinking and understand the product. And then after that, we develop the hardware prototype.

Hardware usually takes longer time because we have to source material and components from hardware vendors. And once you have them, you can't change them.

Q. When did you develop the software prototype?

A. In the October/November time frame of 2011.

Q. Okay. You eventually developed a hardware prototype.

When did the hardware prototype come to be?

A. Towards April of 2012.

Q. Was that hardware prototype a dongle or a stick?

A. Yes. It has the stick form factor.

Q. Did the -- how did the software prototype compare to the basic architecture for Chromecast you first came up with?

09:57 A. Can you repeat the question?
09:57 Q. Sure. Did that software prototype reflect the basic architecture that you first came up with?
09:57 A. Yes. It did.
09:58 Q. Did that hardware prototype reflect the same basic architecture you first came up with?
09:58 A. Yes. It did.
09:58 Q. Did the product that eventually launched reflect the same basic architecture you first came up with?
09:58 A. Yes.
09:58 Q. Okay. Let's go back to that basic architecture a little bit.
09:58 As I understand it, there's a phone and there's a display device, right?
09:58 A. Correct.
09:58 Q. Does the phone send commands to the display device?
09:58 A. Yes.
09:58 Q. Is sometime that phone called the second screen?
09:58 A. Yes. We call that second screen to describe the -- that experience on the screen that's closer to you versus the TV, which is called the first screen.
09:58 Q. Did the second screen -- in your basic

architecture of Chromecast, did the second screen talk directly to that display?

A. Yes. They do talk over the local WiFi network.

Q. Was choosing to have them -- did you choose to have them talk over the local WiFi network?

A. That was an explicit choice.

Q. Why was that your choice?

A. For a variety of reasons.

First, it is to make sure that the commands that are sent do not experience any delay. So once you are on the local network, you can send the command in a fast manner. So when the user hits pause, it takes effect.

If you needed to go to an external server, this command needs -- usually these servers are, like, hundreds of miles away from your home. So the command needs to go to the server and then come back to the Chromecast and that will take time.

Q. I've heard of something called "latency."

Is that latency?

A. Correct.

Q. Were there any other reasons that you designed the Chromecast architecture to work on the local network?

A. Yeah. So the other one is to make sure that it is easy to set up and we don't need to worry the users with a cumbersome setup. We needed to have -- we wanted to have it set up in, like, less than two minutes. And all you need to do is just bring the Chromecast on the local network.

And then there's also a privacy reason, privacy and security reason, where we wanted to make sure that only users that you gave your WiFi password to -- this is how they can connect to the local WiFi network -- can send content to your TV.

Otherwise, other people can just -- what we call rickrolling -- they can send video to your TV without your knowledge.

Q. So did your -- you and your team deliberately design the architecture of Chromecast for the second screen, or the phone, to talk directly to the display device over the local network?

A. Correct.

Q. Now, just to make sure I understand the pieces, did that -- let's say if you wanted to press play, start your video, did that command go from the phone to the display?

A. Yes. We establish a specific local channel on that local WiFi network where we send the command

directly from the phone to the Chromecast.

Q. If you press play, does it go off to a server and then back down to the TV?

A. No.

Q. Same for fast forward, rewind, all those commands, does it go like that?

A. No.

Q. Does it always go directly, as you designed the architecture, from that phone or second screen to the display?

A. Yes.

Q. Was that a deliberate design choice?

A. Yes.

Q. Are there any external servers involved in the communication between that second screen and the TV as you designed Chromecast?

A. No.

Q. And that -- we've been talking about your design.

For the product that launched, were there any external servers involved in that communication?

A. No.

Q. Okay. Is there a name in the industry -- or in work with Google and your work in the industry that you use to describe this kind of communication?

10:01 A. Yes. It's called peer-to-peer communication.
10:01 Q. What does that mean to you as you use that term?
10:01 A. Well, peer-to-peer, it means that there is no server-client relationship. Everybody here -- the different component on the network are equal and they are talking to each other directly.
10:01 Q. Kind of like you and I are, right? Is this peer-to-peer?
10:02 A. Yes.
10:02 Q. If I ask someone to tell you something and they told you, and then they -- you told them and they told me, is that peer-to-peer?
10:02 A. No.
10:02 Q. Is there a name for that sort of relationship?
10:02 A. Usually it's called client-server interaction.
10:02 Q. Does the Chromecast model reflect a client-server architecture for communications and commands between the phone and the display?
10:02 A. No.
10:02 Q. Okay. The concept that you came up with and pitched to Google when you first started, was that peer-to-peer?
10:02 A. Yes.
10:02 Q. The concept that was reflected in the software

prototype, was that peer-to-peer?

A. Yes.

Q. How about that hardware prototype, was that peer-to-peer?

A. Yes.

Q. How about the product that launched?

A. It was peer-to-peer.

Q. Okay. Let's talk a little bit about the goals for Chromecast.

Did you -- did you have a market you intended for the Chromecast products?

A. Yes.

Q. What was that market?

A. It was the users in their home, so what we call consumers. We wanted to reach all HDTVs that have an HDMI port, because this is how the Chromecast work, you plug it into the HDMI port, and provide them with the choices of getting all the streaming services on their TVs.

Q. Okay. Did -- was Chromecast aimed at the business market?

A. No.

Q. When did Chromecast launch?

A. In -- on July 24, 2013.

Q. Is that 10 years ago next Monday?

10:03 A. Yes.
10:03 Q. Are you proud of its launch?
10:03 A. I'm very proud of that.
10:03 Q. We've heard a lot in this case about how successful it is.
10:03 Are you proud of that?
10:03 A. Yes. I am.
10:03 Q. Let's go back a step. We talked about a few steps in your development process, and I want to talk with you about that in a more concrete way.
10:03 MR. LANIER: But first I need to grab a binder for you, if the Court will let me grab that and come up to you.
10:03 Thank you.
10:04 A. Thank you.
10:04 BY MR. LANIER:
10:04 Q. So, sir, I put a binder -- it's got three exhibits in it, not that many -- in front of you.
10:04 I'd like you to open up to the first tab of that binder.
10:04 MR. LANIER: And just for the record, we're not putting it up yet. It's Defendant's Trial Exhibit 638.
BY MR. LANIER:
10:04 Q. Would you just take a look at and let me know

10:04 if you recognize it?
10:04 A. Yes. I do.
10:04 Q. Don't tell us what's in it yet, but what do you recognize it to be?
10:04 A. This is the presentation that we used to have our strategy session discussions.
10:04 Q. And you said "we." Who was the we that was involved with this document?
10:04 A. This is the Google TV leadership team.
10:04 Q. Is this the team that was working on putting together Chromecast?
10:04 A. Yes.
10:04 Q. And did you prepare this document in the ordinary course of your business at Google?
10:05 A. Yes.
10:05 Q. Were you personally involved in its preparation?
10:05 A. Yes.
10:05 MR. LANIER: Your Honor, we move admission of Defendant's Trial Exhibit 638.
10:05 MR. DYKAL: No objection.
10:05 THE COURT: Admitted.
10:05 MR. LANIER: Thank you, Your Honor.
10:05 All right. Thank you, Mr. McDonald.
10:05 BY MR. LANIER:

10:05 Q. So this is the first page of that. It says: Google TV: Big bets for 2012.

Do you see that?

A. Yes.

Q. It's also on the screen, if it helps you, sir. Whatever's easier for you.

What did you mean by that title?

A. So "big bets" is basically what we want to deliver to users as part of our product and functionality in 2012. It's where we want to put our resources and investment on the Google TV team.

Q. You mentioned a strategy offsite.

Was it to talk about the big choices for the future for Google TV?

A. Yes.

Q. When was that strategy offsite?

A. In September time frame of 2011.

Q. Were you -- you were personally involved in preparing this document?

A. Yes.

Q. Is what became Chromecast discussed in this document?

A. Yes.

Q. Let's take a look at something. Would you turn to Page 3? I think it's .003 of this document.

10:06 A. Yes.
10:06 Q. It says: List of bets.
10:06 Now, I don't see Chromecast on there. Is it reflected on here somehow?
10:06 A. Yeah. It's the first item.
10:06 Q. That says "HDMI dongle."
10:06 Did I get that right?
10:06 A. Correct.
10:06 Q. And so what does it mean to be -- well, first of all, how does the HDMI dongle relate to Chromecast?
10:06 A. At this time we didn't have a name for the product. So we were just describing it because it is a dongle that goes into the HDMI port of your TV. This is the Chromecast.
10:06 Q. Okay. So you were just calling it that at this point?
10:06 A. Yes.
10:06 Q. What did it mean to list it on the -- list of bets?
10:06 A. It means this is one of the bets that we want to invest in, and it's an area that we want to work on.
10:06 Q. All right. Let's turn to the next page of this document.
10:07 It says "HDMI dongle," and there's a lot of text under it.

10:07 Were you involved in preparing this?
10:07 A. Yes. I put it together.
10:07 Q. You mentioned earlier a concept card.
10:07 Is this the concept card?
10:07 A. Yes.
10:07 Q. Was this discussed at that strategy offsite?
10:07 A. Yes.
10:07 Q. Did the team approve moving forward with the concept?
10:07 A. Yes.
10:07 Q. That first thing says: Low-priced HDMI dongle with built-in GTV player. And it goes on.
10:07 Do you see all that?
10:07 A. Yes.
10:07 Q. Were all of those ideas part of your thinking about what would eventually become Chromecast by September of 2011?
10:07 A. That's correct.
10:07 Q. How about that second bullet? Discover and navigate content on second screen.
10:07 Do you see that?
10:07 A. Yes.
10:07 Q. Was that part of your thinking about what became Chromecast by September of 2011?
10:07 A. Yes.

10:07 Q. Third bullet: Fling content to the TV once selection made on second screen.

Was that part of your thinking about Chromecast by September of 2011?

A. Yes.

Q. And that last bullet, I won't read it all, but "has the potential." It goes on.

Was that part of your thinking?

A. Yes.

Q. And did the team approve this concept going forward?

A. Yes.

MR. LANIER: All right. You can take this one down, Mr. McDonald. Thank you very much.

BY MR. LANIER:

Q. What was the next step -- once the team said, Let's take this big bet, what was the next step?

A. So the next step -- the next step was to move forward and go to refine the definition of the product. We would create something that's called "product requirement document," usually referred to as PRD, to describe what the product does, what is the user value proposition and what -- what are the requirements that we give to the engineering team to execute on.

Q. Did your -- you and your team get started and

10:08 put together a product requirement document?
10:08 A. Yes.
10:08 Q. Okay. Again, in your binder, sir, it should be the second tab, is Defendant's Trial Exhibit 441.
10:08 Would you take a look at that? It should be Tab 2 there.
10:08 A. Yeah.
10:09 Q. Oh, you have it in front of you. Thank you.
10:09 Do you recognize that?
10:09 A. Yes. I do.
10:09 Q. Is that a product requirement document related to Chromecast that your team put together?
10:09 A. Yes.
10:09 Q. Did -- were you personally involved in putting that together?
10:09 A. Yes. I did.
10:09 Q. Did you work on -- with you and your team, put that together in the ordinary course of Google's business?
10:09 A. Yes.
10:09 MR. LANIER: Your Honor, we move admission of Defendant's Trial Exhibit 441.
10:09 MR. DYKAL: No objection.
10:09 THE COURT: Admitted.
10:09 MR. LANIER: Thank you.

10:09 BY MR. LANIER:

Q. So Mr. McDonald has kindly brought that up. Would you --

MR. LANIER: Great. Thank you for making that page bigger.

BY MR. LANIER:

Q. So PRD, is that a product requirement document?

A. Yes.

Q. It says "Eureka PRD." What's Eureka?

A. Eureka is the code name for Chromecast. Every project at Google, we give to it a code name so we can refer to it before it launches. It's not the public name.

Q. So in September at the strategy offsite, it was HDMI dongle. Now it's Eureka; is that correct?

A. Yes.

Q. Okay. And so what's the purpose -- it says "Vision" up at the top there.

What's the purpose of that section?

A. So this section describes what we want to accomplish with this product. It talks about some of the high-level concept there. Like, for example, the price, what it is -- it's not a general purpose product. It is specifically about playing video and

audio.

It talks about, like, we don't want to have a physical remote. We want to use the second screen aspect for discovery. And we do talk also about the form factor.

Q. So it says -- there's a few different things here, but Bullet No. 3: No physical remote, all UI interaction and control on the second screen, only audio/video on the TV screen.

Do you see that there?

A. Yes.

Q. Was that part of the more concrete vision for Chromecast by the time of this PRD?

A. That's correct.

Q. No. 4: Small, memory stick-like form factor and easy setup.

Was that part of the vision by the time of this document?

A. Yes.

Q. And did the team think that these different aspects of the vision, these key aspects, were achievable when you put this together?

A. Yes.

Q. Did you end up achieving them?

A. Yes. We did.

10:11 Q. How -- what was product that ended up achieving them?

10:11 A. Chromecast.

10:11 Q. Did the Chromecast product as launched meet most of these key aspects?

10:11 A. Yes.

10:11 Q. Did it end up selling for 24.99?

10:11 A. Okay. Sorry. So not the price. We couldn't meet the price. It started at $35.

10:11 Q. That's right.

10:11 And the -- the price, what was the reason why you couldn't quite meet that price, that original goal?

10:11 A. It cost us more to build it. The components were more expensive than we thought, and building them, it was -- we didn't have that experience. So we don't know initially. But as we learned, the cost increased.

10:11 Q. By "components," you mean the physical things --

10:11 A. Yes.

10:11 Q. -- like the chips and the wires and all that?

10:11 A. Yes.

10:11 Q. Thank you, sir.

10:11 Now, is this -- a PRD like this, is this what we call a living document? You start with one, you add to it, it grows, it evolves?

10:12 A. Yes. It does.
10:12 Q. Does this show a state of the development of -- of the Eureka project or Chromecast project as of the time of the document?
10:12 A. Yes.
10:12 Q. When was this one created?
10:12 A. It should have been shortly after the strategy session. So it's in October time frame of 2011.
10:12 Q. And did you continue to work on it after October?
10:12 A. Yes.
10:12 Q. So if there were other versions of this, they just reflect your ongoing work at different points; is that fair?
10:12 A. That's fair.
10:12 Q. Okay. Let's look quickly at one other piece of this. Would you turn to the page marked 13? And Mr. McDonald will put it up there too.
10:12 It's tiny -- on your copy, sir, it's tiny little letters. But there's a picture up at the top of Page 13. It's on the screen too, if it helps you.
10:12 A. Okay.
10:12 Q. He's blowing that picture up.
10:12 Do you -- I know the reading -- the writing is very hard to read, but do you recognize that picture?

10:12 A. Yes. I do.
10:12 Q. What is that?
10:13 A. This is a diagram describing how to set up Chromecast on your local network.
10:13 Q. And are there any -- is there a TV and a second screen involved here?
10:13 A. Yeah. So if you look at the left side here, it describes what is happening on the TV screen from the Chromecast. And on the right side, it is what's called the second screen. That describes what's happening on your phone.
10:13 Q. Are there any external servers between that TV and the second screen?
10:13 A. No.
10:13 Q. It's on the same -- is it on the same WiFi network as you conceived it in this diagram?
10:13 A. Yes.
10:13 Q. Is this -- literally I've heard of whiteboard drawings.
10:13 Is this literally a whiteboard of it?
10:13 A. Yes. We drew it on the whiteboard in a conference room and then took a picture.
10:13 Q. And did the product that released meet this part of the architecture, the setup process?
10:13 A. Yes.

10:13 Q. All right.

10:13 MR. LANIER: Let's look at one more page of this one, Page 14.

BY MR. LANIER:

10:13 Q. That's the next page here. Top half there says: Content strategy and partners for launch.

10:14 Do you see that?

10:14 A. Yes.

10:14 Q. What's content strategy?

10:14 A. It's basically how do we get the large content libraries available on Chromecast. In the TV space, content is king. If you don't have enough content or the content that people want to watch, the product will not be successful.

10:14 Q. Just to be really clear, make sure I've got it, "content," you mean like the videos, the movies, whatever?

10:14 A. Yes.

10:14 Q. Okay. And was it important in developing Chromecast to think about what content you'd have available when you first sold it?

10:14 A. Yes.

10:14 Q. Was your team already, by the time of this document, thinking about and starting to work with potential content providers?

10:14 A. Yes.
10:14 Q. And this was in 2011?
10:14 A. Yes.
10:14 Q. Now, there's a reference there to YouTube and Play.
Do you see that?
10:14 A. Yes.
10:14 Q. Now, was YouTube content available to Google when the Chromecast launched?
10:15 A. Yes.
10:15 Q. Did that provide an advantage for Chromecast in the marketplace?
10:15 A. Yes.
10:15 Q. Was it good to have all that content?
10:15 A. Yes.
10:15 Q. Okay. All right.
10:15 MR. LANIER: I'm done with this document. Thank you.
10:15 BY MR. LANIER:
10:15 Q. So after you -- so you had an idea, you had an offsite, and you said, Let's try it. You wrote a product requirements document.
10:15 What was the next step in moving forward with Chromecast?
10:15 A. Next step is to build the prototypes to

validate the idea. And we started with the software prototype first and then the hardware prototype, make sure that we -- we understand all the use cases, develop the detail design, and then execute on that.

To execute on this and get it to production, it takes a long time.

Q. Did you have to get approval from even higher levels of management to say, Let's invest some money, let's go forward?

A. Yes.

Q. Did you prepare a presentation to the higher levels of management to get that approval?

A. Yes. We did.

Q. Would you turn to Tab 3 of your binder? It's Defendant's Trial Exhibit 639.

Take a moment, glance at it, sir, tell me if you recognize it.

A. I do.

Q. What do you recognize it to be?

A. This is a presentation we made to the senior vice president of the division, Salar.

Q. And when did you make this presentation?

A. On December 2011.

Q. Okay. And did you -- were you involved in preparing this presentation?

10:16 A. Yes.
10:16 Q. Were others on the Chromecast team involved in it?
10:16 A. Yes.
10:16 Q. Now, you were making it to a senior vice president.
10:16 Is that a pretty important person?
10:16 A. He's a big deal.
10:16 Q. Did you work hard on getting this presentation done right?
10:16 A. Yes.
10:16 Q. And did you prepare it with others at Google in the ordinary course of your work at Google?
10:16 A. Yes.
10:16 MR. LANIER: Your Honor, we move admission of Defendant's Trial Exhibit 639.
10:16 MR. DYKAL: No objections.
10:16 THE COURT: Be admitted.
10:16 MR. LANIER: Thank you.
10:16 BY MR. LANIER:
10:16 Q. So let's just go to a couple of pages of this really quickly.
10:17 By this point, you had already built your software prototype, right?
10:17 A. Yes.

Q. Okay.

MR. LANIER: Let's turn to Page 3.

BY MR. LANIER:

Q. "Dongle status." Do you see that?

A. Yes.

Q. Generally, what does this page describe?

A. Describes the status of this project, giving a high-level update to Salar about where we are on this and if we need help.

Q. The first bullet says: Conversations in progress with many potential SoC vendors to get a handle on parts and BOM costs.

Do you see that there?

A. Yes.

Q. Just to make sure I've got a couple of things.

SoC, what's that?

A. SoC is the first to system on a chip. This is basically -- in consumer electronic, when you put the heart of the processing, the CPU, of the component, that we put it all on one chip and that's called "system on a chip."

Q. And there's BOM. What's that?

A. BOM is the bill of material, basically the different component that make up a device and how much they cost.

10:18 Q. So by this point, are you already talking with people who might provide those parts to figure out what they could do and how much it would cost?

10:18 A. Yes.

10:18 Q. There's a bullet there that says "TI..."

Is that Texas Instruments?

10:18 A. Yes.

10:18 Q. STMicro, is that STMicroelectronics?

10:18 A. Correct.

10:18 Q. MStar, Renesas, Broadcom, Qualcomm. It goes on.

Do you see all that?

10:18 A. Yes.

10:18 Q. Was the Chromecast team already engaging directly with potential components suppliers by this point?

10:18 A. Yes.

10:18 Q. And this was December of 2011?

10:18 A. Yes.

10:18 Q. Couple of -- just a couple more things there.

That third bullet: Speaking with content providers on requirements, starting with YouTube.

Do you see that?

10:18 A. Yes.

10:18 Q. By December of 2011, was the Chromecast team

already engaging with these content providers?

A. Yes.

Q. So this work then led to the launch of Chromecast in July of 2013, correct?

A. Correct.

Q. So that's about a year and a half.

Why'd it take so long?

A. Because it takes a while for -- from the time you build a prototype until you have the software completely tested and in high quality to make it available to users. That usually involves a lot of iteration, involves a lot of testing.

At the same time, since we need to work with content provider, we needed to first develop our SDK, make it available to these content providers so they could incorporate it into their apps on the phone.

And then once they incorporate it, we need to give them technical support. And then we need to also make sure that this integration is seamless, it is properly tested. Because we care a lot about the quality in what we are providing to our users and wanting to make sure that we are providing the highest quality to them.

Q. And did you work hard on getting a quality product?

10:19 A. Absolutely.

10:19 Q. Thank you.

10:19 All right. We're going to turn to a couple of other topics. I'm almost done with my questions for you, sir.

10:20 You personally, have you personally been awarded any patents?

10:20 A. Yes.

10:20 Q. About how many patents do you have personally?

10:20 A. More than 20.

10:20 Q. Any of those patents relate to your work on Chromecast?

10:20 A. Yes.

10:20 Q. Now, you understand that we're here -- you're here in this courtroom for the first time today because of a lawsuit brought by Touchstream.

10:20 Do you understand that?

10:20 A. Yes.

10:20 Q. Before you heard about this lawsuit, did you have any memory of dealing with Touchstream?

10:20 A. No.

10:20 Q. Did you have any memory of meeting with them?

10:20 A. No.

10:20 Q. Had you ever seen any Touchstream software or product or anything like that?

10:20 A. No.
10:20 Q. Did you -- are you intending to be disrespectful or dismissive of Touchstream?
10:20 A. Absolutely not.
10:20 Q. Over the course of your work at Google, have you met with people who thought about maybe we could do a deal with Google?
10:20 A. Yes. Many.
10:20 Q. That happens a lot?
10:20 A. A lot.
10:20 Q. Do you remember all of those meetings?
10:21 A. No.
10:21 Q. Do you remember meetings that lead to something?
10:21 A. Usually.
10:21 Q. In developing Chromecast, did you -- did you and your team drive the development of Chromecast?
10:21 A. Yes.
10:21 Q. Did you do that work yourselves?
10:21 A. Yes.
10:21 Q. Did you learn anything from Touchstream that helped you do that development work?
10:21 A. No.
10:21 Q. Did you have the work done by December of 2011 that we've described, that idea, the concept card, the

PRD, the presentation to upper management, the vendors, all that by December of 2011?

A. Yes.

Q. So Chromecast released ten years ago?

A. Yes.

Q. Is your team proud of the work?

A. Very proud.

Q. Are you proud of your team?

A. I'm very proud of them.

Q. Do you think your wife will be happy with what you contributed to?

A. She is.

Q. Thank you, sir.

MR. LANIER: I have no more questions at this time.

THE WITNESS: Thank you.

CROSS-EXAMINATION

BY MR. DYKAL:

Q. Good morning, sir.

A. Hello.

Q. I want to ask you a few questions about your testimony this morning.

Now, you said that you first came up with this idea back in 2010 when you were watching your wife, correct?

10:22 A. Yes.
10:22 Q. You never attempted to build a prototype back then, did you?
10:22 A. Not in 2010.
10:22 Q. You said you didn't intend to build -- you didn't start to build a prototype until you were working at Google, correct?
10:22 A. Yes.
10:22 Q. And you said you began building prototypes in October or November of 2011?
10:23 A. Yes.
10:23 Q. You didn't show any prototype code today, did you?
10:23 A. No.
10:23 Q. Does Google store code that people write?
10:23 A. Yes.
10:23 Q. And you didn't provide any of that code today, did you?
10:23 A. No.
10:23 Q. And there's no way to date the prototype that you say you created, correct?
10:23 A. No.
10:23 Q. Now, in talking about how Chromecast works, do you recall saying that it operated in a peer-to-peer fashion?

10:23 A. Yes.
10:23 Q. Isn't it true that in that peer-to-peer model, there's most likely a server running on that Chromecast to receive messages from the phone?
10:23 A. It is -- it is probable. Yes.
10:23 Q. It's probable that there's a server running on that Chromecast in the peer-to-peer situation to receive messages from that phone, correct?
10:24 A. It is.
10:24 Q. Thank you.
10:24 I'd like to take a look at a couple of the documents you discussed. Is that okay?
10:24 Could you turn to Document No. 1 in your notebook?
10:24 A. My document?
10:24 Q. So this document says: Google TV big bets for 2012. Correct?
10:24 A. Correct.
10:24 Q. And you said this was a document created in September 2011, correct?
10:24 A. Yes.
10:24 Q. Would you agree there's no date on this document that says September 2011?
10:24 A. Not on this document.
10:24 Q. You'd agree the only date is on that front

page that says "big bets for 2012," correct?
A. Yes.
Q. Now, assuming that this was created in September 2011, would you agree that's after April 2011?
A. Yes.
Q. Are you aware that Touchstream's patents were filed in April of 2011?
A. I'm not.
Q. You don't have any reason to disagree with that, though, right?
A. No.
Q. Let's take a quick look at that document.
Could you turn to the second page? Working Assumptions, do you see it says: Need to find areas of large investments?
A. Yes.
Q. Would you agree that this document is discussing areas to investigate for investment?
A. Areas -- areas that we want to invest in.
Q. So could you turn to the next page?
You discussed that the HDMI dongle is what you referred to as what would become the Chromecast, correct?
A. Yes.

10:26 Q. Could you go to the next page?

10:26 And then you discuss these bullet points on that HDMI dongle, correct?

10:26 A. Yes.

10:26 Q. Now, that top bullet point says: Low-priced HDMI dongle with built-in GTV player.

10:26 Do you see that?

10:26 A. Yes.

10:26 Q. Does GTV player refer to the Google TV operating system?

10:26 A. Yes.

10:26 Q. So the idea of this slide was to build a dongle with Google TV operating system on it, correct?

10:26 A. Actually, not necessarily. It -- it talks about having the player that is part of the Google TV platform but not the whole platform.

10:26 Q. Okay. But you'd agree this slide says: The low-priced HDMI dongle would have a built-in Google TV player. Correct?

10:26 A. That's what it says. Yes.

10:26 Q. The Chromecast that was released in 2013, did it run Google TV operating system?

10:26 A. No.

10:26 Q. It ran Chrome browser, correct?

10:27 A. It -- a version of Chrome browser.

10:27 Q. It was a Chrome-based approach, correct?
10:27 A. Correct.
10:27 Q. I think I have one more question on this slide. Do you see that Bullet Point 2 and then the little bullet under that?
10:27 So first, that bullet says: Discover and navigate content on second screen.
10:27 Do you see that?
10:27 A. Yes.
10:27 Q. That's the casting concept, correct?
10:27 A. Yes.
10:27 Q. And then underneath that, it says: Build mobile Alf with large enough content sources. Correct?
10:27 A. Yes.
10:27 Q. So it hadn't been built yet, had it?
10:27 A. Alf was built.
10:27 Q. This slide says "build mobile Alf," doesn't it?
10:27 A. At the time of that, we had an Alf implementation.
10:27 Q. Okay. I understand that you say that.
10:27 But this slide says "build it," doesn't it?
10:27 A. Okay. Yes. It does.
10:27 Q. Thank you.
10:28 Could you go to Tab 3?

10:28 So Tab 3, this is the document you said -- you discussed where you were supposedly pitching Google management, correct?

A. We were getting approval. Yes.

Q. Would you agree there's no date on this document?

A. Yes.

Q. Okay. Could you turn to Page 2?

A. Yes.

Q. I'm sorry. Tab 2.

A. Oh, Tab 2.

Q. Thank you.

10:28 So this is the PRD document for Chromecast you were discussing?

A. Yes.

Q. And you say this was created in October 2011?

A. Yes.

Q. You'd agree there's no date of October 2011 on this document?

A. Yes.

Q. Now, when Mr. Strober was testifying, the jury heard some discussion of metadata.

10:29 Are you familiar with metadata?

A. Yes.

Q. And are you familiar with the concept of a

file modified date?

A. Yes.

Q. And that's the last date that a file was modified, correct?

A. Yes.

Q. Are you aware that the last date that this document was modified was June 13th, 2022?

A. No.

Q. Are you aware that that's a year after this lawsuit was filed?

A. Yes.

Q. Let's take a look at some of the items in this.

Could you go to 194? The -- I'm sorry. So at the bottom of the pages, there're little numbers. Do you see them? They're kind of small.

Could you go to the one ending in 194?

A. Yes.

Q. Do you see at the top, it says: Cloud discovery and pairing. On the top left, where it says: Cloud discovery and pairing.

A. Yeah.

Q. That's the concept of discovering a Chromecast and pairing with it with a phone, correct?

A. Yes.

10:30 Q. And what's the cloud?
10:30 A. Cloud? It's basically servers in the clouds.
10:30 Q. So this is discussing using servers in the cloud to discover and pair with the Chromecast, correct?
10:30 A. Can I read what's written?
10:30 Q. Sure.
10:30 A. Yes. This is at the time before we -- we built -- we evolved our thinking. We were thinking that we cannot -- from a web application, not from a mobile phone, we cannot use SSDP.
10:31 Q. Okay. But you'd agree that the cloud is servers in the Internet, and this is talking about pairing and discovery through the Internet, correct?
10:31 A. Yes.
10:31 Q. And then it says you need a mechanism to discover the second screen device, correct?
10:31 A. For this particular case, yes.
10:31 Q. So at this time, you still needed a mechanism to do that, correct?
10:31 A. Yes.
10:31 Q. Could you turn two more pages to 196?
10:31 So this page is entitled Eureka Protocol and Architecture, and that's the Chromecast protocol and architecture, correct?

10:31 A. Yes.
10:31 Q. Could you look at No. 3?
10:32 A. Yes.
10:32 Q. It says: Launch and control an app on the TV device from the second screen.
10:32 Do you see that?
10:32 A. Yes.
10:32 Q. And then the bullet under that says: This would likely imply two-way communication.
10:32 Do you see that?
10:32 A. Yes.
10:32 Q. Do you agree that at this time, you didn't know whether it would -- whether it would require two-way communication?
10:32 A. No. We knew.
10:32 Q. This says it "would likely imply," doesn't it?
10:32 A. That -- that's most likely the way it is written, but we definitely knew that we needed two-way communication.
10:32 Q. Okay. But the document says it would imply it, correct?
10:32 A. Yes.
10:32 Q. Could you turn back to Page 189? I'm sorry. I'm sorry. 190. I'm sorry. 191. I'm sorry.
10:33 Okay. So this is the diagram you discussed

10:33 with Mr. Lanier, correct?
10:33 A. Yes.
10:33 Q. And I think you also said that this was a
10:33 living document, some multiple versions were created
10:33 over time?
10:33 A. Yes.
10:33 Q. Okay. So before this page, if you go back two
10:33 pages to the page ending in 189, before that document,
10:33 do you see a screenshot of a phone?
10:33 A. Yes.
10:33 Q. Do you see that Tweet from Lady Gaga that
10:33 says: I'm sort of obsessed with these little cuties?
10:33 A. Yes.
10:33 Q. Do you know the date of that Tweet?
10:33 A. No.
10:34 Q. Did you know the date of that Tweet is
10:34 March 8th, 2012?
10:34 A. I'll take your word for it.
10:34 Q. You don't have any reason to disagree with
10:34 that, correct?
10:34 A. No.
10:34 Q. Okay. You can set that aside.
10:34 Now, you don't remember -- well, you say you
10:34 don't remember meeting with Touchstream, correct?
10:34 A. Yes.

10:34 Q. You don't deny that that happened, do you?
10:34 A. No.
10:34 Q. You've seen the calendar invites and the e-mails, correct?
10:34 A. Yes.
10:34 Q. And you don't have any reason to doubt that a nondisclosure agreement was executed between Touchstream and Google, correct?
10:34 A. Correct.
10:34 Q. And you'd agree that a nondisclosure agreement is in place to protect a party's confidential information being used improperly, correct?
10:35 A. Yes.
10:35 Q. So those meetings, you understand, happened in December of 2011 and January of 2012, correct?
10:35 A. Yes.
10:35 Q. And when -- you say you were working on this beforehand, correct?
10:35 A. Yes.
10:35 Q. And you don't recall meeting with Touchstream and saying, Hey. You need to stop. I'm already working on something like this, correct?
10:35 A. I don't recall.
10:35 Q. You don't remember thinking, Oh, man. These guys are working on something just like what I'm doing,

correct?

A. No.

Q. And then you continued working on Chromecast in your telling, correct?

A. Yes.

Q. You didn't isolate, correct? After you learned any information -- and I understand you don't remember it.

But you didn't isolate from that project, did you?

A. I did not isolate.

MR. DYKAL: No further questions.

MR. LANIER: Just a few questions, Your Honor. Thank you.

REDIRECT EXAMINATION

BY MR. LANIER:

Q. Mr. Bakar, when were you married?

A. August 9, 1997.

Q. Why do you remember that date?

A. It's an important date for me.

Q. Do you remember important dates in a business context?

A. Yes.

Q. Do you remember presenting to a VP at Google about an important project you wanted to launch?

10:36 A. Yes.
10:36 Q. Do you remember that was by December of 2011?
10:36 A. Yes.
10:36 Q. Do you remember, in the course of developing Chromecast, that you considered many different possible use cases?
10:36 A. Yes.
10:36 Q. What's a use case?
10:36 A. Basically, it's a scenario that we want to enable. So you explore, okay. A user wants to do Action A. How do we do that? Or a user wants to do Action B.
10:36 And then at some -- sometime over the course of the development, we realized this Scenario B doesn't make sense or we want to implement it differently. So things change as we move forward in our development.
10:37 Q. So is it possible that for some use cases, you might be thinking of one plan of action, for other use cases, another one?
10:37 A. Correct.
10:37 Q. Every -- he showed you a couple use cases.
10:37 Do you pursue every use case that you consider?
10:37 A. No.
10:37 Q. Does the team freely exchange ideas within

10:37 Google?
10:37 A. Yes.
10:37 Q. Does every idea make it out into the final product?
10:37 A. No.
10:37 Q. Even as you're considering different use cases, did the basic architecture of Chromecast change from its original conception?
10:37 A. No.
10:37 Q. Okay. Now, let's talk about another way to remember things.
10:37 Do you remember the sequence of events?
10:37 A. Yes.
10:37 Q. Do you remember that there was an idea?
10:37 A. Yes.
10:37 Q. Do you remember pitching it to Google in your interview?
10:37 A. Yes.
10:37 Q. Do you remember starting to work on it when you were at Google?
10:37 A. Yes.
10:37 Q. Do you remember that strategy offsite?
10:37 A. Yes.
10:37 Q. Do you remember the -- putting together the PRD?

10:37 A. Yes.
10:37 Q. Do you remember that big presentation to
10:38 management?
10:38 A. Yes.
10:38 Q. Was that all done by December 2011?
10:38 A. Yes.
10:38 Q. Do you remember engaging with outside vendors,
10:38 We want to build this thing with these pieces?
10:38 A. Yes.
10:38 Q. Was that done by December of 2011?
10:38 A. Yes.
10:38 Q. Do you remember talking with content
10:38 providers, We've got this idea. We'd love to have your
10:38 movies on it?
10:38 A. Yes.
10:38 Q. Was that started by December of 2011?
10:38 A. Yes.
10:38 Q. Okay. Couple of other questions for you.
10:38 There was a discussion of a server on the
10:38 Chromecast.
10:38 Do you recall that?
10:38 A. Yes.
10:38 Q. That's software, right?
10:38 A. Correct.
10:38 Q. And that's on the Chromecast dongle itself,

correct?

A. Correct.

Q. Is there a server between the Chromecast and the phone in their communication?

A. Never.

Q. Was it designed that way?

A. Yes.

Q. Was that an intentional choice?

A. It is intentional.

Q. Now, are there servers out in the cloud that somehow relate to the user's experience of casting?

A. Yes.

Q. The phone says, I want to watch this movie.

Where does the TV get that movie?

A. The TV streams it directly from Netflix or Hulu or whoever that -- that content provider from their servers.

Q. And if you want to press on your phone, I'd like to watch this movie, does your phone go check to see if you have a Netflix account?

A. Yes.

Q. But when the phone says, Hey, TV. Or Hey, display. Play, pause, press -- here's what I want you to do, is there anything in between them?

A. No.

10:39 Q. Is there any server in between them?
10:39 A. No.
10:39 Q. Thank you, sir.
10:39 MR. LANIER: No more questions, Your Honor.
10:39 MR. DYKAL: Nothing from us, Your Honor.
10:39 THE COURT: May he be excused and remain in the courtroom?
10:39 MR. DYKAL: Yes, Your Honor.
10:39 THE COURT: You're free to -- you're out from under the rule. You're welcome to stay in the courtroom.
10:39 THE WITNESS: Thank you.
10:39 THE COURT: You bet.
10:39 Who's your next witness?
10:39 MR. LANIER: Our next witness is Corey Robins. I think we need to get him from outside.
10:40 (The witness was sworn.)
MS. STITT: Your Honor, permission to approach with the...
10:41 Good morning, Your Honor, ladies and gentlemen of the jury, Mr. Robins.
10:41 My name's Tracy Stitt, again, and I represent Google.
10:41 DIRECT EXAMINATION

10:41 BY MS. STITT:

Q. Mr. Robins, would you please just take a moment to introduce yourself to the jury and tell them what it is that you do for a living?

A. Sure.

Hi there. My name is Corey Robins, and I lead a team of product marketers at Google. And we're responsible for Google's smart home portfolio, otherwise known as Google Home or Google Nest or Chromecast.

Q. Let's talk a little bit about your path, your career path to that position at Google.

What's your educational background?

A. I graduated from UC Berkeley in 2005 with a majors in business administration, and then I graduated from Columbia Business School in 2011 with a master's in business administration.

Q. And how long have you worked for Google?

A. I started at Google in about 2015.

Q. About how long have you had your current position as global product marketing director?

I want to make sure I get that right.

A. That's right. I took on this role in about 2019.

Q. Do you have anyone who reports to you,

10:42 Mr. Robins?
10:42 A. Yes.
10:42 Q. About how many people report to you?
10:42 A. Roughly 13 people.
10:42 Q. And you've mentioned the Google smart home or Nest portfolio of products. The jury's heard a little bit about various products at issue in this case.
10:42 Do you have a demonstrative that explains the different groups of products that you're responsible for?
10:42 A. Yes.
10:42 MS. STITT: Mr. McDonald, can we pull that up, please?
10:42 A. Great.
10:42 BY MS. STITT:
10:42 Q. Mr. Robins, can you just walk the jury through what's shown here?
10:43 A. Yes. So this is a subset of Google's total devices.
10:43 THE COURT: Can you all hear him?
10:43 THE WITNESS: Can you hear me okay? Oh, I'll scoot a little closer.
10:43 BY MS. STITT:
10:43 Q. Maybe if you move the mic a little closer to you. There you go.

10:43 A. Yeah. Maybe that's easier. Okay.

10:43 So this is a subset --

10:43 THE COURT: I'm sorry. I just wanted to make sure they could hear him.

10:43 MS. STITT: No, no. So do I.

10:43 A. Me three.

10:43 So yes. This is a subset of devices that we sell -- that Google sells for -- in our smart home portfolio.

10:43 All of these devices you see here support casting. And so the title here is Chromecast products.

10:43 On the left-hand column, you see some of our Chromecast devices. On the top, you see our 3rd Generation Chromecast and our 1st Generation Chromecast. On the bottom is one of our newer Chromecasts.

10:43 In the middle we have something called Nest speakers, which are smart speakers. You might have heard of these.

10:43 On the top right, we have smart displays that we also market and sell.

10:43 And then on the bottom right, you see something called Chromecast built-in. And there's a picture of a TV.

10:44 This is actually devices that are made by

10:44 third-party TV manufacturers, so not Google. I think
10:44 Samsung, Sony, LG, probably the TVs you have at home.
10:44 Some of those TVs come with Chromecast technology kind
10:44 of embedded into the TV already.
10:44 Q. Thank you, Mr. Robins.
10:44 And to clarify for the jury, which of the
10:44 products that we're looking at here fall within your
10:44 responsibilities?
10:44 A. I oversee all of these except for the
10:44 Chromecast built-in products. That is managed by a
10:44 different team.
10:44 Q. Let's start and focus on the Chromecast
10:44 devices.
10:44 MS. STITT: And you can take that down,
10:44 Mr. McDonald.
10:44 BY MS. STITT:
10:44 Q. Can you please describe, Mr. Robins, when you
10:44 began working on Chromecast products and what type of
10:44 work it was that you were doing?
10:44 A. Absolutely. So I mentioned I took on my
10:44 current role in 2019. At that time, one of my team
10:44 members was leading the launch of a new Chromecast
10:44 device, and we were also supporting our existing
10:44 Chromecast devices in the market.
10:44 And so my role was to help us prepare for that

launch by reviewing work, ensuring it met the quality bar we needed, we had buy-in across the organizations, those sorts of things.

Q. And in terms of strategic product marketing for products like Chromecast at Google, can you explain to the jury a little bit, what does that entail?

A. Absolutely. It's kind of a jargony term. But basically, we want to ensure that when Google was building a product, that it's something people actually want and sort of provides value to people; it's not just a product for product sake.

And then the second is that we have a way to explain it to people that's appealing. Because sometimes even if you solve a need, if you don't understand it, you know, you're not going to really consider it. And so we want to make sure we describe it in a way that people understand.

Q. One of the things you mentioned is you want to make sure that the product is meeting the needs of the consumer.

Can you tell the jury, how does Google go about making sure that it meets a user's needs?

A. Absolutely. At its most basic, we talk to people. We -- we run focus groups. We do interviews. We might do quantitative surveys online to get a sense

10:46 of where they might have an unmet need or a pain point
10:46 with an existing product or service.
10:46 Q. Let's talk a little bit about the evolution of
10:46 the Chromecast devices from a strategic marketing
10:46 perspective, from the original Chromecast to the recent
10:46 launch that you mentioned of the Chromecast with Google
10:46 TV.
10:46 Let's start -- what kind of research does
10:46 Google do before launching a product like Chromecast?
10:46 A. So we -- we do a lot of research. And we are
10:46 trying to answer four types of questions.
10:46 The first type of question is really we -- we
10:46 call them a target user. But it's who are we building
10:46 for? Who's the person we think we want to serve, and
10:46 what sort of needs do they have?
10:46 The second might be, can we build a product
10:46 that meets those needs in a credible or maybe a
10:46 differentiated way?
10:46 Third would be, do we have a compelling value
10:46 proposition or way to explain it? So this would be
10:46 like positioning -- what we call positioning research,
10:46 which is actually what's the types of words we would
10:47 use to describe this to somebody, to that target user.
10:47 And then the fourth is really around how do we
10:47 best present the story to a user? So that might be

10:47 picking a product name, picking the colors of the
10:47 product we're going to show, naming features, things of
10:47 that nature.
10:47 Q. And what about after Google decides to launch
10:47 a product? What types of marketing research does
10:47 Google perform at that point?
10:47 A. At that point, so we do a fair number of
10:47 research studies, some of which are publicly available
10:47 like social media. We'll sort of get a sense of, you
10:47 know, sentiment behind the brand or a product, like are
10:47 people liking it, are people unhappy with it and what's
10:47 kind of driving that.
10:47 But the main thing we do is something called
10:47 "net promoter score" or NPS. And what this is is we
10:47 basically -- you probably had one of these surveys
10:47 before, but ask people. We say: On a scale of one to
10:47 ten, how satisfied are you with this product and how
10:47 likely are you to recommend it to a friend?
10:48 And then we have a little free text box
10:48 afterwards that you can type in, you know, here's what
10:48 I like or here's what I don't like.
10:48 On the back end, we sort of average that out
10:48 to see how satisfied people are with the product, and
10:48 then we correlate that with the words that you've
10:48 input.

10:48 And everyone else has to say: When people are satisfied with the product, what are the things they talk about? Is it -- is it performance? Is it speed? Is it design? And when they're really unhappy, what do they tell us? Is it slow? Is it laggy? Is it buggy? That kind of thing.

Q. And do you and your team take that information, all of the research that you have done to prepare, and you sort of internal documents to capture your marketing strategy for products like Chromecast?

A. We do.

Q. You have a binder there in front of you, and it doesn't have any tabs because lucky for you, it only has one document. If you could pull up that binder, grab that binder, and take a look at DTX-254.

And tell me if you're familiar with that document.

A. I am familiar with this document.

Q. And what is this document that you're looking at?

A. So this is something called a Product Marketing Guide. And I'd say the best way to think about it is it's kind of a greatest hits of all of the work that my team has done, that we think other marketers need to know to bring the product to market

10:49 through retail channels, so on.

Q. And you mentioned your team.

Is this a -- did you have any role in preparing this document?

A. I did. I reviewed and edited this multiple times.

Q. And what is the approximate date of this document?

A. The date, I believe, is February 2020. Yes.

MS. STITT: At this point, Your Honor, we would move to admit into evidence DTX-254.

MR. BERGSTEN: No objections.

THE COURT: Admitted.

MS. STITT: All right. And, Mr. McDonald, if we could pull up Page 2 of the document.

BY MS. STITT:

Q. Mr. Robins, looking at Page 2, it says "Sabrina."

What's Sabrina?

A. Yeah. So Sabrina is -- it's a code name. It's an internal code name that was meant to represent the Chromecast device we were preparing to launch called Chromecast with Google TV.

Q. We've heard a little bit about Eureka.

10:49 Do you -- do you recall that name?

10:50 A. Yes.

10:50 Q. And what was Eureka? Just remind us.

10:50 A. Yeah. Eureka was the code name for the 1st Generation Chromecast. We launched a second. It was called Earth, a third that was called Caprica, and then the ultra version that was called Luther. So a lot of code names.

10:50 Q. Who chooses the code names for these products internally?

10:50 A. Interestingly, it's the product manager, the person ultimately responsible for building the product, and they can pick from anything that they're interested in or familiar with.

10:50 Q. Okay. So -- so we're calling -- this is -- the Chromecast with Google TV is Sabrina; is that right?

10:50 A. That's right.

10:50 Q. All right. And what is the purpose of this document with respect to Sabrina?

10:50 A. So the primary purpose of this document's twofold. The first is for my team to put, again, like I mentioned, all of our greatest hits into one place.

10:50 (Clarification by Reporter.)

10:50 A. Oh, sorry. I'm so familiar with all this.

10:50 This is my day-to-day. So I just go off on a tangent
10:50 sometimes or a rant.
10:50 We compile all of our work here, and then this
10:50 serves as our source of truth for my team.
10:50 Secondly, we have marketers all around the
10:51 world that are helping to bring products to market on
10:51 our behalf. And this is really meant to serve as a
10:51 reference for them. So anything they're doing, if
10:51 they're thinking about writing an e-mail, say, to
10:51 introduce a product, they'll look here to say -- to
10:51 look at what to say about it.
10:51 Q. Let's turn to Page 6 of this document, please,
10:51 Mr. Robins.
10:51 Can you tell us, what are we looking at here?
10:51 A. Yes. So this is -- there's a couple things on
10:51 this page worth calling out.
10:51 The first is on the top left, the name,
10:51 Chromecast with Google TV. That was the name we gave
10:51 it.
10:51 We have a tag line right below that. That's
10:51 meant to represent the -- to simply represent the value
10:51 proposition in a user-friendly way, and we said: The
10:51 entertainment you love with a little help from Google.
10:51 Then we have the price, anticipated countries
10:51 we were going to launch in. And then the thing that

probably got your attention first, we have a picture of the product. And you can see it as two parts.

The first is what we call a dongle. That's what you plug into the back of the TV through an HDMI port.

And then on the right is a -- the all new voice remote.

Q. And you mentioned the remote.

Did prior iterations of Chromecast before this Sabrina version have a remote?

A. No.

Q. If there wasn't a remote in prior versions, how did users control playback of content?

A. Absolutely. So on your phone, you probably have apps like Netflix or Hulu or Amazon Prime Video or Disney+. When you go into those apps, you can select a show you like. Yellowstone.

You can -- when you start to play it, you'll often see a little icon on the top right, and that icon will either have, depending on your phone, something to represent Cast or something to represent AirPlay.

And when you -- when you click on that, you'll see a list of devices that your phone can talk to and send data to. And usually it'll say living room TV or bedroom TV.

10:53 And you select that, and then your content shows up on the TV in realtime. And you can control the content from your phone through that app.

Q. From Google's perspective, and sticking on the original Chromecast device, what was the primary feature that drove consumer demand?

A. The primary feature was really the ability to quickly get content from your phone or tablet onto a much bigger screen for a better viewing experience and to be able to do this without having to purchase a Smart TV, which was much more expensive.

Q. Were consumers concerned with how the content got there?

A. No.

Q. Were they concerned with any of the particular tools that were used to get the content from one place to another?

A. No.

Q. Was the absence of a remote something that Google found was important to consumers with respect to the original Chromecast?

A. No. We had an aspiration, but what we actually found was for most users, it was a clunkier experience. Because if you just think about how you're watching TV, holding your phone, you get distracted.

10:54 You know, a text comes in, an e-mail comes in, you start surfing the web, and then let's say, for example, somebody wants to tell you something.

Well, you got to pause the TV. And you can't just pick up your remote to do that, you have to remember which app you were in, get back over to that app, press pause and time has passed. It was a fairly clunky experience for most people.

Q. And so turning back to Exhibit 254, this is -- this document talks about Sabrina and represents a bit of a shift in Google's marketing strategy with respect to Chromecast.

A. That's right.

Q. Does this document explain why Google decided to release the Sabrina device?

A. Yes.

Q. And you mentioned that Google conducts a lot of market research in connection with the decision to launch a product.

Does this document include that market research?

A. Yes.

MS. STITT: If you could turn to Page 59 of the document, please.

A. Absolutely.

BY MS. STITT:

Q. It's up on the screen as well once you get there.

A. Oh, good. It's there.

Q. Mr. Robins, can you tell the jury what we're looking at here?

A. Yes. So this is meant to be a summary of some market research we did.

So on the left-hand side, you see the devices we were currently selling: Chromecast, that's the 3rd Generation in HD; the Chromecast Ultra, which is our 4K version; and then there were Chromecast built-in TVs available on the market.

Below that, you can see a pie chart representing market share. So it's total sales of streaming dongles in the U.S.

And the takeaway for us was that Amazon and Roku combined had roughly two-thirds of the market and Chromecast was roughly 15 to 16 percent. So we were kind of a distant third player.

On the right-hand side, this is output of some of our surveys to users, really users of any streaming device. And we -- this is -- this chart shows two questions we asked them.

The first was about consideration. So we've

10:56 talked to someone. They've said, I'm interested in a streaming dongle. And we say, Are you considering purchasing from any of these brands, or would you consider purchasing from any of these brands?

And Chromecast is on there, Amazon. If they say yes, they're counted in this chart.

We then asked them, What brand are you most likely to purchase from?

And that is what we call purchase intent, and that's the second bar.

So what you can see, just like with the pie chart on the left, Amazon and Roku led in consideration and purchase, with Chromecast kind of in a distant third.

Q. So what did this market research tell Google?

A. Yeah. It said -- it said we had opportunity, that we were -- we had staying power, we were still in the market, but that we weren't meeting user needs as best we could. Competitor brands were doing that.

Q. And so were any of these market insights used to inform Google's strategy for releasing the Sabrina product?

A. Yes.

MS. STITT: If you could turn to Page 60, the next page of the document.

BY MS. STITT:

10:57 Q. What information is collected on this slide?

10:57 A. So I mentioned we do a fair number of studies before we launch a product. This is a couple of the key points that we took away from that research.

10:57 So the first column tells us consumers still want to stream content, and they are still interested in buying streaming devices. And so it said, There's still an opportunity here.

10:58 Of note to us was what's kind of at the bottom of that paragraph. It says: Two-thirds already have a Smart TV.

10:58 This is a massive shift from when we launched Chromecast back in 2013 when Smart TVs were not as common. They were much more expensive.

10:58 The second was it's all about the content. And so what this told us is we have to give people an easy way to access any content they want.

10:58 Not just streaming, but we were -- we should think about incorporating live TV, music, even gaming. The people want access to that content.

10:58 And then the third, it was a really interesting insight for us that people wanted help navigating that content.

10:58 They were starting to get overloaded by the

10:58 number of apps and shows that were out there. And so
10:58 what they said is, God. Wouldn't it be great if
10:58 somebody could say, Hey. I know what you like. Why
10:59 don't you check out this show over here rather than
10:59 sort of having to ask family or friends or go online
10:59 and search?
10:59 And just one last point to make, under the key
10:59 takeaways in that third column, we said, Consumers'
10:59 biggest wish is for a UX that fully integrates multiple
10:59 apps and services into a single cohesive experience.
10:59 What people told us is they were tired of
10:59 flipping through apps, having to go from Apple TV+ to
10:59 Netflix to Amazon to Hulu and remember which shows were
10:59 in which ones and where they were at when they were
10:59 used to having a cable box with sort of one DVR and all
10:59 their shows in one place.
10:59 Q. So did Google take this research that's
10:59 summarized here and identify a user need?
10:59 A. Yes.
10:59 MS. STITT: And if you could turn to Page
10:59 56.
10:59 A. Yes. So this -- I'm just going to stop using
10:59 that.
10:59 BY MS. STITT:
10:59 Q. Go ahead. You can look at the screen if

10:59 that's easier for you.

10:59 A. Yes.

10:59 Q. The slide says "The Problem."

11:00 What's the problem here?

11:00 A. Yes. So there's a lot of text on this page. I'm actually going to focus on the second -- the first and second paragraphs, and then just tell you what we -- how we internalized this.

11:00 It's been a long day. You get home from school or work, do your usual routine and plop down on the couch. All you want is to put something you like on TV so you can turn off your brain and relax.

11:00 You go into Netflix and you scroll through looking for the perfect show to settle into the night, but nothing catches your eye. You go back to all your apps, select Hulu and take a look at your options. No luck there either.

11:00 Rinse and repeat.

11:00 Why is it so hard to choose something to watch?

11:00 Frustrated after 30 minutes of searching, you put on Friends again. It's the fifth time you've watched the show.

11:00 We found this to be a very credible and relatable moment for many of our users that were

11:00 frustrated. And after we heard this enough, we gave it
11:00 a term. It's kind of silly term, a very marketing
11:01 mumbo jumbo, but the term we gave it was "show
11:01 overload," which is that was the problem people were
11:01 facing. There was just too many shows out there, and
11:01 they didn't -- they wanted help on what to watch. They
11:01 liked watching.
11:01 Q. So how did the Sabrina device aim to solve
11:01 this problem?
11:01 A. On the next page, we have a good overview of
11:01 that. Yes. Aptly titled "The Solution."
11:01 Again, there's a lot of text on this page. So
11:01 maybe let's go through the bullets, if you're okay with
11:01 that.
11:01 I think that's just a good way -- these
11:01 bullets represent the main user benefits we were
11:01 bringing to market with Sabrina.
11:01 Q. That sounds great.
11:01 MS. STITT: Let's start with the first
11:01 bullet right there, and we can pull that one up.
11:01 A. Okay. So the first bullet says: Puts all
11:01 your entertainment in one place.
11:01 And the feature that this was really talking
11:01 about was our new software, our new integrated software
11:01 platform called Google TV.

11:01 It was a very -- it's a very well-designed, easy-to-navigate software interface that allows you to quickly see your apps, organize your entertainment, and find what you want to watch.

11:02 The second bullet says: Helps you decide what to watch.

11:02 So we've talked about this a couple of times, but this really referred to two features that were part of Google TV.

11:02 The first is something called "universal watch list." So rather than having a separate watch list in each streaming app, we gave users the ability to have one watch list across all of their apps that was part -- that was built into the software.

11:02 And then the second is personalized recommendations. So let's say you just finished watching this season of The Office or Yellowstone, any show will do. It finishes. And you're thinking, Oh, that was really fun. I want to watch some more of a show like that, but I don't know where to -- you know, so now what?

11:02 Well, we could say, Oh, you liked Yellowstone. Why not try 24? Or you liked NCIS, why not try CSU? And users find a lot of value in that.

11:03 BY MS. STITT:

11:03 Q. Let me stop you there for a moment.

Those first two bullets that you described, those are features that are on Sabrina.

Were they on prior iterations of Chromecast dongle devices?

A. No.

Q. And what about the next bullet?

A. The next bullet says: Includes a voice remote with Google Assistant.

And this really refers to two new features we were offering. So the first is a dedicated remote, which you saw the picture of earlier.

And the second is that that remote included the Google Assistant, which if folks aren't familiar, it's similar to Alexa or Siri but it's this idea, you know, you can talk to the remote.

And, firstly, it was great for entertainment. So, for example, let's say you know you want to watch Friends, because we just talked about that.

You don't want to have to click into apps, find Friends, search for it. You can just say, Hey, Google. Play Friends. And it plays it for you.

You could also use it to do anything else that you can with a voice assistant, get information, ask the weather, things like that.

11:04 Q. So we mentioned previously that the original versions of Chromecast, the earlier versions, did not have a remote.

What changed so that you decided to release one with Sabrina?

A. Well, I alluded to earlier that for some users it was a rather clunky experience controlling everything from their phone.

But what we saw when I -- when I put up -- when I showed the market overview and you saw how Amazon and Roku seemed to be having, you know, roughly two-thirds share, to us, that was users voting with their wallets. And that told us there was a need that we were not meeting.

And, in fact, I think we have a page.

MS. STITT: If you turn -- yeah. Page 61, I think.

A. Yes. This --

11:05 MS. STITT: Turn there.

A. So this page, it's called the 4K streaming category. So these are all of the streaming dongles that in 2020 -- the start of 2020 were being sold within the 4K category. And 4K refers to resolution.

If you remember TVs back in the '70s and '80s, they were very fuzzy. And they didn't seem fuzzy at

the time, but when you look back at them, you realize how fuzzy they were.

That was roughly what we called now standard definition, and then you probably saw HD, high def, and then the evolution after that was called 4K, and that's sort of the top of the market.

So here you see all of the devices that were offered, and one of the things that was very clear to us, if you look at the fourth row, was that everybody except Chromecast offered a remote at the time. And so we felt to be competitive, we needed to launch a remote to better meet that user need.

MS. STITT: And let's go back to -- was it Page 56 that we were looking at?

BY MS. STITT:

Q. To be clear, any of the features that we've just discussed, were any of those available on the earlier versions of Chromecast before Sabrina?

A. No.

Q. Sabrina still supports casting, right?

A. Yes.

Q. Based on your market research, where does casting rank in terms of consumer preferences compared to the new features that we just discussed with respect to Sabrina?

11:06 A. Yeah. I would say it would fall really towards the bottom of this list, and the reason is because, as I mentioned, back in 2013 when we launched, people were very interested in streamable content. It was relatively new.

But over the years, Smart TVs became cheaper and faster and more available. And so by the time we're in 2020, I mentioned roughly two-thirds of people already -- of households already had a Smart -- some version of a Smart TV. It meant that the content was already there on the screen. They could already get it on their big screen. What they needed help with was navigating that content and having a better entertainment experience.

And so the -- the casting benefits or the benefit enabled by casting was just less important. That's why it was intentionally left off of this page.

Q. From Google's perspective and what you learned in terms of the market research for Sabrina, what would you say the primary driver of consumer demand was for that particular product?

A. For Sabrina, it was Google TV.

MS. STITT: Mr. McDonald, can you put that demonstrative back up for me? I want to go back to our list of different products.

BY MS. STITT:

Q. And just to be clear, on the left -- we were talking about the Chromecast products on the left.

And at the top there, that's Eureka, right?

A. Yes. The one that kind of looks like a key.

Q. And then we've got Sabrina below it?

A. Correct.

Q. I want to move to the other products that you mentioned earlier that support casting on your team.

Can you just tell me, we've got the Nest speakers and smart displays. Those two are all within your purview, right?

A. Correct.

Q. And does Google similarly conduct market research like you described with respect to the Chromecast products on these types of products?

A. Yes.

Q. And why, just briefly, does Google do that?

A. Especially for these two categories of -- of devices, they were new. It was a novel experience putting technology in your home that you talk to, and so we really wanted to understand, would people value this? Is there a need for this? And what would they use it for?

Q. And these support casting, those smart

speakers and smart displays, but they also have additional features?

A. That's correct.

Q. I want to start with the Nest smart speaker devices.

Can you provide to the jury some examples of additional features that are available on those devices?

A. Yes. The core benefit of a smart speaker is really that you could talk to it and ask it to do things for you. And that is enabled by the Google Assistant.

And so we found that people had three reasons they really used a voice assistant.

The first was to control smart home devices. So that's saying, Hey, Google, turn on the lights. Hey, Google, put down the blinds.

The second would likely be around searching. So just like you go to Google.com and you're searching in the search bar, you might say, Hey, Google, what's the weather? You know, Hey, Google, when is this show on? Things like that.

And then the third would be entertainment. A lot of people like to use smart speakers to play music, and they loved the ability to do it very quickly by

11:09 saying, Hey, Google, play Top 40. Things like that.

11:09 Q. And what about the smart displays? They also have additional features?

11:09 A. Yes.

11:09 Q. Can you explain to the jury some examples of additional features that are available on smart displays in addition to casting?

11:09 A. Absolutely. So when we launched smart displays, many called them a smart speaker with a screen. And I just think it's important to say that because all the benefits I just went through apply here as well. So don't need to go through them again.

11:10 But you had the benefit of a screen because sometimes it's better to see the answer.

11:10 An example might be if you're asking for a recipe, it's going to be really hard to, like, follow along with the whole thing. So you could see it on the screen and sort of flick up and down as you made progress.

11:10 Similarly, with smart home control, you know, you can just go to the home control panel and click whatever you wanted.

11:10 But we also had some other really unique features. Our more premium smart display had a camera built in so that you could video call with friends and

family. It also doubled as a security camera.

And our smaller version, the 7-inch Nest Hub, had a sleep feature built into it that could help you understand the factors impacting your sleep and then give you suggestions or tips on how to sleep better.

Q. So we talked about different features on the speakers and the displays.

In terms of marketing, which features does Google focus on for those products?

A. For both we focus primarily on benefits enabled by the Google Assistant. That is the core reason we built the products and the core reason people bought them.

Q. So with respect to those two types of devices, what does Google understand to be the core driver of consumer demand?

A. The ability to use the Google Assistant.

Q. And in terms of -- if you were to rank the features that we've talked about, where would you put casting compared to these other additional features on the smart speakers and smart displays?

A. I would put it towards the bottom, if not at the bottom.

Q. And why?

A. As I mentioned, voice was really the reason.

Google Assistant was really the reason. And if people wanted another way to get content on these devices, they could use casting. They could also use Bluetooth. We didn't really talk about either of those because it wasn't really something people did a lot.

Q. So we've talked a lot about all of the additional features that are available on the multiuse devices that Google has in addition to casting.

Does Google still sell the original Chromecast dongle Eureka device?

A. No.

Q. In the United States, I should say?

A. No. We do not. In fact, we stopped selling the Chromecast 3rd Gen because that -- that was our HD offering. We stopped selling that in 2022 when we launched the HD version of Chromecast with Google TV.

And we stopped selling Chromecast Ultra in 2020, which was our 4K version, when we launched Sabrina or Chromecast with Google TV 4K.

Q. What drove the decision to stop selling the Chromecast device?

A. Quite simply, the market had shifted over the years, and it looked markedly different than it did in 2013. As I -- as I mentioned, you know, Smart TVs became much more prevalent and sort of solved the

problem that users had of getting content onto that big screen.

So we said, Let's -- let's look at what Google's really good at. Like, we are a company built on intelligence and search. We organized the Internet's information. We can organize entertainment. And we did.

So we thought, Let's build a tool that actually helps our users do that. And to do that, we needed to build Google TV. And -- and we offered -- Sabrina really has a way to get Google TV into their homes.

MS. STITT: Thank you, Mr. Robins. I have no further questions. And pass the witness.

CROSS-EXAMINATION

BY MR. BERGSTEN:

Q. Jordan Bergsten for Touchstream.

Good morning, Mr. Robins.

A. Good morning.

Q. And the jury heard a video of you yesterday explaining your thoughts on some of this stuff. So I'm going to try to keep this brief.

Now, you started at Google in 2015, correct?

A. That's right.

Q. And your first involvement with the Chromecast

product was in 2019, correct?

A. That's right.

Q. And so you can't really speak to how Google as a company planned to make money on the Chromecast back in 2013, right?

A. That's right. I was not directly involved.

Q. Okay. Now, you talked a little bit about Google adding a separate remote control for one of its products in 2020, right?

A. That's right.

Q. And adding a remote control added to the cost of the product, right?

A. Yes.

Q. And at the time that this was -- feature was added, there were already several Chromecast dongles in people's homes, correct?

A. Depends on the home. But yes.

Q. In homes across America, right?

A. Yeah.

Q. Okay. Now, you talked a lot about a product that was released in 2020 called Chromecast with Google TV, right?

A. That's right.

Q. And that product is not called Google TV with Chromecast, right?

11:15 A. That's right.

11:15 Q. And the Google TV being referenced in that product, that's different than the Google TV product that was offered back in, like, 2011, right?

11:15 A. Yes. Very different.

11:15 Q. Very different. Thank you.

11:15 I want to look a little bit at the document you talked about on your direct examination.

11:15 The first one, it's the ninth page. You can look at it and we'll also pull it up on the slide, so whatever's easier.

11:15 This is the ninth page in the document, and it ends in Bates number 923 in the bottom right-hand corner.

11:15 A. Yep. I see it.

11:15 Q. Okay. So I'm looking at the second column from the left. There's a bunch of features. And then the second one from the bottom there, and we'll highlight it, it starts with "Chromecast features."

11:16 Do you see that?

11:16 A. Yes.

11:16 Q. And it says: Chromecast features you love. Stream from your phone to your TV. Just tap the cast button from thousands of supported iOS and Android apps.

Did I read that correctly?

A. Yes.

Q. And this appears in a 2020 document, right?

A. That's right.

Q. And if we look to one of -- so there's a bunch of features on this page, right?

A. Yeah.

Q. And these are all features that are in the 2020 release of the Chromecast with Google TV product, right?

A. Mostly. We had a couple that didn't make it. But yes.

Q. Okay. So if we just go to the next column over to the right, there's one called "Google Photos."

Do you see that?

A. Yes.

Q. And Google did not decide to call this product Google Photos with Google TV, right?

A. That's right.

Q. And if we look one more column over to the right, there's one -- or two more columns, there's one called "Stream Transfer," or maybe it is one more column.

So that's another feature with the 2020 product, right?

11:17 A. That's right.
Q. And Google didn't decide to name this 2020 product Stream Transfer with Google TV, did it?
A. No.
Q. Okay. I'd like to turn to another page, and this was one you discussed on your direct examination.
MR. BERGSTEN: This one ends in 973 in the bottom right-hand corner.
BY MR. BERGSTEN:
Q. Do you remember talking about this in your direct examination?
A. Yes.
Q. All right. If we can look at the very bottom left corner, it says "Chromecast streaming."
A. Yes.
Q. And it says: 3.3 hours a day per active device.
Do you see that?
A. Yes.
Q. And below, it says: 12B hours per year.
You see that?
A. Yes.
Q. Do you understand that to refer to 12 billion hours per year?
A. Yes.

11:17 Q. All right. And you were including -- Google's including this in their 2020 document; is that right?

11:18 A. Yes.

11:18 Q. Okay.

11:18 MR. BERGSTEN: And if we can turn to another page about three-fourths of the way through the presentation that ends in 7007 as the Bates number in the bottom right-hand corner.

11:18 Thank you.

11:18 BY MR. BERGSTEN:

11:18 Q. Do you see this page titled Naming Strategy Directives?

11:18 A. Yes.

11:18 Q. And it says: Get value out of our existing brands. Chromecast is known and loved. "With Google TV" is used as the descriptor to differentiate from Caprica.

11:18 Did I read that correctly?

11:18 A. Yes.

11:18 Q. And I believe you said on your direct that Caprica was an earlier form of the Chromecast dongle, right?

11:18 A. That's correct.

11:18 Q. So this document is saying they're adding the words "with Google TV" to the product to differentiate

11:18 this new product from the old Chromecast dongle product
11:18 called Caprica, right?
11:18 A. That's right.
11:18 MR. BERGSTEN: If we can turn to the very
11:18 last slide of the presentation.
BY MR. BERGSTEN:
11:19 Q. At the very top, it says: Chromecast made
11:19 streaming simple for 100 million homes, right?
11:19 A. That's right.
11:19 Q. And when you released this product in 2020,
11:19 this had already occurred, right?
11:19 A. Yes.
11:19 Q. So the Chromecast dongle had already been sold
11:19 into 100 million homes at this point, right?
11:19 A. Yes.
11:19 Q. And it has a picture of the Google Chromecast,
11:19 right?
11:19 A. Yes.
11:19 Q. And it has a picture of the Google Chromecast
11:19 Ultra, correct?
11:19 A. Yes.
11:19 Q. Thank you.
11:19 MR. BERGSTEN: No further questions.
11:19 MS. STITT: Nothing further, Your Honor.
11:19 THE COURT: May this witness be excused

and remain in the courtroom?

MR. BERGSTEN: That's fine by us, Your Honor.

THE COURT: You're welcome to stay or go.

THE WITNESS: Okay. Thank you.

THE COURT: Who's your next witness?

MR. LANIER: Your Honor, our next is Rajiv Lulla by deposition.

(Video deposition of Rajiv Lulla played as follows.)

Q. Mr. Lulla, good afternoon. Again, my name is Greg Lanier, and I represent Google in this lawsuit.

A. Hi, Greg.

Q. Sir, do you recall receiving a subpoena in this case?

A. I do.

Q. I -- we have a helper, Mr. Garcia, will put the subpoena up on there, on the screen so we can all see it. And I'll just ask you just a question or two about that.

A. Sure.

Q. We'll give him a moment.

Mr. Garcia, could you scroll until you get the -- to -- I think it's about five pages in -- the subpoena cover page itself.

Right there. Yeah. Page 4.

11:20 Thank you.

11:20 So, Mr. Lulla, we can show you any or all of this, but what I'm showing you right now is a copy of the face page of a subpoena issued in this case.

11:21 We can scroll through more of it if you need, but does this look like the subpoena you received?

11:21 A. Yeah. Uh-huh.

11:21 Q. Are you appearing here today in response to this subpoena?

11:21 A. Yes.

11:21 Q. Are you receiving any compensation by anyone -- from anyone for your time here today?

11:21 A. I'm not.

11:21 Q. Have you ever had a formal relationship with Shodogg or Touchstream?

11:21 A. Formal relationship? Let's see. Yes. I would say. Yeah.

11:21 Q. How would you -- or describe that relationship.

11:21 A. Sure. And I might -- I might babble a little bit, so stop me if it goes too long.

11:21 So yeah. I was approached by Shodogg's founders, Touchstream's founders -- I mean, it wasn't Touchstream at that time. It was --

11:21 Q. Well, let me just stop you there, sir, in part

for the benefit of our reporter. I'll break this up a little bit more.

So I will ask you about the history, but let me just start with this simpler question.

That relationship, did it have a particular type of name or role, like employee --

A. Oh, yeah. Advisor.

Q. -- or consultant?

Advisor?

A. Yeah. Advisor. Uh-huh.

Q. Okay. Okay. Were you aware that -- were you a member of the board of advisors of Touchstream or Shodogg?

A. I believe I was. Yeah.

Q. Did you have any other type of relationship with Touchstream or Shodogg besides being an advisor?

A. Nothing formal.

Q. Well, did you have an informal relationship?

A. Yeah. Yeah. I mean, I have -- I coached a few people several times. I've helped them find some team members. I've been to some fundraising. I've been to some fundraising conversations with VCs.

I have been to -- I forget the -- CES once to -- to represent the product, talk about that with the people who would visit the CES.

11:23 I remember going out to London to meet one of the strategic partners/customers, you know, with the team, with the founding team.

Q. And over what period of time did your advisory and informal relationship exist with Touchstream?

A. So I could be off a little bit here, yeah. So I'll just fall back on my recollection, right? The best of what I remember.

It was mostly around, I'm thinking, 2012. I think -- yeah. 2012 sounds right.

Q. And how long did that last?

A. So the formal relationship, I think, lasted for about two years. In reality, it was maybe a few months, maybe six months. I say, you know, formal because -- yeah -- there was a -- there was an actual termination of our relationship in a letter that I received from them a few years later. I'd already forgotten about the relationship by that time. So...

Q. We'll come back to that in a moment.

In the course of your work, this relationship, advisor and informal, with Touchstream, did you engage in any activities specifically related to Google?

A. I remember going out to meet with a person at the Google office in Mountain View with one of the founders.

11:24 Q. So I'm going to break down and ask very concrete little questions about this meeting.

11:24 A. Sure.

11:24 Q. Say whatever -- your answers can be as long as they want, but I'm going to try to make my questions pretty concrete.

11:25 A. Uh-huh.

11:25 Q. So you had a meeting at Google physically in person; is that correct?

11:25 A. That is correct. Yes.

11:25 Q. Do you remember when that was?

11:25 A. Yeah. I have to -- just one second. I think I -- if I remember, it was around February 14th of that year.

11:25 Q. 2011? 2012? 2013? Any idea?

11:25 A. I think 2012. Yeah.

11:25 Q. Okay. Do -- who went to that -- who attended that meeting in person?

11:25 A. Yeah. So there were -- there was a founder -- a cofounder of Touchstream/Shodogg, Michael Rinzler, and me. There were only two of us in person --

11:25 Q. Okay. So --

11:25 A. -- from the company. Yeah.

11:25 Q. So you and Mr. Rinzler were there for Touchstream.

Was there -- who was there for Google?

A. So there was a person called Shanna Prevé. I don't know if I'm pronouncing her name correctly.

Q. Was there anybody else at that meeting?

A. I don't recall anybody else.

Q. Okay. And how did that meeting get set up? How did it come to pass?

A. So, I mean, my recollection is going to be a little -- not -- not that clear. It's been 12, 10 years at least, 10 years -- yeah -- since then.

So I remember it was through an e-mail introduction. I believe I'd reached out to many people at Google trying to do an introduction. And she was the one that responded and, you know, we just kind of went there.

Q. So you were reaching out to Google on behalf of Touchstream to set up a meeting; is that correct?

A. Yes. Uh-huh.

Q. And what was the purpose of the meeting as you intended it?

A. Yeah. We just wanted to kind of give them a demo of the product, kind of just seek any kind of help. It was during the same month we were trying to raise funds for the company. We were meeting VCs around California, all down kind of Page Hill -- Page

Mill Road.

And yeah. This was one strategic, you know, investor/strategic partner. It could be, right? So the intent wasn't very clear. It could be any of those combinations.

Q. Did Google tell -- did Ms. Prevé or anybody from Google tell you what they expected the purpose of the meeting was going to be?

A. I think they were just being kind, you know, to -- reached out to a few people and they were just being kind. They wanted to at least give us a chance to come over. I think she was in a business development role at that time.

So yeah. I'd been in a previous role in the past. I don't think they had huge expectations.

Q. You went to this meeting in person.

Was that at Google itself?

A. Yes. Uh-huh.

Q. Do you happen to remember which one of its many buildings it was?

A. I don't. I don't. No. I don't. It was one of the --

Q. Do you remember what -- oh, sorry. Please.

A. No. It was one of Google's buildings. Yes. It was one of the, you know, small conference rooms.

Yeah. I mean, I can -- in my mind's eye, I can picture, you know, where it was, but I don't remember the number of the building.

Q. Okay. And how long did the meeting last?

A. I believe it -- you know, it was scheduled for half an hour. The meeting itself lasted for, I believe, less than 12 minutes.

Q. Are you done, sir? I can -- there was a little glitch. I couldn't tell if you were done.

A. Yes.

Q. Thank you. Thank you.

And so it was yourself, Mr. Rinzler, and Ms. Prevé.

Was anybody else at that meeting for any part of it?

A. I don't remember seeing anybody else. Yeah. Shanna Prevé is kind of, you know, clearly in my mind's eye -- I mean, she was in the room, and then Michael and me.

Q. Did you or Mr. Rinzler demonstrate the Touchstream technology to Ms. Prevé?

A. So I don't believe we were able to do the demo. I think we tried. I mean, we -- I can get into why, if that's interesting. But I don't believe we actually did the demo.

11:29 Q. Why were you not able to or didn't do the demo?

A. Yeah. So there were two reasons why.

One, it was kind of strange. We got this appointment -- it was hard to kind of get Google's attention. Finally, we got it. When we got there -- it's funny -- Michael wanted to go to the restroom and it was really, really important. Like he really needed to.

And the Google receptionist, I mean, won't let us into the restroom in that building. So they gave him a pass to an adjoining building. I guess it must be some security protocol. And he was going to be escorted to another building to go to the restroom. And I don't know why he couldn't hold back.

But anyways, by the time he was back, it was already kind of 15 minutes into the half an hour. Maybe, you know, it's a little over 15 minutes. So that was reason number one. We didn't have enough time.

And reason number two, I mean, you have Google, just like any other company, had a -- you know, corporate firewall. And you can't -- and this product was half-baked at that time. We could not do content sharing like in videos. There was nothing for us to

show on PowerPoint presentations.

It was basically a very elementary screenshare. But that required certain ports to be opened on the firewall. And I believe it worked on port 80 and port 8080. And -- yeah. I mean, you know, those ports had to be opened. The cache server had to be opened. I mean, everything had to be kind of lined up for the demo to actually work.

And in the just -- you know, last, like, 12 minutes, out of that half an hour, it just wasn't possible to do all of that.

Q. So no demo was given then; is that correct?

A. I -- I don't remember us doing a demo.

Q. Do you remember whether you or Mr. Rinzler -- oh, by the way, that Michael you referred to a few moments ago, that was Mr. Rinzler?

A. That's right. Yes. Yeah, yeah.

And then, by the way, there was another team on the standby. There were -- you know, there was kind of two developers, and there was this then CTO of Shodogg that was on standby in New York because, you know, they had to be on the standby to do the demo. It wasn't just that we'll just sit there and kind of do it.

And then I believe it was just hard to kind of

11:31 coordinate that.

11:31 Q. Right. But the people who were on standby remotely, was it phone or video?

11:31 A. Yeah. I mean, they knew, you know, approximately when we were kind of going in, you know. So they were just sitting there just making sure, you know, the system at least stays up. It was a very unstable, kind of your half-baked kind of product at that time.

11:32 They didn't have any clients. They didn't know, you know, how to scale a cache product. It was just on a small server. Right?

11:32 So yeah. That whole coordination, to do that in under 12 minutes and go through the Google firewalls and all that, it's monumental work.

11:32 Q. Did you or Mr. Rinzler give any kind of a description of the Touchstream technology instead of doing the demo?

11:32 A. Yeah. We did. Yeah. I mean, just kind of a broad brush. There's a whole lot of companies trying to kind of do the same thing at that time. It was a screenshare kind of product. So we -- we tried to describe it to the best of our ability in words. Yeah.

11:32 Q. And do you -- do you -- as you sit here today, do you remember what was said about the description in

11:33 that 12 minutes or so?

A. You know, it was a spiel. It's just been too long. I won't remember the exact words. It wasn't anything kind of special that would not already be on some kind of pamphlet.

Q. On some kind of what? I'm sorry. I didn't hear the end.

A. Some kind of a pamphlet, some kind of a handout. You know, yeah. The team was making trips to CES around that time. Right? So it was -- yeah. And then Rinzler was a good salesman. So it was mostly his spiel. Yeah.

Q. Okay. Do you recall whether you or Mr. Rinzler left any materials with Ms. Prevé, you know, a pamphlet, a handout, a PowerPoint printout?

A. We did not. We did not.

Q. Okay. In connection with that meeting we just have been talking about, did any such materials get e-mailed to Ms. Prevé or somebody at Google?

A. Not to my recollection.

Q. Okay. At this discussion -- at this meeting, was there any discussion of patents that Touchstream had or was applying for?

A. It was way too early. I don't think Shodogg had a patent at that time. I don't think we actually

even kind of, you know, filed one. I was the one who started kind of pushing and, you know, had them start thinking about filing a patent. I don't believe we talked about patents.

We may have said something, you know, just so that -- I guess, you know, you get support from -- from an investor, a prospective investor about, you know, getting some support, so, you know, in their minds they can see some valuation. I mean, we may have. I can't for sure remember.

Q. Do you remember any questions that Ms. Prevé asked you or Mr. Rinzler?

A. She did not have a lot of questions. You know, she very politely told us that Google was not interested. I mean, she was generous. She was kind. She gave us the time. She thanked us for coming. And then she politely told us, yeah. She was not interested in, you know, hearing more or seeing any demos.

Q. Did she explain anything about -- anything else about why they weren't interested or anything else in addition to saying that to you?

A. No. She did not. Yeah. We were not really sure if they didn't like the product, if, you know, they had too much on their hands. Yeah. I mean, it's

11:35 Google. And we didn't have a lot of time to ask those
11:35 questions anyways.
11:35 Q. Do you remember anything else that was
11:35 discussed at that meeting?
11:35 A. That was basically it.
11:35 Q. Were you involved in any discussions with
11:35 Google at or on the margins of CES in any particular
11:35 year?
11:35 A. Not -- not with Google in particular. At CES,
11:36 you know, we were there for, I believe, two days. It
11:36 could be like two and a half, maybe three days. You
11:36 know, there was a whole lot of people that stopped by
11:36 for demos.
11:36 There were -- from Touchstream/Shodogg, we
11:36 were -- I'm thinking maybe five or six of us there.
11:36 And then essentially our role there was just, you know,
11:36 give demos to people. So there could have been people
11:36 from Google or Facebook or probably who knows, all kind
11:36 of people that we gave demos to.
11:36 Q. Okay. Now I want to talk a little bit about
11:36 you mentioned that you were at a physical meeting with
11:36 Google in Mountain View, California in February of
11:36 2012; is that correct?
11:36 A. Uh-huh. Yes.
11:36 Q. And I just want to make sure that I have got

this completely clear.

At the meeting there were only three people, correct?

A. You know, I -- my recollection is that, yeah. I mean, there could be somebody else. I don't remember.

Q. Okay. But --

A. I remember -- I remember the three: me, Michael Rinzler, and then Shanna Prevé. I don't remember anybody else.

Q. So there could have been somebody there and you don't remember it or, you know --

A. That's right. Yeah.

Q. You mentioned that Mr. Rinzler was a good salesman. It was his spiel.

What -- what do you mean by that?

A. Well, his background was in toy sales. He's not a technologist. He's not an engineer. He used to sell toys, you know, and he went on to sell toys after. He sells toys. That's what it means.

Q. Do you remember anything specific you said that day?

A. The many -- the regular -- I mean, surely, you know, many of the quotes that are on that article that you showed. I mean, you know, those were the things on

our minds at that time that we were trying to tell everybody.

Q. Okay. But do you remember anything specific that you told Google at that meeting that day?

A. No.

Q. You mentioned that at the time of this meeting in February 2012 -- I think you recall, but I'd like you to clarify if you need to -- I think you recall that you said that the patents were not filed yet; is that correct?

A. That is my -- that is my recollection. Yes.

Q. So as of February 2012, your knowledge is that there were no patents filed?

A. Yeah. I think they were still in the process of kind of drafting it.

Q. Is Google now or have they ever been a client of your firm?

A. Yes.

Q. Have you ever personally done any work for Google as --

A. Yes.

Q. -- part of your firm, where you work -- where you work now?

A. Yes. I have.

Q. And what is the work that you've done for

Google where you work now?

A. So I've been part of two executive searches with Google in the last five years.

Q. And what were the searches?

A. I'm trying to remember it clearly. One of them was the GM for Google BigQuery. And the other one was the GM for Google Cloud, Google Private Cloud.

Q. So there were two searches. One for general manager of Google BigQuery; is that right?

A. Yes. Uh-huh.

Q. And one executive search for general manager of Google Private Cloud; is that right?

A. That's right. Yeah. Uh-huh.

Q. And who did you work with at Google for those searches?

A. Well, yeah. So I have a question before I answer that question.

May I ask a question?

Q. Actually, I'd like an answer to my question first, and then I'll -- then we can find out what it is.

A. I don't remember who did I work with, you know, from within Google. It's been just too long.

Q. Okay. What was your question to me?

A. So my question was, you know, I work for a

different company at the moment, a lot of the work I do is highly confidential. I don't feel comfortable answering some of the questions related to my firm. It has nothing to do with what happened with Shodogg and me and 12 years ago.

Is that -- so the question is: Should I answer questions? I mean, can I just say, Hey, you know what? Yeah. None of your business.

Q. Thank you. I will follow up very briefly on one topic relating to something that Mr. Gray asked you about.

Mr. Lulla, you recall that -- we don't need to put it up again, but do you recall that news article and there was a quote from you about tossing and fetching and all that?

A. Yeah.

Q. Do you recall that?

A. Yes.

Q. Are you aware of Google ever being given any more concrete demonstration of the Touchstream technology, more specific or more concrete than that statement in the article?

A. You know, I would say the article, it was just words. Because CES, there was a demonstration, right? So it's possible that Google individuals might have --

11:41 you know, some individuals may have walked by and
11:41 looked at the demo just as anybody else would.
11:41 Q. Do you know that for a fact, one way or the
11:41 other, whether anybody from Google saw the demo?
11:41 A. I don't.
11:41 (End of video deposition.)
11:41 MR. LANIER: Your Honor, our next witness
11:41 is Mr. Matt Van Der Staay, who's here with us in the
11:41 courtroom.
11:41 THE COURT: Ladies and gentlemen of the
11:41 jury, as I've told you, you all are the judges.
11:41 Would you prefer to get started a little
11:41 while with him and then take a break for lunch? Would
11:41 you rather take a break for lunch now and start with
11:41 him after? It's entirely up to you.
11:41 All right. I like it when someone
11:41 answers quickly. We're going to take our lunch recess
11:41 now. If you all would be back by 1 o'clock, we will
11:41 get started pretty quickly thereafter.
11:42 THE BAILIFF: All rise.
11:42 (Jury exited the courtroom.)
11:42 THE COURT: Thank you. You may be
11:42 seated.
11:42 Is there anything we need to take up?
11:42 MR. LANIER: Your Honor, my understanding

11:42 is that there are a couple of objections from the Touchstream side to a demonstrative or two and then an exhibit or two in Dr. Mayer-Patel's testimony that'll come up this afternoon, and to one exhibit in the video testimony of Johnny Levai that we will play before that.

We could take them up now or right after the lunch break, whatever you prefer.

THE COURT: I'm happy to take them up now.

MR. LANIER: My colleague Mr. Garcia will be -- and Mr. Boule will be prepared to address whatever objections they articulate.

THE COURT: If you'll just show me the demonstratives, I'll take a look at them.

MR. DYKAL: If you give us one moment, I think the attorney arguing that is out in the hall.

THE COURT: Everyone, since we're taking a little time here, I'm having him tell them to be back at 1:15, just -- I want to make sure you all have an adequate break.

MR. LANIER: Thank you, Your Honor.

THE COURT: While we're waiting, so remind me what we have left. You have your technical expert, and do you have a rebuttal damages expert?

11:44 MR. LANIER: We do have a damages expert, Your Honor.

So what I expect the order of operations will be is we will -- after lunch, we'll have Mr. Van Der Staay, then we'll play -- it's 20ish minutes of testimony from Mr. Levai, subject to that one objection that needs to be resolved, then we'll have Dr. Mayer-Patel.

Given that we're ending at 5:00 today, I wouldn't be surprised if that takes us to the end of the day. And then we have Mr. Martinez, our damages expert.

THE COURT: And is your technical expert going to handle both infringement and validity at the same time?

MR. LANIER: Yes. He is, Your Honor.

THE COURT: And so when we finish him, then the witness you'll have left is your damages expert?

MR. LANIER: That's correct, Your Honor. That should be it for us. I think that's all our depos and all our witnesses.

THE COURT: Okay.

MR. LANIER: Thank you.

THE COURT: So let's maintain -- if you

had something to say, you're welcome to say it.

MR. DYKAL: No. I was just going to say, after that, we'll have a short rebuttal on validity.

THE COURT: Sure. And so the rebuttal will be limited to validity.

MR. DYKAL: Okay.

THE COURT: So we will finish the -- so it looks like we'll be finished by tomorrow morning.

MR. LANIER: It depends how long --

THE COURT: It will -- okay.

MR. LANIER: Mr. Van Der Staay's direct will be in the neighborhood of an hour.

THE COURT: At any rate, it still works for us to do the charge conference at 5:00 --

MR. LANIER: Yes, Your Honor.

THE COURT: -- get that resolved, and then we'll just see how it goes tomorrow what we do.

The only thing is, if -- my only concern is if we were to finish early afternoon, it would make sense to go ahead and do your closing arguments. So I would be prepared to give them tomorrow.

Because I don't think we want to send them home at 2:00, for example, and then wait till Friday.

MR. LANIER: Sure. Perhaps we could take

it up at the charge conference, just see how far we get today.

THE COURT: Sure.

MR. LANIER: Thank you, Your Honor.

THE COURT: I want to do whatever's -- I am not trying to hurry y'all along. I'm trying to do what's best for you all. I'll accommodate whatever yu all think is best.

MR. LANIER: Thank you.

MR. DYKAL: Thank you.

THE COURT: Are we ready on those objections?

MR. LONG: Your Honor, Andrew Long for Touchstream.

So regarding the exhibits disclosed pursuant to the pretrial order, Touchstream objects to --

THE COURT: I don't know what you're talking about unless you show them to me.

MR. LONG: Okay. You want the exhibit?

THE COURT: If you'll just hold on one second and let me look at them.

I have JTX -- it's JTX, which is Joint Exhibit --

MR. GARCIA: Yeah. Your Honor, perhaps I

11:46 can make a few comments that might guide the
11:46 discussion, I believe, with the buckets.
11:46 All of the exhibits that we identified,
11:46 except for one, were exhibits that they did not object
11:46 to through the entire process until yesterday.
11:46 Several of them, most of them are JTXs.
11:46 Other --
11:46 THE COURT: If they were a JTX when we
11:46 started trial, they're admitted. You can't change
11:47 that.
11:47 If you all agreed that they were going to
11:47 be admitted at the beginning of trial, they're going to
11:47 be admitted. You don't get to change your mind during
11:47 the trial because the other side doesn't get a chance
11:47 to prepare for it.
11:47 So what -- what is the plaintiff unhappy
11:47 about that the defendant wants to use that was not in a
11:47 joint exhibit?
11:47 MR. LONG: It's a video of a Google TV
11:47 remote.
11:47 THE COURT: Okay. And explain to me
11:47 what -- you tell me what it is you want to put on, then
11:47 you tell me --
11:47 MR. GARCIA: Sure, Your Honor. So the
11:47 next bucket of exhibits besides the JTXs are a bunch of

11:47 our exhibits that they had no objections to either. So we would argue that that is waived.

Beyond that --

THE COURT: I agree with you. If they had no -- if they didn't object before you started, the objection -- that's why we exchange exhibit lists and the other side gets to say what you object to.

If they -- this is bilateral. If you -- what do you -- what do you have an -- what does the plaintiff have an objection to the defendant using where it was -- they told you they were going to use it and you objected to it?

MR. GARCIA: I can help with that, Your Honor.

There's DTX-156. That's the only one that had an objection. We are not going to be using that exhibit.

THE COURT: There.

Anything else we need to take up.

MR. LONG: DTX-421, we had an original objection to. We preserved it. We did it last time --

THE COURT: Okay.

MR. LONG: -- and that's the video of the Google TV remote.

MR. GARCIA: Yeah, Your Honor. DTX-421

11:48 is the same as PTX-525. It's effectively a JTX --
11:48 THE COURT: It's one of their exhibits?
11:48 MR. GARCIA: Yes, Your Honor.
11:48 THE COURT: If it's on your list, they get to use it.
11:48 MR. LONG: Understood.
11:48 THE COURT: Okay. That's -- that's why we exchange exhibit lists, so that I don't have to deal with this now. If either of you listed it as an exhibit, the other side, it's fair for the other side to assume it's coming in.
11:48 MR. GARCIA: For the sake of cleaning everything up, they also had objections to our demonstratives with our --
11:49 THE COURT: Until they make them -- they're all overruled.
11:49 MR. GARCIA: Thank you, Your Honor.
11:49 THE COURT: Anything else we need to take up?
11:49 MR. LANIER: Not from us, Your Honor.
11:49 THE COURT: Okay.
11:49 (Recess taken.)
01:25 THE BAILIFF: All rise.
01:25 THE COURT: Please remain standing for the jury.

(Jury entered the courtroom.)

THE COURT: Thank you.

You may be seated.

Counsel?

MS. STITT: Your Honor, Google calls Mr. Matt Van Der Staay.

(The witness was sworn.)

DIRECT EXAMINATION

BY MS. STITT:

Q. Good afternoon, Mr. Van Der Staay.

A. Good afternoon.

Q. Now, you've been sitting here in the courtroom all week, right?

A. Yes. I have.

Q. And the jury's seen and heard you, but now is your chance to personally introduce yourself to them and tell them what you do.

A. Hi, everybody. My name is Matt Van Der Staay, and I -- I work at Google as a software engineering director.

Q. I'd ask you if you've testified in court before, but I saw you do it the other day.

How was it being in the courtroom to watch yourself on TV?

A. It's a little awkward. This is the -- this is

the first I've ever actually testified actually in a courtroom, but it was definitely awkward to watch the deposition testimony for sure.

Q. Tell us a little bit about yourself.

A. So I have a lovely wife of 15 years, four little kids, from 4 to 11. So they keep us really busy. And as you mentioned, I work at Google.

Q. I'm sure your wife and kids have been missing you this past week. So thank you for being here with us.

What's your current title at Google?

A. It is director of engineering.

Q. And since you've been here, you heard Mr. Bakar testify earlier today, right?

A. Yes. I did.

Q. Do you know Mr. Bakar?

A. I do. Yes.

Q. And how do you know him?

A. I worked with Majd on Chromecast and cast-related technologies.

Q. And you also saw Mr. Robins testify.

Do you know him?

A. Yes. I do.

Q. And how do you know Mr. Robins?

A. Same thing. I -- I work with Corey on

multiple things as part of my normal job.

Q. And as a -- let's talk a little bit about your career path to the director of engineering at Google, starting with your educational background.

A. So I -- out of high school I attended UCLA where I received my degree in computer science and engineering.

While I was in school, I actually put myself through school by working for NASA at JPL, which is their jet propulsion laboratories, where I worked on the systems that allow us to communicate to the Mars rover. So worked on a -- I'm part of a big system that allowed, you know, scientists here on Earth to talk to the Mars rovers.

After I graduated college, I went to work for Microsoft, where I worked in the streaming media space. I worked on a team called "Media Room." And our job there was to basically figure out how to bring cable TV to people via the Internet.

On top of that, we also tried to bring what we call, like, streaming clients onto things like Xboxes. Or I don't know if people here have used AT&T U-verse. That was the product -- one of the products that we worked on.

After Microsoft, I went to work for Google. I

was with Microsoft for about eight years. I went to work at Google, where I spent the majority of my career working on cast or cast-related products.

Q. And what was the year that you started at Google?

A. 2013.

Q. And you mentioned you were the director of engineering.

Could you get a little closer to the mic? I think --

A. Sorry.

(Clarification by Reporter.)

MS. STITT: Slow down.

THE WITNESS: Slow down. I'm so sorry. I talk very fast. I'm so sorry. I will try to slow down.

BY MS. STITT:

Q. How long have you held your current position as the director of engineering at Google?

A. So I was promoted to director about three years ago.

Q. Now, the jury's heard a lot about Chromecast in this case.

When did you start working on Chromecast?

A. I started working on Chromecast around

November -- October or November of 2013.

Q. What was your initial role on the Chromecast products?

A. So when I initially started working on the Chromecast product, I worked on something that we call "backdrop" or also may have been referred to as IMAX in some of the deposition testimony.

But that's basically a server that provides experiences when you're not casting. So it would provide the screen saver experience, which had curated pictures and things -- pretty pictures and things to -- when you're not casting or also your personal photos that you could put on the TV.

Q. What other responsibilities have you had for Chromecast over the years at Google?

A. Yeah. So my responsibilities have changed dramatically over the past ten years. So I -- as I mentioned, I started out working on that screen saver experience, but then I also went on to take on the other servers and -- servers that supported the Chromecast devices, as well as our analytics servers, which is basically -- analytics is how you determine, like, how devices are being used.

And then I also took on what we call the cast SDK or the -- or the software developer kits for Cast.

You may have heard of those as part of the earlier testimony.

And then ultimately took on responsibility also for the device that runs on the -- the devices themselves that do the casting.

Q. We'll come back to the cast SDK in a little bit.

During your time at Chromecast or working on Chromecast, did you -- were you involved in the launch of any particular products?

A. Yes. So I was involved in pretty much the launch of every cast-related product after the first product. I did join right after we launched the first version of the Chromecast, but the 2nd Generation Chromecast, you heard, the 3rd Generation Chromecast, the Chromecast 4K.

We had speakers that we released, Assistant speakers that were released, smart displays. Also worked on the WiFi routers that had some casting functionality in them.

Q. Now, you mentioned cast SDK.

Can you explain to the jury what the cast SDK is and how that relates to some of the other terms we've heard? You know, we've heard "casting," for example.

01:32 Just give the jury some context. What are we talking about here?

01:32 A. Okay. That's a good question. So cast SDK or software development kit, it basically is something that companies build to help other companies build things.

01:32 So you build some software to make it easier for other people to build experiences. So they take your software and then they build their own software on top of it.

01:32 Q. Was "casting" a term that was coined by Google?

01:32 A. Yes. It was.

01:32 Q. Besides the Chromecast devices, are there other devices that use the cast SDK that you mentioned?

01:33 A. Yeah. So every device that is out there that supports cast uses the cast SDK in some way or another, as well as the phones that you have in your pockets, they have portions of the cast SDK on them. And Chrome browsers have portions of the cast SDK in them as well.

01:33 Q. And throughout your time at Google, have you had responsibilities for the products that use the cast SDK?

01:33 A. Yes. I have.

01:33 Q. To clarify, are there any products that

support casting that your team wasn't involved in?

A. No. There was not.

Q. In all, how long have you been working on cast and cast-related devices at Google?

A. A little over nine and a half years. I think it's like nine years, nine months.

Q. And in your estimation, about how many people have worked on those products while you've been at Google?

A. Oh, wow. There's been hundreds of people, probably even thousands of people that have worked on Chromecast with me over the past nine years.

Q. How large is your team currently?

A. My current team is about 250 people.

Q. And does your team still work on Chromecast products?

A. Yes. It does.

Q. Mr. Van Der Staay, I want to talk a little bit with you about the details of the casting process and what's happening during that process. But let's start at a high level for me, if you will.

And can you explain to the jury what are the basic components that are necessary for casting to occur?

A. So at the most fundamental level, there's two

things involved in casting. There's your phone, which we often refer to as the sender, and then there's your Chromecast device in your TV, which is -- we often refer to as the receiver. So it's basically your phone talking directly to your Chromecast device on the local WiFi network.

Q. Do those two devices use the Internet at all for the direct communications?

A. They do not.

Q. Now, one thing we've done a lot this week is talk about casting. One thing we haven't done is seen exactly what casting looks like and the user interface for a person wanting to cast content.

Do you have a video that shows how users actually cast?

A. Actually, yeah. I think there's a -- there's a really good, like, help video that the Google help team put together that is designed to kind of help explain to users, like, how casting works. I think that would be a really good demonstration of -- of the casting experience.

Q. And you mentioned -- who prepared this video?

A. It was prepared by the Google team but by our customer support team. So it's a -- it's a video that you can view on our website. But, again, it's designed

to help users who might be interested in buying a Chromecast or have bought a Chromecast device, to show them how they cast.

Q. And in your experience as someone who's worked on casting, is this video an accurate depiction of how casting works to a user?

A. Yes. It is.

MS. STITT: Your Honor, we would move to admit JX-333 and be able to have permission to play it for the jury.

MS. DOUVILLE: There's no objection, Your Honor.

THE COURT: Admitted.

MS. STITT: All right. Mr. McDonald will put that up.

And stop at 40 seconds, if you would.

(Video played.)

MS. STITT: Thank you, Mr. McDonald.

BY MS. STITT:

Q. And was that the video that you were referring to?

A. Yes. It was.

Q. So now that we've actually seen what casting looks like and have an idea of the user interface, I want to dive in a little bit into the details of what's

happening on those two components that you identified during the casting process.

And in your binder, you have a document JTX-187, which has already been admitted into evidence, I believe. So if you could flip back to that document.

A. Okay.

Q. Is this a document that you discussed during your deposition in this case?

A. It is. Yes.

Q. So is this one of the documents that was seen on TV when you were testifying earlier?

A. Yes. It was. Yes.

Q. What is this document intended to show?

A. So the purpose of this document is basically to help Google engineers that work on the Cast product to explain to other engineers who don't work on the Cast product how it works.

So it's kind of meant to be, like, almost, like, a training type of document to explain to other engineers how Cast works.

Q. And if you could turn to Page 2 of the document.

You mentioned two basic components, and I want to start with the Chromecast component that you identified.

Can you -- first of all, what's the -- there's a vertical line on this slide.

Do you see that?

A. I do. Yes.

Q. Can you identify for the jury, what does that represent?

A. So this vertical line basically just means the separation between the Chromecast device and other devices that would be on the network.

Q. And we've heard a bit about the cast service that shows up in the box to the left of that line.

Can you give some context as to what the Cast service does with respect to casting?

A. So yes. So in this situation, Cast service basically means a piece of software that's just always running on the device. So that's why it's called Cast service.

And the job of Cast service is really two primary things.

One is to make it so that other devices can find the Chromecast device. Like, you have to be able to find it if you want to be able to cast to it.

And then the second piece of functionality it provides is launching the applications.

Q. Are there any other names for the Cast service

that the jury might have heard throughout the week?

A. Yeah. So depending on who you talk to, you may have heard the word "cast shell" or "media shell" or "cast agent." They're all basically referring to the same thing, and that's the software that runs on the cast-enabled devices.

Q. Can you turn to Page 3 of this document?

A. Yes.

Q. One of the functions that you identified for the Cast service was allowing the device to be discoverable.

What does it mean to be "discoverable," and what's shown on this slide?

A. Yes. "Discoverable" basically means that, again, you can find the device on the network. So how do you know that there's a Chromecast device in your home?

That's basically what discovery means, and that's the role that it's playing.

Q. Does discovery have to happen before you can cast content?

A. That's correct. Yes. So that's the very first thing that has to happen. It's kind of a prerequisite to casting. You have to be able to discover that there's a device.

01:40 Q. If we look at the text on the left in the top
01:40 of this slide, the first bullet says: Enables peers on
01:40 local network to discover the cast device.
01:40 We've heard a little bit about this concept,
01:40 but what are peers? What does that mean?
01:40 A. Yeah. So what "peers" means is another device
01:40 on the network or on your WiFi that makes a direct
01:40 connection to the cast device. That's what "peer"
01:40 means.
01:40 Q. Is there an alternative to a peer-to-peer
01:40 relationship between devices?
01:40 A. Yes. So when you have two peers like that
01:40 that are talking to each other, that's considered
01:40 peer-to-peer.
01:40 And so, for example, if you had three
01:40 Chromecasts in your home and you had three phones, all
01:40 three phones would have a connection to all three
01:40 Chromecasts. So you have this kind of like
01:40 crisscross-y connections happening all throughout your
01:41 home.
01:41 Whereas, the alternative to that is you have
01:41 what was called in -- generally in software
01:41 engineering, is a client-server relationship.
01:41 And in the client-server relationship, instead
01:41 of having all those things crisscross into each other,

you have them all point to, like, one box, like one thing. Often that thing is in the Internet, somewhere out in the Internet in some data center somewhere.

And they would all connect to that one centralized location, and that centralized location would get a message from the phone, do some processing or something, and then decide what to do with it, where to send it down.

So everything kind of funnels into that single point. You can think of it as kind of a big funnel. Everything goes into one location and comes out from one location.

And that's kind of the difference between peer-to-peer, where there are all this meshed-together-type thing in your home, versus client-server, where everything goes into one location and comes out of that one location.

Q. Have you heard peer-to-peer referred to as one-to-one?

A. Yes. That is another word that we use in software is one-to-one versus peer-to-peer.

Q. And have you heard client-server referred to as one-to-many?

A. That's correct. So we often consider it one-to-many. Again, that's talking about, you know,

one-to-one, if there's one of these, one client, another client over here, one-to-one, versus one up here and lots of things connected, one-to-many.

Q. Why did Google choose an architecture where the Chromecast and the phone were peers?

A. So there's actually three major reasons that we decided this.

The first is something we call scalability. And that's kind of a weird word, right, scalability? But what it actually really means is that -- how easy it is to do this when -- if you were really successful, if we have lots of these devices out there, and what it would take to be able to offer this service to users.

And if you'd picked a client-to-server relationship, like -- as you saw in the video, you open up your phone app and there's a little box that -- has a little square box with little squigglies on it that that person clicked, that means that it has found a cast device.

And if we wanted to provide that experience every time you open an app that supported casting and had that little squiggly box, you have to understand, like, is there a cast device available?

So if we were doing a client-to-server relationship or design here, every time that anybody

anywhere opened an app on their phone, it would have to go call out to some server to say, Figure out where I am. Is there any cast device near me?

And I don't know about you, but you probably all have phones and -- in this courtroom and only a few of you may have a cast-enabled device at home.

So it doesn't really scale, is what we would say. Like, it doesn't -- the amount of people that have phones and that use apps all the time doesn't match the amount of people that have Chromecasts.

So it's not a great design choice for, you know, doing this client-to-server relationship.

Q. Other than scalability, were there additional reasons to choose peer-to-peer?

A. Yeah. So that was the first major one. The second major reason was actually for privacy.

So, you know, you don't want people outside your home playing random videos on your TV, right?

You don't want, like, people you don't know playing random videos on your TV. You don't want, like, the stranger that you let in to, you know, doing the gardening -- sorry.

Am I going too fast? I'm so sorry.

You don't want this, like, you know, somebody that you let into your home as a salesman to start

watching random movies on your TV.

So, you know, the fact that it's peer-to-peer means also on the local WiFi network. So we wanted to make sure that people were actually in the homes, actually on the local WiFi network. You trust them enough to give them the WiFi password before they could show the content on your TV.

Q. Were there any other reasons?

A. Yeah. The final reason I think was really around speed. You know, you want this to be fast, faster than I can talk.

And, you know, you really would like -- you know, when something happens that you need to pause a movie, say, somebody rings a doorbell, you want to be able to pause right away.

In a client-server relationship, those servers are hundreds, thousands of miles away. It takes a really long time for something to come out from your phone, go out to the Internet, go to some server, do some processing, come back, go down to the TV and send that pause. That could be five seconds in certain situations.

So that's not a very good user experience. Somebody's waiting at your door for five seconds while you're, like, sitting there trying to pause the game or

something. Like, it just -- it's not a great experience.

So that's what we refer to in terms of latency, what we talk about in software engineering. And a peer-to-peer connection is on the local WiFi, it's almost instantaneous, and it's really to be able to provide that seamless experience that you would expect from your remote control.

Q. Mr. Van Der Staay, can you turn to Page 8 of this document, please?

A. Yes.

Q. And we've added a cast browser box.

Can you explain generally the responsibilities of the cast browser as it relates to casting?

A. Yes. So in this diagram, I do want to call out that it shows two separate boxes. It's really all part of one thing here. It's all part of the same software that runs on the Chromecast device.

The reason that we split them out is because they are serving different sets of functionality. And the cast browser is here, and that box is just like any browser that you may use on your phone or on your computer at home.

And it's just a web browser. And that web browser is there to allow the Chromecast device to load

a website URL or a web app to do the video playback.

Q. And just to clarify, you mentioned two boxes.

So what is the relationship between the cast browser and the Cast service?

A. So between the cast browser and the Cast service, they're on the same device. They're actually part of the same physical piece of software in those cases.

Q. Now, within the cast browser on this slide, we see a partner app in a slightly different color.

What is that talking about?

A. So the different color here, that yellowish color, denotes that partner application or that partner web app that's running inside that browser. So that would be like Netflix or ESPN.

Just like, again, on your computer when you open up a Chrome tab, you go to a website. That's what that denotes. Like, each one of those is a website that is loaded on that browser.

Q. And we also see a box that says "Receiver SDK," and you explained what the cast SDK is.

For those of us who aren't software developers and may not use kits for that purpose, can you tell us in layman's terms, what does the receiver SDK do?

A. Yeah. So, again, at the fundamental level,

01:47 the receiver SDK, it's just a piece of software that
01:47 Google writes to help people do something. Right?
01:47 So this receiver SDK is to make it easier for
01:47 these partners to build these cast-enabled apps. We
01:47 want it to be as easy as possible for them to do that
01:47 because then they're more likely to do it.
01:48 Q. So is the receiver SDK a piece of software
01:48 that Google provides to third parties?
01:48 A. That's right. So we provide that software,
01:48 again, to make it easier for them, and it runs
01:48 completely inside their application. It's completely
01:48 embedded in their application.
01:48 So it's not this separate thing that is pulled
01:48 out that's kind of denoted here. It's completely
01:48 within the web application, inside that ESPN website or
01:48 inside of that Netflix app that we talked about.
01:48 Q. Do all partner applications have to use the
01:48 Google receiver SDK that's provided by Google in order
01:48 to support casting?
01:48 A. No. So as I mentioned, it's to help them
01:48 do -- make the job easier. So they can pick how much,
01:48 if any, of the receiver SDK they want to embed in their
01:48 application. So they could use all of it, they could
01:48 use some of it, they could use none of it if they
01:48 wanted to.

01:48 Q. Are you aware of any partner apps that do not use all of the Google receiver SDK?

01:48 A. Yes. I am. So actually, some of our biggest apps that -- that you probably use at home don't use all of the receiver SDK. So Netflix, for example, does not use all of the receiver SDK. YouTube does not use all of the receiver SDK.

01:49 In fact, I think Facebook doesn't use any -- if -- if -- like maybe a tiny bit, but I don't think they use any of the receiver SDK in their application.

01:49 Q. So if a partner application doesn't use Google's provided receiver SDK, what do they do?

01:49 A. That's up to them. They can do whatever they want. But I don't know. Like, we -- if they decide to do all their own experience, build their own things, they can do that.

01:49 Again, we just provide this to make their jobs easier, to make it easier for them to do that. If they want to go down to the low level and handle everything themselves, they can.

01:49 Q. Mr. Van Der Staay, we've been focused till now on the left side of that dotted line, so things that are on the Chromecast device. Let's talk a little bit about the other component that you identified as

01:50 necessary for casting and flip to Page 9 of this

document.

A. Okay.

Q. Is that component shown here?

A. Yes. It is. So -- so this is what we call the cast sender, which in this situation is the phone. There's many different devices that this could be, but I think phone is probably the most prevalent.

Q. And within the phone that's shown to the right of the dotted line there, there's another little box that says "partner app."

Does that correspond to what we were looking at on the device?

A. Yep. Exactly. So it's the same set of idea. That's the partner's application, that they build their iOS app or their Android app, depending on what type of phone you have, and it's completely their application. They own that, they build that, they manage all of that.

Q. And I see "sender SDK" on the phone.

What is that?

A. So the sender SDK is just like we had on the receiver side. Again, that's some software that we provide them to make it easier for them to do those common casting-type experiences if they decide to use it.

Q. Does this slide that we're looking at, Slide 9, include all of the components that are used in the standard casting process?

A. Yes. It does.

Q. Does this slide depict any Google servers?

A. No. It does not.

Q. Why not?

A. Because there's no servers that are used in the normal casting flow. When you go cast something, it's just these two pieces of software, your phone and this device directly talking to each other.

Q. And on this slide, it says -- on the top left under Cast Sender, there's a first bullet that says: Network peer that speaks Cast V2.

What does it mean to "speak Cast V2"?

A. Yeah. So Cast V2 is what we refer to as a protocol. I think you may have heard Majd talk about this a little bit earlier today.

But it's basically just a definition of how to talk to somebody, like a language almost, you know. And it is a speak -- network peer that speaks V2 means that we make a direct connection on the network, and then once they make that connection, they -- they talk that protocol or that language to each other.

Q. Okay. So we've got the components. Now

let's -- let's talk a little bit about what happens next. If we can flip to Slide 18, please.

What's shown here?

A. So this shows -- this slide shows it's switched from just the boxes to how the different flows and steps work. And this basically shows that process of creating a connection between your phone and your Chromecast device on the local network.

Q. Is there any intermediary between the phone and the Chromecast when they use the Cast protocol as shown on the slide?

A. No. There is not.

Q. Let's turn to Page 20. That's the one I want.

What happens next?

A. So the next -- the next step that happens after you make that connection is you want to launch some application. And that's what this -- this slide is showing. It's -- it's showing that it's -- wants to launch the Spotify app in this example.

Q. And so what is shown here? How -- how does that happen?

A. So the way that happens is that over that connection that was made, it would basically send what we -- like a launch command, and that launch command would provide this -- this weird looking number that

you see here, this CC32E753. That's what we call an app ID or an application ID. It sends that over and -- to let the Chromecast know what -- what app that user wants to launch.

Q. So I want to stop you there for a moment because we've heard a lot about this cast app ID over the past few days.

Can you clarify what is the cast app ID and what does it include?

A. So the cast app ID is -- is basically just -- just a number or kind of a number that is assigned by Google to a partner. So Spotify wants to create -- in this example, wants to do casting, wants to create a cast app.

They would go to a Google website somewhere and say, Hey, I want to register to do casting. And we would give them a cast ID.

And then they would specify, based on that cast ID, you know, what different web apps they wanted to load for what different device types. And we would do a review when they submit that to make sure that their apps are, you know, safe for users and meet our content policies and things.

And when we approve it, they're able to use that number to launch an application on a Chromecast

device.

Q. Is there a one-to-one relationship between the cast app ID and the web address or URL of the application that is to be launched?

A. There is not.

Q. Does any of the message -- does the message that we see in this slide from the phone to the device include a URL or web address for the application that is to be launched?

A. It does not.

Q. Is there a reason why that message doesn't include a URL or web address?

A. Yes. There's actually a few very good reasons why we don't just use web addresses.

First of all, as we mentioned, you don't want random things to be launched on your network, right? You don't want your TV to show random shows. And if you just provide a URL, there's no way of knowing what that URL could be.

So one of the major reasons that we have this is that -- so it can be registered and that we can go check what those apps -- how those apps work and make sure that they're safe for people in the home and meet our policies around the type of content that we allow on Chromecast devices. So that's -- that's the first

big reason.

The second big reason is to actually allow partners to build unique experiences, depending on what device that they're, you know, playing stuff on.

So I think you saw in -- in Corey's presentation the other day, you saw all those different types of devices that we have that support cast. You saw those speakers and those things with screens and displays. And then you saw TVs, and you saw third-party TVs.

Each one of those, a partner might say, like, Hey, I have a different type of experience, a different type of player that I want to load on those different screens because, you know, this one has a touchscreen.

So I want a room I can go up and I can poke on some things and select some things or drag. You know, this one has a remote. So I want to be able to support the remote play/pause commands.

So it's up to each individual app developer what they want to do in order to kind of optimize that experience to get the best possible experience to their users. So this allows them to do that, because they can target different web apps or different URLs for different devices in the home that support Cast.

Q. So if the cast app ID doesn't include a web

address or a URL, how can it be used to launch the app?

A. So the Chromecast device, right, when it starts up, it basically goes and checks into Google. It calls a Google server somewhere. And it says -- when it boots up, it says, Hey, here's the device I am. I am this type of device. And it will get a list of all the approved apps and the URLs for that individual app to be loaded for that individual device.

Q. Let's talk about what happens once the -- once the application is launched.

MS. STITT: If we could turn to Page 25 of this document.

A. Okay.

BY MS. STITT:

Q. What's being shown on this page?

A. So this page shows that step after you've done the launch and shows that when a phone is actively open and you have the -- I think -- yeah, this is Spotify -- you have the Spotify app open on your phone and you're playing something on Spotify on the Chromecast device.

And this shows how the phone is connected directly to the Chromecast device and how the Spotify app is directly connected to the -- Spotify app on the Chromecast device is directly connected to the Spotify app on the phone, and then the types of messages that

it can send generally while playing media.

Q. So does this show all the different commands that can be sent between the phone and the Chromecast device?

A. This shows a set of the common commands, I would say. They can send any command they want. It's -- you know, you can think about this as we basically allow the people who are building these apps to basically send letters to each other.

So they can write whatever they want in those letters, and it gets passed from the application running the phone directly into the application running on the Chromecast device.

Q. So looking at this slide, the -- the green arrow is the connection. And it goes from the phone through the Cast service to the partner app?

A. That's correct. Yes. So this is --

Q. Why is that?

A. This is -- this is what we call a passthrough connection, basically, in software. Basically, it means that it is just going straight through that and connecting directly into the application running inside the Chromecast.

I think the easiest way to think about this is to kind of think about -- go back to that letter

analogy I mentioned earlier. And, you know, what they're sending is letters back and forth.

This green arrow basically is -- is like the postal route. And that blue box, the only thing that the blue box is doing -- that Cast service box is doing in this diagram is making sure -- acting as the post office and making sure that it gets delivered to the right application and the right location.

So just like the post office doesn't open your mail, right? We all hope the post office doesn't open our mail. It just passes it right through and makes sure it gets delivered to the right address.

Q. And this diagram and the way Chromecast is set up, is there any need to translate or modify those messages that are being passed along that green arrow?

A. No. There's not.

Q. Mr. Van Der Staay, while we're on this slide, do you recall seeing some of your deposition played earlier this week and testimony about some functions called store session and resume session?

A. Yes. I do.

Q. What do those functions do?

A. So what I was talking about in that -- when they played that video was what happens when -- in this exact scenario shown on this page, what happens when

that phone -- when that Spotify app on your phone, you want to go use your phone for something else, you want to, you know, put that app into the background, maybe go check your e-mail, go read the news or something or if you turn the screen off on your phone and started walking around your house or whatever you were doing.

So when that happens, that direct peer-to-peer Cast V2, you know, connection that we have, that green line disappears.

So what we wanted to make sure is that whenever someone gets their phone back open, turns the screen back on, opens that Spotify app, that there's a way for them to go, you know, go reconnect and, you know, be able to go regain control of the -- of what's happening on the Chromecast device.

So what store session does is basically keep one ID, one identifier, like, that tells the phone, like, I had a connection. This was the connection that I had, that green line. What is that green line? And allows it to resume that connection, re-establish that connection.

Q. Thank you, Mr. Van Der Staay.

We heard a lot about servers over the past few days. I want to turn to Page 10 of this diagram.

Are servers used in any aspect of this

standard casting flow that we've been discussing till now?

A. No. It's not.

Q. And on this slide here -- we've seen this slide before, right?

A. I have. Yes.

Q. And at the bottom right, there's a box to the right of the dotted line that we've been looking at that's labeled Cast Services Cloud and it has three little boxes in it.

Do you see that?

A. I do. Yes.

Q. And I think you were here when Dr. Almeroth talked about the servers in these boxes, right?

A. I was. Yes.

Q. Can you explain generally what these servers are?

A. Yes. So these servers are not actually directly involved in that casting experience that I just talked about, but they do provide some additional functionality for Chromecast in general.

So there's three major servers. They all have very similar names, so it's a bit confusing. But there's the DCS, which is called the device configuration server. There is the CCS, which is --

stands for the cloud casting server. And then there's the COS, which is the cast orchestration server.

So there are three different servers that help provide some level of functionality for the overall Chromecast.

Q. That's a lot of acronyms.

A. Yes. It is.

Q. Can we start with the DCS? What does it do?

A. Yes. We can.

So the DCS basically provides -- the basic functionality it provides is the thing I talked about earlier around how a developer will come in and want to, say, register their application and make sure everything's okay with that application.

That's the job of the DCS server. It has that list of approved applications and the appropriate, like, web app URLs for them for each different cast device type.

And what happens when the Chromecast device boots up for that first time, when you turn it on, it goes and fetches that list from the DCS server and it gives all that config information, which, again, is basically just the list of all the apps that are supported by that device.

Q. You said "config information," you mean

configuration?

A. Yes. Configuration. Sorry. I'm so sorry for using the short forms.

Yes. Configuration, which is why it's called device configuration service. It gives the device its configuration information.

Q. And the next one is the CCS server.

What about that server?

A. Yes. So the CCS server is actually used for something we haven't talked about really at all during this trial. I think Corey briefly mentioned it in his, you know, explanation of the types of different use cases that the device uses and the value of those use cases that he saw from the user perspective.

It's basically there to support something called "voice casting." And what voice casting is is the ability for you to use your voice to ask Google to play a particular song or a particular movie.

So if you want to watch those reruns of Friends, you could say, Hey, Google. Play Friends, Episode 1. And it would go find Friends, Episode 1 and start a cast session on a Chromecast device or cast-enabled device.

Q. In voice casting, just to clarify, does that use a mobile device or a similar device as a sender

device?

A. No. It does not. So it doesn't work the same as -- the standard cast we've been talking about does not have that mobile sender device that we showed. It's just about using your voice.

And, again, we just haven't talked about it at all here in the trial.

Q. We've got one more server on this slide. That is the COS server.

What does that one do?

A. Yes. So the COS server here, or the cast orchestration server, it is basically used for, again, something we haven't really talked much about in this trial. And that's actually most -- this main client is something called the Home app, which is an app that you download on your phone to set up your devices, your Chromecast devices.

So if you went and you bought a Chromecast device or a Nest speaker, the way that you go get those devices on your network is you open -- you download the Home app on your phone, you open the Home app on your phone, and then you go through the steps to set it up.

And that server is there to help facilitate that phone do things like your personal preferences and what you want to name things and, you know, your --

what you named your home and basically just to support that application to be able to set up devices.

Q. Okay. So we've been through all three. And thank you for the clarification on voice casting.

Going back to the standard casting flow that we've talked about.

A. Yes.

Q. Are these cloud servers that we've just talked, the three of them, used to communicate Cast protocol messages between the phone and the Chromecast in the standard casting flow?

A. They are not. No.

Q. Mr. Van Der Staay, you were here this morning, right?

A. Yes.

Q. And you were here when Mr. Bakar was asked whether there was a server running on the Chromecast device to receive messages?

A. Yes. I was. Yes. I remember that.

Q. And you recall him testifying that there was and it was a piece of software?

A. That's correct. Yes. What he was referring to there is some -- a piece of software that is called mDNS server, which is running on the Chromecast device.

Q. So what does the mDNS server do?

A. So mDNS server is a piece of software that actually is a piece of software that's used by tons of different companies. It is not something that is unique to Google. In fact, I actually belive it was built by Apple back in the late '90s.

And it's used to help facilitate that prerequisite step that I talked of, like, how do you find a cast device or how do you find any device of a particular type on a network?

So this is also in your printers. This is how your computer finds your printers.

Q. Does the mDNS server on the Chromecast have any role in the communications between the phone and the Chromecast during the casting process?

A. No. It does not.

Q. And other than the mDNS server, are you aware of any other servers on the Chromecast device?

A. I am not.

Q. Now, we've used the term "standard casting" a few times in our discussion today.

Are the -- and that's what we've been talking about up until now through these slides.

Are there other ways to cast content?

A. Yes. There are other ways to cast content.

So the first one is one we just kind of talked

very briefly about, which is the voice casting, which is, again, where you use your voice.

The other two types of casting, which may have actually been mentioned in the trial, are open casting and relay casting.

Q. Let's start with open casting.

How does open casting work?

A. So open casting is also called guest mode. And based on that, you might be able to figure out what it's designed for.

But the idea behind guest mode is in the situations where you didn't want somebody on your WiFi network but you did want them to be able to show some content on your screen, you have a visitor at your home and they want to show you their videos or their favorite YouTube videos but you don't want to give them your WiFi password, open casting allows that to happen.

And the way that that works is that there's a server that will facilitate that discovery and connection thing that we talked about. But instead of that being, like, local in the network, it creates a peer-to-peer connection that goes through the Internet.

So it's still one to-one, peer-to-peer, but it's going through the Internet.

Q. What, if anything, does the server in open

casting do with the messages sent from the phone to the Chromecast device?

A. It doesn't do anything to them. So going back to that, like, letter and post office analogy and that postal route analogy that I talked about earlier for the local casting, it works the same way with open casting except for the Open Cast server becomes that post office and makes sure that those messages go to the right place. And that's all it does.

It doesn't look at them, doesn't modify them, doesn't open them. It just simply routes them to the right address.

Q. What about relay casting? What's that?

A. So relay casting actually does use a lot of similar technology as open casting, but it's used for a different use case.

So versus it being a guest coming into your home that you want to be able to let cast content on your TV, relay casting is used in the case where you happen to be at home and, for whatever reason, you lose WiFi on your phone while you're casting.

So relay casting is designed for those kind of, like, edge cases or error cases or maybe you were listening to some Spotify music that we had in our example and you went out back to your backyard and your

WiFi is a little spotty out in your backyard.

It would fall back to using cellular to be able to allow you to continue to control that session.

Q. And what, if anything, does the remote Google server do with messages that it receives during relay casting?

A. It does not do anything to them. So -- again, just like the local -- local scenario that you saw, just like the Open Cast or guest mode scenario you saw, same deal, same -- if we're using that same analogy, it, again, acts as that post office, making sure that the messages get to the right location, but it doesn't do anything to those messages.

Q. Is there any translation done?

A. No. There's not.

Q. Do you have an understanding as to how often relay casting is used compared to standard casting?

A. Yeah. Relay casting is very limited in its uses. As I mentioned, it is something that we built actually pretty recently to support the sort of error cases.

And we did that because people would complain that -- you know, especially as we had more speakers where you can hear music throughout the house, that they were going locations around the house more when

they were casting than before, and they were going to locations where potentially WiFi wasn't working as well.

So it's just there as an extra added boost to make the experience better for users, but it hardly ever gets used. It's only in those scenarios where you're going to your backyard or whatever.

Q. Switching gears just a little bit, Mr. Van Der Staay, do you recall hearing some testimony about something called DIAL/MDx?

A. I do. Yes.

Q. And what is DIAL/MDx used for in this context?

A. So DIAL/MDx is actually not related to Google Cast at all. DIAL/MDx is a particular thing that YouTube has built and it's to enable what they call second screen experiences.

So we heard a bit about second screen experiences this morning and you've heard that throughout the trial, but YouTube wants to support those same sort of second screen experiences on noncast-enabled devices.

So DIAL/MDx is what allows you to do that on -- again, on devices that are not cast-enabled.

Q. Can you give the jury some examples of devices that are noncast-enabled that use DIAL/MDx?

A. Yeah. So one good example, I think, would be like a game console like an Xbox. They're not cast-enabled, but YouTube still uses DIAL and MDx to be able to do those same experiences where you can find content on your phone and control it from your phone.

Another good example would be a DVD player. If you have a DVD player at home, a lot of DVD players support YouTube. Those support DIAL and MDx to, again, bring those experiences to users.

Q. Thank you for that explanation, Mr. Van Der Staay.

I want to switch gears. We've talked a lot about casting content on various types of Chromecast devices.

Are there other ways to display content on those devices?

A. Yeah. Actually, there's a few different ways to display content. So one thing very near and dear to my heart is the screen saver. I like to think of it as more than just a screen ever. I mean, when you work on something for a while, you get an attachment to it.

But that would be -- again, it's curated images, meaning, like, we have -- you can pick landscapes. You can pick -- users can pick what they want to see. You want to see modern art? Do you want

to see landscapes? What do you want to see? And we have a collection of photos that we've gotten from partners to show on the TVs.

Also, it allows you to show your personal photos. So you can pick people that you know and -- or you can pick photo albums that you have, and it will show those on your TV when you're not actively casting or on your display, when you're not using it. Kind of like a -- you know, it's like a digital photo frame on steroids. It's a good way to kind of think of it.

Another way that we support bringing content over besides casting is mirroring. And you've heard a little bit, I think, about mirroring during the trial. And what mirroring is is the ability to take the screen that you have on one device and then mirror or show that screen on another device.

So you can do a dropdown on your phone, and you can, say, click mirroring, and select device. And it will take that full screen, and it will show it on that other device.

The third way that we support additional content on the cast device is, again, something called remote display, which I don't think was mentioned during the trial at all.

And what remote display is is a way that a app

developer wants to build an experience where they can have complete control of the screen on a Chromecast. So instead of writing a web app, they want to have complete control. They want to be able to draw all the graphics and do everything that they want.

And the way that they do that is they actually write an app on the phone, and that app on the phone can run in the background, and it can decide what it wants to show and what it wants to draw, and then it outputs that to the Chromecast.

So you can still use your phone for other things, do whatever you want on your phone, but that app is running in that background, and it's doing all the hard work to figure out what it wants to show and then display on the Chromecast.

So that's actually used today for the Google Photos experience on Chromecast. So if you wanted to cast Google photos, that's actually what it's doing. It's creating a surface in the background.

And that's how they can do like these animations and transitions from one photo to another photo. I don't know if you ever used Google Photos. They have these things where they, like, kind of dynamically create these, like, videos out of your photos. It can kind of do those experiences on your

TV.

Q. And were all three of those ways that you just mentioned to show content that aren't casting available on all Chromecast devices?

A. Yes. They are.

Q. Including the original Chromecast?

A. Yes. They are.

Q. You mentioned earlier that you worked on implementing Cast in other Google devices that support casting, like smart speakers and smart displays.

Are you familiar with additional features available on those devices in addition to casting?

A. I am. Yes.

Q. And in your work on Chromecast over the years, did you have any responsibilities to analyze or understand how it is that users were using those devices and the various features that were available to them?

A. Yes. I did.

So as I mentioned earlier, throughout my career progression at Google, one of the additional responsibilities I took on was what we call analytics, which, again, is the ability -- all the -- all the tools and infrastructures and things that we build at Google to understand our business, understand how our

users are using things.

Q. And based on your experience over the years, what are the top use cases or uses of Google's multiuse devices such as the speakers and displays that we've been talking about?

A. So I'll talk about each individually because they are a little different. Because, you know, they work differently, they look differently. Different people will buy them for different reasons.

So I'll start out with the speakers.

The top three use cases for speakers are voice casting, which we talked about, which is, Hey, how do I use my voice to play music? That's what people want to do, and that's the most common use case.

The second most common use case generally has to do with something we call productivity. So this is where you would, you know, ask Google to set a timer for you, do a reminder, what temperature is it outside, potentially ask about a recipe or something like that.

And then the -- so sorry. I'm blanking on the third.

So it's -- first is audio casting. Productivity.

Ah. And then the third use case is Smart Home. So I think you heard Corey mention Smart Home.

What Smart Home really is is that you can go buy fancy light bulbs and things like that at Home Depot or wherever, and you can plug those in and put those light bulbs on your WiFi.

If you bought a new dishwasher lately, you may notice they have WiFi. Everywhere you go, every device is getting WiFi on it now. So the world's kind of transitioning to everything being a "smart device."

And when they're these smart devices, they're able to link up to Google, and you're able to then control them with your voice on those devices.

So that's the third primary use case that we have in terms of usage on those speaker devices.

Q. In your experience, where does casting fall in terms of the usage of features on such devices?

A. The traditional cast we've been talking about here is very low. Very low.

Q. Mr. Van Der Staay, we're nearly done. I only have a few more questions for you. Obviously you've been in this room for the whole trial, and you sat here from the opening through now.

Before this case, had you, as someone who's worked in the industry, ever heard of Touchstream?

A. No. I had not.

Q. And you described all of the work that you've

done on Chromecast over the years.

Was all of that work done internally at Google?

A. Yes. It was.

Q. And you were here, and you heard when Mr. Strober testified.

Do you recall that?

A. I do. Yes.

Q. And do you recall hearing him say that he felt that he was the inventor of Chromecast?

A. I did. Yes.

Q. What was your reaction to that?

A. I was very surprised by that proclamation.

Q. Why?

A. I mean, I've worked on cast and cast-related technologies for ten years. Prior to that, I was in a related space at Microsoft, you know, doing a lot of very kind of similar media-type things, streaming media-type things.

You know, I've worked with hundreds of people, maybe even thousands of people at Google building these things, talking about these things, investing in these things, building out functionalities for users. And I had never heard of Touchstream or any of their products or anything that they've built before.

So all this was completely new information for me when -- as part of these proceedings.

Also, I think just thinking back to -- to his testimony earlier in the trial, and kind of the problem that he was trying to solve and the reason that he started working at Touchstream and started, you know, building his prototype was to solve a use case of he was in the lunchroom at his community college and he wanted to get some content onto the screen.

He couldn't do it because he couldn't put a device on the network. And that's why he started going down this path.

And Chromecast works very differently than that. We're going after a different use case. And if a Chromecast device was available at that day, that Chromecast V1 device or whatever was available that date, it wouldn't have worked to solve his problem either.

So it -- it's handling a completely different problem.

MS. STITT: Thank you, Mr. Van Der Staay. I have no further questions for you.

CROSS-EXAMINATION

BY MS. DOUVILLE:

Q. Good afternoon.

A. Good afternoon.

Q. I'm Lauren Douville. I'm representing Touchstream.

A. Nice to meet you.

Q. And I think you mentioned that you've been here throughout this trial, correct?

A. That's correct. Yes.

Q. And your deposition testimony was played in this trial, correct?

A. That is correct. Yes.

Q. And that includes the testimony that Touchstream's expert, Dr. Almeroth, relied on; is that right?

A. I believe so. Yes.

Q. And that testimony was accurate, correct?

A. To the best of my knowledge. Yes.

Q. And you stand by that testimony, right?

A. Again, to the best of my knowledge. Yes.

Q. And if someone wanted to figure out how Chromecast works, do you think it's reasonable for them to review the source code relating to it?

A. I think that you can try to review source code to figure out how things work. Yes.

Q. And to clarify something, I think you mentioned that you first joined or started working on

the Chromecast device in October or November of -- was it 2013?

A. That is correct. Yes.

Q. And Chromecast was first sold in early summer of 2013, correct?

A. That is correct. Yes.

Q. You weren't there for those development efforts, were you?

A. I was not there for the original Chromecast. No.

Q. Okay. You weren't at Google when Mr. Bakar and Mr. Kenghe allegedly came up with Chromecast, correct?

A. I was not. I was still working for Microsoft at that time.

Q. And I think you've testified that Chromecast allows for casting, correct?

A. That is correct. Yes.

Q. And if a user casts from their phone to the Chromecast, the phone isn't responsible anymore for sending the video, correct?

A. In the traditional casting flow, that is correct. Yes.

Q. And the Chromecast casting functionality does not interrupt a user's phone calls while they are

02:22 casting, correct?
02:22 A. Sorry. Can you repeat that?
02:22 Q. Yeah. The Chromecast casting functionality
02:23 does not interrupt a user's phone calls while they are
02:23 casting, correct?
02:23 A. So you can take a phone call while you're
02:23 casting, if that's what you mean. Yes.
02:23 Q. That is what I mean. Yes. Thank you.
02:23 A. Yes. You can.
02:23 Q. And you mentioned quite a bit about
02:23 peer-to-peer messages, correct?
02:23 A. Yes.
02:23 Q. Do you have any understanding of what, if at
02:23 all, those have anything to do with the patents in this
02:23 case?
02:23 A. I'm not a patent expert. No.
02:23 Q. And you don't have opinions in this case
02:23 relating to infringement, correct?
02:23 A. Like I said, I'm not a patent expert. So no.
02:23 I'm not here to weigh in on that.
02:23 Q. And peer-to-peer communications can be
02:23 accomplished using servers, correct?
02:23 A. Servers can create peer-to-peer --
02:23 Q. Just yes or no.
02:23 THE COURT: Ma'am, you don't get to tell

the witness how to answer. He can answer, and I'll deal with it.

MS. DOUVILLE: All right. Yes, Your Honor.

BY MS. DOUVILLE:

Q. Peer-to-peer communications can be accomplished using servers, correct?

A. Servers are one way that you can create a peer-to-peer connection. Yes.

Q. And Mr. Bakar testified earlier today that it's probable there's a server running on that Chromecast in the peer-to-peer situation to receive messages from the phone, correct?

A. I believe I already talked about that. Yes. This was the mDNS server.

Q. And he stated that that would be a server running on that Chromecast in the peer-to-peer situation that you've testified to to receive messages from the phone, correct?

A. Again, yes. That's the mDNS server that I talked about.

Q. Sometimes servers can be remote, correct?

A. Yes. I would say that. Yes.

Q. But servers can also run locally on devices, correct?

A. You could have a server running on a device. Yes.

Q. And a server can serve many clients, correct?

A. Generally servers are designed to support multiple clients. Yes.

Q. But they can also serve one client, correct?

A. In general, there isn't a limitation to the number of clients that a server supports.

Q. So it's also the case that a server can serve one client, correct?

A. At a given time, yes.

Q. And, in fact, in the case of Chromecast, the Cast service can interface with multiple receiver apps, correct?

A. Can you define exactly what you mean by that?

Q. Like what part of --

A. Like, can it? Does it at one time? Like, what do you mean by "can"? That's kind of --

Q. It's capable of interfacing with multiple receiver apps, correct?

A. At the same time?

Q. Not at the same time.

A. Okay. As in it can -- yes. The Cast service can start an application, stop an application, start another application. So from that perspective. Yes.

It has multiple applications that it deals with.

MS. DOUVILLE: And can we please bring up I think what was marked as JTX-187?

And if we could turn to the Page -- I believe it's 11. It ends in 3106.

BY MS. DOUVILLE:

Q. And it should also be on the screen for you, Mr. Van Der Staay.

A. Okay. Yeah. This is really fuzzy. So I'll use this.

Q. Sure.

All right. Do you see that?

A. Yes. I do.

Q. And I think you mentioned that in this diagram there are some Cast services that are in the cloud, correct?

A. Yes. There are some Cast services that are there in the cloud. Yes.

Q. And those Cast services include servers, correct?

A. Yes. It does. So the DCS, CCS, and COS on this diagram are servers. Also, Assistant is a server as well. But it can also be a client, so it's a little ambiguous there what Assistant means.

Q. And those are referred to as Cast services,

correct?

A. Yes.

Q. And this is a document that Google uses to train other people about Chromecast, correct?

A. It is a document that was used at one particular meeting to train particular engineers, not generally to train all engineers on that. Yes.

Q. Thank you for the clarification.

And in this document, Google also refers to services on the device as Cast service as well, correct?

A. It's using Cast service to mean a process -- a software process that is always running on the device.

Q. And so Google refers to both of these things, both on the device and in the cloud, as Cast service, correct?

A. We generally do not refer to them as Cast service as the same thing. The Cast services or servers -- services and servers are generally used interchangeably at Google.

"Cast service" means system service, which is a very particular computer science term that means something that is always running on a physical device in an operating system.

Q. Okay. And this document refers to both as a

Cast service, correct?

A. This document is, from that perspective, a little bit ambiguous. You'd have to understand the details that one is on-device and talking in on-device terminology, and the other one is talking about network and network terminology.

They are very distinct, different meanings. They just happen to have very similar names.

Q. Okay. Now, I think you also were here for the testimony of Mr. Rupersburg, correct?

A. I saw a video of his deposition. Yes.

Q. And he's a Google engineer; is that right?

A. Yes. He was.

Q. And do you recall some testimony from him relating to the receiver SDK?

A. I do remember some of his testimony. Yes.

Q. And you've testified today also to the functionality of the receiver SDK somewhat; is that fair?

A. Somewhat. Yes.

Q. Okay. And the receiver SDK, that's used in casting, correct?

A. It is something that is -- as I mentioned, the receiver SDK is something that is used to help people build cast receiver applications.

Q. And the document that's in front of us shows that that's on the -- do you see the receiver SDK on the on-device side?

A. Yes. Yes. I do.

Q. All right. And did you hear Mr. Rupersburg testify that that's a library that sits on a Google server, correct?

A. Where the library's hosted doesn't really matter very much. But yes. Generally, since it's Google-provided code, that library will sit -- any of our SDK libraries do sit on a Google server for partners to download.

Q. Okay. And that receiver SDK is used in casting, correct?

A. As I mentioned, it -- how much is used or if it's used is optional. But yes. It can be used for casting.

Q. Okay. And it's a JavaScript file that sits on a Google server, correct?

A. Yes.

Q. You don't dispute Mr. Rupersburg's testimony on that, correct?

A. I do not dispute what you -- how you characterized that testimony so far.

Q. Are you -- and you're aware of the fact that

Chromecast has been set up in hotel rooms, correct?

A. I'm aware that there are some hotel rooms which use Chromecast. Yes.

Q. And there are instances where the Chromecast can operate on the Internet, correct?

A. Can you specify what you mean by that, operate --

Q. So, for example, in the Open Cast scenario.

A. In the Open Cast scenario, you're saying where you can create a cast connection through the Internet?

Q. Correct.

A. The Chromecast is not operating in the Internet in that. I wouldn't call it that. But I would agree with there are situations where a cast connection goes through the Internet. Yes.

Q. Okay. Thank you.

Just a couple more questions.

You were not present during any meetings with any Touchstream employees, correct?

A. I was not.

Q. And I think as you've testified, you've never met any before you entered this courtroom, correct?

A. As far as I know.

Q. And you can't deny that any Touchstream employees disclosed the ideas for Chromecast technology

to Mr. Kenghe or Mr. Bakar, correct?

A. I wasn't there, so I can't say.

MS. DOUVILLE: No further questions.

REDIRECT EXAMINATION

BY MS. STITT:

Q. Mr. Van Der Staay, just a few brief questions for you. On redirect -- or on cross there, you were asked a few questions again about the mDNS server.

What exactly does the mDNS server on the Chromecast do?

A. So -- excuse me.

As I mentioned, the mDNS server is a very common piece of software that works on almost any device in your home that is on a network that is needed to be discovered by the devices.

So all that the mDNS server does is help facilitate finding a device on the network -- a generic device on the network.

And yes. It is a piece of technology that Google has chosen to use, along with printer manufacturers, to be able to find Chromecast devices when you're on the local network.

Q. Is it involved in the flow of commands between the phone and the receiver, the Chromecast, during casting?

A. No. It is not.

Q. You were also asked a couple of questions on cross about the receiver SDK that was shown on the document. And I won't put it back up. I think we've all seen that one enough.

But you were asked about the receiver SDK and where it sits and whether it sits on a Google server.

Do you recall that testimony?

A. Yes. I do.

Q. Once the partner downloads and uses the Google receiver SDK, does it sit on the Google server at that point?

A. So when it's being used in the app, it's not on the Google server. So the app -- as part of loading the app, it loads all of its SDKs and things it's using from all over the Internet, you know, stuff from Facebook, stuff from Google, wherever.

And then no. It is not running on the server at that time. It is just literally like a file you would download, like an e-mail that you would download.

Q. And once it's downloaded and used by the partner app, it's embedded in their application, isn't it?

A. That is correct. So when the application loads, it's -- it all becomes embedded.

02:33 MS. STITT: Nothing further. Thank you very much for your time and for answering my questions.

02:33 MS. DOUVILLE: Nothing further here.

02:33 THE COURT: Thank you.

02:33 You may step down, sir.

02:33 THE WITNESS: Thank you.

02:33 THE COURT: Your next witness?

02:33 MR. LANIER: Your Honor, our next witness is Janos or Johnny Levai by deposition.

02:33 (Video deposition of Janos Levai played as follows.)

02:33 Q. Mr. Levai, my name is Greg Lanier. I'm one of the lawyers for Google in this case. Thank you for joining us today.

02:33 Would you introduce yourself to the jury, please?

02:33 A. Of course.

02:33 My name is Janos Levai, and I work as a software engineer at Google.

02:33 Q. Are you sometimes known as Johnny Levai when speaking with people who speak English?

02:33 A. Yes. That's my more English-friendly nickname.

02:33 Q. Where are you sitting today, sir?

02:33 A. Today I'm sitting in Zurich, Switzerland.

02:34 Q. Is that where you generally work, in Zurich,

Switzerland?

A. Yes. I generally work in Zurich.

Q. Do you live in Switzerland?

A. Yes. I live in Switzerland.

Q. Thank you for joining us by video today. You mentioned you're a software engineer.

Do you have any technical or academic training in software engineering?

A. Yes. I have a bachelor's degree in computer science.

Q. And when did you get that bachelor's degree?

A. Approximately in the summer of 2011.

Q. I thought I heard you say that you are with Google.

When did you first start working with Google in any capacity?

A. I first started working at Google as an intern in 2011, July.

Q. Were you working on any particular project when you started working at Google?

A. Yes. My main project was something called YouTube Remote.

Q. What is YouTube Remote?

A. Well, YouTube Remote is mostly known by an Android application that we launched, and it allowed

people to look for YouTube videos, then play back those videos on a big screen device, like a TV, and then control the playback of those videos from the YouTube Remote Android application.

Q. And so YouTube Remote, was that something you could access from a -- a phone and -- and use your phone to do those things you just described?

A. Correct.

Q. Using YouTube Remote, could you use your phone to find video that you wanted to watch?

A. Yes.

Q. Using YouTube Remote, could you use your phone to direct that that video actually be displayed on a different screen, something other than your phone?

A. Yes. Like a -- like a TV, for example.

Q. In that example, use -- in YouTube Remote, could you use your phone to control the playback of the video on that other screen such as the TV?

A. Yes.

Q. You could start it, stop it, rewind it, things like that?

A. Yes. All of those actions were supported in YouTube Remote.

Q. And those actions were -- those actions were engaged in by the user on their phone, but it had

effect on the display as you were watching it on the TV; is that correct?

A. Correct.

Q. Was YouTube Remote already out and available in the world when you started at Google?

A. Yes.

Q. As you started to get to work at Google, did you learn when YouTube Remote was launched?

A. Yes.

Q. And what did you learn about when YouTube Remote was first launched at Google?

A. I learned that the YouTube Remote application for Android was first launched approximately November 2010.

Q. Have you heard of something called YouTube Leanback?

A. Yes.

Q. What's that?

A. It is one of the technologies that is essential for the YouTube Remote system to work.

Q. And have you heard of YouTube Lounge?

A. Yes.

Q. And what is that?

A. It also encompasses a set of technologies that are part of the YouTube Remote system.

Q. And were YouTube Leanback and YouTube Lounge, were they around when you started at Google?

A. Yes.

Q. Have you heard of something called MDx protocol?

A. Yes.

Q. What is MDx protocol?

A. MDx protocol essentially describes the way that the YouTube Remote systems communicate with each other that would be due to remote Android applications with the servers and then the servers with the big screen devices like the TVs.

Q. And was MDx protocol part of the YouTube Remote technology when you started at Google?

A. Yes.

Q. So it had been developed already by the time you got there?

A. Yes.

Q. You mentioned servers in your answer.

What did you mean by "servers"?

A. Servers are essentially computers that are running in, let's say, a data center. It -- those are computers which are not in the hands of users.

Q. Did servers play a role in YouTube Remote?

A. Yes. They were an essential part of the

YouTube Remote system.

Q. What -- what part or what role did servers play in the YouTube Remote system at a high level?

A. At a high level, they would connect the YouTube Remote Android application to the big screen devices, like a TV, and allow them to change information.

Q. Did the servers store information relating to the operation of YouTube Remote?

A. Yes. There was information on the server about YouTube Remote operations.

Q. Are you familiar with a capacity or functionality on the servers in the YouTube Remote system called memcache?

A. Yes.

Q. What is memcache?

A. Memcache is a technology that allows to store key value pairs. Yeah. Pretty much that's -- that's what memcache is as a -- as a technology library.

Q. You said "key value pairs."

What did you mean by that?

A. Key value pairs are types of information used to generally identify certain parts of information that can be retrieved with a key which is usually an identifier.

Q. And was that identifying information used in YouTube Remote to help the communication that ultimately resulted in you picking a video on your phone and watching it on your TV?

A. It -- it was essential to allow communication of the YouTube Remote app with the TV.

Q. Did Google keep written documentation of how the MDx protocol worked?

A. Yes.

Q. Did Google keep written documentation of APIs related to YouTube Remote?

A. Yes. Most of the APIs were documented.

Q. What's an API?

A. An API defines the way two digital systems can communicate with each other. It's kind of like the rules of how two systems can exchange information.

Q. Did you review APIs during your -- relating to YouTube Remote during your time at Google?

A. API documentation?

Q. Yes.

A. Yes.

Q. Ms. Dill, could you load into the exhibit folder what we'll mark as Exhibit 1? It's been Production No. GOOG PA 2268 through 2270.

Mr. Levai, that will go into the exhibit

folder, and when you see it pop in there, if you would open it. Thank you. And please tell us when that happens.

I see it in the folder. It's titled Appendix to Levai Declaration. It goes from there. If you wouldn't mind opening that, sir, and tell me when you're ready.

(Off-the-record discussion.)

A. And it ends with 2270, right?

Q. That's correct.

A. Okay. I have it open.

Q. All right. If you would turn to the second page of this exhibit, sir, up at the top it says: 7/12/2010. And under that in big letters: API server documentation.

Do you see that?

A. Yes.

Q. Do you recognize this to be documentation of an API relating to YouTube Remote?

A. Yes.

Q. And in very general terms, what does this particular documentation describe or disclose?

A. In general terms, it describes certain parts of the MDx API implemented by the server. And, yes. It's -- it's mostly around video playback, playlist

management and disconnecting.

Q. Well, up at the top, there's numbers that look to be like a date, 7/12/2010.

Do you see that?

A. Yes.

Q. Now, Mr. Levai, I know you are in Europe, and sometimes Europeans write their dates differently than we do in the United States.

Did Google have a practice in dating documentation as to whether to use the European or American format?

A. Yes. Google generally uses the American format, mostly because it's an American company.

Q. And so 7/12/2010 in the American format would be July 12, 2010. Is that how you understand it?

A. Yes. Especially if you see these date formats with slashes, we see these as month, day and year, so the American format.

Q. Was it typical at this time for Google to keep dates on API documentation?

A. Yes. It's -- it's generally good practice to keep a date on the documentation.

Q. And from your work at Google, what's your understanding of the purpose of keeping the date on the documentation?

02:44 A. Generally, the date on documentation refers to the date that the documentation was last updated on.

02:44 Q. Would reading this API documentation be one way that you, doing your work at Google, would understand how YouTube Remote operated?

02:45 A. Yes. This is one of -- one of the ways to understand how an API works.

02:45 Q. Okay. All right. I'm -- I am done with this now. You may close this document, Mr. Levai. Thank you.

02:45 I'm not going to show it to you, but I'm going to talk to you about source code.

02:45 Did you work with source code during your time working on YouTube Remote at Google?

02:45 A. Yes. Of course.

02:45 Q. Very generally, sir, what is source code?

02:45 A. Very generally, source code is a human readable list of instructions that later, then, can be executed by computers.

02:45 Q. So if you -- you've seen those movies or I've even seen people actually sit there clicking away, software engineers like you clicking away like this, is it often that they are working on source code?

02:46 A. Yes. Generally, software engineers spend most of their time working on source code.

Q. And are software engineers able to read source code and understand something about how a particular system operates?

A. Yes.

Q. When you were working on YouTube Remote, did you regularly review source code for that product?

A. Yes.

Q. Did you regularly work on it and make changes or updates to it?

A. Yes.

Q. Did Google have a practice at that time of keeping source code relating to its product operation?

A. Yes. Every -- every product is, by definition, made up of source code.

Q. And was it Google's practice at the time when you started to keep dates on or near source code, say, for example, in a comments field?

A. Back in the time it -- yes. Source code generally had in the header the creation date and -- as -- as a comment.

Q. And what was the -- what was conveyed by the date that was kept on -- on or in the header for source code at that time?

A. Generally, that was the date of which the -- the source code file was created on.

02:47 Q. Earlier in the course of this case, did you review source code relating to YouTube Remote?

02:47 A. Yes.

02:47 Q. And did you prepare -- and did you verify that source code that you reviewed was actually the source code that related to YouTube Remote back in the past?

02:48 A. Yes.

02:48 Q. Do you recall signing a declaration in this case that, among other things, talked about the source code for YouTube Remote?

02:48 A. Yes.

02:48 Q. And did you verify before signing that declaration that the source code that you reviewed was, in fact, source code for YouTube Remote at particular points in time?

02:48 A. Yes.

02:48 Q. So one way to understand how a product -- a software product works is to read API documentation, correct?

02:48 A. Yes. That's one way.

02:48 Q. And another way to understand how a product works -- a software product works is to read the source code, correct?

02:48 A. Correct.

02:48 Q. And these were both things that you did

regularly in your time at Google as a software engineer, correct?

A. Yes.

Q. Now, just to make sure I understand everything, when you -- the -- the version of YouTube Remote that you first started working with, that was the public version that had already been released, correct?

A. Sorry. You're asking if I was working on the version of YouTube Remote that was already released?

Q. Yes. That was my question. When you first started -- let me just ask again.

And Mr. Dykal may have an objection, so please give him a moment.

But when you first started working at Google on YouTube Remote, you -- that product was already released, correct?

A. Yes.

Q. It was already out in the public; is that right?

A. Yes.

Q. And you could use that YouTube Remote to find content on your phone, have it displayed on another screen, and control that playback on that other screen when you started at Google, correct?

A. Yes.

Q. Okay. Thank you, sir. I have no more questions.

Q. Do you personally know what was happening with those projects prior to July 2011, from your personal knowledge?

A. No. Before I joined Google, I did not know what sort of development phase was the project in. I just know that there existed an app on the Play Store.

Q. And you said YouTube Remote was discontinued, correct?

A. The YouTube Remote Android application was, indeed, discontinued eventually.

Q. Do you know whether YouTube Remote became or was incorporated into the Chromecast product?

A. No. The YouTube Remote Android application was not incorporated into Chromecast.

Q. Is it possible that a user could have a server located in their house?

A. You mean generally a server regardless of -- I mean, like a computing device that can act as a server?

Q. Correct.

A. Yes. That's possible.

Q. Would you agree that many computing devices could act as servers depending on the functions that

they perform?

A. They could.

Q. What's a Raspberry Pi?

A. A Raspberry Pi is a really small footprint computer.

Q. And could someone have a Raspberry Pi in their house functioning as a server?

A. They could.

Q. How much stock do you own in Google? More than $1 million?

A. I think so. Yeah.

Q. One question about that exhibit, if you could pull that back up.

Let me know when you have it open.

A. Okay. I have it open.

Q. So this documentation was -- there's a date on it that says July 12, 2010.

Do you see that?

A. Yes.

Q. Do you have personal knowledge that this document was created and existed in this form as of July 12, 2010?

A. Well, I trust the date that's part of the digital documents.

Q. Okay. But you don't personally know that this

is the form that this document existed in in July 2010; is that correct?

A. I mean, I'm basing my knowledge on the -- on the date that's part of the document.

Q. Okay. So your -- your knowledge is just based on the date that's on this document, correct?

A. Yes. It's based on the digital information.

Q. So reviewing this document, there are a number of commands.

Do you see that? videoPlay, videoPause, videoNext?

A. Yes.

Q. Do you see any command in this document that identifies a particular video to play?

A. That was probably achieved by setting the playlist with a list of videos.

Q. So you would agree that this document is concerned with manipulating playlists; is that true?

A. It also covers manipulating the playlist, among other things.

Q. Do you agree that there's no command in here that specifically identified the video to play?

A. There is. Once the playlist has been set, setVideoIndex actually picks the video from the playlist to be played.

Q. I understand. So you can set up a playlist and then navigate through the playlist, correct?

A. If you set up a playlist, the setPlaylist command also has a video index field or parameter and that would actually pick the video from a playlist.

Now, if you -- if you later want to select a different video from the playlist that already exists, then you can use, for example, the setVideoIndex command.

Q. Would you agree that the YouTube Remote is only intended to be used with the YouTube application?

A. Yes. YouTube Remote works with YouTube.

Q. Is that also true with YouTube Leanback?

A. YouTube Leanback is part of YouTube. Yes.

Q. Did you talk to any people other than lawyers to prepare for your deposition?

A. Yes.

Q. To whom did you speak other than lawyers?

A. To previous colleagues, like Romona Bobohalma.

Q. Did you speak to any other colleagues besides Ms. Bobohalma?

A. Yes. To Oliver Heckman.

Q. And did you learn from them about the creation and early development of the YouTube Remote project?

A. They helped me refresh my memories. Yes.

02:55 Q. And what did they help you remember?
02:55 A. They helped me remember the early stages of the project and how the project came to be in -- in Google.
02:55 Q. How did the project come to be?
02:55 A. The project materialized during something that was called a Hackathon, which was a one-week event where people from YouTube could get together and they could create some sort of new technology.
02:56 Q. And this Hackathon, was that before the public release of YouTube Remote?
02:56 A. Yes.
02:56 Q. Last topic, sir.
02:56 When you started at Google, did you do anything to try to learn about how YouTube Remote worked?
02:56 A. Yes. Of course. It was needed to be able to do my job.
02:56 Q. And what did you do to learn how YouTube Remote worked when you showed up there?
02:56 A. A few things like reviewing documentation, talking to coworkers, and reviewing code.
02:56 Q. You mentioned reviewing documentation.
02:56 Is that documentation such as that API server documentation that we've looked at today?

A. Exactly.

Q. And you reviewed code. By that did you mean source code?

A. Yes. I meant source code.

Q. Thank you, sir. I have no additional questions for you.

MR. DYKAL: Nothing else from me.

(End of video deposition.)

MR. LANIER: Your Honor, at this time, Google would move admission of JTX-63.

MR. DYKAL: I think we would object, but Your Honor has overruled that, I believe.

THE COURT: Okay. It's admitted.

MR. LANIER: Thank you, Your Honor.

THE COURT: Next witness.

MR. LANIER: Our next is Dr. Ketan Mayer-Patel.

(The witness was sworn.)

MR. LANIER: And, Your Honor, if you could give us 30 seconds, we're just grabbing a binder.

THE COURT: Just 30.

MR. LANIER: Thank you, Your Honor.

DIRECT EXAMINATION

BY MR. LANIER:

Q. Good afternoon, sir.

02:58 A. Hi.

02:58 Q. Would you introduce yourself to the jury, please?

02:58 A. Sure.

02:58 My name is Ketan -- rhymes with Nathan -- Mayer-Patel, and I'm an associate professor at the University of North Carolina in Chapel Hill.

02:59 Q. Dr. Mayer-Patel, I understand you'll be offering some opinions today.

02:59 Did you prepare some demonstratives to help illustrate your testimony?

02:59 A. I did.

02:59 Q. Is it okay with you if we have Mr. McDonald over there put them up on the screen and do the clicking for us?

02:59 A. Please do.

02:59 Q. Thank you.

02:59 Before we get into that, sir, on behalf of which party were you retained in this case?

02:59 A. I was retained by Google.

02:59 Q. Are you being paid for your time spent on this case?

02:59 A. I am.

02:59 Q. Does your compensation depend in any way on the outcome of this case?

A. Absolutely not.

Q. Are the opinions you'll offer in this case your own?

A. They are.

Q. Let's understand a little more about your background.

MR. LANIER: Can we see the next slide, please?

BY MR. LANIER:

Q. Would you summarize for the jury your educational background?

A. Sure. So I went to the University of California at Berkeley and graduated with my bachelor of -- a BA in computer science and economics.

And then about a year later, about a year and a half after graduating, I reentered school in the graduate program and -- the intent to get my Ph.D., and along the way, also got my master's. So I got my MS in computer science in 1997 on the way to getting my Ph.D. in computer science in 1999.

Q. And would you generally describe your work experience over the last few decades?

A. Sure.

So near the end of college, I was a programmer for a research lab at the United States Department of

Agriculture that has a lab near Berkeley. And then in that year and a half between graduating and entering graduate school, I was actually a software programmer for a research lab that was part of the department.

And that's where I met the person who eventually became my advisor. So he -- he recruited me to stop being paid and start being a graduate student. And so that's when I joined the graduate program.

So then after I got my Ph.D., I joined immediately the faculty at the University of North Carolina as an assistant professor and then made my way to associate professor having gotten tenure. And along the way, I took a brief sabbatical when I worked for the Microsoft Bay Area Research Center for about nine months.

Q. Have you prepared a demonstrative that illustrates something about the recognition of your work and other focus of your career? Is this it?

A. Yeah. It is.

So one of the things I'm most proud of is in 2003, I was selected for a National Science Foundation CAREER Award. This is a very prestigious research grant given to select number of young faculty in order to support their careers, in order to support their research direction.

I've also won the department's teaching award. I was selected to be the associate editor for the top two leading multimedia computing journals, and I am currently the steering committee chair for the top multimedia systems conference.

And I also sit on the board of the main professional society for multimedia computing and networking, the computer scientists that are interested in that particular part of computer science.

And that organization that -- that -- they organize and oversee a number of the various conferences, workshops, and journals that the computer scientists that explore multimedia systems publish in.

Q. Have you published in the field?

A. Yes. I've had many peer-reviewed publications in both journals as well as conferences and workshops. I've written a book chapter or two, and that's kind of what we do as professors.

Q. Are you still an active teacher?

A. Yes. So these days I teach mostly in our undergraduate program, mostly foundational courses in our intro sequence because I'm the director of undergraduate studies. So I like to have a lot of contact with the undergrads.

But over the years I've taught a variety of

courses. I regularly teach web programming, so the technologies involved in creating web applications. I've -- in the graduate level, I often teach a high -- advanced courses in data compression and in multimedia computing and networking for building large scale distributed systems. And then I've taught a variety of other courses here and there.

Q. And do you continue your research as well?

A. Yes. So I try to do -- I like to investigate all kinds of different problems, and over the years I've -- I've done -- have had a number of different research directions.

But in general, I think a good way to describe the kinds of research that I do is to describe one particular project that I worked on kind of early in my career, which was facilitating remote 3D environments.

In other words, you might have a surgical theater that is being captured by 50 different cameras so that they can see what the surgeon's doing, and then you want to recreate that experience, almost like the Star Trek Holodeck, you know, somewhere else.

And so you want to kind of, you know, have a cave of projectors, and so you're kind of recreating holographically that -- that 3D experience.

So you can imagine, you have all of these

cameras, and you need to send all of that visual information over to the other side in order to display it, and there's lots of interesting problems and challenges involved in building such a system.

And so -- and so, you know, that's the kinds of multimedia systems that I like to -- to work on.

Q. Dr. Mayer-Patel, have you been qualified as an expert in previous court proceedings?

A. I have.

MR. LANIER: Your Honor, at this time, we offer Dr. Ketan Mayer-Patel as a technical expert in computer science and specifically areas of interactive systems with networked media or media playback systems.

MR. DYKAL: No objection.

THE COURT: He'll be admitted as such.

MR. LANIER: Thank you, Your Honor.

Let's look at the next slide, if we could.

BY MR. LANIER:

Q. Dr. Mayer-Patel, have you prepared a summary of your opinions for the jury?

A. I have.

Q. Would you, at a high level, summarize what the opinions are that you're prepared to offer today?

A. Sure. So first and foremost, I'm going to

opine that Google's accused products do not infringe the asserted patents. And so -- and then furthermore, that those patents themselves, in light of existing prior art at the time, really should be considered invalid.

I will have an opinion on the fact that Touchstream has not provided any evidence to establish that they conceived all of the features of the claimed patents before April 2011, when the patent application was filed.

And finally, I'll have a small discussion on comparing the technical comparability of the patents-in-suit with other patents that are part of Google's -- that are already licensed by Google.

Q. Are you prepared to walk through those opinions today, sir?

A. Yes. I am.

Q. Just a general background question.

Do you look at several of these topics from a particular perspective or background?

A. Yes.

MR. LANIER: Let's look at the next slide, please.

A. So we've heard from Dr. Almeroth and, you know, this is the same for me, that you have to do all

of this analysis and form these opinions with respect to this hypothetical person of ordinary skill in the art.

And so this is a person that you have to put yourself in the mind-set of, so at that time, and to think of that person as someone who is technically capable, who can read the patent and understand it, who is aware of the state of the art and the various, you know, systems that were available.

So for this particular case, the qualifications that would be appropriate for such a person would be someone who has a bachelor's degree in electrical engineering or computer science and a couple of years experience, you know, implementing interactive systems using multimedia data types.

And of course with more experience, you could have less education, and with less education, you could have more experience. So it's not, you know, an exact formula. But this gives us an understanding of the technical basis for this hypothetical person.

BY MR. LANIER:

Q. Sir, around the date of the filing of the asserted patents in this case, April of 2011, were you at least at that level of skill in the art?

A. By at least about 20 years.

03:07 Q. And based on your work in teaching and everything else, were you familiar with plenty of people at that level of skill in the art in April of 2011?

A. I had many students who would have fit this definition.

Q. Did you consider materials to prepare your opinions in this case?

A. Yes. So --

Q. Generally speaking, what did you review?

A. Sure. So in addition to my own experience, obviously I looked at the asserted patents, their file histories, and the cited prior art in their applications.

I looked at the various documents that were exchanged as part of this litigation, including deposition testimony and exhibits, the documents produced in this case, source code that was made available to me so that I can understand how certain things worked.

Certainly I read the technical expert reports of Dr. Almeroth and the materials he cited.

And then for the technical comparability, I also examined some patents from those portfolios that have already been licensed by Google.

Q. You reviewed all those materials in doing your work in this case?

A. I did.

Q. Did you consider what the state of the art was around the time of the filing for the patents in this case?

A. Yes. I did. So here --

Q. Just back up a step -- sorry.

A. Sure.

Q. What is the state of the art?

A. Right. So the state of the art is basically what kinds of things were already known about, what kinds of systems were already available, what kind of products, what people were working on. So basically, the state of the art is the state of the technology, if you will.

And so what I've listed here are just some representations of some of the things that I would have considered state of the art at the time.

On the left, on the far left, I have a very -- I have something called a "proxy principle." And it is illustrated here as the cover page of a paper that was published in 1986.

And this is a very old idea. And, generally, this general old idea is the use of a server to sit

between two other components in order to facilitate communication and help translate information or solve some other challenging problem that these two components are having communicating between themselves directly.

So that general idea has already been well-known and then got applied in various context and places over the years.

So that's important here because this notion of a server mediating access or being intermediary was really well-known at the time.

More specific to multimedia systems, to playing back content on a screen and controlling it remotely, there were a number of systems already being developed and already available to do -- to accomplish that task.

First was the Google TV system that -- and we'll -- I'll talk about that. That'll come back later as part of my invalidity analysis.

And then there was also a system being developed by a company called Peel. And they had a related patent that was related to a system they were developing, and that also will be part of my invalidity analysis later.

There were also other systems that I won't

talk about further on, but that were existing at the time.

So, for example, there was a company called PacketVideo. They had a system that they called "Twonky," and it had some related patents related to how they were building the Twonky system.

We had already heard about Apple AirPlay as a mirroring option. That was already out in the world and well-known.

And there were even some consumer electronic devices that would connect to your TV that you could use a remote phone app to control. And I listed one here that was called Boxee.

Q. As of April 2011, or 2010/2011, was -- were there many ways to pick content on your phone, watch it on another screen, and control it from your phone?

A. Yes. Those kinds of systems were starting to be available.

Q. Did you also become familiar with the products that are accused of infringement in this case?

A. I did.

Q. Would you briefly describe, sir, what you came to understand about these products?

A. Sure. So primarily, what's being accused here are Chromecast devices that we've talked about. Those

are the dongles that we plug into our TV. And we see some early generation versions on the upper left.

And then we've just heard this morning about future versions of that that came with the remote control, and so that's on the lower left.

In the middle column, we've -- we -- there are Nest speakers. Nest is part of Google now. And those have some casting technologies built into them.

Google themselves made smart displays, and Dr. Almeroth showed a couple of them.

And then Google, of course, worked with other partners, third-party partners, to have Chromecast built into, you know, TVs, like Smart TVs. And so those are the kinds of products that are at issue.

Q. Was casting the only thing that this range of products could do?

A. No. So these products include a number of different capabilities as well as technologies generally that are not part of the accused features. All right?

So, you know, Chromecast dongles have web application technology that allows them to run a Chromium browser and to have that browser interpret JavaScript code as part of the applications that are running.

They have media decoders for taking video and decoding it in order to be able to put it up on the screen. It has technologies for being able to stream that video and to download that video.

The various communications technologies that are the -- in these devices to be able to talk to the local WiFi. Those kinds of technologies are not at issue.

The technologies used to create the HDMI signal to show the screen on the TV, those technologies are not part of the accused functionality.

We know that Chromecast devices can also mirror, and we know that there's a fundamental difference between casting and mirroring. And so the -- all of the mirroring functionality and the ability to mirror is not at issue in this case.

And I understand that the voice casting, using the Google's voice Assistant's technologies in order to control playback is also not at issue today.

And then we've also heard that there were other standalone applications and capabilities for these devices like, for example, the picture screen saver that Mr. Van Der Staay talked about and those kinds of things.

Q. Did you hear the testimony of Mr. Robins as

well about the other features of some of these products?

A. Yes.

Q. Based on all of this and your own review, is it your opinion that the success of the Google products, the accused products here, was based solely on their casting functionality?

A. It is my opinion it was not based solely on the casting functionality. There were other things that these things could do and the success of the products had other factors like marketing and whatnot.

Q. Okay. Well, let's now start talking about your more specific opinions in this case.

Do you have an opinion about noninfringement?

A. I do.

MR. LANIER: Let's go to the next slide there.

BY MR. LANIER:

Q. And would you describe for us, sir, at a high level, what your opinion is on noninfringement?

A. Sure. So it's going to boil down to three main arguments.

And the first is really the one that is -- I think first and foremost applies to all of the claims at issue. And that is that the claimed server system

simply does not exist in the Chromecast products.

So the claims are very clear about what the server system is and what it needs to do, and there simply is no server system in the Chromecast products. And so that will apply to all the claims.

Specific to the '251 patent and Claims 1 and 8 of the '251 patent, there's a requirement for a database. And more -- furthermore, that database needs to store certain information for certain purposes.

I found that that database element is missing from the Chromecast products and, therefore, would not infringe Claims 1 and 8 of the '251 patent.

And then, finally, affecting the '528 patent's Claims 1 and 14 and the '289 patent's Claims 1 and 2, I find that the Chromecast products do not identify a location of a particular media player, which is one of the claim element steps that is required by the patent.

And so the way Chromecast operates, that step does not occur.

Q. So is it your opinion then that each of the asserted claims in this case are not infringed for at least two reasons?

A. Yes. That is correct.

Q. Before we just get into the specifics of your opinion, I see some circles down at the bottom and

independent claims and dependent claims.

What are you trying to tell the jury with that?

A. Sure. So -- and we've heard this, again, from Dr. Almeroth before. When claims are defined as part of a patent, they can either be independent claims that stand alone or they can be defined as dependent claims that basically add on to a prior claim.

So in this, for example, I'm illustrating that Claim 8 of the '251 patent is a dependent claim of Claim 1, which means that Claim 8 includes all of the things that Claim 1 is supposed to include plus whatever additional elements are expressed as part of Claim 8.

Now, the reason why this relationship is important to understand is for the purposes of noninfringement, even if a single step of the claimed invention is missing, if there's even a single part of the claim that is not present, then that claim is not infringed.

And so if a single part of Claim 1 of the '251 patent is not -- is not infringed, then that means that Claim 8 automatically cannot be infringed. Because all of the parts of Claim 1 are also part of Claim 8 because Claim 8 is a dependent claim.

So, for example, the server system -- when I talk about the server system and how it's missing, the server system is part of all three Claim 1s of all three patents.

And so when I conclude that the server system does not exist as claimed, then that will render as noninfringing all three Claim 1s of all three patents.

And then by that reference, by that dependency, all three dependent claims of all three patents at issue in this case would also not infringe.

Q. All right. Well, let's turn to the first of those opinions, the ones you've mentioned, the server system.

So I take it your opinion is -- or what is your opinion about the server system issue and its impact on noninfringement?

A. So the server system as claimed, right, as, you know, the server system doing the things that the claims say the server system needs to do, does not exist in the Chromecast products.

And because of that, I find that Claim 1 of all three patents is not infringed. And by reference, all three dependent claims are also not infringed.

Q. Where did you start your analysis of noninfringement?

A. We always start with the claim language. So we start with the claims in order to understand what they say and what is required.

And here, what I'm highlighting here -- I'm not going to read all three Claim 1s, but what I'm trying to show is that all three Claim 1s very much require a server system.

So I've highlighted, you know, where the word "server system" appears in all three Claim 1s. And the other language in the claims relate to that server system. They relate, like, to -- you know, they describe the steps that need to be taken by the server system and what that server system needs to do. And so -- right.

So then, you know, the rest of my analysis will be showing that the server system as claimed does not exist in the Chromecast products.

Q. Did you prepare a demonstrative to summarize your opinion on this server system issue?

A. Yes. So if we go to the next slide, at the highest level, at -- you know, at the most abstract, the most basic, I'm illustrating it as shown here.

On the left is effectively what the patents are about. They're about putting a server system in between the phone and the content presentation device

in order to take certain specific actions.

And that server system being in the middle is not only -- you know, it's not just there to pass messages. It's there to take certain actions and be in control. It has certain responsibilities.

And so that's -- that's what the patent wants to do. Right? So that's what the patent is trying to describe.

And what we're going to see, when we examine Google's products, is Google has chosen for various reasons to go in a different direction, to not include a server system that mediates or intermediates access between the phone and the display device, but instead, to have the phone talk directly to the Chromecast, to the content presentation device.

So the phone is our personal computing device in the parlance of the patents, and the Chromecast dongle is our content presentation device.

And in Google's products, this communication happens directly with no intermediary service system and performing the steps as claimed in the patents.

Q. So these Google products, they're talking directly to each other. We've heard discussion of a peer-to-peer system.

Is this a peer-to-peer relationship?

A. That is exactly how I would characterize the Google products.

Q. Okay. All right. Well, let's -- let's dig deep further.

Did you look at other parts of the patent besides the claim --

A. Yes.

Q. -- the claims to inform your opinion?

A. Yes.

Q. Let's look at that.

A. So -- so here we see a illustration. You know, if we want to understand the patents, in addition to reading the claims, we have to read the specification, right? The specification in the -- all three patents share the same specification, and that includes figures in the specification.

And the text of the specification and the figures help us understand what the claims mean. And so this figure, Figure 1, which is part of all three patents, very clearly kind of describes -- shows these three different components and their relationship to each other. Right? They're all separate components that can communicate over a network, right?

And we see that this -- this -- described in the specification, the server system really has two

primary roles.

The first is to act as a -- as -- as an agent to connect between the phone and the content display device via a synchronization code.

So there is great discussion in the specification and in the claim language talking about using a synchronization code so that the server system can create an association between the phone and the content display device.

And it's doing this because the use case, the situation that the patent is addressing, is one in which the phone and the content presentation device either can't talk directly to each other or don't want to talk directly to each other.

So -- so the server is -- is acting as this -- not just the go-between but really as the thing that is managing that connection and making that connection possible.

On the next slide --

Q. Let me just ask you, sir, just to be sure.

MR. LANIER: Let's go back to where we were there, Mr. McDonald. Go back.

Thank you, sir.

BY MR. LANIER:

Q. So you're referring to Figure 1 of all three

patents, and from the '289 patent, Column 2, Lines 16 to 23 of the specification; is that fair?

A. Yes. I've called out that specific text as an example of the text that describes what the server system's doing with respect to synchronizing these two other devices.

Q. And did you look at additional pieces of the specification of the patents to inform your opinion?

A. Yes.

Q. Let's take a look at that.

A. So the -- the other main role that the server system plays, as claimed in the patents, is to act as a universal adapter in order to convert or translate the commands of the phone into appropriate programming code that is then -- you know, for the specific media player for -- that's running on the content presentation device.

And so here, again, from the text of the specification and how we understand the claim language, we understand the server system's role here is to step into this communication gap where the phone does not know how to issue commands that the media player on the content presentation device understands. They don't speak the same language.

And so the server system is able to translate

what the phone can say into the appropriate commands that the -- that can control the content presentation device and the programs and media player that is running on it.

And so that's the second main role for the server system. And -- right. And so that is also understood from the specification.

Q. And so specifically, that's from the '251 patent, Column 5, Lines 59 to 64, in Figures 1 and 5?

A. Yes. That's what I've used on this demonstrative.

Q. All right. So you've formed an understanding of what the patent claims required with respect to the server system.

Did you then compare that to how the Google products worked?

A. I did.

Q. And -- and what did you do --

THE COURT: Counsel.

MR. LANIER: Oh, sorry, Your Honor.

THE COURT: I've been trying to find -- it seems to me this might be a good place to break before he gets into that.

So ladies and gentlemen of the jury, if you'll remember my instructions, we'll be in recess for

about ten minutes.

THE BAILIFF: All rise.

(Jury exited the courtroom.)

THE COURT: Is there anything we need to take up?

MR. LANIER: Just one brief warning. There'll be a brief chunk of about five or ten minutes in the invalidity portion where we're showing some source code. We may need to ask for clearing of the courtroom then. I'll -- I'll let people know before we --

THE COURT: I'm not holding you to this. About how much longer?

MR. LANIER: He'll be -- he'll be a good chunk. At least another hour, hour 20 probably.

THE COURT: Okay. Well, then why don't we plan on this: Whenever you finish with him, we'll finish -- we'll rest for the day. And I don't want you to have to start your cross and have it interrupted. So --

MR. LANIER: Understood.

THE COURT: -- whenever you finish, we'll stop for the day. Does that work?

MR. LANIER: Thank you very much, Your Honor.

MR. DYKAL: One other minor thing. We made some objections to some of the exhibits that I think they're going to enter. Would you want me to object when those come up?

THE COURT: They're demonstrative exhibits?

MR. DYKAL: I think they're actual exhibits. These are exhibits we did object to, and we feel we've preserved that, and I understand Your Honor's overruled, but do you want --

THE COURT: No. No. If you have objections to make, what I said earlier --

You may be seated.

What I said earlier was if you all were objecting -- anyone's objecting, either side objects to something that when you started trial was a joint exhibit, too late to change that.

If it's an exhibit that they offered but you also offered, too late to object to that.

But if you have objected to something, make your objection, and I'll rule on it.

MR. DYKAL: Just -- I just want Your Honor to be clear of the situation. So these were exhibits that they included with their expert report, and then our rebuttal report expert also discussed

them. So they ended up on both sides' slides, but we did object to theirs. We -- for hearsay and other reasons, but we just want to preserve it.

THE COURT: You can certainly -- you can certainly make those objections.

MR. DYKAL: Okay. Thank you.

THE COURT: I'm not sure how good a hearsay objection would be with an expert.

MR. DYKAL: I understand. They're foundational. And we feel they're not proper prior art. That's really all it is.

THE COURT: Okay. Anything else?

MR. LANIER: Nothing, Your Honor. Thank you.

(Recess taken.)

THE BAILIFF: All rise.

THE COURT: Please remain standing for the jury.

(Jury entered the courtroom.)

THE COURT: Thank you.

You may be seated.

Yes, sir.

MR. LANIER: Thank you, Your Honor.

BY MR. LANIER:

Q. Dr. Mayer-Patel, just to reset the stage, we

had just finished going through looking at the patents about the server system issue.

So the next question for you, sir, is, did you look at evidence about the operation of the Google products to inform your infringement opinion on this issue?

A. I did.

MR. LANIER: Let's bring up and start from Slide 17, please.

BY MR. LANIER:

Q. So here we're referring to JTX-187. I have a feeling we all recognize this document.

A. Yes.

Q. But just to remind us, what are we looking at here?

A. Sure. So we've seen this multiple times now, but this is a set of documents that describes the discovery. And I'm going to concentrate on the discovery, launch, and control, so just those three steps because that's the most relevant to my analysis.

Q. Okay. So discovery, that's the -- what is the discovery step?

A. So the discovery step is how the phone and the Chromecast find that connection. And we've heard the testimony of Mr. Van Der Staay and through documents

that I reviewed that that discovery step is done on the local network. They both have to be part of the same WiFi.

And because they're part of the same local environment and the same WiFi network, that's what enables the phone and the Chromecast device to discover each other.

Q. In the discovery step, are you sending press -- play, pause, rewind, all that sort of stuff?

A. No. Not yet.

Q. At this point, are you just discovering each other and hooking up?

A. That's right. The phone is discovering the existence of the cast device and -- and being able to connect to it.

Q. Were you here in the courtroom today for questions about this mDNS server?

A. I was.

Q. Is the mDNS server a server system of the claims?

A. No. So that is not part of the claim server system.

MR. LANIER: Now, let's look at Slide 18.

BY MR. LANIER:

Q. You've moved to launch step.

What's the launch step?

A. So the launch step is how the app on the phone -- so we have two apps, actually. There's an app on the phone, like a Spotify app, and there's going to be a receiver app that's going to be run on the Chromecast device. And that's -- those two apps are the ones that are talking to each other.

And so the phone, running the app on the phone, whether that's Spotify or YouTube or whatever, the controller part, the sender app, will ask the Chromecast device to launch the corresponding receiver app. So -- and it does that by sending the app ID of the receiver app.

So every receiver app needs to be registered with Google and is given a app ID. And so it's that number, which, you know, here is CC32753. It's that code, that app ID, that the sender app sends to the Chromecast in order to launch the corresponding receiver app.

Q. Is there an external server involved in this launch step?

A. No. There's not.

Q. Does the communication go from the cast sender or phone to the device directly?

A. Directly, yes.

Q. Over that same local WiFi network?

A. That is correct.

Q. All right. What's the next step in the process?

A. So I'm going to skip to the last step, which is control.

So when the launch command is given, then the Chromecast device will at that time find a location for the application, right?

So the Chromecast device already has downloaded in it all of the locations for the application, right, all these receiver applications.

And so given the code, the app ID, it finds the corresponding location and then downloads and starts executing the partner app, is what it's listed here in this screen, but that's also known as the receiver app.

And so once that -- that's the -- that's the actual media player, right?

So in the parlance of the patent, that's the thing that's going to play your video.

And so once that app is running inside that browser component of the device -- of the Chromecast device, now the sender app can send commands to control the receiver app directly.

And the key thing here, and it's labeled as part of that green arrow, is these are Cast V2 messages.

The sender app speaks the language of the receiver app. They both know how to talk to each other. The sender app can say play and pause and load and next, and it does that by sending the appropriate Cast V2 command.

So Cast V2 is a specific way of sending these messages in a specific format for these messages. And the receiver app, in receiving these messages, knows what to do because the receiver app knows how to interpret these messages in order to control itself.

Q. Does -- is there something in between these two, the phone and the device, that translates those commands for the device?

A. There is not.

Q. And is there an external server in between them?

A. There is not.

Q. Okay. Now, did you -- is this an example of that peer-to-peer architecture you talked about?

A. It is.

Q. Did you look at other evidence within this document about the -- about the operation of Google's

products on that point?

A. I did.

MR. LANIER: Next slide.

BY MR. LANIER:

Q. So here we're at, boy, Page 098 as it was produced of Joint Trial Exhibit 187.

What are you showing us here from that document?

A. What I'm trying to highlight, what I'm trying to point out is that these technical documents describing how the cast system worked describes this relationship exactly as a peer-to-peer relationship over and over and over again.

And so, for example, in the discovery step, it talks about enabling peers on a local network to discover the cast device. And so this is how I know the phone and the cast device, the content presentation device, are in a peer-to-peer relationship.

Q. All right. So now let's step back and look at the overall architecture of this. We've seen this page as well also from Joint Trial Exhibit 187.

What is this showing to the jury?

A. So, again, we've seen this many, many times. And what this is is an architecture document, which shows the different components of the system in an

abstract way, right?

And so two things that I really want to point out is that everything to the left of the vertical dotted line we know is on the Chromecast device. And so everything on the left, that's the content presentation device.

And all of these boxes that are listed on the left, that's just software. It's just the code that's running on that device. It's not really broken up into these separate distinct pieces. It's all one piece of software that is running. And we heard that from Mr. Van Der Staay, for example.

And then on the right are two separate entities. One, the cast sender, the phone, right, and so that's my, you know, my controlling device, my remote control.

And so it is separate from the cast device and it is on the network. But what's, you know, an important point to remember is it's not just anywhere on the network. It has to be on the same local area network, the same WiFi, as the content presentation device, as the Chromecast dongle.

And then on the lower right, we saw these Cast services in the cloud and we heard some discussion about what those are. Those are servers. Those are

servers in Google's infrastructure, out on the Internet, not on the local WiFi. And they do play a role in this technology but not as the claimed server system.

Q. Do those Cast services cloud, the DCS, CCS, and COS, play a role in the casting flow --

A. No. They --

Q. -- between the phone and the device?

Sorry, sir.

A. No. They do not.

Q. Did you hear Mr. Van Der Staay's testimony earlier today?

A. I did.

Q. Did -- was his testimony consistent with what you learned from reviewing the documents and other information you described?

A. It is.

Q. All right. Did you see other pieces of this document that illustrated anything about the peer-to-peer nature of this system?

A. I did.

Q. So here we're looking at another page of Joint Trial Exhibit 187.

A. Yes. And so, again, I'm just trying to highlight the idea that in these high-level

architecture documents, it's recognized that the cast sender and the cast device, the Chromecast device, are peers and that they speak the same language, Cast V2. That's really important, because that's how the cast sender can control the receiver app without needing any sort of translator.

Q. Did you look at documents from the development of the Chromecast project to see whether this peer-to-peer setup was part of the plan?

A. Yes.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. Here, we're referring to Joint Trial Exhibit 159 at Page 82.

What is this?

A. This is a document describing how the envisioned cast architecture would operate. And in particular, they are describing the messages to be transported over a peer-to-peer connection.

In other words, that we're not going to involve our servers. We're going to allow the media player and the media controller talk directly to each other.

Q. Did you prepare a slide to summarize some of

these issues about peer-to-peer versus client-server architectures?

A. I have.

MR. LANIER: Let's look at that next one.

BY MR. LANIER:

Q. But before we talk about this specifically, did you hear the discussion today with Mr. Bakar and Mr. Van Der Staay about the reasons why Google chose a peer-to-peer architecture?

A. I did.

Q. Did you -- did that -- the description they gave and the statements they made, were they consistent with what you learned in looking at the documents and the evidence about how Google's products work?

A. It was.

Q. So what are you illustrating for the jury here in talking about peer-to-peer is preferable?

A. So on this slide, I'm just summarizing some of the reasons why a peer-to-peer architecture would be preferred, especially for this particular situation.

The first is: There's really no reason or need to mediate or have a proxy be between these two devices, right?

The way it's been designed, it has largely avoided the problems that the patents were trying to

solve. So they're on the same network, so we don't need a server to connect us.

We can talk directly to each other, so -- and we can speak the same language. And because of that, we don't need somebody sitting in the middle translating the language of the commands from the phone to the language understood by the media player.

And so in this situation, this direct peer-to-peer communication would be -- would be superior for the reasons we heard from both Mr. Bakar and Mr. Van Der Staay, who pointed out safety reasons, not wanting to be able to have your TV controlled from somewhere else on the Internet as well as, you know, safety reasons for not wanting applications that are just randomly provided to run on your computer, et cetera.

Q. Okay. Now, you understand that Dr. Almeroth disagrees with you, right?

A. I do.

Q. And he contends that there is a server system in the accused products, correct?

A. That is his contention. Yes.

Q. A server system of the claims, he says, correct?

A. That is correct.

Q. Have you attempted to illustrate what he has described as that server system?

A. I have.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. What have you illustrated here?

I see this very familiar document but some yellow text here.

A. Right. So --

Q. Yellow highlighting. Sorry.

A. -- what I've done here is I have highlighted the components that Dr. Almeroth is claiming is -- or is saying is the claimed server system.

And what I'm trying to express here, what I'm trying to show is that a person of ordinary skill in the art in reading these claims and the specification and understanding the state of the art for servers and server systems at the time would not have understood these components as being the claimed server system.

First, because a person of ordinary skill in the art would have understood that the server system and the display device were separate and distinct entities. And I'll have some slides about why a person of ordinary skill in the art would have understood

that.

But in seeing this diagram, we can clearly see that in order for Dr. Almeroth to find infringement, he has to pick and choose components from things that are in the cloud, that are running on Google servers, software that's running on the Chromecast device, and even a component of the media player itself. And he has to say that all of those things together are the server system.

And a person of ordinary skill in the art would not have recognized that as a server system.

Q. Were you here in the courtroom yesterday when Dr. Almeroth volunteered that was a box-drawing exercise?

A. I was.

Q. Do you think that's an appropriate way to approach an infringement analysis?

A. No. Because basically, he's going backwards. He's reading the claims of the patent, seeing what the server system needs to do, and then looking at the accused products and trying to find the places that those kinds of steps are taken, and then drawing a box around all of them and saying, That's the server system.

Q. Do you believe that a person of skill in the

art, starting from the claims, would think that the -- this was an appropriate identification of the server system?

A. I do not.

Q. Let's look at the claims.

MR. LANIER: Let's look at the next slide here.

BY MR. LANIER:

Q. Here, we've illustrated Claim 1 of the '251 patent.

What are you illustrating to the jury here?

A. So here, I'm laying out the idea that -- why a person of ordinary skill in the art would have understood the server system and the display device as being separate and distinct.

And one way that I know this is because when a person of ordinary skill in the art would have read the claims, they would have found the display device and the server system being claimed separately with distinct terms and being related to each other in a way that clearly shows them as being different entities.

So just to pick one of these, like, for example, assigning by a server system a synchronization code to the display device. Right?

So, again, there's this -- it -- over and over

again it uses different terms to decide the server system from the display device and provides no hint that these are expected to be the same thing, and talks about them in relationship to each other and the personal computing device that makes it clear there are three different components at play in this patent.

Q. So we've looked at this claim through the perspective of someone of skill in the art in April of 2011, right?

A. Yes.

Q. And they have to have a certain amount of training and experience, right?

A. That is correct.

Q. Do we also assume that they -- they read English because they are reading in a U.S. patent here and they understand how grammar works?

A. That's right.

Q. They read words like "to" and "by" and "from."

Is that part of what a person of skill in the art would think about when they're reading the patent claims?

A. Exactly.

Q. Okay. Did you look at any other specific elements of the claims to -- to support your opinion that a person of skill in the art would understand that

the server system and display device are separate and distinct?

A. I did.

Q. What are you illustrating here, sir?

A. So here, I've kind of highlighted two specific parts out of the claim language that illustrates this even further.

So, for example, this portion of '251 patent, Claim 1, talks about storing in a database associated with a server system information for transmission to or retrieval by the display device. Right.

So, again, you know, a person of ordinary skill in the art would understand, oh, we're transmitting information from a database that's part of the server system to something different, a display device. Right?

This snippet from the '289 patent, Claim 1, says -- you know, shows us something similar. Where it says: Wherein, based on information received or retrieved from the server system, the content presentation device uses the particular media player.

So, again, right, just -- not even just a person of ordinary skill in the art, just an ordinary person who's reading this would understand that, well, if I'm sending information from one thing to a

different thing, that these are different things.

Q. Did you look to portions of the specification of the patents to support this opinion?

A. I did.

Q. This is Figure 1. We've seen it a lot.

So just in -- in brief, sir, what are you illustrating here?

A. So here, I'm showing that the main figure of the patent clearly shows three separate components where the server system, that is labeled separately and distinctly, connected to the Internet differently than the content display device and the phone.

And so, again, this supports the idea that someone reading this patent and understanding it, looking at its figures, reading its specification, would understand that the server system and the content presentation device were different things.

Q. Did you also look to pieces of the specification itself, the words in the columns, in addition to this figure?

A. I did.

Q. So we've illustrated here several pieces of the specification from the '251 patent. And maybe, just because the jury's heard a lot of this, pick out a couple of examples that really illustrate your

analysis.

A. Sure. So I'm making the same point again, which is if you read this language that's in the patent, it clearly talks about these things as separate and distinct.

The one that I think is most illustrative is the one on the upper left, which it talks about, at the end of that text, establish a connection between the mobile phone and the display device through the server system. Right.

And so clearly we see, oh, there's supposed to be a server system between these two. And so we're establishing a connection through the server system. Right?

And so, you know, over and over again in various places in the specification, we see these three components related to each other in ways that clearly give the idea that these are separate and distinct components.

Q. Well, just one more example from here. That was from Lines -- Column 5, Lines 36 to 41.

Just below that on the left, Column 6, Lines 23 to 29, it says: The server system can push the messages to the display device.

Does that support your analysis in the same

way?

A. Exactly right.

Q. All right.

MR. LANIER: So now let's -- let's -- let's look at the next slide.

BY MR. LANIER:

Q. And I wanted to talk to you about this receiver SDK.

So we've heard a bit about it, but just really to make it very clear to us, what is the receiver SDK?

A. Yeah. This is a really important point.

So remember, the media player is loaded by being asked to be loaded into the -- the Chromecast device. And that media player is known as a web application.

So a web application is just a fancy name for a web page that comes with code that gets run in the web browser in order to make that web page come alive to do things, be interactive, be able to, you know, respond to your interactions with it, for example, right?

And so the way a web application works is there's a main web page, an HTML page, and that page is linked to a number of JavaScript files. JavaScript is just the computer language used to write web

applications.

And so that main web page will probably have -- most web applications will have a number of JavaScript files that together make up the programming code for the web application.

So here's the really important part.

The receiver SDK is just another JavaScript file that's part of that web application. It's not any different than any of the other programming code that was written in order to make that web application works -- work. Right?

So it's actually part of the media player. It's not even on the cast device when it starts. It comes as part of launching that media player.

And so I think that, again, starts to really stretch the imagination that we're going to take this part of the media player and make that part of the server system as well.

And so yes. That's what I'm trying to illustrate here.

Q. Were you here for the testimony earlier today from Mr. Van Der Staay about how some of those third parties make their own media players?

A. Yes.

Q. And they provide them, and they're downloaded

onto the device, correct?

A. That is correct.

Q. But are those made by Google?

A. No.

Q. Okay. All right. So now have we got through the evidence that you highlighted here -- I know you looked at a lot of evidence, but that you highlighted here to support your opinion with respect to the server system issue?

A. We have.

Q. All right.

MR. LANIER: Let's just jump back quickly to Slide 13, if we could.

BY MR. LANIER:

Q. That's the claims, I believe. And here, you've highlighted the server system element in each of the independent claims.

Are -- is that server system element met in these claims?

A. No. And so that's the problem, right? If we don't have the server system, and we don't have the server system and the server system as claimed, the steps of the code -- of the claims that require a server system, they just don't exist in Chromecast.

And because of that, we can conclude that we

do not infringe Claim 1 of the '251 patent. We do not infringe Claim 1 of the '528 patent. And we do not infringe Claim 1 of the '289 patent.

Q. I have apparently just turned off my own monitor, unfortunately, trying to let you cross those things out with nice Xs.

But is the point that none of those elements -- none of those server system elements are met in the accused devices?

A. That is correct.

Q. All right. Thank you, sir.

I apologize. I pushed a button I shouldn't have.

Thank you very much.

All right.

MR. LANIER: So now let's go back to Slide 31.

BY MR. LANIER:

Q. So we've discussed the server system.

And I will make you a promise, sir. Until we come at the end and we summarize all this, I will try not to say those words again. We've heard them a lot.

A. Sure.

Q. But are there some other reasons why you believe that the claims -- all the asserted claims are

not infringed?

A. Yeah. So the next opinion is going to be about the term "database" as it's used in '251 patent, Claims 1 and 8.

Q. Now, is this argument independent of and in addition to the discussion we just went through on server system?

A. It is.

Q. Okay. So let's turn to that.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. So here, you've illustrated Claim 1 of that '251 patent again.

What are you illustrating here with this highlighting and underlining?

A. Sure. So I'm trying to point out or, you know, pick out the parts that are going to be relevant to my opinion about whether this database exists.

So most of the relevant information is in the yellow highlighted part, where we see that we need to store information in a database.

And so the -- what we need to store in a database is information for transmission to or retrieval by the display device.

So that tells us that what's in the database is intended to be either transmitted to the content presentation device or retrieved by the content display device, but that the information in the database is meant to go to the content presentation device.

And what that information includes -- it's specified that it includes the video file to be acted upon, you know, the location of the video file to be acted upon, the identity of the particular media player, and -- and the underlining on the next part's important -- the corresponding programming code for controlling the playback of the video content.

And so the idea here is that the server system that is associated with this database is going to store in this database, you know, these pieces of information, but most importantly, programming code in the database, which is then sent to the content display device in order to control the playback of the video.

Q. So that information needs to be stored and then go to the content presentation device?

A. That's right.

Q. Okay. Did you look at the specification to support your opinion on this issue?

A. I did.

MR. LANIER: Let's turn to that now.

BY MR. LANIER:

04:13 Q. So here we've illustrated, again, Figure 1 and Column 6, Lines 9 to 29, of the '251 patent.

What point are you making with this evidence?

A. So with this evidence, I'm showing where the patent envisioned the database being. So the database associated with the server system is shown to be part of the server system, which makes sense.

And then the text from the specification talks specifically about how the display device either periodically checks for these messages or is transmitted to these messages.

And that's, you know -- the role of the database is to store the programming code that is then delivered to the presentation device which then controls the playback.

Q. Now, Dr. Almeroth disagrees with you on this point as well, correct?

A. He does.

Q. Have you illustrated how -- where he finds that database?

A. I do. I have.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. Where does Dr. Almeroth say that that database is?

A. So Dr. Almeroth seems to be pointing to information stored on the phone. So it's associated with the phone, not associated with the server system at all.

And he seems to be indicating that that phone, in storing information like a session ID, which is helpful for the phone to re-establish contact with the Chromecast device, that that satisfies the elements of the claim.

And the problem here is that that session ID is used by the phone in order to re-establish that peer-to-peer connection. It is not the -- we haven't seen any evidence that it includes the location of the file, and we haven't seen any evidence at all that it includes any sort of programming code, which is either retrieved by or sent to the content presentation device for controlling playback of the video.

So he's basically pointed to something that looks like a database and says, Oh, well, that must be our database.

But if we look at what the database needs to store and how the database -- you know, the role of the database with respect to the claims, then we see that

that database on the phone doesn't satisfy that.

Q. As you understand your roles as between you and Dr. Almeroth, whose job is it to point to the evidence that proves the -- that element is met?

A. That is his burden.

Q. Okay. And do you have an opinion as to whether he's met his burden on that element?

A. I do not believe he's met this burden.

Q. Okay. Now, let's move to your next argument on noninfringement.

MR. LANIER: Slide 35.

BY MR. LANIER:

Q. So this is -- if I understand your structure here correctly, this is an issue that's present in both Independent Claims '528 and '289 so that if you're right, none of these claims are infringed as well, the dependent claims as well, correct?

A. That is correct.

Q. All right. Well, let's understand what that issue is. Let's look at those claims.

What have you illustrated here on the claims?

A. So on Claim 1 of both the '528 patent and the '289 patent, we see that the messages from the personal computing device, the phone, need to identify a location of the particular media player, and that is in

both of these claims.

And it is -- the fact that the phone does not provide a location to the Chromecast device, that is why this step of these elements is not met.

Q. Now, did Dr. Almeroth identify something that he says meets this limitation?

A. He does.

Q. All right. Let's look at that.

MR. LANIER: Next slide, please.

BY MR. LANIER:

Q. What -- this is back to our friend JTX-187, that mesh foundation architecture document.

What does Dr. Almeroth point to as identifying the location?

A. He points to the app ID, which we all know by now is just a number. It is not a URL or a location on the web that you can go and retrieve.

He points to that as identifying a location, and I think it's very clear that that is not a location.

Q. Why not?

A. Well, because I can't take that number and then go find that -- like, just by itself, that number does not provide me the information necessary to go retrieve the receiver application, right?

Q. Were you here -- oh, sorry. I didn't mean to interrupt.

Were you here this morning -- or this afternoon when Mr. Van Der Staay was talking about what that code did?

A. Yes.

Q. Did -- his testimony on that, was that consistent with what you concluded looking at the evidence?

A. It is.

Q. Do you have an opinion, bottom line, as to whether this identifying a location element is met?

A. It is not.

Q. Okay. So, sir, we've now been through the server system issue -- sorry. I said that phrase one more time -- the database issue and the identify a location issue.

Those are three different arguments, correct?

A. That is correct.

Q. They stand or fall each on their own merit, correct?

A. That is correct.

Q. And adding up, are there two reasons for each of the asserted claims in this case that you think they are not infringed?

A. There are.

Q. Okay. Are any of the asserted claims in this case infringed by the Google products?

A. They are not.

Q. Thank you, sir.

Well, now we're going to move to a topic about which we've hinted a little bit, but we have not yet really talked too directly to the jury about, and that's invalidity.

Sir, do you have opinions on whether the asserted patents are valid or invalid?

A. I do.

MR. LANIER: Let's skip to Slide 40.

BY MR. LANIER:

Q. Let's first off just lay some basic groundwork.

So what does it mean for a patent to be invalid?

A. Right. So a patent is invalid if there existed public documents or publicly available systems, products or, you know, or other prototypes or whatnot, that describe or teach each of the elements of the patent to a person of ordinary skill in the art, where a person of ordinary skill in the art in understanding this prior art would have -- it would have been obvious

to that person of ordinary skill in the art all of the different steps of the claimed patents.

Q. Is it your opinion that the asserted claims, all of them, are obvious?

A. Yes.

Q. And you've identified -- you've got them broken up into two groups, the '251 patent and the '528 and '289 patent.

Why have you done that?

A. Because the prior art systems I'm going to rely upon for this argument -- for the '251 patent, I believe the Google TV system, which -- including YouTube Leanback and YouTube Remote, working with the Google TV system, that that system, that was prior art at the time, would have rendered the claims of the '251 patent as obvious.

For the '528 and the '289 patents, there are a couple of places in those patents where I need to combine the Google TV system with another system that was also available at the time. And that combination of Google TV system and the patent of Muthukumarasamy would have rendered those patents obvious.

Q. Are you permitted to put two things together like GTS and Muthukumarasamy to render a patent invalid?

A. You are.

Q. All right. We'll talk about that when we get to that combination. Let's start with this GTS.

MR. LANIER: Let's look at the next slide, please.

Sorry. The next one.

BY MR. LANIER:

Q. So here you say: Google TV (GTS) System.

What is the GTS system?

A. Sure. So GTS didn't exist as an acronym at the time. That's something that I'm using in order to name the Google TV system operating with YouTube Remote and YouTube Leanback functionality and associated documents that describe aspects of this system.

So I'm calling that bundle of evidence, that bundle of things, the "GTS system" as a shorthand.

But basically, Google TV with YouTube Remote and YouTube Leanback running with the Google TV, that's the GTS system.

Q. Did you reach a conclusion as to whether what you labeled for convenience the GTS system was prior art to the patents in this case?

A. It is.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. What evidence did you rely on or what did you look at to conclude that it was prior art?

A. So the patents are allowed a priority date to their provisional application, which is April 21st, 2011.

And so the evidence that the GTS system was prior art is the fact that YouTube Remote was launched on November 9th, several -- many months before and that the YouTube Leanback functionality and Google TV aspects were publicly available even prior to that, early October.

And we know this from Mr. Levai and, you know, and the documents produced about these systems.

Q. Did you hear the testimony of Mr. Levai that was played in the court?

A. I did.

Q. And you understood that was testimony he had given under oath in a previous part of this proceeding?

A. That is correct.

Q. He mentioned in his testimony a declaration, a written statement.

Did you review that written statement as well?

A. I did.

Q. Did you rely on all that as part of your

conclusion that the GTS system is prior art?

A. I did.

Q. All right. Well, then let's take a look at the GTS system.

MR. LANIER: Let's look at the next slide, please.

BY MR. LANIER:

Q. So we've got a little note here about a placeholder, but just in general terms, what are we illustrating on this slide here?

A. So this slide and then the subsequent slides here, we're going to go through the different pieces of evidence that document the GTS system that I used.

And this particular one is a video that demonstrates using YouTube Remote with YouTube Leanback running on the Google TV.

Q. All right.

MR. LANIER: So let's look -- first, we're going to jump out of this presentation for a moment and look at Joint Trial Exhibit 3, JTX-3.

BY MR. LANIER:

Q. So JTX-3 looks like it's a printout from a YouTube page.

What do you -- what do you see on there?

MR. LANIER: Maybe we can just highlight

the top half and not the comments and the ads.

Thank you.

A. So there's a video that's part of this.

BY MR. LANIER:

Q. Yes. There's a -- there's a video we will see. Right now we're looking at a printout.

A. Oh, sure.

Q. Do you see the date up there at the top?

A. I do.

Q. October 14, '21?

A. Yes.

Q. That's the date this was printed out, correct?

A. That is correct.

Q. Do you see a -- you've seen YouTube videos before?

A. I have.

Q. You're aware that generally, the date it's first posted is placed on there?

A. Yes.

Q. Do you see a date on this video?

A. Where is it?

Q. Toward the bottom --

A. Down below -- yeah. It's a little bit cut off on my screen, but it says November 14th, 2010.

Q. All right. And the title is How to Control

Google TV or YouTube Leanback with YouTube Remote. Right?

A. That's right.

Q. Okay. All right. So now let's watch the video.

A. Sure.

MR. LANIER: If we could pull up Defendant's Trial Exhibit 118-A.

(Video played.)

MR. LANIER: We can stop that and go back to the presentation.

BY MR. LANIER:

Q. Now, sir, did you watch this video or review it in connection with forming your opinions?

A. I did.

Q. Does this video illustrate the operation of YouTube Remote, YouTube Leanback, and Google TV out in the world, in the wild, by November 14th of 2010?

A. It does.

Q. All right. Did you look at -- did you consider that video in forming your opinions about invalidity in this case?

A. I did.

Q. Did you look at other evidence of how the GTS system worked?

04:27 A. I did.
04:27 Q. Now, let's just back up and make sure I understand why.
04:27 Was there -- was there one document that had every piece of the GTS system all stitched nicely together?
04:27 A. Not necessarily. No. There were lots of different documents that describe different aspects of the GTS system.
04:28 Q. So we're talking about one system, but you have a lot of evidence, correct?
04:28 A. That is correct.
04:28 Q. Now, I see up at the top of this slide, it says JTX-1 or Joint Trial Exhibit 1, and it also says GTS-1.
04:28 What does that -- what does that "GTS-1" mean?
04:28 A. When I sent in my report, we didn't have trial exhibits yet. And so I needed a way to refer to the different pieces of evidence. So in my report, I labeled these different pieces of evidence GTS-1, GTS-2, et cetera.
04:28 And so for the purposes of this discussion, we will have both the trial exhibit numbers as well as the original GTS numbers that I used in my report.
04:28 Q. Okay. All right.

MR. LANIER: So now let's -- let's look at JTX-1, Joint Trial Exhibit 1.

BY MR. LANIER:

Q. What is this and what does it teach us?

A. So this is a description of YouTube Remote and how it can be used with YouTube Leanback, that was written by a senior product manager at Google for this product. And basically, it was part of their announcement of YouTube Remote.

It's dated from November 9th, 2010, and it describes exactly what we saw in the video, that you could log into a YouTube account with your Leanback on your Google TV system, you could log into your Google account -- or your YouTube account with your phone.

And because you were both logged into the same server -- see, it uses a server in between -- then it would allow you to use your phone to pick videos to be played on the Leanback, on the Google TV system, and to control them.

Q. So is this more evidence of what the Google -- the GTS system, as you called it, did by November 9th of 2010?

A. It is.

Q. Okay. Did you look at other evidence of what the system did?

A. I did.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. So here, we've illustrated a patent.

First -- first question. What's this patent or patent application?

A. So this patent application was filed by some of the same people who worked on the YouTube Remote and Leanback systems and describes how certain -- how that system works as part of this patent application.

Q. Is this Joint Trial Exhibit 21 or GTS-8?

A. It is.

Q. Okay. And is this -- why do you rely on this patent application to understand something about how this system worked out in the world?

A. Because it's my understanding that this patent application describes aspects of that system. It was written by the same people who developed that system. And so the description of the specification and what is in this patent is related to the system they built.

Q. And is this patent being assigned to someone under common ownership with that GTS system, the Google TV, YouTube Remote, YouTube Leanback?

A. Yes.

Q. So that's another piece of evidence you looked at.

Did you look at some additional evidence about the features and functions of the GTS system?

A. I did.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. And here, we're referring, it looks like, to Joint Trial Exhibit 51 or GTS-19.

What are you illustrating here, sir, from that document?

A. These are portions from a feature description of the Google TV system or Google TV. So these are basically marketing documents and other documents that Google TV was -- or Google is using to describe their Google TV system -- or Google TV as a product.

And we see specifically that YouTube Leanback was intended to be or was touted as part of the Google TV experience. And we also see that Google TV had other applications as well, besides YouTube Leanback, and we see, you know, a depiction of some of those other applications as well.

Q. All right. And we saw earlier today some testimony from Mr. Levai.

Did you look at some of the evidence that was discussed in his testimony as part of your analysis?

A. I did.

MR. LANIER: Let's look at that in Joint Trial Exhibit 63 already in evidence.

BY MR. LANIER:

Q. What is this and what does it -- how does it relate to this exercise we're in?

A. So this is the API documentation for the YouTube Remote servers. So an important difference between how Chromecast worked and how this prior art system worked and what is -- makes it render the patents invalid is here, we do use the server system.

And so there is a server that sits between YouTube Remote and YouTube Leanback running on Google TV that does translate commands from the YouTube Remote into the appropriate control for YouTube Leanback. And this is the documentation that describes the commands that YouTube Remote can send to the server.

These commands are not then sent to the YouTube Leanback directly. Instead, the server interprets these commands and turns around and then controls the YouTube Leanback experience.

And so this is the documentation of the commands that YouTube Remote can issue, can send to the

server to control the Leanback.

Q. All right. So I want to be really clear on that server system.

You're talking here about that server system, about the GTS system, correct?

A. That is correct.

Q. That's YouTube Remote, YouTube Leanback, and Google TV, what they called that failed product, right?

A. That is right.

Q. And that old failed product worked the same way that their patents work, right?

A. That is correct.

Q. That's the analysis we'll be going through soon?

A. Yes.

Q. Now, is -- that old failed approach, is that what Chromecast did?

A. No.

Q. Is Chromecast different than that?

A. It is.

Q. And we've talked about some of those reasons. We don't have to repeat them.

But this analysis is about the old product, correct?

A. That is correct.

Q. That came before their patents?
A. That is right.
Q. All right.
MR. LANIER: Let's look at one more slide, Slide 49, the next slide here. Now, here -- thank you.
BY MR. LANIER:
Q. Here, we've just illustrated source code for the moment.
MR. LANIER: And, Your Honor, just for the record, we will in a little bit ask to clear the courtroom, but to avoid doing it too many times, we're just going to make a general point first.
BY MR. LANIER:
Q. So, sir, did you review source code in looking under the hood at how that old product worked?
A. Yes. I examined source code that was part of the YouTube Leanback component of this system.
Q. And was that source code collected in what you called GTS-27 but is also DTX or Defendant's Trial Exhibit 632?
A. That is correct.
Q. Okay. So now let's turn to the claims.
So we --
MR. LANIER: That's the next slide,

please.

BY MR. LANIER:

Q. So now we -- we've seen a lot of evidence, at least the evidence you highlighted today, about how the GTS system worked, right?

A. That is correct.

Q. To show that the patent is obvious, do you have to compare that system to the claims?

A. You do.

Q. And sort of the flip side of infringement, do you have to show that all of those things are -- all of the elements of the claims are in that old GTS system?

A. That is correct.

Q. So are you prepared to walk the jury through that?

A. Yes.

Q. Now, I see here you've got one of these representations of the patent claim. It's broken into little bits with letter -- number and letter labels, sort of like Dr. Almeroth did, right?

A. That is correct.

Q. This is a common way to present these issues?

A. Very common.

Q. So let's start walking through the claims. Let's start with -- we're focusing right now on Claim 1

of '251 and it says: 1[pre]. The preamble.

A. Sure.

Q. Did you look at evidence to determine whether the preamble of the '251 claim was in the GTS system?

A. I did.

Q. What did you look at?

A. And so -- so if we read the preamble --

Q. Oh, I'm sorry.

MR. LANIER: Go back, please.

A. Oh, actually -- well, if we read the preamble, it says: A machine-implemented method of controlling presentation of video content on a display device that loads any one of a plurality of different media players.

If you go to the next slide, that actually is shown in lots of different places in our evidence, first and foremost by the video. We saw this happening, right? We saw clearly in the video the Google TV system running Leanback and being able to be controlled by the YouTube Remote running on the phone.

And we also saw through the various marketing materials that many different media players were available for Google TV.

So these are just a few examples that give me the evidence to show that this limitation of the

preamble of the -- of '251, Claim 1, would have been obvious to a person of ordinary skill in the art.

BY MR. LANIER:

Q. And is that referring to Joint Trial Exhibit 3 and Joint Trial Exhibit 51?

A. It is.

MR. LANIER: So let's go to the next slide.

BY MR. LANIER:

Q. So you check that box and you look at the next ones. Is that what we're doing?

A. That is exactly correct.

Q. So here it looks like you've grouped Elements 1[a], 1[b], and 1[c].

Have you done that?

A. Yes. We're going to deal with those together.

Q. All right. So let's look at the evidence that you found on those three elements.

What evidence are you illustrating here?

A. So a couple of different examples of the evidence that went into my opinion that this would have been obvious for a person of ordinary skill in the art who was aware of the Google TV system or GTS.

So if we look at 1[a], it says: Assigning, by a server system, a synchronization code.

If we read the API documentation, there is a token that is assigned by the server that is connected to or basically is associated with the YouTube Leanback experience that is being controlled.

And it is that token that the YouTube Remote application needs to provide to the server when it -- when it issues these commands that it wants to then control the YouTube Leanback experience.

And so we see that that is assigned by the server and acts as a synchronization code for the display device.

On 1[b], we see that we need to receive in the server system a message. These are the API messages. These are the HTTP messages that are sent from the YouTube Remote to the YouTube Remote server for controlling the -- that includes the synchronization code, right, and has the token, right.

And so -- and, you know, and that server is separate from the display device, the Google TV system.

And so this is also -- and that -- you know, confirmed by the declaration of Mr. Levai, which talked about YouTube Remote being an application that could control the YouTube Leanback experience.

And then in 1[c]: Storing, by the server system, a record establishing an association between

the personal computing device and the display device based on the synchronization code.

We, again, see that that token is going to be the synchronization code and that the server system -- and, you know, I think that's actually going to be on the next slide -- is going to store information about that interaction.

Q. So here so far, you've been looking at Defendant's Trial Exhibit 120 and Joint Trial Exhibit 63, correct?

A. Yes.

Q. All right.

MR. LANIER: Well, let's look at the next piece of evidence you just mentioned.

BY MR. LANIER:

Q. Is this some testimony from Mr. Levai?

A. Yes. And so in this testimony, we see the element of 1[c] where we're storing, by the server system, a record establishing an association.

And so Mr. Levai confirms that there was information on the server about the YouTube Remote operations that was stored.

Q. All right. And did you look at additional evidence for these Elements 1[a], 1[b], and 1[c]?

A. Yes.

MR. LANIER: Let's look at that.

BY MR. LANIER:

Q. What evidence are you showing us here in Joint Trial Exhibit 21?

A. So the GTS-8 or the patent application that I referred to that I -- that is associated with the GTS system, the patent also describes these claim elements as occurring.

In particular, the Figure 5 of the patent clearly shows a server sitting between the remote control and the control device.

And, in particular, it -- in the specification, it describes the role of the server. And in one part of the specification, it talks about the servers assigning unique identification numbers to the remote control and the control device. And so that is part of the elements that require a synchronization code.

And then it also describes storing data in the server that is required to carry out data transfer between remote control and control device and associating the remote control and the control device as indicated in 1[c], for example.

Q. All right. So summing up all of those elements -- or all of this evidence together, did you

reach an opinion as to whether Elements 1[a], 1[b], and 1[c] of the '251 patent, Claim 1, were met?

A. Yes. I believe that -- in my opinion, these would have been rendered obvious in light of the GTS system.

MR. LANIER: Let's look at the next slide.

BY MR. LANIER:

Q. So we check those off and we go to 1[d]; is that fair?

A. That is fair.

MR. LANIER: Let's take a look at the evidence for 1[d].

BY MR. LANIER:

Q. What did you look at to start with?

A. So 1[d] we're going to take piece by piece. And so it's a little bit long, little bit complicated, but we're going to take it one thing at time.

So we're going to start off at the top of 1[d] where it says: Receiving, in the server system, one or more signals from the personal computing device.

And so that, the evidence for that is -- comes from the related patent application where we see the remote -- the personal computing device, the remote control sending signals to the server, in the middle,

between it and the control device.

And it's described as: Receive, by a server, a first message from a remote control.

And so that is our evidence that GTS-8, as part of describing the GTS system generally, renders obvious this portion of 1[d].

Q. And that's Joint Trial Exhibit 21?

A. That is correct.

Q. All right. Did you look at additional evidence?

A. I did.

Q. And this looks like you're referring to Joint Trial Exhibit 63 and that video again, correct?

A. That is correct.

Q. All right. So what does these two things together tell you about the next part of Element 1[d] of Claim 1?

A. So the next part of Element 1[d] says: The one or more signals specifying a video file to be acted upon.

So the evidence I've chosen to demonstrate this or to kind of show that this would have been obvious is, first, the evidence that we saw with our own eyes, the video, right?

So we saw that we were able to specify a video

to be acted upon. We saw that person specify a video and then it showed up on the Google TV.

And more technically, we can read the API documentation. And the API documentation shows us that there are specific commands that the YouTube Remote can send to the YouTube Remote servers to set the playlist, and that basically means to, you know, provide a list of videos that can be played, and then -- and then set which video is playing by issuing commands like videoNext and videoPrevious.

Q. All right. So did you look at more evidence to march further down this long element?

A. I did.

MR. LANIER: Let's look at that.

BY MR. LANIER:

Q. So here you're referring again to Joint Trial Exhibits 21 and 51 and Defendant's Trial Exhibit 120.

What did you see from those pieces of evidence?

A. Sure. So here we're identifying a particular media player. And from Mr. Levai, we understood that the YouTube video would identify the Leanback as the video player for YouTube and that, generally, from the patent application, that they envisioned that there would be many different media players.

And from the marketing information, we know that Google TV, in fact, came with many different media players.

Q. All right. So now, this element goes on, so I take it you probably looked at some more evidence?

A. Yes.

Q. All right. Now, at this point -- actually, no. For this piece, we don't have to quite get there yet.

But what evidence are you looking at here in JTX-63 and JTX-3?

A. So here, as we conclude Element 1[d]: Including a universal playback control command for controlling playing of the video content on the display device by the particular media player.

And, again, we're going to look to the video to show that we can see this being demonstrated by the video, that this does occur.

And we can look at the API documentation to show -- to see that YouTube Remote indeed issued playback -- universal playback control commands like videoPlay and videoPause for controlling the playback of a video.

Q. All right.

MR. LANIER: So let's go to the next

slide.

BY MR. LANIER:

Q. So did you conclude that Element 1[d] was met?

A. I did.

Q. And now we get to Elements 1[e] and 1[f]?

A. That's correct.

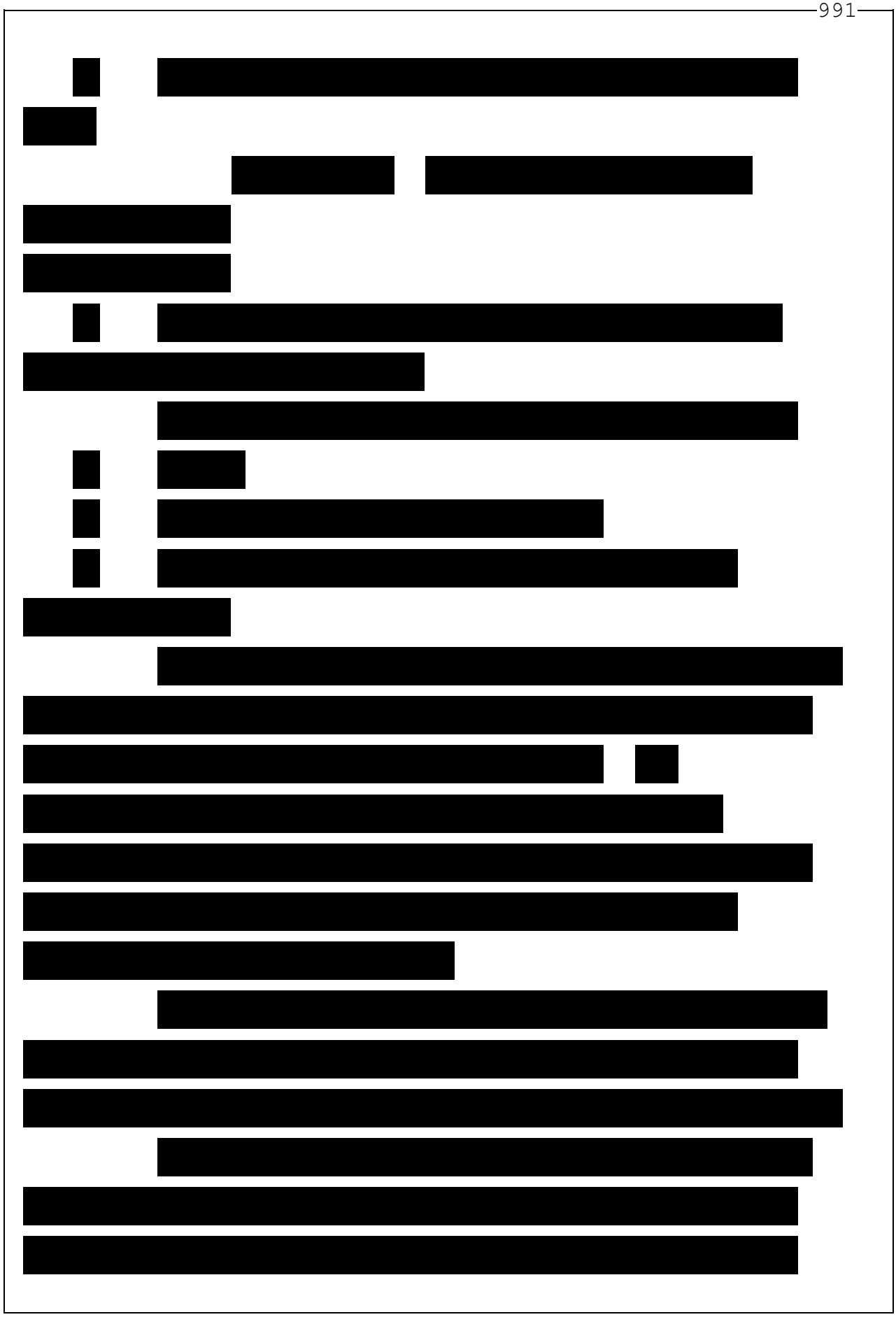
MR. LANIER: Your Honor, at this point, we're going to be showing some source code sporadically through those two elements, and I'd request we clear the courtroom for those two.

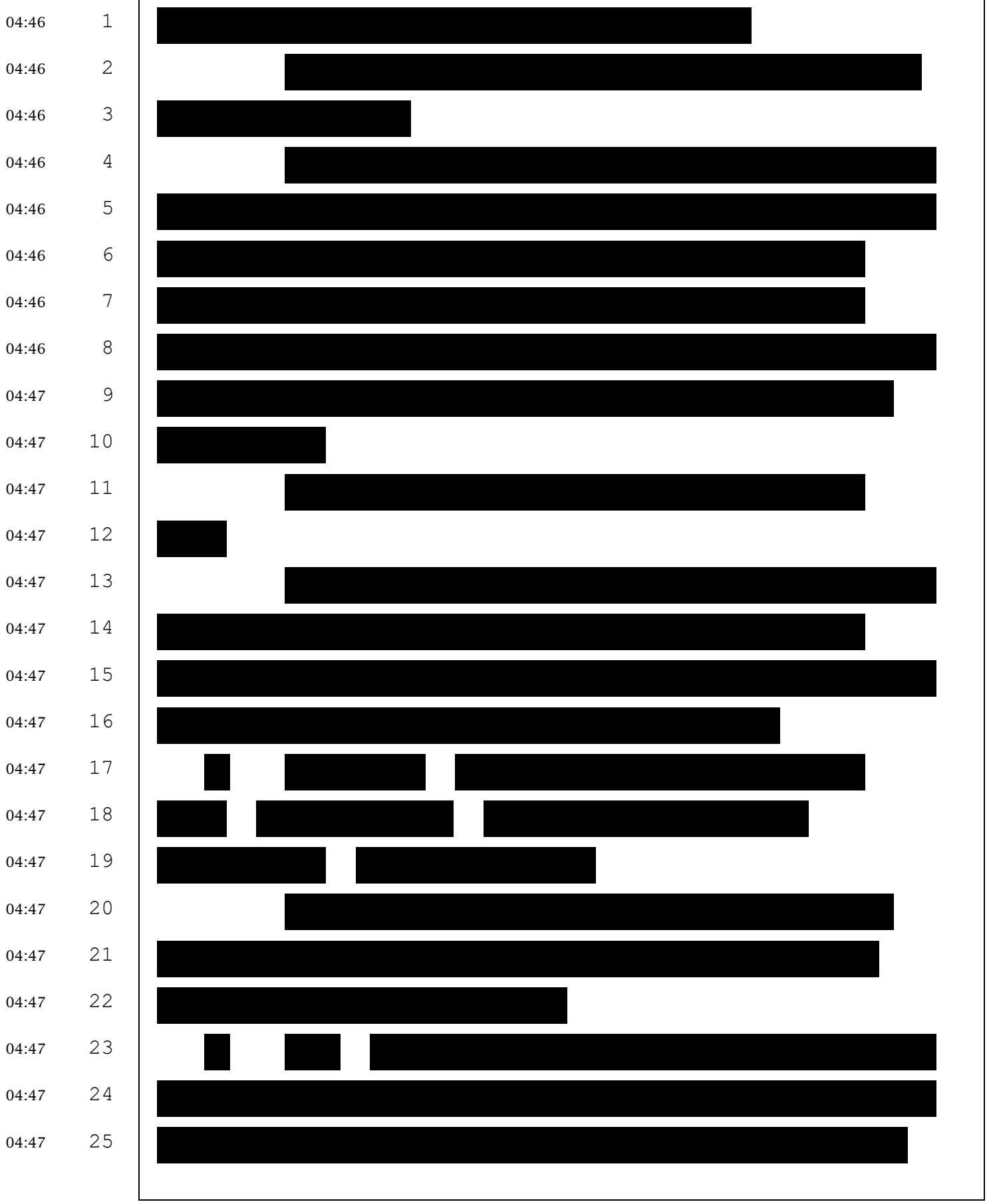
THE COURT: Anyone who's not under the protective order needs to exit the courtroom until you all give me a heads-up that they can return.

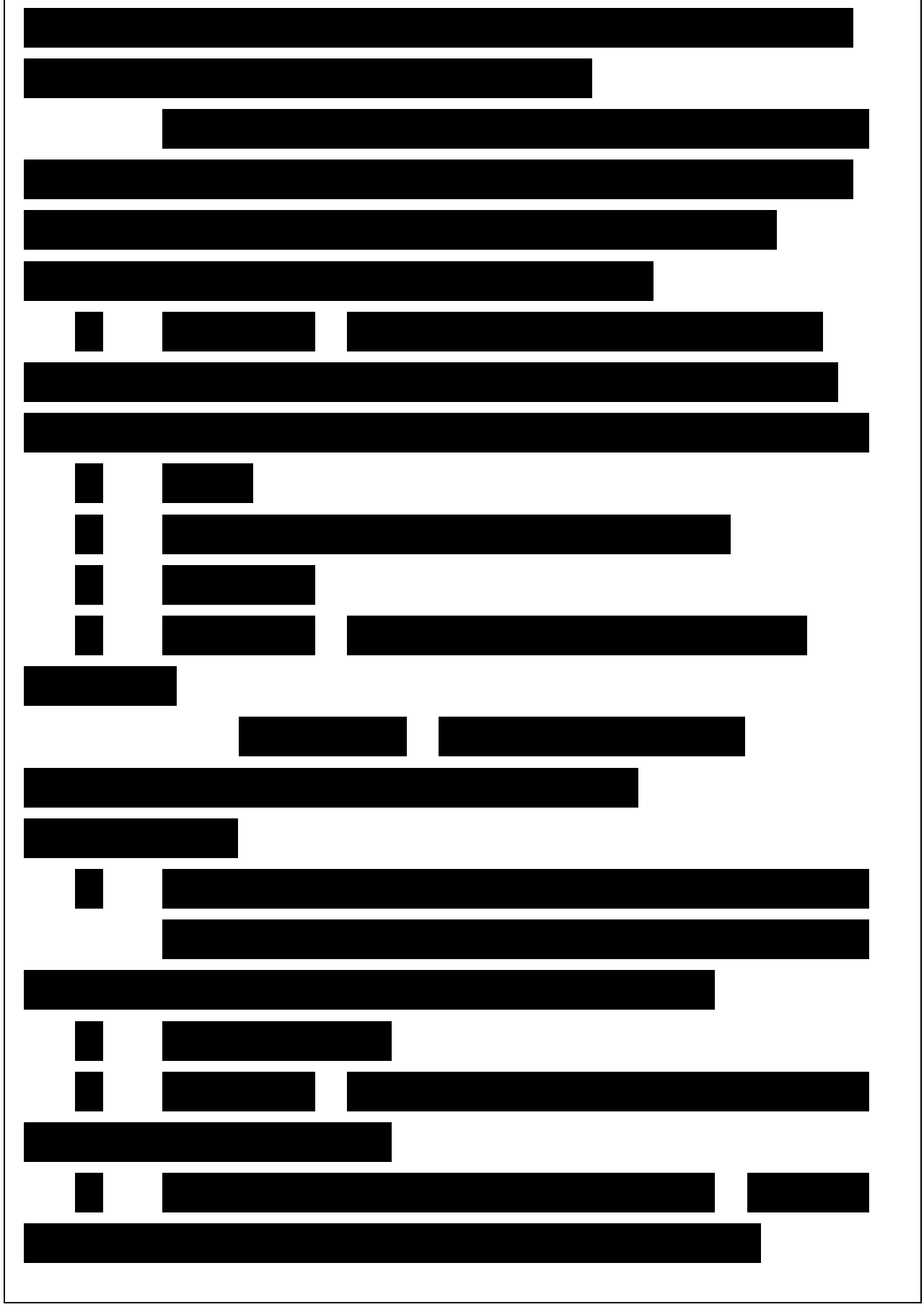
MR. LANIER: Thank you, Your Honor.

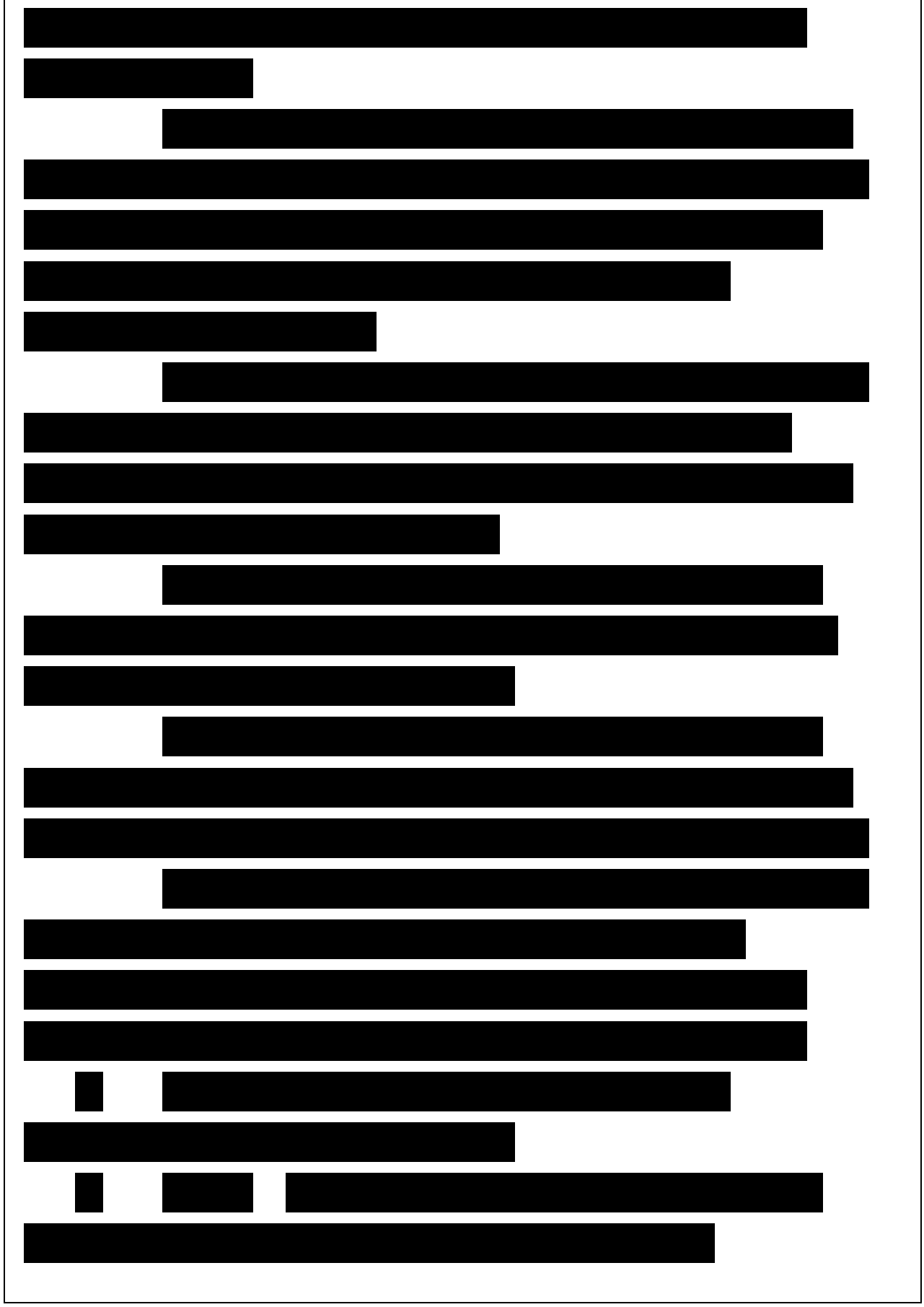
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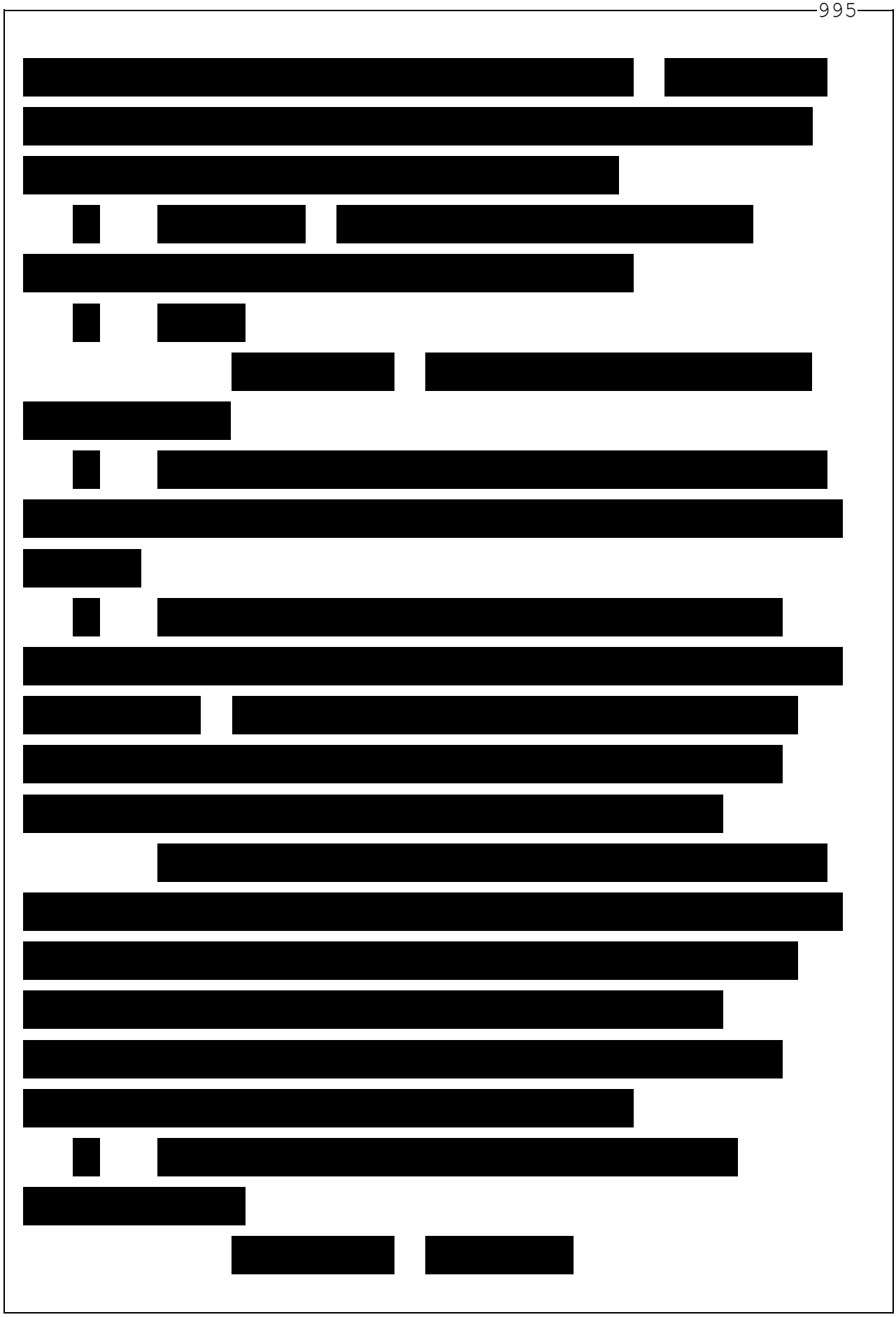
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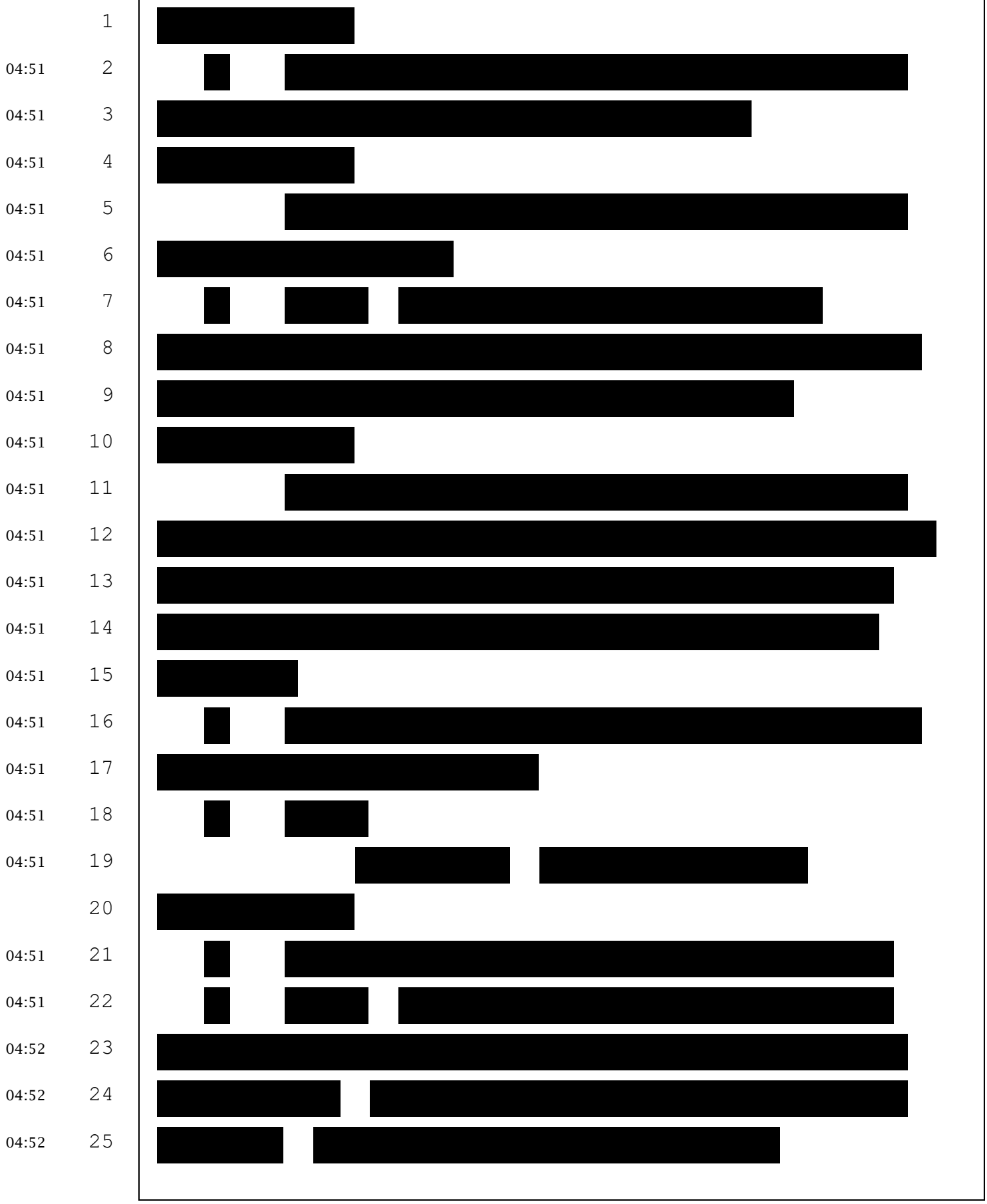












[redacted]

(Sealed proceedings end.)

BY MR. LANIER:

Q. All right. So now we have to look at the other claim of the '251 patent, don't we, Claim 8, correct?

A. We do.

Q. All right. And do we have to do all that work that we just did for Claim 1 over again to do Claim 8?

A. No. Because it's a dependent claim. That analysis for Claim 1 remains the same. We just need to look at the additional claim elements that are added by Claim 8.

Q. And so here we've illustrated Claim 8.

Have you shown the evidence that -- that persuaded you or showed you that these additional elements were met?

A. Yes.

Q. And what evidence are we looking at here?

A. So the element -- the language that we're looking to find is: A synchronization code is uniquely associated with the display device on which the video content is to be played.

And so we see two places where this is described.

One in the patent application, which describes providing unique identifiers to both the -- the remote control as well as the control device. And so that is going to act as our synchronization code.

And then we see in the API documentation itself that the messages from the remote control needs to include the synchronization code as -- here, listed

as a token, which then, you know, identifies the specific control device that is being controlled.

Q. All right. So based on this evidence with this much shorter claim, did you reach a conclusion as to whether '251 patent, Claim 8, was obvious in view of the GTS system?

A. I did.

Q. What was your conclusion?

A. That it was rendered obvious.

Q. And so as a result of that, since Claims 1 and Claims 8 are the claims of the '251 patent that are being asserted in this case, are any asserted claims of the '251 patent valid?

A. Not in my opinion. No.

Q. And that's because of the GTS system we've been through and the evidence we've been through?

A. That's right.

MR. LANIER: All right. Let's go to the next slide. Thank you.

BY MR. LANIER:

Q. So now we're going to talk about the '528 and '289 patents.

Now, I remember when Dr. Almeroth was talking yesterday, he saved us a little time by not repeating things he had said that were similar across the three

patents.

Do you remember that?

A. That is correct.

Q. Are you going to do the same thing for us too?

A. I'm going to rely on that same strategy. Yes.

Q. Thank you very much, sir.

So let's now look at '528 and '289.

A. Sure.

Q. So here, it looks like we've illustrated the '528 patent, and several boxes are already checked.

Why have you already checked those?

A. So these claim elements are technically comparable to the claim elements of the -- of the -- of the -- we did the '251 --

Q. Yeah. We did the '251 patent.

A. -- '251 patent that we just completed.

And so wherever the claim elements of the '528 patent were technically the same as corresponding elements of the '251 patent, I went ahead and checked those off as -- as applying that same analysis here.

So what we're left with is just the parts that are unique to the '528 patent that we did not see in the '251 patent.

Q. Great. All right.

MR. LANIER: So let's look at the --

let's actually look at some of the other evidence we're going to look at.

BY MR. LANIER:

Q. Now, this is a combination, correct?

A. This is correct.

Q. So we'll take the GTS system and add something else to it, correct?

A. That is correct.

Q. Let's look at that other thing.

So we've issued -- we've illustrated here the Muthukumarasamy patent.

Is that the other -- what we'll call a reference that you'll combine with the GTS system?

A. It is.

Q. So now, do you have any proof that anyone out in the world actually put those two things together?

A. Not specifically, but in our understanding of a person of ordinary skill in the art, that hypothetical person, we do assume or we are allowed to -- to have that person understand and know about all of the relevant prior art as part of our analysis.

Q. Sort of like that hypothetical negotiation thing?

A. Exactly.

Q. So we look to see what's the art in the world

that would have been available to one of skill in the art, correct?

A. That's correct.

Q. Is this patent one of those things?

A. It was.

Q. And is this patent prior art?

A. It is. So we can see that its publication date is September 23rd, 2010, which is well before April 2011.

Q. So in very general terms, what did this patent teach or disclose?

A. So this patent basically talks about a remote control system again. So you want to have a remote control that is controlling devices that are capable of playing back media.

In this particular context, they were coming from a consumer electronics viewpoint. So a lot of the devices that they wanted to control weren't necessarily computers or things that could -- you know, to run software. Instead, they were devices that were like DVRs and TVs and other things where you had to use a infrared remote control.

And so this -- overall, the idea behind this patent was to provide a way to bridge the remote control app and the devices to be controlled by using a

server that would convert the commands that you're sending on your remote control app into the appropriate infrared signals that were used to control the devices.

And so it's almost as if we are converting the universal commands into maybe not software programming code, but programming code of another sort of infrared code in order to control these devices.

There was also as part of this system an idea to have -- and then you see it here as part of one of the entertainment systems, a WiFi HDMI plug.

So they did think about having a dongle-like device, and that dongle-like device was a remote-controllable Internet browser. And that's going to come into play in why this -- this system would have rendered obvious elements of the '528 patent.

Q. So did you analyze whether one of skill in the art would have been motivated to combine that GTS system together with this patent?

A. I did.

Q. Did you reach a conclusion about that?

A. Yes.

MR. LANIER: Let's look at the next -- let's look at the next slide.

BY MR. LANIER:

Q. So they're adding them together here. Why

would one of skill in the art have a motivation to do that?

A. Sure. So we can see that these two systems actually share a very common architecture, where we have a remote control, we have things that we're trying to control and a server in the middle that is facilitating this.

And so they have common, you know, aims, right, for, you know, providing this ability to remote control your -- you know, your video experience.

And the lessons learned from one can be applied to the other. So the Muthukumarasamy system talked about converting your remote control commands into programming code of a sort of infrared control and the GTS-8 system -- or the GTS system, the patent there talked about converting from the remote control to the appropriate commands for the control device.

So the advantages of one and the advantages of the other are -- could -- you know, it would have been obvious to a person of skill in the art to combine these in order to get the benefits of both.

Q. Did you look behind the pictures to this language from the specification of various patents to talk about combining them together?

A. I did.

Q. And what did you see?

A. So I saw places where the specification of one could easily apply to what you would want to do with the other.

So, for example, Muthukumarasamy talked about enabling a device-agnostic and source-agnostic entertainment experience. And this is very much similar to and inline with the goals of the GTS system as described in the patent application, which talked about enabling pairing of nearly limitless number of remote controls and control devices.

And so this -- just a number of different examples where the descriptions of one are applicable to the situation of the other and you would have gotten the benefit of both.

Q. All right. So now let's look at what impact this has.

Did you apply the -- this combination together, the GTS system with this patent in Joint Trial Exhibit 22 together to look at the remaining pieces of the '528 patent, Claim 1?

A. I did.

Q. All right.

MR. LANIER: Let's look at that.

A. Right. So one of the remaining pieces that

was not in our prior analysis, which we need to show is there for the '528 patent, is this portion which says: Identify a particular media player for playing content from the file, identify a location of the particular media player.

And so if we look at the Muthukumarasamy patent and what it envisioned, remember that dongle that it talked about, that was a remote control Internet browser. And in describing how it -- that system would work with such a remote-controllable Internet browser, it basically indicated that you could load, right, you could specify third-party video players and third-party video with -- and the video with those players.

And so we see that Muthukumarasamy anticipated, right, you know, described this idea of being able to identify a particular media player and a file for that particular media player to operate on.

Q. So based on that evidence, did you conclude that this piece of '528 patent, Claim 1, that's part of Element 1[a], that it was shown by that combination?

A. I did.

Q. Let's now look -- let's look at what we need to do.

So now we need to look at Element 1[d] of the

'528 patent; is that correct?

A. That's correct.

Q. Did you look at some evidence about that?

A. Yes.

MR. LANIER: Let's turn to that evidence, sir.

BY MR. LANIER:

Q. And here you're citing something from the Google TV system part of JTX-21, correct?

A. That is correct.

Q. And what is this showing us about that missing Element 1[d]?

A. So the missing element is: Obtaining, by the content presentation device, the particular media player, wherein the particular media player is obtained over a network from a content provider.

And what I've shown here as the evidence is Figure 4 from JTX-21, the patent application related to the GTS system. And that figure is a schematic of the control device, basically the content presentation device.

And we see different aspects of that control device, the fact that it has a processor and storage applications, et cetera.

But one of the things it has is applications,

basically media players that could be run on that control device.

And if we look to the specification describing this -- you know, these, you know, how this control device might operate, we see -- I've highlighted here in green the "may be downloaded" -- or actually we'll start at the top.

Applications 130 -- so basically these applications that are on the control device, and then we'll kind of skip down to the green part -- may be downloaded by a user from a server via a network.

And so that's exactly what we see is required by the claim limits.

MR. LANIER: So then let's look at what you concluded.

BY MR. LANIER:

Q. Based on this -- what you had already done and this additional evidence you just described, did you reach a conclusion that Claim 1 of the '528 patent was rendered obvious in view of that combination?

A. I did.

Q. Did you also look at the dependent claim that's asserted in this case, Claim 14?

A. I did.

Q. Now, here you've already checked the box.

Why is that?

A. So this claim is reasonably straightforward on the face of it. I think we've seen plenty of evidence both in the video and other descriptions of the system that this claim is met.

But basically -- and I think this came -- you know, Dr. Almeroth, you know, explained this also.

This claim limitation is repeating what you did with the first command with a second command. So it basically means that you can do more than one thing, you can play and pause. And we've seen different parts of our evidence that shows that you can do multiple functions.

And so that's why I think this is obvious based on what we've already seen.

Q. Like in that video where he pressed play and then he pressed pause or --

A. That's right.

Q. -- he skipped, right?

A. Exactly.

Q. All right. So now let's turn to the '289 -- so are we done with the '528 patent?

A. We are.

Q. In your opinion, are the asserted claims of the '528 patent invalid as obvious?

A. Yes. They are.

MR. LANIER: Now, let's turn to the '289 patent.

BY MR. LANIER:

Q. There it looks like there's only one -- you've checked three boxes and we need to look at one more; is that correct?

A. That is correct.

Q. And you've checked those three boxes for the reasons you've already described?

A. That's correct. They are technically comparable with things we've already seen in the other two patents.

Q. And you're relying on all that same evidence you already described?

A. That's correct.

Q. Okay.

MR. LANIER: So then let's look at Element 1[a](v).

BY MR. LANIER:

Q. So here you're illustrating some stuff from Joint Trial Exhibit 21 and 51.

What are you showing us about that element?

A. So the element claim is somewhat relatively straightforward: Wherein the media player is a

computer application operable to present content and control presentation of the content.

So we've actually already seen that pretty directly, but, you know, the material describing the Google TV system clearly shows the applications that are operable to present content, like Netflix and Pandora and Hulu, et cetera.

And then in the related patent application as well, this is specifically described as the processor executing the video or web browser application. So it's a computer application to causing display to display the content, so presenting the content.

Q. Did you reach a conclusion that this piece of Claim 1 of the '289 patent was met?

A. I did.

Q. And so then as a result, did you reach a conclusion -- with all the other work you did, did you reach a conclusion about the validity of this claim?

A. I have.

Q. And what is your conclusion?

A. The '289 patent is invalid.

Q. Is it invalid as obvious over that combination that we've previously discussed?

A. That is correct.

Q. All right. So now '289 patent has a dependent

claim, Claim 2.

MR. LANIER: Let's turn to that one.

BY MR. LANIER:

Q. This is another one where you've checked the box already.

Why have you done that?

A. Again, I think we've already seen the evidence for this. If you read the claim, it's pretty straightforward: The method at Claim 1 further including loading the particular media player in the content presentation device prior to executing the programming code with respect to the file.

And we saw that with the Muthukumarasamy talking about load third-party video applications, and we saw that directly in the video as he demonstrated this step.

Q. All right. So now having gone through this exercise, have you reached an opinion about the validity of all the asserted claims in this case?

A. I have.

Q. And what is your opinion?

A. My opinion is all the asserted claims in this case are rendered obvious in light of existing prior art systems, including GTS and Muthukumarasamy.

Q. Thank you, sir.

Now I have two very short topics to cover with you, and then I'll pass the witness.

So we heard some discussion earlier in the trial about when Mr. Strober came up with his idea and working on it. We saw some source code and things like that, right?

A. Yes.

Q. Are you familiar with a concept called "conception"?

A. I am.

Q. Well, in this context, what does -- what's "conception" mean?

A. So the idea of conception is when the inventor had full possession of the claimed invention. So certainly when they filed the application, because they laid out the claims, that application date, they obviously had full possession of the claimed invention because they described it in the claims.

But for the inventor to claim a conception date that is earlier than the application date of the patent, they have to provide some sort of evidence that they were in possession or it had conceived of the full features as claimed.

Q. So when you file on a particular date, that's the date you get, and we don't really get to fight with

that one, right?

A. That's correct.

Q. If you want to go before the date you went to the government and said, Give me a patent, do you have to prove you had your whole idea?

A. Exactly.

Q. Do you also have to prove that you reduced it to practice?

A. That is a part of that. Yes.

Q. What is reduction to practice?

A. So reduction to practice is the idea that you built essentially a working version of what you are trying to file.

Q. Whose job is it to prove whether you have that earlier conception or earlier reduction to practice?

A. That would be the plaintiff's job.

Q. Did you listen to the evidence that we heard in this trial and reach your own conclusion on the matter?

A. I have.

Q. Let's -- let's look at that briefly.

Did you -- hearing the evidence, did you see that the plaintiffs described and Dr. Almeroth described that Mr. Strober was in possession of all of the elements of his invention way back when he said he

did it, October, November?

A. He was not.

Q. What's missing?

A. So as he described, you know, his original idea and what he did to try to get to work as a prototype, it was missing many of the different features that eventually turned part of the claims.

So for example, the idea that he -- as he originally conceived and the prototypes he originally started to build had no -- nothing about synchronization code.

They didn't store in the server system a record establishing the association. There were no, you know, signals identifying the particular media player. There was no converting of the universal playback controls into programming code which was then transmitted to the display device.

So these various parts of the claim language which were certainly part of the application, right, so when he applied for the application in April of 2011, that was part of the claim language and that -- you know, that's -- that date clearly is there.

But back in October, when he was in his lunchroom and he was trying to play his video, these parts of the claim language were not part of what he

conceived.

Q. And even if Dr. Strober or Mr. Strober had built -- done some coding and built some pieces of it or thought about some pieces of it, did you see evidence that he had thought about all the pieces as reflected in the claims?

A. I did not.

Q. And did you see evidence that he had built the entire thing that reflected all elements of the claims?

A. I did not.

Q. And so let's look at the next slide.

So did you see evidence sufficient to reach a conclusion that Dr. -- Mr. Strober had reduced it to practice way back when he first started working on it?

A. I did not. So when we -- when we think about reduction to practice, there's a two-prong test that we -- we apply.

The first prong is that they constructed an embodiment or performed the process that met every claim element, right? So we have to look at what he built as his prototypes in November, et cetera, you know, and whether or not it embodied all of the claims of -- you know, all of the parts of the claimed elements. And the same parts that I've described earlier as not having been conceived of originally were

also missing from his attempted prototypes.

And then second, we need to see that the invention must have been sufficiently tested to demonstrate that it works for its intended purpose. And again, we haven't seen that the prototype -- you know, the prototypes he built did so with respect to many of the elements of the claims.

Q. So is half a loaf, half an idea, is that the full idea?

A. It is not.

Q. Building half a loaf, slicing half of it, is that slicing the whole thing?

A. It is not.

Q. And the consequence of not proving that you had that full idea or built the whole thing, what's the consequence of that?

A. The consequence is that we need to hold them to the April 2011 date as the priority date for the patent.

Q. So things that came before April are prior art?

A. Exactly.

Q. Thank you, sir. One more topic.

There's been some discussion of licenses that Google took as part of the damages claims in this case.

Are you aware of that topic generally?

A. Yes.

Q. Did you look at any of the licenses to evaluate whether they were technically comparable with the patents at issue in this case?

A. I examined patents that were part of two license agreements for technical comparability with the patents-in-suit.

Q. So let's take a quick look at that.

What standards did you apply in doing this technical comparability analysis?

A. So the thing to understand about technical comparability is that this is noninfringement. This is not invalidity. So we are not saying that one patent describes the same idea as the other patent or does things in the same way as the other patent.

Instead, we're just trying to compare whether these patent are comparable. And by comparable, we want to look at the similarities and differences of the technical fields of these two patents, their goals and objectives, and how they might -- you know, how they might map onto each other and the various benefits and claims.

And so the idea here is that we're not trying to say that the patents that are part of the license

agreements render the patents that are part of the suit invalid or obvious in any way.

Instead, we're just trying to take a high-level view of these two patents and to say, are these comparable in what their aims are and how they approach the different problems that they're trying to solve.

Q. Did you take a look at the patents that were licensed by Nest, now part of Google, from SIPCO?

A. I did.

Q. Let's take a look at -- oh, it's right in front of us.

Briefly describe the analysis you did and the conclusion that you reached.

A. So what I've shown here on the left is the patent-in-suit here, right? So this is patent '251, and we can see its title is talked about: Play Control of Content on a Display Device. Right?

And then on the right is one of the patents that is part of the SIPCO agreement. And here, we see also it is the intent of this patent, this technology, is System and Method For Controlling Remote Devices.

And so we see immediately from their titles that, you know, these patents are in the same technical field of invention, right? They're talking about

controlling remote devices.

And if we go to the next slide, now when we look at the figures of the '251 patent and the figures and specification of the '692 patent that is part of the SIPCO licensing agreement, now we can see even more comparisons to show that these are technically comparable, right?

Just like the '251 patent has introduced a server system to act as an intermediary between a remote control and a content presentation device, the '692 patent, as part of the agreement, introduces a server system that acts as an intermediary between a controlling device -- here it's a workstation -- and a device to be controlled.

It's not a video player. In this case it is a heating system. It's home -- it's like smart home sensors and networks. And we see in the specification this idea that this server is going to be the one to help facilitate communication and translate controls into the appropriate signals for the remote device.

So one's a video player; one's a smart home system. So I'm not saying that these are exactly the same thing, but we can see how there are many similarities in the architecture of the system, the goals of the system, and the general idea of having

introduced an intermediary server.

So for those reasons, I can conclude that the patents-in-suit are technically comparable to some of the patents in this agreement.

Q. Did you also look at the patents licensed from the SMR and YMR?

A. I have.

Q. Let's turn to those.

What -- briefly describe your analysis and conclusion there.

A. So I'm not going to again step through what's on the left, which is the '251 patent figure. And I think we all kind of understand what that's about.

But the patent that's part of the licensed SMR agreement shows a -- a component that is acting -- that is attached to your phone in this case, a component that is acting as a intermediary between a source of a phone call or a media -- like a text or a video or some sort of medias being sent to you to this phone.

And then instead of using your phone to listen to the phone call or listen to the message or to read the text, what this phone is doing is it's -- it's cloning -- or it's -- it's translating the information into the appropriate form for a presentation on some other device in -- that might be more appropriate or

give you a better experience in your -- in your environment.

Q. And there you're comparing Figures 1 and -- Figures 1 and 2 of U.S. Patent No. 7,969,990 to the '251 asserted patent, correct?

A. That is correct.

MR. LANIER: And just again for the record, if we could jump back to Slide 94.

BY MR. LANIER:

Q. For that analysis of SIPCO, you were comparing the '251 patent with U.S. Patent No. 6,437,692, its Figure 2, and pieces of Columns 1 and 10 of the specification, correct?

A. That is correct.

Q. All right.

MR. LANIER: So now let's jump to Slide 96.

BY MR. LANIER:

Q. So, sir, have you stated your opinions today?

A. I have.

Q. Would you briefly summarize your opinions for the jury?

A. First and foremost, the accused products do not infringe any of the asserted patents for a number of reasons, but server system not being there is a

really big one.

And second, the -- each asserted patent is invalid. And we've shown in light of the Google TV system, YouTube Remote and YouTube Leanback that was available before April 2011, as well as the Muthukumarasamy system, we went through that analysis to show that a person of ordinary skill in the art in view of that prior art would have rendered the patents obvious.

Third, that there is no evidence that establishes a conception of the full -- of a full claimed features of the patent prior to April 2011.

And finally, that there are technologically comparable patents in licenses -- you know, that Google has already licensed in their licensed portfolio.

Q. Thank you, sir.

MR. LANIER: Your Honor, before I pass the witness, I'd move admission of exhibits just discussed.

Defense Trial Exhibits: 118A, 120, 632.

And Joint Trial Exhibits: 1, 3, 21, 22, 51, 63, 159 and 187.

One or two of these may be in, and I apologize if I duplicate moved.

MR. DYKAL: I'm sorry. You were moving a

little too fast. Could you read through them one more time?

MR. LANIER: Sure.

Defense Trial Exhibits: 118A, 120, and 632.

And Joint Trial Exhibits: 1, 3, 21, 22, 51, 159.

And I think that's it that I need to move in.

MR. DYKAL: Okay. We object to Joint Exhibits 1 and 51 under 802 and 901.

THE COURT: I'll overrule those objections. They'll be admitted.

MR. LANIER: Thank you, Your Honor.

With that, I pass the witness.

THE COURT: Ladies and gentlemen of the jury, we're done for this afternoon. If you all would be so kind as to be back at 8:15 tomorrow, we will resume the trial. And please remember my instructions and please be safe out there.

THE BAILIFF: All rise.

(Jury exited the courtroom.)

THE COURT: Thank you. You may be seated.

Is there anything we need to take up?

MR. LANIER: We have no new issues to raise. We understand the charge conference coming, but...

MR. DYKAL: No. Does the Court -- same discussion we had earlier about when closing will be. It could be tomorrow, just depends on how fast things wrap up?

THE COURT: So you have -- I'm sorry. You have the -- about how long will your cross be? Just ballparking, an hour?

MR. DYKAL: Probably 45 minutes to an hour maybe.

THE COURT: Let's say an hour. Let's say 90 minutes for cross/redirect. Let's estimate -- let's go long. So that's 90 minutes.

Then the defendant has a damages expert.

MR. LANIER: That's correct.

THE COURT: How long will he or she?

MR. LANIER: Mr. Jones, how long?

MR. JONES: Your Honor, I think he will probably be from my part on direct and redirect, like, you know, 45 minutes to an hour, maybe an hour.

THE COURT: So let's say 90 minutes.

For cross?

MR. MILLER: Cross will be maybe 30 or

40 minutes.

THE COURT: Okay. Let's go with 120 minutes.

And then if I allocate 60 minutes for your direct and redirect, will that get your expert done?

MR. DYKAL: Probably, yes.

THE COURT: And another 60 minutes for your cross?

I don't know that you'll take that long.

MR. LANIER: I doubt I'll take that long, Your Honor.

THE COURT: And then any other witnesses?

MR. LANIER: No, Your Honor. We'll rest after Mr. Martinez.

THE COURT: So I have down two hours, four hours, five hours. If we start at 8:30, we'll go three hours. I would suggest what we plan on, even if it winds up we fall short in terms of -- I would suggest we just plan on 8:30, doing closing arguments at 8:30 on Friday so you all have a set time, if that's okay with you?

MR. DYKAL: Yes.

MR. LANIER: Absolutely, Your Honor. Thank you.

05:24 THE COURT: Then so two things. One -- actually, really only one thing. One, I need whoever's coming back to grab Mike, and you'll come back.

05:24 The other is that -- I'll -- what we'll finish with tomorrow is me reading the charge.

05:24 Anything else we need to take up?

05:24 MR. LANIER: Not from us, Your Honor.

05:24 MR. DYKAL: No, Your Honor.

05:24 (Hearing adjourned.)

UNITED STATES DISTRICT COURT)

WESTERN DISTRICT OF TEXAS)

I, Kristie M. Davis, Official Court Reporter for the United States District Court, Western District of Texas, do certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

I certify that the transcript fees and format comply with those prescribed by the Court and Judicial Conference of the United States.

Certified to by me this 27th day of July 2023.

/s/ Kristie M. Davis
KRISTIE M. DAVIS
Official Court Reporter
800 Franklin Avenue
Waco, Texas 76701
(254) 340-6114
kmdaviscsr@yahoo.com

05:24