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

3 TOUCHSTREAM TECHNOLOGIES,
INC. *
4 * July 19, 2023
VS. *
5 * CIVIL ACTION NO. W-21-CV-569
GOOGLE LLC *
6

BEFORE THE HONORABLE ALAN D ALBRIGHT
7 JURY TRIAL PROCEEDINGS
Volume 3 of 5
8

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9

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Comcast, Ex. 1183
25 Comcast v. Touchstream
IPR2024-00322

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Proceedings recorded by mechanical stenography,

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08:31 1 (Hearing begins.)
08:31 2 THE COURT: Please remain standing for
08:31 3 the jury.
08:31 4 (Jury entered the courtroom.)
08:31 5 THE COURT: Thank you. You may be
08:31 6 seated.
08:31 7 Counsel?
08:32 8 MR. MILLER: May I proceed, Your Honor.
9 THE COURT: Please.
08:32 10 MR. DYKAL: Thanks.
08:32 11 DIRECT EXAMINATION CONTINUED
08:32 12 BY MR. MILLER:
08:32 13 Q. Good morning, Mr. Chandler.
08:32 14 A. Good morning.
08:32 15 Q. Could we -- I think we ended on 65 actually.
08:32 16 A. Oh, I need to advance that. Yes. Whoops.
08:32 17 Bear with me. Yes.
08:32 18 Q. Yep. Right there.
08:32 19 So we were talking about your opinion that the
08:32 20 Chromecast -- Google Chromecast-enabled devices would
08:32 21 be discounted 50 percent. And I think where we left
08:32 22 off is you were talking about the fact you looked at
08:32 23 some Google usage data, so data indicating how much
08:32 24 people use these products to cast, and you found some
08:32 25 problems with that data.

08:32 1 Do you recall that?
08:32 2 A. Yeah. I discussed a number of irregularities,
08:32 3 such as some spikes, and inconsistency in the data that
08:33 4 just made it unreliable.
08:33 5 Q. All right. Had you found just very reliable
08:33 6 good data like that, usage data, does that tell the
08:33 7 whole story about the value of cast to these products?
08:33 8 A. No. Not at all. That's just one factor that
08:33 9 would have been informative and helpful to see, but it
08:33 10 really doesn't speak to the value by itself.
08:33 11 There's a lot of other considerations such as
08:33 12 the -- there was a wow factor to cast, and that's
08:33 13 something that people clearly enjoyed and purchased
08:33 14 because this is the fastest-selling TV item in history
08:33 15 according to Google.
08:33 16 In addition, you know, Google valued this as
08:33 17 the foundation to their ecosystem and wanted to get it
08:33 18 in as many devices in front of as many users as
08:33 19 possible. So those are other aspects, all of which
08:33 20 needs to be taken into consideration.
08:33 21 Q. Okay. Thank you.
08:33 22 So let's turn to the third bucket of products.
08:34 23 These are the third-party Chromecast-enabled devices.
08:34 24 And what did you determine would be the result
08:34 25 of the hypothetical negotiation with respect to the

08:34 1 third-party devices?
08:34 2 A. Well, I -- in my view and as I described, in
08:34 3 the hypothetical negotiation, Google would have pushed
08:34 4 for a discount and a further discount for devices that
08:34 5 it essentially licenses its Chromecast technology to.
08:34 6 And this is akin to, in my field, in the field
08:34 7 of licensing, there's a term called "sublicensing,"
08:34 8 where a patent owner will license something, such as
08:34 9 the patents-in-suit, to Google. And if a company like
08:34 10 Google further licenses that technology, in this case,
08:34 11 the Chromecast built-in, to other parties such as TV
08:34 12 manufacturers, like Sony and Vizio, that's referred to
08:34 13 as a sublicense.
08:34 14 In the -- in the field of licensing, it's
08:34 15 well-known historically and among professionals like
08:34 16 myself that a patent owner is entitled to a share of
08:35 17 that value that is generated by those third parties,
08:35 18 those sublicensees.
08:35 19 And the typical range, historically -- and
08:35 20 it's, again, well-known within the industry -- is
08:35 21 between 25 percent and 50 percent of that value going
08:35 22 back to the original IP owner.
08:35 23 In this case, in my view, Google would have
08:35 24 argued for the lower discount. Touchstream still would
08:35 25 have pointed out, well, this enables you to get cast in

08:35 1 front of many, many more people. And, in fact, if
08:35 2 you're not making a device and you're just giving it
08:35 3 away for free, you're not losing money on those devices
08:35 4 that you were losing money on. So in a sense, you're
08:35 5 already -- you're gaining, in a sense, as well as many
08:35 6 users.
08:35 7 But in my view, the size of Google and their
08:35 8 ability to invest and to get this into the market would
08:35 9 have prevailed. And conservatively, I believe that
08:35 10 Touchstream would have accepted a 25 percent share of
08:36 11 that revenue, and that for -- so a 75 percent discount
08:36 12 or $3.84 per activated device.
08:36 13 Q. So taking all that together and just -- where
08:36 14 do we come down, then, for each of the devices, just to
08:36 15 remind the jury?
08:36 16 A. Well, this is a summary slide of each of those
08:36 17 three categories, those three buckets for the
08:36 18 Chromecast devices.
08:36 19 The dongles, $15.36 per activated unit,
08:36 20 one-time payment.
08:36 21 The royalty rate for Google Chromecast-enabled
08:36 22 devices, a 50 percent discount, $7.68 per activated
08:36 23 device.
08:36 24 And for the third-party Chromecast-enabled
08:36 25 devices that we just discussed, a 75 percent discount

08:36 1 for $3.84 per activated device.
08:36 2 Q. Again, and just to remind the jury, the way,
08:36 3 for example, on the Chromecast devices, you arrived at
08:36 4 the $15.36 is 32 cents per month for each month and the
08:37 5 life of the products for four years, and that adds
08:37 6 up --
08:37 7 A. For four years. Yeah. As we discussed
08:37 8 yesterday. 48 months.
08:37 9 Q. Okay. Thanks.
08:37 10 What was the next step in your analysis?
08:37 11 A. Well, the next step is to revisit and to
08:37 12 determine the actual number of device activations. And
08:37 13 I believe I showed these numbers early on in the
08:37 14 presentation.
08:37 15 But in summary, there have been over 139
08:37 16 million Chromecast-enabled devices that have been
08:37 17 activated.
08:37 18 Q. And the final step then?
08:37 19 A. Well, of those, 25 were Chromecast --
08:37 20 approximately 25 million were Chromecast dongles,
08:37 21 approximately 30 million were Chromecast -- Google
08:37 22 Chromecast-enabled devices, and approximately 84 and a
08:37 23 half million were third-party Chromecast-enabled
08:37 24 devices.
08:37 25 Q. Okay. I was skipping ahead.

08:37 And then the final step in the analysis?
08:37 A. Well, final step in this analysis, as I
08:37 mentioned, this is a straightforward calculation:
08:38 Multiply the devices that were activated by the royalty
08:38 rate for that type of device and then, you know, add
08:38 those totals together.
08:38 Q. Okay. So you've been talking about how you
08:38 think the hypothetical negotiation would go and a heavy
08:38 reliance on the Quadriga license agreement that --
08:38 A. Yes.
08:38 Q. -- certainly Touchstream would be pushing,
08:38 correct?
08:38 A. Yes.
08:38 Q. And this is one of the ways you arrived at the
08:38 this number, correct?
08:38 A. Yes. That's correct.
08:38 Q. Is there an alternative way that you think the
08:38 jury might consider how the -- how the hypothetical
08:38 negotiation would have gone?
08:38 A. There's other ways. One way would be to apply
08:38 a royalty rate percentage and then make adjustments
08:38 from there.
08:38 And, you know, we heard yesterday, it was
08:38 brought up that Touchstream entered into a settlement
08:38 agreement with a company called Vizbee, and that

08:38 1 settlement agreement was for a lump sum. And I've
08:39 2 reviewed that agreement. And it specifically states
08:39 3 that that lump sum was in lieu of a 10 percent running
08:39 4 royalty of future revenues for -- that Vizbee would
08:39 5 earn.
08:39 6 So another way would be to apply a running
08:39 7 royalty.
08:39 8 Q. Based on the 10 percent?
08:39 9 A. Based on the 10 percent from the Vizbee
08:39 10 agreement.
08:39 11 Q. Okay. Thank you.
08:39 12 Okay. So summing all this up, everything you
08:39 13 said yesterday, everything you said today, in your
08:39 14 professional opinion, what is the appropriate damage
08:39 15 number in this case?
08:39 16 A. In my opinion, based on all the considerations
08:39 17 that I outlined yesterday and today, my opinion, the
08:39 18 appropriate reasonable royalty for Google to pay
08:39 19 Touchstream for its use and the value derived from the
08:39 20 patented invention, the three patents-in-suit,
08:40 21 $941,419,212.
08:40 22 Q. Okay. Thank you.
08:40 23 MR. MILLER: Your Honor, we'd like to
24 move into evidence some of the exhibits that
08:40 25 Mr. Chandler talked about. The following: PTX-871,

08:40 1 PTX-891, PTX-307, PTX-487, JTX-167, PTX-511, PTX-182,
08:40 2 PTX-314, and PTX-285.
08:40 3 MR. JONES: Your Honor, with regard to
08:40 4 those exhibits that we've already raised a continuing
08:40 5 objection about, we continue to assert those
08:40 6 objections. But besides that, we have no objection.
08:40 7 THE COURT: They're all admitted, and
08:40 8 your objections are noted.
08:40 9 MR. JONES: Thank you, Your Honor.
08:40 10 MR. MILLER: I have no further questions,
08:40 11 Mr. Chandler. Thank you very much for your time.
08:40 12 THE WITNESS: Thank you.
08:40 13 MR. JONES: May I approach the witness,
14 Your Honor?
15 THE COURT: Yes, sir.
16 MR. JONES: Mr. Chandler, another book.
17 THE WITNESS: Oh, thank you.
08:40 18 CROSS-EXAMINATION
08:40 19 BY MR. JONES:
08:41 20 Q. Mr. Chandler, good morning. My name is Mike
08:41 21 Jones, and it's my privilege to represent Google in
08:41 22 this matter.
08:41 23 A. Good morning. Nice to meet you.
08:41 24 Q. Mr. Chandler, you've established clearly that
08:41 25 in this case, your testimony is about damages, right,

08:41 1 sir?
08:41 2 A. I've established my testimony is about
08:41 3 damages, but I'm also testifying on matters of
08:41 4 licensing, as I mentioned at the beginning.
08:41 5 Q. Thank you.
08:41 6 And licenses are -- the licensing testimony's
08:41 7 applicable to your damages figure, correct, sir?
08:41 8 A. I'm also -- yes. It is. But I'm also
08:41 9 testifying as a licensing expert.
08:41 10 Q. Thank you, sir.
08:41 11 And as a damages expert, you are offering no
08:42 12 opinion whatsoever on the issue of invalidity, right,
08:42 13 sir?
08:42 14 A. That's correct. As a -- as a basis of my
08:42 15 analysis, I am required and asked to assume that the
08:42 16 patents are valid.
08:42 17 Q. Okay. And I'm not arguing with you about
08:42 18 that. I'm just saying you're offering no opinion on
08:42 19 invalidity; you're offering no opinion on infringement,
08:42 20 right, sir?
08:42 21 A. That's correct. And in infringement, as with
08:42 22 validity, it's one of the foundational assumptions of
08:42 23 damages analysis. One must assume validity and
08:42 24 infringement. And others are offering opinions on
08:42 25 those matters.

08:42 Q. Certainly. And you know in this case that
08:42 those issues, the issue of infringement and the issue
08:42 of validity is a contested issue that will be decided
08:42 by the jury, right, sir?
08:42 A. I understand that's part of the reason we're
08:42 here today. Yes.
08:42 Q. Thank you, sir.
08:42 And in the event the jury were to decide that
08:42 the patents were not valid, then you would agree with
08:42 me the damages are zero, right, sir?
08:42 A. Well, given that my assumption -- foundational
08:42 assumption is that validity --
08:42 THE COURT: Let me explain to you the way
08:43 it works. When you're on direct, you get to talk as
08:43 long as you want.
08:43 THE WITNESS: Yes, Your Honor.
08:43 THE COURT: When Mr. Jones is asking you
08:43 questions, you want to favor the jury with a direct
08:43 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,
08:43 sir.
08:43 And if the jury were to find that Google does

08:43 1 not infringe, then damages would be zero, right, sir?
08:43 2 A. Yes. That's correct.
08:43 3 Q. Now, we've established that you are not a
08:43 4 technical expert in this case, right?
08:43 5 A. That is correct.
08:43 6 Q. And you talked about the SIPCO license in your
08:43 7 direct testimony, right, sir?
08:43 8 A. Yes. I did.
08:43 9 Q. And you know that a technical expert,
08:43 10 Dr. Mayer-Patel, has analyzed it and written a report
08:43 11 that it is technically comparable to the technology in
08:43 12 question in this suit, right, sir?
08:43 13 A. Yes. I read his report.
08:43 14 Q. And you have seen no opinion in a report from
08:43 15 Touchstream's expert, Dr. Kevin Almeroth, saying he is
08:44 16 wrong and that the technology is not comparable, right,
08:44 17 sir?
08:44 18 A. Not in his report.
08:44 19 Q. Okay. Thank you, sir.
08:44 20 Now, since -- since 2011, you believe
08:44 21 Touchstream has been a leader in the casting technology
08:44 22 industry, correct?
08:44 23 A. I'm not sure that's what I've testified to.
08:44 24 Q. I just asked you your belief, sir. I really
08:44 25 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

08:45 1 have a section entitled Media Streaming Device Market?
08:45 2 A. Yes. I do.
08:45 3 Q. And in that section -- or let me just ask this
08:45 4 question.
08:45 5 A. Uh-huh.
08:45 6 Q. Do -- do you agree that Google was in that
08:45 7 market?
08:45 8 A. Google entered that market with Chromecast.
08:46 9 Certainly.
08:46 10 Q. And you note or you know that Apple launched
08:46 11 its first digital media player, Apple TV, in 2007,
08:46 12 right, sir?
08:46 13 A. Yes. I believe I mentioned them as well.
08:46 14 Q. And in March of 2012, with the launch of
08:46 15 AirPlay, Apple led the market, that particular market,
08:46 16 correct, sir?
08:46 17 A. Yes.
08:46 18 Q. Did Apple ever take a license to any of
08:46 19 Touchstream's patents, sir?
08:46 20 A. I'm not aware that they did.
08:46 21 Q. Now, Roku launched Roku DV -- DVP N1000 in
08:46 22 2007, right, sir?
08:46 23 A. In 2007?
24 Q. Yes.
08:46 25 A. It sounds -- sounds correct.

08:46 Q. And it's in that marketplace, right, sir?
08:46 A. Yes. It's in the media streaming market.
08:46 Q. At any time has Roku ever taken a license to
08:46 the patents-in-suit or any patents of Touchstream?
08:46 A. I'm not aware of whether or not they're
08:46 practicing the patents.
08:46 Q. In your work in this case, have you seen any
08:47 license by Roku and Touchstream, sir?
08:47 A. No. I have not. No.
08:47 Q. Thank you, sir.
08:47 Now, Xbox was another player in the field,
08:47 right, sir?
08:47 A. It's my understanding they were in the field
08:47 in a -- in a slightly different way. Yes.
08:47 Q. And did Xbox ever take a license to
08:47 Touchstream's patents?
08:47 A. Again, I don't -- they did not. I don't know
08:47 that they were practicing the patents-in-suit one way
08:47 or the other.
08:47 Q. But, again, my question to you is really
08:47 simple, sir.
08:47 My question to you is, did they ever take a
08:47 license to Touchstream's patents?
08:47 A. No. They did not.
08:47 Q. PlayStation was another player in the field,

08:47 1 right, sir?
08:47 2 A. I'm not sure. I'm not sure. I'm not familiar
08:47 3 with the PlayStation too well.
08:47 4 Q. If you would, I would direct your attention
08:47 5 back to your report in Paragraph 45.
08:47 6 A. Yes.
08:47 7 Q. And doesn't it discuss PlayStation there?
08:47 8 A. Yes. It does.
08:47 9 Q. And did PlayStation ever take a license to
08:48 10 Touchstream's patents, sir?
08:48 11 A. No. They did not.
08:48 12 Q. Samsung was another player in the media
08:48 13 streaming device market, right, sir?
08:48 14 A. Yes. That's correct.
08:48 15 Q. Did they ever take a license to Touchstream's
08:48 16 patents at any time?
08:48 17 A. No. I've not seen any license.
08:48 18 Q. Amazon entered the market in April of 2013
08:48 19 with the launch of Fire TV, right, sir?
08:48 20 A. That's correct. Yes.
08:48 21 Q. Did they ever take a license to any of
08:48 22 Touchstream's patents?
08:48 23 A. No. I've not seen any licenses with Amazon.
08:48 24 Q. Now, you've also analyzed the Smart TV market
08:48 25 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
08:48 Hisense, right, sir?
08:48 A. That's correct.
08:48 Q. Did TCL ever take a license to any of the
08:48 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
08:49 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
08:49 interface, right, sir?
08:49 A. Yes. That's correct.
08:49 Q. Did they ever take a license to any of
08:49 Touchstream's patents?
08:49 A. No. They've not.
08:49 Q. Smart -- Samsung launched, in May of 2015, a
08:49 Smart TV that ran on Tizen OS.
08:49 In connection with that project, did Samsung
08:49 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,
08:49 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

08:49 1 at any time?
08:49 2 A. No.
08:49 3 Q. Did Toshiba take any license from Touchstream
08:50 4 at any time?
08:50 5 A. No.
08:50 6 Q. Did JVC take any license from Touchstream at
08:50 7 any time?
08:50 8 A. No.
08:50 9 Q. Did Grundig take any license from Touchstream
08:50 10 at any time?
08:50 11 A. No.
08:50 12 MR. JONES: If we could, Mr. McDonald,
08:50 13 could we go to Slide 7?
14 BY MR. JONES:
08:50 15 Q. So here, we look at all -- and I won't go back
08:50 16 through them, but we look at all the people I just
08:50 17 talked about that were in the media streaming device
08:50 18 market and the Smart TV market.
08:50 19 And I think you and I can agree that none of
08:50 20 these players ever took a license to any of
08:50 21 Touchstream's patents, right, sir?
08:50 22 A. Yes. That's correct.
08:50 23 Q. And a number of these players did joint
08:50 24 ventures with each other. We've heard that discussion,
08:50 25 right, sir?

08:50 A. Yes.
08:50 Q. And none of these players in the industry did
08:50 any kind of joint venture in this area with
08:51 Touchstream, right, sir?
08:51 A. That's correct.
08:51 Q. Now, I'd like to turn your attention next to
08:51 HP.
08:51 Touchstream worked on a product with HP,
08:51 right, sir?
08:51 A. That's correct.
08:51 Q. And this was not a consumer product, right,
08:51 sir?
08:51 A. I believe that's correct.
08:51 Q. And Touchstream's software was to go into an
08:51 HP product for its businesses, right, sir?
08:51 A. Offhand I don't recall that, but I'll take
08:51 your representation.
08:51 Q. Thank you.
08:51 And you do know, in fact, that the
08:51 relationship ended, right, sir?
08:51 A. Yes.
08:51 Q. And you were in the courtroom and you heard
08:51 Mr. Mitschele's testimony yesterday that it did not end
08:51 because of Chromecast, right, sir?
08:51 A. That's correct.

08:51 Q. And the moneys paid pursuant to that HP
08:51 agreement for the work that was done by Touchstream
08:51 were about $2 million, right, sir?
08:51 A. That's my understanding. Yes.
08:51 Q. And HP never, at any point, took a license to
08:52 any of Touchstream's patents, right, sir?
08:52 A. I believe that's correct.
08:52 Q. Now, I'd like to turn next to Touchstream's
08:52 licensing history.
08:52 Touchstream had an established history of
08:52 licensing patents covering its technology, right, sir?
08:52 A. That's correct. They have -- well,
08:52 established history. It entered into a handful of
08:52 licenses.
08:52 Q. Thank you, sir.
08:52 And Touchstream's licensing history for the
08:52 patents-in-suit would have been highly material to the
08:52 discussions of the parties to the hypothetical
08:52 negotiation, right, sir?
08:52 A. It could have been, and I reviewed those in my
08:52 analysis.
08:52 Q. Thank you.
08:52 And there are --
08:52 MR. JONES: Go to Slide 2.
08:52 BY MR. JONES:

08:53 1 Q. And the sum total of all the licenses in the
08:53 2 nine or so years that these patents have been out
08:53 3 there, there are four of them, right, sir? There's
08:53 4 Quadriga, Vizbee, FetchIT, and Mash, right, sir?
08:53 5 A. That's correct.
08:53 6 Q. So if we want to look at the licensing
08:53 7 history, all of it, of Touchstream, we look at these
08:53 8 four agreements, right?
08:53 9 A. Yes. I did review all those and commented on
08:53 10 those in this report.
08:53 11 Q. And for your quantification of your damages
08:53 12 figure in this case, you take, for the quantification,
08:53 13 information from one of these agreements and that's
08:53 14 Quadriga, right, sir?
08:53 15 A. That's correct. For all the reasons I've
08:53 16 outlined in my report.
08:53 17 Q. Let's drill down a little bit on Quadriga.
08:53 18 Now, the name of the Quadriga agreement is
08:53 19 Quadriga Software Development and License Agreement,
08:54 20 right, sir?
08:54 21 A. That's correct.
08:54 22 Q. And it is Exhibit 567 of the -- of the trial
08:54 23 in this case. That's the -- that's the exhibit number,
08:54 24 I believe, and I think you have it in your notebook
08:54 25 before you?

08:54 A. Yes. I just moved to that. Yes.
08:54 Q. I'd like to bring up a excerpt from
08:54 Exhibit 567, which is the Quadriga Software Development
08:54 and License Agreement.
08:54 MR. JONES: Could we bring up Slide 3?
08:54 Thank you, sir.
08:54 BY MR. JONES:
08:54 Q. And let's go to --
08:54 MR. JONES: Is this Slide 3,
08:54 Mr. McDonald? There you go. Thank you, sir.
08:54 I'm sorry. Thank you, Mr. McDonald.
08:54 BY MR. JONES:
08:54 Q. Now, this comes from the background section of
08:55 that agreement, Sections B, C, and D.
08:55 Do you see that, sir?
08:55 A. I do. Yes. From the Page 1.
08:55 Q. And it talks about what's going on here. And
08:55 it says in Section B that: Shodogg is an experienced
08:55 software designer -- excuse me -- software designer,
08:55 developer, and programmer, right, sir?
08:55 A. Yes. And I believe I heard Mr. Mitschele's
08:55 testimony to that effect.
08:55 Q. Thank you, sir.
08:55 And it says that: Quadriga wishes to have
08:55 Shodogg modify Shodogg's existing video content

08:55 application, correct, sir?
08:55 A. Yes. That's correct.
08:55 Q. So Quadriga wanted Shodogg to come up with a
08:55 new product, right?
08:55 A. Yes. That's my understanding.
08:55 Q. Thank you.
08:55 And Shodogg, it says next in Section D, wishes
08:55 to work with Quadriga to provide cloud-based software
08:55 services to enable its video content application and to
08:55 market and sell the modified application on the terms
08:56 and conditions of this agreement.
08:56 So what they were doing is they were hiring
08:56 Touchstream to help them develop a product to market
08:56 and sell, right, sir?
08:56 A. Yes. Yes. That's -- I agree with that fully.
08:56 MR. JONES: Now, if we could go next to
08:56 Slide 6, Mr. McDonald?
08:56 BY MR. JONES:
08:56 Q. And it says here in Slide 6, which comes from
08:56 Paragraph 13.1 of Exhibit 567, that: During the
08:56 initial period, the parties shall work together in good
08:56 faith in relation to the announcement, marketing, and
08:56 commercial launch of the licensed materials...
08:56 And that's the software product, right, sir?
08:56 A. I believe it is. Yes.

08:56 1 Q. ...as part of Quadriga's proprietary
08:57 2 audio/visual technology. Right, sir?
08:57 3 A. Yes. Their proprietary technology.
08:57 4 Q. Okay. And so what they were doing is they
08:57 5 were developing a proprietary audio/visual technology
08:57 6 product for Quadriga that after they developed it,
08:57 7 after they made it, they were going to approach major
08:57 8 hotels, trade shows, and they were going to launch that
08:57 9 product, right, sir?
08:57 10 A. I'm just reading through this.
08:57 11 Q. Certainly.
08:57 12 A. Yes. They agreed to work together in
08:57 13 approaching and making announcements and launching it,
08:57 14 and that's -- I understand what took place.
08:57 15 Q. And you would agree with me, would you not,
08:57 16 sir, that those circumstances are certainly very
08:57 17 different from the bare patent license for U.S. only
08:57 18 that would result from the hypothetical negotiation.
08:57 19 Those are very different circumstances, right, sir?
08:58 20 A. And I mentioned that yesterday as well.
08:58 21 Q. Thank you, sir.
08:58 22 Now, the Quadriga agreement was a worldwide
08:58 23 license, right, sir?
08:58 24 A. Yes. It was.
08:58 25 Q. And the license we're talking about, the

08:58 1 hypothetical negotiation, is U.S. only, right, sir?
08:58 2 A. It's U.S. only -- it's U.S.-only patents.
08:58 3 What's made can be sold worldwide, certainly, if made
08:58 4 in the United States.
08:58 5 Q. And the Quadriga agreement ended, right, sir?
08:58 6 A. Yes. I believe it did.
08:58 7 Q. And it ended because -- not because of
08:58 8 anything about Chromecast. It ended because they
08:58 9 couldn't come up with enough hotel rooms to make it
08:58 10 work, right, sir?
08:58 11 A. Offhand I don't recall the exact reason, but
08:58 12 I'll take -- I'll take your representation of that.
08:58 13 Q. Thank you, sir.
08:58 14 Now, during the entire time that Quadriga
08:58 15 worked with Touchstream and Touchstream did all this
08:59 16 work for Quadriga, developing this proprietary product,
08:59 17 the total fees paid were approximately $1 million,
08:59 18 right, sir?
08:59 19 A. That's what I understand. Yes.
08:59 20 Q. Now, let's go and look at the second
08:59 21 agreement.
08:59 22 MR. JONES: And you can take that down,
08:59 23 Mr. McDonald, if you don't mind.
08:59 24 BY MR. JONES:
08:59 25 Q. Let's go talk for a few minutes and drill down

08:59 1 on that second agreement that is part of the licensing
08:59 2 hearing, Vizbee.
08:59 3 Now, you recall Mr. Mitschele's testimony from
08:59 4 yesterday, to put the Vizbee agreement in context, that
08:59 5 Vizbee was a competitor with Touchstream, right, sir?
08:59 6 A. Yeah. That's -- that's correct.
08:59 7 Q. And there was a competition for the Turner
08:59 8 business and Vizbee won out, and as a result of that,
08:59 9 there was a lawsuit where Touchstream sued Vizbee for
08:59 10 patent infringement, right, sir?
08:59 11 A. That's broadly what happened. Yes.
08:59 12 Q. And this particular agreement relates to a
09:00 13 settlement of that litigation, right, sir, which
09:00 14 involved these same patents?
09:00 15 A. Yes. It was a settlement agreement.
09:00 16 Q. Now, that particular agreement, the economics
09:00 17 are comparable to hypothetical negotiations, right,
09:00 18 sir?
09:00 19 A. I don't -- I don't fully agree with that. No.
09:00 20 Q. Okay. Well, if you could, let's go to
09:00 21 Paragraph -- or I'll just direct your attention to
09:00 22 Paragraph 2000 -- excuse me -- Paragraph 206.
09:00 23 A. Can I ask what exhibit this is, please?
09:00 24 Q. Yeah. It'd be the November 22nd -- no.
09:00 25 November 14th, 2022 report.

09:00 1 A. Oh, my report. Okay. My report.
09:00 2 Q. Paragraph 206. Thank you. I'm sorry. I'm
09:00 3 getting my numbers all mixed up.
09:00 4 A. Uh-huh. And what was the paragraph again,
09:00 5 please?
09:00 6 Q. 206.
09:00 7 A. Okay.
09:01 8 Q. And does that refresh your memory that the
09:01 9 economics and the technology was comparable to the
09:01 10 hypothetical negotiation?
09:01 11 A. The technology, certainly, and then the
09:01 12 economics because the products were -- were similar as
09:01 13 well.
09:01 14 Q. Now, Vizbee plays no part in your
09:01 15 quantification of damages, the formulas that you've
09:01 16 used in order to calculate damages in this case, right,
09:01 17 sir?
09:01 18 A. I took Vizbee into consideration, and as I --
09:01 19 as I mentioned in my report -- pardon me -- as well as
09:01 20 in my deposition, it's representative because this
09:01 21 agreement clearly states that the payment is in lieu of
09:01 22 10 percent of future royalties, as I noted earlier
09:01 23 today.
09:01 24 And, also, I took into consideration other
09:01 25 agreements that were in that range. And in my view, as

09:01 1 I outlined in my report, a 10 percent royalty would be
09:02 2 an appropriate royalty rate to apply if a clear revenue
09:02 3 base were available.
09:02 4 Q. Excuse me. And I don't mean to be
09:02 5 argumentative, but my question's just very pointed.
09:02 6 And my question is simply this: Vizbee does
09:02 7 not play any part in the quantification formulas that
09:02 8 you've just discussed to the jury that you used to
09:02 9 calculate your damages figure, right, sir?
09:02 10 A. That's correct. Yes.
09:02 11 Q. Thank you, sir. That's my question.
09:02 12 Let's move on. Let's drill down a little bit
09:02 13 on FetchIT.
09:02 14 FetchIT was a media casting entity engaged in
09:02 15 developing and deploying software and digital rights
09:02 16 management applications, right, sir?
09:02 17 A. That's correct.
09:02 18 Q. And its founder was a Mr. Charles -- and I'm
09:02 19 going to blow this name, and I just apologize ahead of
09:02 20 time -- Siemonsma, right?
09:03 21 A. Yes. I'll take your representation of that.
09:03 22 Q. And I won't make you say it. I'll take the
09:03 23 blame for it.
09:03 24 And he had been part of the Touchstream team,
09:03 25 and he left and he entered into this deal with them,

09:03 1 right, sir?
09:03 2 A. Yes. That's correct.
09:03 3 Q. And the license rights involved the
09:03 4 patents-in-suit but also certain software issues,
09:03 5 correct?
09:03 6 A. That's my recollection. I'm refreshing myself
09:03 7 as I read this here, yes.
09:03 8 Q. And no royalties whatsoever were ever paid
09:03 9 pursuant to this agreement, correct, sir?
09:03 10 A. That's correct.
09:03 11 Q. And then let's go to the fourth one and drill
09:03 12 down on it real quick.
09:03 13 The fourth one is the Mash agreement, right?
09:03 14 A. The Mash agreement, yes, and this was also
09:03 15 with a related party. Yeah.
09:03 16 Q. And -- okay. And like you say, the founder of
09:03 17 Mash was a member of the Touchstream team at one time,
09:03 18 right, sir?
09:03 19 A. Yes. A member of the -- of the team.
09:03 20 Q. And it was a license to use certain technology
09:03 21 in the consumer music market, right, sir?
09:04 22 A. I believe it was in the consumer music market
09:04 23 but strictly confined to Australia.
09:04 24 Q. And no royalties whatsoever were paid pursuant
09:04 25 to that agreement, correct, sir?

09:04 1 A. That's correct.
09:04 2 MR. JONES: Now, if we could,
09:04 3 Mr. McDonald, could we go back to Slide 2, I believe it
09:04 4 is?
09:04 5 BY MR. JONES:
09:04 6 Q. So after we drill down on the history, the
09:04 7 licensing history of Touchstream, which you've told us
09:04 8 would be talked about at the hypothetical negotiation
09:04 9 table, what we see is that history shows us that
09:04 10 there's been one agreement, Quadriga, where
09:04 11 approximately $1 million have been paid in royalty.
09:04 12 There's been a second agreement where there
09:04 13 was a litigation settlement where $2.3 million was
09:04 14 paid.
09:04 15 And then there are two other agreements where
09:05 16 nothing was ever paid, right, sir?
09:05 17 A. That's correct.
09:05 18 Q. Thank you, sir.
09:05 19 Now, it is your opinion that Touchstream is
09:05 20 not entitled to lost profits, right, sir?
09:05 21 A. That's correct.
09:05 22 Q. Now, there are three types of products in
09:05 23 question in this case, right, sir?
09:05 24 A. Three general categories. Yes.
09:05 25 Q. I tell you what, why don't we run at it this

09:05 1 way: Basically, you look at -- with regard to the
09:05 2 products, you put them in three buckets, right?
09:05 3 A. Yes.
09:05 4 Q. And your correction to me was very apropos
09:05 5 because those buckets, at least two of them, contain
09:05 6 vastly disparate, vastly different types of products,
09:05 7 right?
09:05 8 A. Yes.
9 Q. Thank you, sir.
09:05 10 A. I wouldn't say "vastly," but they're --
09:05 11 they're all involved in media streaming, so -- but
09:06 12 there's differences. I just -- just -- my correction.
09:06 13 Q. Well, they're as different as Smart TVs from
09:06 14 speakers. How about that?
09:06 15 A. That's fair.
09:06 16 Q. Okay. Thank you, sir.
09:06 17 Now, the first bucket is Google-branded --
09:06 18 Google-branded Chromecast devices such as dongle
09:06 19 products, right, sir?
09:06 20 A. Yes.
09:06 21 Q. And your royalty for them is $15.36 per
09:06 22 activated dongle product, right, sir?
09:06 23 A. That's correct.
09:06 24 Q. How much do these products cost?
09:06 25 A. Well, they cost a lot. What they sell for is

09:06 1 a different -- are you asking what they sell for or
09:06 2 what they cost? Because there's a difference.
09:06 3 Q. Yes, sir. I'm asking for -- and I appreciate
09:06 4 you correcting me on the question. I'll try to be more
09:06 5 specific.
09:06 6 I am asking you this: How much do the
09:06 7 consumers that buy those products pay for them?
09:06 8 A. Google sells them as low -- has sold them as
09:06 9 low as $30 and less than $100 is my recollection as I
09:07 10 sit here.
09:07 11 Q. Thank you, sir.
09:07 12 Now, the next bucket we have talked about are
09:07 13 Google-branded Chromecast products with additional
09:07 14 functionality, and that would include such things as
09:07 15 Google TV, Nest audio and display devices, smart
09:07 16 speakers, things like that, correct?
09:07 17 A. Yes. That's correct.
09:07 18 Q. And you would agree with me that the things
09:07 19 that we find in this bucket have much more
09:07 20 functionality than just Chromecast, right, sir?
09:07 21 A. Yes. I described that yesterday. Yes.
09:07 22 Q. And the royalty fee that you apply to them on
09:07 23 a per-activated unit basis is $7.68, right, sir?
09:07 24 A. Yes. That's correct.
09:07 25 Q. And with regard to the third bucket, which,

09:07 1 again, can be all types of different products that are
09:07 2 Chromecast-enabled that are not made by Google, such as
09:08 3 Smart TVs and smart speakers and all those kinds of
09:08 4 things, for them, you have a $3.84 fee, right?
09:08 5 A. Yes. Applied to the Chromecast built-in
09:08 6 portion of that product.
09:08 7 Q. Thank you. Thank you, sir.
09:08 8 Now, the fee in the second and third buckets
09:08 9 stays the same without changing with regard to the
09:08 10 different functionality of the various different
09:08 11 products in those buckets, right, sir?
09:08 12 A. Correct. It remains low. And to clarify,
09:08 13 it's tied to the Chromecast built-in aspect of those
09:08 14 devices.
09:08 15 Q. Now, with regard to the Buckets 1 and 2,
09:08 16 there's no doubt that these devices have substantial
09:08 17 functionalities beyond those accused of infringing in
09:08 18 this case, right?
09:08 19 A. There are additional functionalities and many
09:09 20 multiuses, as I described yesterday.
09:09 21 Q. And, now, going to Bucket 3, you applied a
09:09 22 25 percent distribution of what you referred to as a
09:09 23 sublicense to Touchstream, right, sir?
09:09 24 A. I discounted by 75 percent.
09:09 25 Q. Okay.

09:09 1 A. The reasons I described yesterday -- or today.
09:09 2 Q. So the licensing fee, you said you were giving
09:09 3 25 percent to Touchstream, right?
09:09 4 A. I was giving a discount of 75 percent, and
09:09 5 that works out to be 25 percent to Touchstream for the
09:09 6 sublicensing example that I gave, just to clarify.
09:09 7 Q. Okay. You like to say that better that way.
09:09 8 That's fine.
09:09 9 Now, you told us that you based this upon a
09:09 10 general rule of thumb in the industry or general
09:09 11 knowledge or general knowledge of the industry that in
09:09 12 these types of situations, it would somewhere be in the
09:10 13 range of 25 to 50 percent split, right?
09:10 14 A. That's one of the factors that I mentioned,
09:10 15 among a number of considerations. I just want to
09:10 16 clarify.
09:10 17 Q. And this generalized 25 to 50 percent
09:10 18 experience that you've had in the industry, it -- it is
09:10 19 not just in the electronics industry, it's just not in
09:10 20 the casting industry. It's across all industries,
09:10 21 right, sir?
09:10 22 A. In my experience -- and I've been doing this
09:10 23 for 25 years -- that range can be -- it's typically
09:10 24 within 25 and 50. But, again, that's one
09:10 25 consideration.

09:10 THE COURT: Perhaps you didn't understand me when I asked you earlier to answer his question directly.

09:10 THE WITNESS: Yes, Your Honor.

09:10 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.

09:10 THE WITNESS: Yes, Your Honor.

09:10 BY MR. JONES:

09:11 Q. And, again, my question to you -- and I'll restate it.

09:11 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.

09:11 And you told us you'd been involved in a bunch, right, sir?

09:11 A. That's broadly correct. I've seen exceptions. I just want to clarify.

09:11 Q. Thank you.

09:11 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

09:11 1 of the functionality accused of infringement, right,
09:11 2 sir?
09:11 3 A. Yes. That's correct. Broadly correct.
09:11 4 Q. And -- and what we want to do is we want to
09:11 5 look at the benefits specifically applicable to the
09:11 6 functionalities provided by the patents-in-suit, right,
09:11 7 sir?
09:11 8 A. Broadly speaking, yes.
09:12 9 Q. And you want to value those benefits as
09:12 10 opposed to unrelated aspects of the accused products,
09:12 11 aspects of the accused products that have nothing to do
09:12 12 with the patented functionality, right, sir?
09:12 13 A. No. That's correct.
09:12 14 Q. Now, I think you'll recall in the fourth
09:12 15 section of your slides, you have a section called
09:12 16 Benefits to Google, right, sir?
09:12 17 A. Yes.
09:12 18 Q. And you presented that to the jury, right,
09:12 19 sir?
09:12 20 A. Yes. I did.
09:12 21 Q. And in it you give your opinions on the
09:12 22 economics benefits to Google of the three
09:12 23 patents-in-suit, right, sir?
09:12 24 A. In it and throughout my presentation. Yes.
09:12 25 Q. Now, on Slide 33 -- and I don't think we need

09:12 1 to go back to it. I'm not going to take the time to do
09:13 2 that.
09:13 3 But on Slide 33, you have in the Google
09:13 4 Benefits section a statement: YouTube ad revenues
09:13 5 nearly doubled from 15 -- and it's a capital B, but you
09:13 6 mean billion -- in 2019 to 28.8B in 2021. Right?
09:13 7 There's that statement?
09:13 8 A. Yes. I just opened that up for my reference.
09:13 9 Yes. I did say that.
09:13 10 Q. And -- and you told us that that statement was
09:13 11 applicable to Georgia-Pacific Factors 6, 8, 9, 10, and
09:13 12 11, right, sir?
09:13 13 A. The collective slide is -- is relevant to
09:13 14 that.
09:13 15 Q. Okay. But that statement's also relevant to
09:13 16 those factors, right, sir? Or did I get it wrong? I'm
09:13 17 not trying to mischaracterize --
09:13 18 A. Well, there's more on the slides than
09:13 19 just this thing. I just want to clarify.
09:13 20 Q. Yeah. I know there's more on the slides.
09:13 21 But I'm talking -- I'm -- I'm zeroing you in
09:13 22 not on the whole slide but on this statement, right,
09:13 23 sir?
09:13 24 A. Yes. Broadly --
09:13 25 Q. Okay.

09:13 1 A. -- broadly considered in those factors. Yes.
09:13 2 Q. Thank you, sir.
09:14 3 Now -- and, again, I'm not arguing with you,
09:14 4 but on your slide, you did not state your authority for
09:14 5 these figures, did you, sir?
09:14 6 A. On this slide -- I speak to some of them
09:14 7 later, some of these points later.
09:14 8 Q. That's not my question to you, sir.
09:14 9 My question to you is simply this: On your
09:14 10 slide, did you cite to authority for those figures,
09:14 11 where you got those figures? Is that depicted on your
09:14 12 slide?
09:14 13 A. Not on this slide.
09:14 14 Q. Thank you, sir.
09:14 15 I believe you did cite to authority in your
09:14 16 report. And to refresh your memory, could you turn to
09:14 17 me to Paragraph 151 of your report dated November
09:14 18 the 14th, 2022?
09:14 19 A. Okay. Would it be possible to put the slide
09:14 20 up so I could see that for reference as I'm doing this?
09:14 21 Q. Would you like me to put up your report for
09:14 22 you? Is that what you're asking, sir?
09:14 23 A. No. The slide you're referring to.
09:14 24 Q. Yes, if we can get it.
09:15 25 MR. JONES: Do we have those,

09:15 1 Mr. McDonald?
09:15 2 (Off-the-record discussion.)
09:15 3 BY MR. JONES:
09:15 4 Q. You have your slides in front of you, right,
09:15 5 sir? I mean, I'm not trying to be difficult.
09:15 6 A. I have it here, but if we're discussing that
09:15 7 slide, I just didn't know if it would be helpful for
09:15 8 all to see. But I just --
09:15 9 Q. Why don't we just move on, if we could?
10 A. Yes. It's not a concern.
09:15 11 Q. I mean, I'm talking about that one simple
09:15 12 report.
09:15 13 A. What report -- what paragraph are we talking
09:15 14 about?
09:15 15 Q. It's the November 14th, 2022 report, and it's
09:15 16 Paragraph 151. And it's the page where you had
09:15 17 Table 4.
09:15 18 A. Yes. Uh-huh.
09:15 19 Q. And you have this same information in your
09:15 20 report on that table, right, sir?
09:15 21 A. Yes.
09:15 22 Q. And you cite to authority for that statement,
09:15 23 and you cite to certain 10-Ks for 2019 and 2021, right,
09:15 24 sir?
09:15 25 A. Yes. I do.

09:15 1 Q. And when we talk about 10-Ks, these are 10-Ks
09:16 2 for Google which are filings that are done with the
09:16 3 Security and Exchange Commission, right, sir?
09:16 4 A. Technically with Alphabet, their parent
09:16 5 company.
09:16 6 Q. Okay. Yeah. Okay. You're right. Thank you
09:16 7 for the correction.
09:16 8 So -- but -- but Alphabet's the parent of
09:16 9 Google, but it's -- it's combined financial statements
09:16 10 for all of Alphabet, right, and they're in 10-Ks that
09:16 11 are filed with the Security and Exchange Commission,
09:16 12 correct?
09:16 13 A. That is correct.
09:16 14 Q. And, again, you would agree with me that
09:16 15 Security and Exchange Commissions are important
09:16 16 documents because they're relied upon by investors,
09:16 17 right, sir?
09:16 18 A. That's correct. That's why Alphabet puts them
09:16 19 out. Yes.
09:16 20 Q. Right. And that's why you, as an expert
09:16 21 witness with regard to licensing and damages, rely upon
09:16 22 such things, right, sir?
09:16 23 A. Yes. Absolutely.
09:16 24 Q. Thank you, sir.
09:16 25 Now, if you look at Footnote 212 of your

09:17 1 report, you cite to the December 31st, 2019 10-K of
09:17 2 Alphabet and the December 31st, 2021 10-K of Alphabet,
09:17 3 right, sir?
09:17 4 A. That's correct.
09:17 5 Q. Now, if we could, let's look at the first one.
09:17 6 MR. JONES: And we could go to Slide 8.
7 BY MR. JONES:
09:17 8 Q. And we see here, this is the first page of
09:17 9 that 10-K that you relied upon, right, sir?
09:17 10 A. That is the initial page. Yeah. The date is,
09:17 11 yes, right there in the center.
09:17 12 Q. Right, sir. So we're on the same -- same
09:17 13 page?
09:17 14 A. Same page.
09:17 15 Q. Good deal.
09:17 16 MR. JONES: And if we go to the next
09:17 17 slide.
18 BY MR. JONES:
09:17 19 Q. We can see that this is where you took at
09:17 20 least one of your figures from -- for YouTube revenues,
09:17 21 the 2019 figure, right?
09:17 22 A. That is correct.
09:18 23 Q. Right, sir.
09:18 24 That's where you got your figure, at least one
09:18 25 of them?

09:18 1 A. That's one aspect of this 10-K that I cite.
09:18 2 Yes.
09:18 3 Q. Right. And we see that YouTube revenues have
09:18 4 been going up.
09:18 5 Well, now, there's also an explanation in this
09:18 6 document of why YouTube revenues have been going up,
09:18 7 right, sir?
09:18 8 A. There's a discussion of that on this page and
09:18 9 elsewhere in the --
09:18 10 Q. Okay. Thank you.
09:18 11 A. -- 10-K.
09:18 12 Q. Well, let's go to the discussion on this page,
09:18 13 the same page you got your -- you got your figure from.
09:18 14 MR. JONES: Could we blow up the YouTube
09:18 15 ads paragraph?
16 BY MR. JONES:
09:18 17 Q. And it says here: YouTube ads revenues
09:18 18 increased 3.9 million from 2018 to 2019 and increased
09:18 19 3 million from 2017 to 2018. The largest contributors
09:19 20 to the growth during both periods were our direct
09:19 21 response and brand advertising products, both of which
09:19 22 benefitted -- both of which benefitted from
09:19 23 improvements to ad formats and delivery and increased
09:19 24 advertiser spending. Right, sir?
09:19 25 A. And that is before 2019, which is the time

09:19 1 frame that I started with. Correct. That's --
09:19 2 Q. I understand that. But when we look at 2017,
09:19 3 2018, and 2019, YouTube ad revenues are going up. And
09:19 4 they are describing here --
09:19 5 MR. JONES: If we could go back to that
09:19 6 part you just highlighted.
7 BY MR. JONES:
09:19 8 Q. They are describing here why they went up
09:19 9 during those years, right, sir?
09:19 10 A. They are, but that's not --
09:19 11 Q. My question to you is very pointed.
09:19 12 A. For those years --
09:19 13 Q. Yes. For those years.
09:19 14 A. -- 2017 to 2019. Correct.
09:19 15 Q. And I want to be very precise in my question.
09:20 16 For the years 2017 through 2019, they are
09:20 17 saying that those ad revenues went up, and you would
09:20 18 agree with me, Chromecast was out all of those years,
09:20 19 right, sir?
09:20 20 A. Yes. In those years. Yes. Uh-huh.
09:20 21 Q. And they describe why they went up, and there
09:20 22 is nothing whatsoever mentioned in that description
09:20 23 about casting technology or functionality in any way,
09:20 24 right, sir?
09:20 25 A. It says these are the largest contributors in

09:20 1 those years. 2017 to 2019 were those factors.
09:20 2 Q. Right. They don't mention -- that's not my
09:20 3 question to you. My question to you is very precise.
09:20 4 They don't mention casting technology in any
09:20 5 shape, form, or fashion or any Chromecast technology in
09:20 6 any shape, form, or fashion in that paragraph, right,
09:20 7 sir?
09:20 8 A. For those years, 2017 to 2019.
09:20 9 Q. Okay. Thank you, sir.
09:20 10 Well, let's go on then and go to some other
09:20 11 years. Okay?
09:20 12 And then the next 10-K you relied upon to
09:21 13 support those billion-dollar figures was dated December
14 the 31st, 2021.
09:21 15 MR. JONES: And if we could,
09:21 16 Mr. McDonald, let's go to Slide 10.
09:21 17 BY MR. JONES:
09:21 18 Q. And this is, again, the 10-K that you cited in
09:21 19 your footnote that you relied upon, right, sir?
09:21 20 A. Yes. It is.
09:21 21 Q. And if we could go to the next page, we see
09:21 22 this is where you got your last figure with regard to
09:21 23 the statement that you made, right, sir?
09:21 24 A. Yes. YouTube ad revenue of $28.845 billion.
09:21 25 MR. JONES: And if we could go to the

09:21 1 next slide, Slide 12.
09:21 2 BY MR. JONES:
09:21 3 Q. We have an explanation about why YouTube ads
09:21 4 went up these years, right, sir?
09:21 5 A. It has much of the same wording. Correct.
09:22 6 Q. Okay. Well, let's -- let's read it and see
09:22 7 what their explanation was, why the YouTube ads
09:22 8 revenues went up, as you told us they went up when you
09:22 9 said that was a benefit to Google from the patents in
09:22 10 question.
09:22 11 It says this: YouTube ads revenues increased
09:22 12 9.1 billion from 2020 to 2021. Growth was driven by
09:22 13 our direct response and brand advertising products.
09:22 14 Growth for our direct response advertising products was
09:22 15 primarily driven by increased advertiser revenue --
09:22 16 excuse me; I'm just botching everything today -- by
09:22 17 increased advertiser spending as well as improvements
09:22 18 to ad formats and delivery.
09:22 19 A. And delivery. Yes.
09:22 20 Q. Growth for our brand advertising products was
09:22 21 primarily driven by increased spending by our
09:22 22 advertisers and the adverse effect of COVID-19 on 2020
09:23 23 revenues.
09:23 24 Right, sir?
09:23 25 A. Yes. That's correct.

09:23 1 Q. And nowhere -- nowhere in their explanation do
09:23 2 they talk about casting functionality, right, sir?
09:23 3 A. They don't specifically mention casting.
09:23 4 Q. They don't mention any Chromecast technology,
09:23 5 do they, sir, in there?
09:23 6 A. They mention ad delivery. They're higher
09:23 7 level than that.
09:23 8 Q. Okay. And, in fact, they talk about such
09:23 9 things as the adverse effect of COVID-19 on these
09:23 10 increases.
09:23 11 That certainly has nothing to do with the
09:23 12 patents in question in this case, right, sir?
09:23 13 A. Certainly it affects media viewing, perhaps.
09:23 14 Q. Now, when you did your report, you didn't
09:23 15 quote these sections, did you, sir?
09:23 16 A. I referenced the numbers. That's correct.
09:24 17 Q. And when you did your slide, you didn't make
09:24 18 any mention of the explanations that had been given for
09:24 19 the increases, did you, sir?
09:24 20 A. These are broad -- I did not. You're correct.
09:24 21 Q. And certainly you would agree with me that at
09:24 22 the hypothetical negotiation, when the parties,
09:24 23 Touchstream and Google, sat down to negotiate over the
09:24 24 benefits of the patented technology, that they would
09:24 25 talk about such things as are expressed in this

09:24 1 document?
09:24 2 A. Among other things, that's absolutely correct.
09:24 3 Q. You would agree with me that the revenues that
09:24 4 you've cited to for YouTube are generalized revenues,
09:24 5 right, sir?
09:24 6 A. The ad revenues specifically, yes.
09:24 7 Q. And they're generalized ad revenues, right,
09:24 8 sir?
09:24 9 A. Yes. I'm trying to --
09:25 10 Q. Thank you, sir.
09:25 11 A. -- answer your question. It's a little vague.
09:25 12 Q. Well -- well, let's go at it this way.
09:25 13 A. Uh-huh.
09:25 14 Q. They are not in any way broken down as to ad
09:25 15 revenues generated when casting is done. Fair enough?
09:25 16 A. It's fair. I think we heard yesterday Google
09:25 17 doesn't track that, Google findings.
09:25 18 Q. Again, I'm talking about the revenues that
09:25 19 you've cited to that we're -- just got through talking
09:25 20 about, right, sir? Are you and I on the same page?
09:25 21 A. Yes. Yes.
09:25 22 Q. You would agree these revenues are
09:25 23 generalized, and they're not broken down in any way
09:25 24 with regard to ad spends when casting is done, right,
09:25 25 sir?

09:25 1 A. That's correct. Google doesn't track that.
09:25 2 Q. And you cite to no study or analysis or survey
09:25 3 that is directed to showing what portion of this growth
09:25 4 is related to casting, right, sir?
09:25 5 A. That's correct.
09:25 6 Q. And you cite to no expert, technical or
09:25 7 otherwise, who has attributed this growth or any part
09:26 8 of it to casting, right, sir?
09:26 9 A. That's correct. Google doesn't track that.
09:26 10 Q. Now, I'd like to move finally -- and I think
09:26 11 we're just about through here.
09:26 12 You looked at all of the licenses produced by
09:26 13 Google in this case, correct, sir?
09:26 14 A. All the ones that were produced. Yes.
09:26 15 Q. And all of the ones that were produced, that
09:26 16 you read, they were all lump sum agreements, right,
09:26 17 sir?
09:26 18 A. Yes. They provided only lump sum agreements.
09:26 19 Yes.
09:26 20 MR. JONES: Thank you, sir. Thank you
09:26 21 for your patience with me. I thank you for your time.
09:26 22 THE WITNESS: Thank you.
09:26 23 MR. JONES: I pass the witness, Your
09:26 24 Honor.
09:26 25 MR. MILLER: Could you pull up Slide 12,

the one you had up a moment ago, please? This was --
09:26 and could you zoom in on the same part that we were on?
09:26 REDIRECT EXAMINATION
09:26 BY MR. MILLER:
09:27 Q. Okay. So you were asked some questions about
09:27 this dramatic increase from roughly 15 billion in
09:27 YouTube ads to roughly 30 billion in YouTube ads during
09:27 this period between '19 and '21, and you were directed
09:27 to this 10-K that talked about the reasons. And you
09:27 correctly noted they don't specifically mention cast in
09:27 here, Chromecast.
09:27 But let me ask you something. It says here:
09:27 Growth for our direct response advertising products was
09:27 primarily driven by one thing, increased advertising
09:27 spending.
09:27 Was one of the goals at Google for rolling out
09:27 Chromecast to increase advertiser spending?
09:27 A. Yes. It certainly was.
09:27 Q. And let me see. And then it says: As well as
09:27 improvements to ad formats.
09:27 Was one of the goals of Chromecast to improve
09:27 the ad formats?
09:27 A. Yes. It certainly was.
09:27 Q. Including, for example, targeting ads to
09:27 people more directly by -- because they got their data?

09:27 1 A. Yes. As I -- I discussed yesterday.
09:28 2 Q. All right. And is one of the ways that Google
09:28 3 was -- a new way that Google was delivering ads -- this
09:28 4 last one, delivery, was that through Chromecast?
09:28 5 MR. JONES: Your Honor, I would object to
09:28 6 the questions being leading, Your Honor.
09:28 7 THE COURT: Sustained.
09:28 8 BY MR. MILLER:
09:28 9 Q. So in your -- you said that in your opinion,
09:28 10 this was -- this discussion at a high level
09:28 11 encompassed -- well, can you explain?
09:28 12 Do you think that at a high level, this would
09:28 13 encompass Chromecast?
09:28 14 A. In my opinion, these words certainly describe
09:28 15 that at a high level, and this is a condensed -- really
09:28 16 just three sentences describing that, and they're
09:28 17 staying at a very high level.
09:28 18 As we discussed and I mentioned, in ad
09:28 19 delivery, one form of ad delivery is through
09:28 20 Chromecast. Improved formats and delivery certainly is
09:28 21 a broad generalization of what Chromecast does.
09:28 22 Q. Okay. Thank you very much. One final
09:28 23 question.
09:28 24 So when we looked at the total damage number
09:29 25 that you think's appropriate in this case, it wasn't

09:29 1 just for a one-year period, right? What was the
09:29 2 period -- the damage period you were looking at?
09:29 3 A. The damage period was from 2015 to 2022. And
09:29 4 as I described, it -- it's a reasonable royalty for
09:29 5 Google's use of the patented invention and the value
09:29 6 they've derived from that usage.
09:29 7 Q. Okay. So it's for a -- you're taking the 32
09:29 8 cents per month and the life of the product, but it's
09:29 9 also over a 9-year period?
09:29 10 A. Over a period going back to 2015. That's
09:29 11 correct.
09:29 12 Q. Okay.
09:29 13 MR. MILLER: No further questions. Thank
09:29 14 you.
09:29 15 MR. JONES: No further questions, Your
09:29 16 Honor.
09:29 17 THE COURT: You may step down, sir.
09:29 18 Who's your next witness?
09:29 19 MR. DYKAL: Touchstream has no further
09:29 20 witnesses, and we rest.
09:29 21 THE COURT: Ladies and gentlemen of the
09:29 22 jury, we're going to take a short recess. Please
09:29 23 remember my instructions, and we'll be back as quickly
09:29 24 as we can.
09:29 25 THE BAILIFF: All rise.

09:29 1 (Jury exited the courtroom.)
09:30 2 THE COURT: You may be seated.
09:30 3 Does either counsel have any -- a motion
09:30 4 to make?
09:30 5 MR. LANIER: We do have a motion, Your
09:30 6 Honor. Thank you.
09:30 7 Your Honor, Google moves for judgment as
09:30 8 a matter of law on four bases. I'll identify them
09:30 9 quickly and explain and -- excuse me -- happy to
09:30 10 discuss as much as Your Honor would like.
09:30 11 We move for judgment as a matter of law
09:30 12 under Rule 50(a) for no willful infringement against
09:30 13 their willful infringement claim; for infringement or
09:30 14 no infringement under the doctrine of equivalents; no
09:30 15 infringement, literal or direct, because no -- because
09:30 16 there has been no proof of divided or joint
09:30 17 infringement; and no literal infringement -- or no
09:31 18 infringement literal or under the doctrine of
09:31 19 equivalents because the accused products does not
09:31 20 have -- do not have all the claim limitations.
09:31 21 And finally, we're moving to dismiss
09:31 22 their request for injunctive relief.
09:31 23 And I could follow up on each one of
09:31 24 these points. I'll do a couple of them I think I can
09:31 25 address very briefly.

09:31 1 THE COURT: I don't think you need to --
09:31 2 I don't think we need to take up the injunction issue.
09:31 3 MR. LANIER: All right. Then we'll leave
09:31 4 that aside for now, Your Honor. For the --
09:31 5 THE COURT: I don't think that's a Rule
09:31 6 50(a) motion.
09:31 7 MR. LANIER: Understood, Your Honor.
09:31 8 Thank you.
09:31 9 So for doctrine of equivalents, the basis
09:31 10 for the motion is very simple. There has -- there was
09:31 11 not a mention of equivalents, no discussion, no
09:31 12 testimony from Dr. Almeroth, no evidence, no opinion.
09:31 13 They've also, as we understand it,
09:31 14 withdrawn those jury instructions, but we believe we're
09:31 15 entitled to judgment as a matter of law on the doctrine
09:31 16 of equivalents.
09:31 17 THE COURT: Let me hear from them on that
09:31 18 real quick.
09:31 19 MS. ISRAEL: Your Honor, Sharon Israel on
09:31 20 behalf of Touchstream.
09:31 21 With respect to doctrine of equivalents,
09:32 22 Touchstream withdraws its allegations for infringement
09:32 23 under doctrine of equivalents. I think that issue is
09:32 24 moot.
09:32 25 THE COURT: Okay. Thank you.

09:32 1 MR. LANIER: Thank you, Your Honor.
09:32 2 On willful infringement, we move for
09:32 3 judgment against their willful infringement claim. As
09:32 4 Your Honor will recall from the pretrial conference,
09:32 5 Your Honor permitted them to present that case to see
09:32 6 what evidence there was.
09:32 7 There was less evidence presented at
09:32 8 trial than there was at the summary judgment stage.
09:32 9 They advanced two bases for the -- essentially for the
09:32 10 summary -- for willful infringement.
09:32 11 One was citation to patents. And as
09:32 12 we've mentioned before and briefed and Your Honor has
09:32 13 also decided that citation to patents during
09:32 14 prosecution is insufficient proof of knowledge to
09:32 15 support a willfulness claim.
09:32 16 That's Your Honor's decision in RFCyber
09:32 17 Corp versus Apple in 2022.
09:32 18 Additionally, they alleged willfulness
09:32 19 based on alleged exposure to their inventions or their
09:32 20 ideas in these meetings that happened. There is
09:33 21 actually no evidence of what actually was said,
09:33 22 disclosed, taught, discussed.
09:33 23 And finally, and most importantly, the
09:33 24 record is unequivocal -- it's not an absence of
09:33 25 evidence, it's proof -- that there was no notice of

09:33 1 infringement of any kind prior to suit.
09:33 2 The most they have is a LinkedIn message
09:33 3 that says, We have patented technology. There were no
09:33 4 patents-in-suit during the meetings -- or no patents
09:33 5 during the time of the meetings. There was no notice
09:33 6 of infringement of any kind.
09:33 7 There's also no evidence that has been
09:33 8 presented in their case of an intent to infringe.
09:33 9 We've briefed this thoroughly at summary judgment.
09:33 10 We'll write this all down, but we really do believe,
09:33 11 Your Honor, this claim should not go to the jury.
09:33 12 I can stop on that one.
09:33 13 THE COURT: Let me hear from the
09:33 14 defendant -- I'm sorry -- the plaintiff with respect
09:33 15 only to -- the only thing I care about is any evidence
09:33 16 that, since the defendant was given notice by the
09:33 17 filing of the lawsuit, that they have acted in a manner
09:33 18 that would constitute willfulness. What evidence --
09:34 19 MR. DYKAL: Well, they've continued
09:34 20 releasing products.
09:34 21 THE COURT: And they've continued to
09:34 22 defend the lawsuit.
09:34 23 MR. DYKAL: They have.
09:34 24 THE COURT: And so anything else?
09:34 25 MS. ISRAEL: Yes, Your Honor. If I may.

09:34 1 You're just asking about post --
09:34 2 THE COURT: Post.
09:34 3 MS. ISRAEL: -- suit?
09:34 4 THE COURT: Yes.
09:34 5 MS. ISRAEL: May I discuss some of the
09:34 6 evidence that was presented at trial?
09:34 7 THE COURT: Yes. But I just need post.
09:34 8 I understand the issues prior to the filing of the
09:34 9 lawsuit. I want to know what you believe the evidence
09:34 10 at trial has been of willfulness since they were given
09:34 11 notice of the suit.
09:34 12 MS. ISRAEL: There's no further
09:34 13 evidence -- there was no evidence presented with
09:34 14 respect to just what happened prior to -- post-filing
09:34 15 suit. There is sufficient evidence in the record with
09:35 16 respect to what happened prior to the filing of suit.
09:35 17 I'd be happy to go through that evidence.
09:35 18 THE COURT: I just wanted to know what
09:35 19 you were going to say.
09:35 20 I'm going to deny the motion. I'm
09:35 21 denying the motion for directed verdict on willfulness.
09:35 22 MR. LANIER: I'm sorry. I just didn't
09:35 23 hear.
09:35 24 THE COURT: I'm denying the motion for
09:35 25 directed verdict on willfulness.

09:35 1 MR. LANIER: Thank you, Your Honor.
09:35 2 THE COURT: Anything else?
09:35 3 MR. LANIER: Yes, Your Honor.
09:35 4 No proof of divided infringement. All of
09:35 5 the claims -- so it's a motion for a judgment of -- as
09:35 6 a matter of law on direct infringement. That's the
09:35 7 only kind of infringement asserted in this case.
09:35 8 All the claims require actions performed
09:35 9 by a user. There's no evidence, no proof, anything
09:35 10 regarding action by a user, how often it happens, does
09:35 11 it happen, or that Google controls that.
09:35 12 Secondly, many -- all of the asserted
09:35 13 claims, many have specific limitations that require
09:35 14 specific commands, but Touchstream presented no
09:35 15 evidence that Google controls those commands.
09:35 16 And, in fact, there is evidence that
09:35 17 third parties with those media players, who provide the
09:36 18 media players, provide the commands. And so there is
09:36 19 no evidence that Google controls that. And Your Honor
09:36 20 recalls this issue also from summary judgment as well.
09:36 21 But not even at a technical basis,
09:36 22 putting aside the legal arguments that were rejected,
09:36 23 on a technical basis, there's no evidence of Google's
09:36 24 control.
09:36 25 It's a case for divided or joint

09:36 1 infringement. Google has to control to be held liable
09:36 2 for infringement.
09:36 3 THE COURT: I'm going to deny that as
09:36 4 well.
09:36 5 Are those all the motions?
09:36 6 MR. LANIER: Those are the bases for our
09:36 7 motions. Thank you, Your Honor.
09:36 8 THE COURT: Okay. And you're going to
09:36 9 submit something additional in writing?
09:36 10 MR. LANIER: Yes. We are, Your Honor.
09:36 11 THE COURT: That's fine.
09:36 12 The plaintiff will certainly be entitled
09:36 13 to respond to that once they get it.
09:36 14 MR. LANIER: Thank you, Your Honor.
09:36 15 THE COURT: So your first witness will
09:36 16 be?
09:36 17 MR. LANIER: Our first witness will be
09:36 18 Majd Bakar.
09:36 19 THE COURT: Okay. Well, let's just go
09:36 20 ahead and bring the jury back in.
09:36 21 MR. DYKAL: Your Honor, one housekeeping
09:36 22 matter. Touchstream would request that we submit the
09:36 23 demonstratives used with Dr. Almeroth and Dr. Chandler,
09:36 24 not as evidence for the jury but for completeness of
09:37 25 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 1 MR. LANIER: Your Honor, I believe
09:37 2 Mr. Bakar's outside. Can he come in before the jury
09:37 3 comes back?
09:37 4 THE COURT: If you'll bring him in, we'll
09:37 5 bring the jury in.
09:38 6 (Brief off-the-record discussion.)
09:38 7 THE COURT: I screwed up. We're going to
09:38 8 take a short break. We'll be back.
09:38 9 MR. LANIER: Thank you, Your Honor.
09:38 10 THE COURT: We'll be back in about five
09:38 11 minutes.
09:38 12 (Recess taken.)
09:44 13 MR. LANIER: I apologize. Before the
09:44 14 jury comes back, I had omitted -- sorry. Are we back
15 on?
16 Thank you.
09:44 17 I had omitted to mention one of the bases
09:44 18 for our Rule 50 motion. I apologize for doing that. I
09:44 19 wanted to mention it briefly before the jury came back.
09:44 20 We ask for a judgment under Rule 50 of no
09:44 21 infringement because there is no server system or of
09:44 22 the claimed server system in the accused products. All
09:44 23 the asserted claims require performance of particular
09:44 24 operations by a server system.
09:44 25 We began to address this in detail at

09:44 1 summary judgment, but no reasonable jury could find the
09:44 2 accused products have a server system.
09:44 3 In summary, it's because the server
09:44 4 system is required to be -- or reading those claims,
09:44 5 ought to be separate and distinct from both the phone
09:44 6 and the display device. And as Dr. Almeroth
09:44 7 demonstrated, his server system is not.
09:44 8 We're prepared to brief that in more
09:44 9 detail. That's the other basis for our motion.
09:45 10 THE COURT: Okay. Thank you.
09:45 11 MR. LANIER: Thank you, Your Honor.
09:45 12 THE COURT: Are we ready to go?
13 MR. LANIER: Otherwise, we are ready to
09:46 14 go.
09:46 15 THE BAILIFF: All rise.
09:46 16 (Jury entered the courtroom.)
09:46 17 THE COURT: Thank you.
09:46 18 You may be seated.
09:46 19 Counsel, I know I heard the plaintiff say
09:46 20 that they had no more witness, but I don't recall if
09:46 21 you said you rested or not. I just don't remember.
09:46 22 MR. DYKAL: Yes. We rest.
09:46 23 THE COURT: Okay. Thank you.
09:46 24 Counsel, do you have witnesses to call on
09:46 25 behalf of Google?

09:46 1 MR. LANIER: We do, Your Honor. Thank
2 you very much.
09:46 3 For our first witness, Google calls Majd
09:46 4 Bakar.
09:46 5 (The witness was sworn.)
09:46 6 DIRECT EXAMINATION
09:46 7 BY MR. LANIER:
09:47 8 Q. Mr. Bakar, would you introduce yourself to the
09:47 9 jury and tell them what you do for a living?
09:47 10 A. Sure. Hi. My name is Majd Bakar. And I am
09:47 11 VP of engineering on the Fitbit project at Google.
09:47 12 Q. Where do you live?
09:47 13 A. I live in Mountain View, California.
09:47 14 Q. Have you ever testified in a court before?
09:47 15 A. No. This is my first time.
09:47 16 Q. You're a little nervous?
09:47 17 A. A bit.
09:47 18 Q. Tell me if I go too fast or I skip anything.
09:47 19 I've got a bit of a frog in my throat this morning. So
09:47 20 forgive me for that.
09:47 21 How long have you been at Google?
09:47 22 A. Around 12 years and a half.
09:47 23 Q. We'll talk about your time at Google and what
09:47 24 you did, but just to get to know you a little more,
09:47 25 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.

09:48 1 Q. You said "interaction model in the living
09:48 2 room." What does that mean?
09:48 3 A. So usually interaction model is how user
09:48 4 interface with computers or other electronic devices.
09:48 5 What -- usually when you are working with a computer or
09:49 6 your phone or tablet, you can use either a touchscreen
09:49 7 or you can use a mouse and a keyboard.
09:49 8 In the living room, usually you're sitting
09:49 9 away from the TV, around 10 feet away, and using a
09:49 10 keyboard and mouse is not easy, touching the screen is
09:49 11 not easy. So I was looking at what would be the right
09:49 12 way to interface with the TV.
09:49 13 Q. Did the Chromecast product and project flow
09:49 14 from that work in looking at the living room in the
09:49 15 home?
09:49 16 A. Yes.
09:49 17 Q. Are you one of the founders of Chromecast at
09:49 18 Google?
09:49 19 A. Yes.
09:49 20 Q. In very simple terms, would you -- we'll dig
09:49 21 in a little, but would you explain what Chromecast is?
09:49 22 A. So Chromecast is a small streaming device that
09:49 23 plugs into the back of your TV in the HDMI port, and it
09:49 24 doesn't come with a remote control. And the idea is
09:49 25 that you can use your phone as a remote control. You

09:49 1 can discover content on your phone.
09:49 2 And then once you decide what content you want
09:49 3 to watch, you just cast it to your Chromecast, and
09:50 4 it -- the video or the music will play on the
09:50 5 Chromecast.
09:50 6 Q. Who came up with the idea for Chromecast?
09:50 7 A. I did.
09:50 8 Q. When did you come up with that idea?
09:50 9 A. Around 2010.
09:50 10 Q. How did you come up with it?
09:50 11 A. So it came to me when I was observing how my
09:50 12 wife was watching Netflix. Netflix was a -- in 2010
09:50 13 was a streaming service. It was the biggest. But it
09:50 14 started initially on the PC, where you go into your
09:50 15 browser and you watch content on your -- on your PC.
09:50 16 But then they introduced a TV experience through Xbox
09:50 17 and PlayStation.
09:50 18 I was working at Microsoft. I had an Xbox.
09:50 19 And we had it connected to the TV. But what I observed
09:50 20 is my wife would go -- open up her laptop, go to the
09:50 21 Netflix website, search for whatever content she wants
09:50 22 to watch.
09:50 23 And then once she find the video or the TV
09:50 24 show that she wants to watch, she adds it to the
09:51 25 Netflix queue, go into the queue, find that content in

09:51 the queue, and then say, Okay, pull this content to the
09:51 top of the queue.
09:51 Closes the laptop and then goes to the Xbox.
09:51 Open the Netflix app. Go to the queue. And voilà, the
09:51 video she wanted to watch is at the top of the queue.
09:51 She just click play.
09:51 I was asking her, like, Why are you doing
09:51 this?
09:51 And she said, Well, because it's very hard for
09:51 me to -- on the TV screen to find the content. It's
09:51 either hard to read or if I want to type a search term,
09:51 it's very hard.
09:51 So I was like, There must be an easier way to
09:51 do that.
09:51 And this is where I was thinking, why not use
09:51 the phone as the way to discover the content and
09:51 control it?
09:51 Q. Is that what started you thinking about what
09:51 became Chromecast?
09:51 A. Yes.
09:51 Q. And were you thinking about that before you
09:51 came to Google?
09:51 A. Yes.
09:51 Q. Did that discussion about your idea for what
09:51 became Chromecast come up early in your time at Google?

09:51 1 A. Yes.
09:51 2 Q. Did you raise it, in fact, when you were
09:51 3 interviewing for jobs at Google?
09:51 4 A. Exactly. During my interview, I proposed
09:52 5 that.
09:52 6 Q. And were people receptive when you proposed it
09:52 7 during your interviews?
09:52 8 A. Yes.
09:52 9 Q. So let's talk a little about what you were
09:52 10 doing when you actually started at Google.
09:52 11 Was that April of 2011 again?
09:52 12 A. Yes.
09:52 13 Q. Okay. What team did you join when you joined
09:52 14 Google?
09:52 15 A. A team called Google TV.
09:52 16 Q. What was the state of Google TV at the time
09:52 17 you joined in April of 2011?
09:52 18 A. So Google TV was a product that launched in
09:52 19 2010, year before I joined. We had partners with Sony
09:52 20 and Logitech. They were building up set-top boxes or
09:52 21 TVs, and they had Google TV built into them. And we
09:52 22 were developing the second version of Google TV.
09:52 23 Q. Just keep your voice up a tiny bit, sir. I
09:52 24 apologize.
09:52 25 A. Google TV. Sorry.

09:52 Q. Thank you.
09:52 Did you end up working on what became
09:52 Chromecast in parallel with working on Google TV
09:52 itself?
09:52 A. Yes.
09:52 Q. Okay. Let's -- let's talk specifically about
09:52 putting that Google TV idea together or the Chromecast
09:53 idea together.
09:53 After you got started at Google in April of
09:53 2011, did you start working specifically on what became
09:53 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
09:53 learning how to work at Google and ramping up on the
09:53 technology there. I -- the first thing that I did is I
09:53 put together a -- what we called a "concept card" to
09:53 describe what is this idea I was talking about. And
09:53 then from there, I pitched this to the leadership team.
09:53 And when it got approved, I moved into building --
09:53 developing the plan further.
09:53 Q. All right. We'll talk about each of those
09:53 steps for a minute.
09:53 But early on in your work with Chromecast, did
09:53 you start working with some other people at Google

09:53 1 about the project?
09:53 2 A. Yes.
09:53 3 Q. Who were those people?
09:53 4 A. The product manager, his name is Ambarish
09:53 5 Kenghe, and a business development lead. Her name is
09:54 6 Shanna Prevé.
09:54 7 Q. Did you work hard with them on putting
09:54 8 Chromecast together?
09:54 9 A. Yes.
09:54 10 Q. Did you like working with them?
09:54 11 A. I loved working with them.
09:54 12 Q. Are they still your good friends?
09:54 13 A. My best friends.
09:54 14 Q. So you talked about putting together a concept
09:54 15 card to work with a team.
09:54 16 Do you recall that?
09:54 17 A. Yes.
09:54 18 Q. Okay. I'm going to come to that in a minute,
09:54 19 but I just want to ask a couple more questions about
09:54 20 Chromecast itself before we get there.
09:54 21 Have you heard -- we've heard a term that
09:54 22 "Cast protocol" or "Chromecast protocol."
09:54 23 Are you familiar with that?
09:54 24 A. Yes.
09:54 25 Q. What is the Cast or Chromecast protocol?

09:54 1 A. So the Cast protocol is the less -- the set of
09:54 2 parameters and definition of what the phone would send
09:54 3 to the Chromecast to tell it what content to start
09:54 4 streaming and what is -- everything that is needed for
09:54 5 this content to work, from the user's identity to
09:54 6 content identity to digital write management -- that
09:55 7 needs to be all set up correctly -- as well as the list
09:55 8 of command that can be sent from the phone to the
09:55 9 Chromecast to control playback, like pause, fast
09:55 10 forward, fast rewind, or volume control.
09:55 11 Q. So is it -- is the protocol like a set of
09:55 12 rules, how it operates?
09:55 13 A. Yes.
09:55 14 Q. Okay. Are you familiar with a term -- well,
09:55 15 who came up with that protocol on your team?
09:55 16 A. The engineering team and the product
09:55 17 management team.
09:55 18 Q. Were you leading that engineering team?
09:55 19 A. Yes.
09:55 20 Q. And Mr. Kenghe was leading the product
09:55 21 management team?
09:55 22 A. Correct.
09:55 23 Q. And you -- did you work together to come up
09:55 24 with the protocol?
09:55 25 A. Yes.

09:55 1 Q. When did you come up with that protocol?
09:55 2 A. In the second half of 2011. So should be --
09:55 3 it's not like an exact date, but it should be in that
09:55 4 time frame.
09:55 5 Q. Okay. And are you familiar in this context
09:55 6 with the term called "architecture" or "system
09:55 7 architecture"?
09:55 8 A. Yes.
09:55 9 Q. Does Chromecast have a basic architecture?
09:55 10 A. Yes.
09:55 11 Q. Who came up with that basic architecture?
09:56 12 A. Myself and my team. We build that
09:56 13 architecture.
09:56 14 Q. And when did you come up with that
09:56 15 architecture?
09:56 16 A. Around the, I would say, October time frame of
09:56 17 2011.
09:56 18 Q. Okay. And what is the basic architecture of
09:56 19 Chromecast as you first developed it?
09:56 20 A. Well, it revolves around the idea that you
09:56 21 have a -- the phone and the application on the phone,
09:56 22 so the Netflix, the Hulus, the HBOs applications that
09:56 23 are on the phone, and they -- they have a SDK, software
09:56 24 development kit, that is incorporated into their
09:56 25 application that allow them to discover Chromecasts

09:56 1 that are on the network and be able to cast to it.
09:56 2 Q. Did you develop a prototype of Chromecast?
09:56 3 A. Yes.
09:56 4 Q. Did you start by building the thing, or did
09:56 5 you do something else first?
09:56 6 A. So we started with the software prototype. We
09:56 7 build this on existing hardware that allow us an easier
09:57 8 way to develop our thinking and understand the product.
09:57 9 And then after that, we develop the hardware prototype.
09:57 10 Hardware usually takes longer time because we
09:57 11 have to source material and components from hardware
09:57 12 vendors. And once you have them, you can't change
09:57 13 them.
09:57 14 Q. When did you develop the software prototype?
09:57 15 A. In the October/November time frame of 2011.
09:57 16 Q. Okay. You eventually developed a hardware
09:57 17 prototype.
09:57 18 When did the hardware prototype come to be?
09:57 19 A. Towards April of 2012.
09:57 20 Q. Was that hardware prototype a dongle or a
09:57 21 stick?
09:57 22 A. Yes. It has the stick form factor.
09:57 23 Q. Did the -- how did the software prototype
09:57 24 compare to the basic architecture for Chromecast you
09:57 25 first came up with?

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

09:58 1 architecture of Chromecast, did the second screen talk
09:58 2 directly to that display?
09:58 3 A. Yes. They do talk over the local WiFi
09:58 4 network.
09:58 5 Q. Was choosing to have them -- did you choose to
09:58 6 have them talk over the local WiFi network?
09:58 7 A. That was an explicit choice.
09:58 8 Q. Why was that your choice?
09:58 9 A. For a variety of reasons.
09:59 10 First, it is to make sure that the commands
09:59 11 that are sent do not experience any delay. So once you
09:59 12 are on the local network, you can send the command in a
09:59 13 fast manner. So when the user hits pause, it takes
09:59 14 effect.
09:59 15 If you needed to go to an external server,
09:59 16 this command needs -- usually these servers are, like,
09:59 17 hundreds of miles away from your home. So the command
09:59 18 needs to go to the server and then come back to the
09:59 19 Chromecast and that will take time.
09:59 20 Q. I've heard of something called "latency."
09:59 21 Is that latency?
09:59 22 A. Correct.
09:59 23 Q. Were there any other reasons that you designed
09:59 24 the Chromecast architecture to work on the local
09:59 25 network?

09:59 1 A. Yeah. So the other one is to make sure that
09:59 2 it is easy to set up and we don't need to worry the
09:59 3 users with a cumbersome setup. We needed to have -- we
09:59 4 wanted to have it set up in, like, less than two
09:59 5 minutes. And all you need to do is just bring the
09:59 6 Chromecast on the local network.
09:59 7 And then there's also a privacy reason,
10:00 8 privacy and security reason, where we wanted to make
10:00 9 sure that only users that you gave your WiFi password
10:00 10 to -- this is how they can connect to the local WiFi
10:00 11 network -- can send content to your TV.
10:00 12 Otherwise, other people can just -- what we
10:00 13 call rickrolling -- they can send video to your TV
10:00 14 without your knowledge.
10:00 15 Q. So did your -- you and your team deliberately
10:00 16 design the architecture of Chromecast for the second
10:00 17 screen, or the phone, to talk directly to the display
10:00 18 device over the local network?
10:00 19 A. Correct.
10:00 20 Q. Now, just to make sure I understand the
10:00 21 pieces, did that -- let's say if you wanted to press
10:00 22 play, start your video, did that command go from the
10:00 23 phone to the display?
10:00 24 A. Yes. We establish a specific local channel on
10:00 25 that local WiFi network where we send the command

10:00 1 directly from the phone to the Chromecast.
10:00 2 Q. If you press play, does it go off to a server
10:00 3 and then back down to the TV?
10:01 4 A. No.
10:01 5 Q. Same for fast forward, rewind, all those
10:01 6 commands, does it go like that?
10:01 7 A. No.
10:01 8 Q. Does it always go directly, as you designed
10:01 9 the architecture, from that phone or second screen to
10:01 10 the display?
10:01 11 A. Yes.
10:01 12 Q. Was that a deliberate design choice?
10:01 13 A. Yes.
10:01 14 Q. Are there any external servers involved in the
10:01 15 communication between that second screen and the TV as
10:01 16 you designed Chromecast?
10:01 17 A. No.
10:01 18 Q. And that -- we've been talking about your
10:01 19 design.
10:01 20 For the product that launched, were there any
10:01 21 external servers involved in that communication?
10:01 22 A. No.
10:01 23 Q. Okay. Is there a name in the industry -- or
10:01 24 in work with Google and your work in the industry that
10:01 25 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
10:01 term?
10:01 A. Well, peer-to-peer, it means that there is no
10:01 server-client relationship. Everybody here -- the
10:01 different component on the network are equal and they
10:01 are talking to each other directly.
10:01 Q. Kind of like you and I are, right? Is this
10:02 peer-to-peer?
10:02 A. Yes.
10:02 Q. If I ask someone to tell you something and
10:02 they told you, and then they -- you told them and they
10:02 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
10:02 client-server architecture for communications and
10:02 commands between the phone and the display?
10:02 A. No.
10:02 Q. Okay. The concept that you came up with and
10:02 pitched to Google when you first started, was that
10:02 peer-to-peer?
10:02 A. Yes.
10:02 Q. The concept that was reflected in the software

10:02 1 prototype, was that peer-to-peer?
10:02 2 A. Yes.
10:02 3 Q. How about that hardware prototype, was that
10:02 4 peer-to-peer?
10:02 5 A. Yes.
10:02 6 Q. How about the product that launched?
10:02 7 A. It was peer-to-peer.
10:02 8 Q. Okay. Let's talk a little bit about the goals
10:02 9 for Chromecast.
10:02 10 Did you -- did you have a market you intended
10:02 11 for the Chromecast products?
10:02 12 A. Yes.
10:02 13 Q. What was that market?
10:02 14 A. It was the users in their home, so what we
10:02 15 call consumers. We wanted to reach all HDTVs that have
10:03 16 an HDMI port, because this is how the Chromecast work,
10:03 17 you plug it into the HDMI port, and provide them with
10:03 18 the choices of getting all the streaming services on
10:03 19 their TVs.
10:03 20 Q. Okay. Did -- was Chromecast aimed at the
10:03 21 business market?
10:03 22 A. No.
10:03 23 Q. When did Chromecast launch?
10:03 24 A. In -- on July 24, 2013.
10:03 25 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
10:03 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
10:03 steps in your development process, and I want to talk
10:03 with you about that in a more concrete way.
10:03 MR. LANIER: But first I need to grab a
10:03 binder for you, if the Court will let me grab that and
10:03 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
10:04 exhibits in it, not that many -- in front of you.
10:04 I'd like you to open up to the first tab of
10:04 that binder.
10:04 MR. LANIER: And just for the record,
10:04 we're not putting it up yet. It's Defendant's Trial
10:04 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
10:04 you recognize it to be?
10:04 A. This is the presentation that we used to have
10:04 our strategy session discussions.
10:04 Q. And you said "we." Who was the we that was
10:04 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
10:04 together Chromecast?
10:04 A. Yes.
10:04 Q. And did you prepare this document in the
10:05 ordinary course of your business at Google?
10:05 A. Yes.
10:05 Q. Were you personally involved in its
10:05 preparation?
10:05 A. Yes.
10:05 MR. LANIER: Your Honor, we move
10:05 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 1 Q. So this is the first page of that. It says:
10:05 2 Google TV: Big bets for 2012.
10:05 3 Do you see that?
10:05 4 A. Yes.
10:05 5 Q. It's also on the screen, if it helps you, sir.
10:05 6 Whatever's easier for you.
10:05 7 What did you mean by that title?
10:05 8 A. So "big bets" is basically what we want to
10:05 9 deliver to users as part of our product and
10:05 10 functionality in 2012. It's where we want to put our
10:05 11 resources and investment on the Google TV team.
10:05 12 Q. You mentioned a strategy offsite.
10:05 13 Was it to talk about the big choices for the
10:05 14 future for Google TV?
10:05 15 A. Yes.
10:05 16 Q. When was that strategy offsite?
10:05 17 A. In September time frame of 2011.
10:05 18 Q. Were you -- you were personally involved in
10:05 19 preparing this document?
10:05 20 A. Yes.
10:05 21 Q. Is what became Chromecast discussed in this
10:06 22 document?
10:06 23 A. Yes.
10:06 24 Q. Let's take a look at something. Would you
10:06 25 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
10:06 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
10:06 of all, how does the HDMI dongle relate to Chromecast?
10:06 A. At this time we didn't have a name for the
10:06 product. So we were just describing it because it is a
10:06 dongle that goes into the HDMI port of your TV. This
10:06 is the Chromecast.
10:06 Q. Okay. So you were just calling it that at
10:06 this point?
10:06 A. Yes.
10:06 Q. What did it mean to list it on the -- list of
10:06 bets?
10:06 A. It means this is one of the bets that we want
10:06 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
10:06 this document.
10:07 It says "HDMI dongle," and there's a lot of
10:07 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
10:07 concept?
10:07 A. Yes.
10:07 Q. That first thing says: Low-priced HDMI dongle
10:07 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
10:07 about what would eventually become Chromecast by
10:07 September of 2011?
10:07 A. That's correct.
10:07 Q. How about that second bullet? Discover and
10:07 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
10:07 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 1 put together a product requirement document?
10:08 2 A. Yes.
10:08 3 Q. Okay. Again, in your binder, sir, it should
10:08 4 be the second tab, is Defendant's Trial Exhibit 441.
10:08 5 Would you take a look at that? It should be
10:08 6 Tab 2 there.
10:08 7 A. Yeah.
10:09 8 Q. Oh, you have it in front of you. Thank you.
10:09 9 Do you recognize that?
10:09 10 A. Yes. I do.
10:09 11 Q. Is that a product requirement document related
10:09 12 to Chromecast that your team put together?
10:09 13 A. Yes.
10:09 14 Q. Did -- were you personally involved in putting
10:09 15 that together?
10:09 16 A. Yes. I did.
10:09 17 Q. Did you work on -- with you and your team, put
10:09 18 that together in the ordinary course of Google's
10:09 19 business?
10:09 20 A. Yes.
10:09 21 MR. LANIER: Your Honor, we move
10:09 22 admission of Defendant's Trial Exhibit 441.
10:09 23 MR. DYKAL: No objection.
10:09 24 THE COURT: Admitted.
10:09 25 MR. LANIER: Thank you.

10:09 1 BY MR. LANIER:
10:09 2 Q. So Mr. McDonald has kindly brought that up.
10:09 3 Would you --
10:09 4 MR. LANIER: Great. Thank you for making
10:09 5 that page bigger.
6 BY MR. LANIER:
10:09 7 Q. So PRD, is that a product requirement
10:09 8 document?
10:09 9 A. Yes.
10:09 10 Q. It says "Eureka PRD." What's Eureka?
10:09 11 A. Eureka is the code name for Chromecast. Every
10:09 12 project at Google, we give to it a code name so we can
10:09 13 refer to it before it launches. It's not the public
10:09 14 name.
10:09 15 Q. So in September at the strategy offsite, it
10:09 16 was HDMI dongle. Now it's Eureka; is that correct?
10:09 17 A. Yes.
10:09 18 Q. Okay. And so what's the purpose -- it says
10:09 19 "Vision" up at the top there.
10:10 20 What's the purpose of that section?
10:10 21 A. So this section describes what we want to
10:10 22 accomplish with this product. It talks about some of
10:10 23 the high-level concept there. Like, for example, the
10:10 24 price, what it is -- it's not a general purpose
10:10 25 product. It is specifically about playing video and

10:10 1 audio.
10:10 2 It talks about, like, we don't want to have a
10:10 3 physical remote. We want to use the second screen
10:10 4 aspect for discovery. And we do talk also about the
10:10 5 form factor.
10:10 6 Q. So it says -- there's a few different things
10:10 7 here, but Bullet No. 3: No physical remote, all UI
10:10 8 interaction and control on the second screen, only
10:10 9 audio/video on the TV screen.
10:10 10 Do you see that there?
10:10 11 A. Yes.
10:10 12 Q. Was that part of the more concrete vision for
10:10 13 Chromecast by the time of this PRD?
10:10 14 A. That's correct.
10:10 15 Q. No. 4: Small, memory stick-like form factor
10:10 16 and easy setup.
10:10 17 Was that part of the vision by the time of
10:11 18 this document?
10:11 19 A. Yes.
10:11 20 Q. And did the team think that these different
10:11 21 aspects of the vision, these key aspects, were
10:11 22 achievable when you put this together?
10:11 23 A. Yes.
10:11 24 Q. Did you end up achieving them?
10:11 25 A. Yes. We did.

10:11 1 Q. How -- what was product that ended up
10:11 2 achieving them?
10:11 3 A. Chromecast.
10:11 4 Q. Did the Chromecast product as launched meet
10:11 5 most of these key aspects?
10:11 6 A. Yes.
10:11 7 Q. Did it end up selling for 24.99?
10:11 8 A. Okay. Sorry. So not the price. We couldn't
10:11 9 meet the price. It started at $35.
10:11 10 Q. That's right.
10:11 11 And the -- the price, what was the reason why
10:11 12 you couldn't quite meet that price, that original goal?
10:11 13 A. It cost us more to build it. The components
10:11 14 were more expensive than we thought, and building them,
10:11 15 it was -- we didn't have that experience. So we don't
10:11 16 know initially. But as we learned, the cost increased.
10:11 17 Q. By "components," you mean the physical
10:11 18 things --
19 A. Yes.
10:11 20 Q. -- like the chips and the wires and all that?
10:11 21 A. Yes.
10:11 22 Q. Thank you, sir.
10:11 23 Now, is this -- a PRD like this, is this what
10:12 24 we call a living document? You start with one, you add
10:12 25 to it, it grows, it evolves?

10:12 A. Yes. It does.
10:12 Q. Does this show a state of the development
10:12 of -- of the Eureka project or Chromecast project as of
10:12 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
10:12 session. So it's in October time frame of 2011.
10:12 Q. And did you continue to work on it after
10:12 October?
10:12 A. Yes.
10:12 Q. So if there were other versions of this, they
10:12 just reflect your ongoing work at different points; is
10:12 that fair?
10:12 A. That's fair.
10:12 Q. Okay. Let's look quickly at one other piece
10:12 of this. Would you turn to the page marked 13? And
10:12 Mr. McDonald will put it up there too.
10:12 It's tiny -- on your copy, sir, it's tiny
10:12 little letters. But there's a picture up at the top of
10:12 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
10:12 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
10:13 Chromecast on your local network.
10:13 Q. And are there any -- is there a TV and a
10:13 second screen involved here?
10:13 A. Yeah. So if you look at the left side here,
10:13 it describes what is happening on the TV screen from
10:13 the Chromecast. And on the right side, it is what's
10:13 called the second screen. That describes what's
10:13 happening on your phone.
10:13 Q. Are there any external servers between that TV
10:13 and the second screen?
10:13 A. No.
10:13 Q. It's on the same -- is it on the same WiFi
10:13 network as you conceived it in this diagram?
10:13 A. Yes.
10:13 Q. Is this -- literally I've heard of whiteboard
10:13 drawings.
10:13 Is this literally a whiteboard of it?
10:13 A. Yes. We drew it on the whiteboard in a
10:13 conference room and then took a picture.
10:13 Q. And did the product that released meet this
10:13 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

10:13 of this one, Page 14.

BY MR. LANIER:

10:13 Q. That's the next page here. Top half there

10:13 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

10:14 libraries available on Chromecast. In the TV space,

10:14 content is king. If you don't have enough content or

10:14 the content that people want to watch, the product will

10:14 not be successful.

10:14 Q. Just to be really clear, make sure I've got

10:14 it, "content," you mean like the videos, the movies,

10:14 whatever?

10:14 A. Yes.

10:14 Q. Okay. And was it important in developing

10:14 Chromecast to think about what content you'd have

10:14 available when you first sold it?

10:14 A. Yes.

10:14 Q. Was your team already, by the time of this

10:14 document, thinking about and starting to work with

10:14 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.
10:14 Do you see that?
10:14 A. Yes.
10:14 Q. Now, was YouTube content available to Google
10:14 when the Chromecast launched?
10:15 A. Yes.
10:15 Q. Did that provide an advantage for Chromecast
10:15 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.
10:15 Thank you.
10:15 BY MR. LANIER:
10:15 Q. So after you -- so you had an idea, you had an
10:15 offsite, and you said, Let's try it. You wrote a
10:15 product requirements document.
10:15 What was the next step in moving forward with
10:15 Chromecast?
10:15 A. Next step is to build the prototypes to

10:15 1 validate the idea. And we started with the software
10:15 2 prototype first and then the hardware prototype, make
10:15 3 sure that we -- we understand all the use cases,
10:15 4 develop the detail design, and then execute on that.
10:15 5 To execute on this and get it to production,
10:15 6 it takes a long time.
10:15 7 Q. Did you have to get approval from even higher
10:15 8 levels of management to say, Let's invest some money,
10:15 9 let's go forward?
10:15 10 A. Yes.
10:15 11 Q. Did you prepare a presentation to the higher
10:15 12 levels of management to get that approval?
10:15 13 A. Yes. We did.
10:15 14 Q. Would you turn to Tab 3 of your binder? It's
10:16 15 Defendant's Trial Exhibit 639.
10:16 16 Take a moment, glance at it, sir, tell me if
10:16 17 you recognize it.
10:16 18 A. I do.
10:16 19 Q. What do you recognize it to be?
10:16 20 A. This is a presentation we made to the senior
10:16 21 vice president of the division, Salar.
10:16 22 Q. And when did you make this presentation?
10:16 23 A. On December 2011.
10:16 24 Q. Okay. And did you -- were you involved in
10:16 25 preparing this presentation?

10:16 1 A. Yes.
10:16 2 Q. Were others on the Chromecast team involved in
10:16 3 it?
10:16 4 A. Yes.
10:16 5 Q. Now, you were making it to a senior vice
6 president.
10:16 7 Is that a pretty important person?
10:16 8 A. He's a big deal.
10:16 9 Q. Did you work hard on getting this presentation
10:16 10 done right?
10:16 11 A. Yes.
10:16 12 Q. And did you prepare it with others at Google
10:16 13 in the ordinary course of your work at Google?
10:16 14 A. Yes.
10:16 15 MR. LANIER: Your Honor, we move
10:16 16 admission of Defendant's Trial Exhibit 639.
10:16 17 MR. DYKAL: No objections.
10:16 18 THE COURT: Be admitted.
10:16 19 MR. LANIER: Thank you.
10:16 20 BY MR. LANIER:
10:16 21 Q. So let's just go to a couple of pages of this
10:17 22 really quickly.
10:17 23 By this point, you had already built your
10:17 24 software prototype, right?
10:17 25 A. Yes.

10:17 1 Q. Okay.
10:17 2 MR. LANIER: Let's turn to Page 3.
3 BY MR. LANIER:
10:17 4 Q. "Dongle status." Do you see that?
10:17 5 A. Yes.
10:17 6 Q. Generally, what does this page describe?
10:17 7 A. Describes the status of this project, giving a
10:17 8 high-level update to Salar about where we are on this
10:17 9 and if we need help.
10:17 10 Q. The first bullet says: Conversations in
10:17 11 progress with many potential SoC vendors to get a
10:17 12 handle on parts and BOM costs.
10:17 13 Do you see that there?
10:17 14 A. Yes.
10:17 15 Q. Just to make sure I've got a couple of things.
10:17 16 SoC, what's that?
10:17 17 A. SoC is the first to system on a chip. This is
10:17 18 basically -- in consumer electronic, when you put the
10:17 19 heart of the processing, the CPU, of the component,
10:17 20 that we put it all on one chip and that's called
10:17 21 "system on a chip."
10:17 22 Q. And there's BOM. What's that?
10:17 23 A. BOM is the bill of material, basically the
10:18 24 different component that make up a device and how much
10:18 25 they cost.

10:18 Q. So by this point, are you already talking with
10:18 people who might provide those parts to figure out what
10:18 they could do and how much it would cost?
10:18 A. Yes.
10:18 Q. There's a bullet there that says "TI..."
10:18 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
10:18 on.
10:18 Do you see all that?
10:18 A. Yes.
10:18 Q. Was the Chromecast team already engaging
10:18 directly with potential components suppliers by this
10:18 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.
10:18 That third bullet: Speaking with content
10:18 providers on requirements, starting with YouTube.
10:18 Do you see that?
10:18 A. Yes.
10:18 Q. By December of 2011, was the Chromecast team

10:18 1 already engaging with these content providers?
10:18 2 A. Yes.
10:18 3 Q. So this work then led to the launch of
10:18 4 Chromecast in July of 2013, correct?
10:19 5 A. Correct.
10:19 6 Q. So that's about a year and a half.
10:19 7 Why'd it take so long?
10:19 8 A. Because it takes a while for -- from the time
10:19 9 you build a prototype until you have the software
10:19 10 completely tested and in high quality to make it
10:19 11 available to users. That usually involves a lot of
10:19 12 iteration, involves a lot of testing.
10:19 13 At the same time, since we need to work with
10:19 14 content provider, we needed to first develop our SDK,
10:19 15 make it available to these content providers so they
10:19 16 could incorporate it into their apps on the phone.
10:19 17 And then once they incorporate it, we need to
10:19 18 give them technical support. And then we need to also
10:19 19 make sure that this integration is seamless, it is
10:19 20 properly tested. Because we care a lot about the
10:19 21 quality in what we are providing to our users and
10:19 22 wanting to make sure that we are providing the highest
10:19 23 quality to them.
10:19 24 Q. And did you work hard on getting a quality
10:19 25 product?

10:19 A. Absolutely.
10:19 Q. Thank you.
10:19 All right. We're going to turn to a couple of
10:20 other topics. I'm almost done with my questions for
10:20 you, sir.
10:20 You personally, have you personally been
10:20 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
10:20 Chromecast?
10:20 A. Yes.
10:20 Q. Now, you understand that we're here -- you're
10:20 here in this courtroom for the first time today because
10:20 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
10:20 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
10:20 product or anything like that?

10:20 1 A. No.
10:20 2 Q. Did you -- are you intending to be
10:20 3 disrespectful or dismissive of Touchstream?
10:20 4 A. Absolutely not.
10:20 5 Q. Over the course of your work at Google, have
10:20 6 you met with people who thought about maybe we could do
10:20 7 a deal with Google?
10:20 8 A. Yes. Many.
10:20 9 Q. That happens a lot?
10:20 10 A. A lot.
10:20 11 Q. Do you remember all of those meetings?
10:21 12 A. No.
10:21 13 Q. Do you remember meetings that lead to
10:21 14 something?
10:21 15 A. Usually.
10:21 16 Q. In developing Chromecast, did you -- did you
10:21 17 and your team drive the development of Chromecast?
10:21 18 A. Yes.
10:21 19 Q. Did you do that work yourselves?
10:21 20 A. Yes.
10:21 21 Q. Did you learn anything from Touchstream that
10:21 22 helped you do that development work?
10:21 23 A. No.
10:21 24 Q. Did you have the work done by December of 2011
10:21 25 that we've described, that idea, the concept card, the

10:21 1 PRD, the presentation to upper management, the vendors,
10:21 2 all that by December of 2011?
10:21 3 A. Yes.
10:21 4 Q. So Chromecast released ten years ago?
10:21 5 A. Yes.
10:21 6 Q. Is your team proud of the work?
10:21 7 A. Very proud.
10:21 8 Q. Are you proud of your team?
10:21 9 A. I'm very proud of them.
10:21 10 Q. Do you think your wife will be happy with what
10:21 11 you contributed to?
10:21 12 A. She is.
10:21 13 Q. Thank you, sir.
10:21 14 MR. LANIER: I have no more questions at
10:21 15 this time.
10:21 16 THE WITNESS: Thank you.
10:21 17 CROSS-EXAMINATION
10:21 18 BY MR. DYKAL:
10:22 19 Q. Good morning, sir.
10:22 20 A. Hello.
10:22 21 Q. I want to ask you a few questions about your
10:22 22 testimony this morning.
10:22 23 Now, you said that you first came up with this
10:22 24 idea back in 2010 when you were watching your wife,
10:22 25 correct?

10:22 1 A. Yes.
10:22 2 Q. You never attempted to build a prototype back
10:22 3 then, did you?
10:22 4 A. Not in 2010.
10:22 5 Q. You said you didn't intend to build -- you
10:22 6 didn't start to build a prototype until you were
10:22 7 working at Google, correct?
10:22 8 A. Yes.
10:22 9 Q. And you said you began building prototypes in
10:23 10 October or November of 2011?
10:23 11 A. Yes.
10:23 12 Q. You didn't show any prototype code today, did
10:23 13 you?
10:23 14 A. No.
10:23 15 Q. Does Google store code that people write?
10:23 16 A. Yes.
10:23 17 Q. And you didn't provide any of that code today,
10:23 18 did you?
10:23 19 A. No.
10:23 20 Q. And there's no way to date the prototype that
10:23 21 you say you created, correct?
10:23 22 A. No.
10:23 23 Q. Now, in talking about how Chromecast works, do
10:23 24 you recall saying that it operated in a peer-to-peer
10:23 25 fashion?

10:23 1 A. Yes.
10:23 2 Q. Isn't it true that in that peer-to-peer model,
10:23 3 there's most likely a server running on that Chromecast
10:23 4 to receive messages from the phone?
10:23 5 A. It is -- it is probable. Yes.
10:23 6 Q. It's probable that there's a server running on
10:23 7 that Chromecast in the peer-to-peer situation to
10:24 8 receive messages from that phone, correct?
10:24 9 A. It is.
10:24 10 Q. Thank you.
10:24 11 I'd like to take a look at a couple of the
10:24 12 documents you discussed. Is that okay?
10:24 13 Could you turn to Document No. 1 in your
10:24 14 notebook?
10:24 15 A. My document?
10:24 16 Q. So this document says: Google TV big bets for
10:24 17 2012. Correct?
10:24 18 A. Correct.
10:24 19 Q. And you said this was a document created in
10:24 20 September 2011, correct?
10:24 21 A. Yes.
10:24 22 Q. Would you agree there's no date on this
10:24 23 document that says September 2011?
10:24 24 A. Not on this document.
10:24 25 Q. You'd agree the only date is on that front

10:24 1 page that says "big bets for 2012," correct?
10:24 2 A. Yes.
10:24 3 Q. Now, assuming that this was created in
10:24 4 September 2011, would you agree that's after
10:25 5 April 2011?
10:25 6 A. Yes.
10:25 7 Q. Are you aware that Touchstream's patents were
10:25 8 filed in April of 2011?
10:25 9 A. I'm not.
10:25 10 Q. You don't have any reason to disagree with
10:25 11 that, though, right?
10:25 12 A. No.
10:25 13 Q. Let's take a quick look at that document.
10:25 14 Could you turn to the second page? Working
10:25 15 Assumptions, do you see it says: Need to find areas of
10:25 16 large investments?
10:25 17 A. Yes.
10:25 18 Q. Would you agree that this document is
10:25 19 discussing areas to investigate for investment?
10:25 20 A. Areas -- areas that we want to invest in.
10:25 21 Q. So could you turn to the next page?
10:26 22 You discussed that the HDMI dongle is what you
10:26 23 referred to as what would become the Chromecast,
10:26 24 correct?
10:26 25 A. Yes.

10:26 1 Q. Could you go to the next page?
10:26 2 And then you discuss these bullet points on
10:26 3 that HDMI dongle, correct?
10:26 4 A. Yes.
10:26 5 Q. Now, that top bullet point says: Low-priced
10:26 6 HDMI dongle with built-in GTV player.
10:26 7 Do you see that?
10:26 8 A. Yes.
10:26 9 Q. Does GTV player refer to the Google TV
10:26 10 operating system?
10:26 11 A. Yes.
10:26 12 Q. So the idea of this slide was to build a
10:26 13 dongle with Google TV operating system on it, correct?
10:26 14 A. Actually, not necessarily. It -- it talks
10:26 15 about having the player that is part of the Google TV
10:26 16 platform but not the whole platform.
10:26 17 Q. Okay. But you'd agree this slide says: The
10:26 18 low-priced HDMI dongle would have a built-in Google TV
10:26 19 player. Correct?
10:26 20 A. That's what it says. Yes.
10:26 21 Q. The Chromecast that was released in 2013, did
10:26 22 it run Google TV operating system?
10:26 23 A. No.
10:26 24 Q. It ran Chrome browser, correct?
10:27 25 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
10:27 slide. Do you see that Bullet Point 2 and then the
10:27 little bullet under that?
10:27 So first, that bullet says: Discover and
10:27 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
10:27 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
10:27 it?
10:27 A. At the time of that, we had an Alf
10:27 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 1 So Tab 3, this is the document you said -- you
10:28 2 discussed where you were supposedly pitching Google
10:28 3 management, correct?
10:28 4 A. We were getting approval. Yes.
10:28 5 Q. Would you agree there's no date on this
10:28 6 document?
10:28 7 A. Yes.
10:28 8 Q. Okay. Could you turn to Page 2?
10:28 9 A. Yes.
10:28 10 Q. I'm sorry. Tab 2.
10:28 11 A. Oh, Tab 2.
10:28 12 Q. Thank you.
10:28 13 So this is the PRD document for Chromecast you
10:29 14 were discussing?
10:29 15 A. Yes.
10:29 16 Q. And you say this was created in October 2011?
10:29 17 A. Yes.
10:29 18 Q. You'd agree there's no date of October 2011 on
10:29 19 this document?
10:29 20 A. Yes.
10:29 21 Q. Now, when Mr. Strober was testifying, the jury
10:29 22 heard some discussion of metadata.
10:29 23 Are you familiar with metadata?
10:29 24 A. Yes.
10:29 25 Q. And are you familiar with the concept of a

10:29 1 file modified date?
10:29 2 A. Yes.
10:29 3 Q. And that's the last date that a file was
10:29 4 modified, correct?
10:29 5 A. Yes.
10:29 6 Q. Are you aware that the last date that this
10:29 7 document was modified was June 13th, 2022?
10:29 8 A. No.
10:29 9 Q. Are you aware that that's a year after this
10:29 10 lawsuit was filed?
10:29 11 A. Yes.
10:29 12 Q. Let's take a look at some of the items in
10:29 13 this.
10:29 14 Could you go to 194? The -- I'm sorry. So at
10:30 15 the bottom of the pages, there're little numbers. Do
10:30 16 you see them? They're kind of small.
10:30 17 Could you go to the one ending in 194?
10:30 18 A. Yes.
10:30 19 Q. Do you see at the top, it says: Cloud
10:30 20 discovery and pairing. On the top left, where it says:
10:30 21 Cloud discovery and pairing.
10:30 22 A. Yeah.
10:30 23 Q. That's the concept of discovering a Chromecast
10:30 24 and pairing with it with a phone, correct?
10:30 25 A. Yes.

10:30 1 Q. And what's the cloud?
10:30 2 A. Cloud? It's basically servers in the clouds.
10:30 3 Q. So this is discussing using servers in the
10:30 4 cloud to discover and pair with the Chromecast,
10:30 5 correct?
10:30 6 A. Can I read what's written?
10:30 7 Q. Sure.
10:30 8 A. Yes. This is at the time before we -- we
10:31 9 built -- we evolved our thinking. We were thinking
10:31 10 that we cannot -- from a web application, not from a
10:31 11 mobile phone, we cannot use SSDP.
10:31 12 Q. Okay. But you'd agree that the cloud is
10:31 13 servers in the Internet, and this is talking about
10:31 14 pairing and discovery through the Internet, correct?
10:31 15 A. Yes.
10:31 16 Q. And then it says you need a mechanism to
10:31 17 discover the second screen device, correct?
10:31 18 A. For this particular case, yes.
10:31 19 Q. So at this time, you still needed a mechanism
10:31 20 to do that, correct?
10:31 21 A. Yes.
10:31 22 Q. Could you turn two more pages to 196?
10:31 23 So this page is entitled Eureka Protocol and
10:31 24 Architecture, and that's the Chromecast protocol and
10:31 25 architecture, correct?

10:31 1 A. Yes.
10:31 2 Q. Could you look at No. 3?
10:32 3 A. Yes.
10:32 4 Q. It says: Launch and control an app on the TV
10:32 5 device from the second screen.
10:32 6 Do you see that?
10:32 7 A. Yes.
10:32 8 Q. And then the bullet under that says: This
10:32 9 would likely imply two-way communication.
10:32 10 Do you see that?
10:32 11 A. Yes.
10:32 12 Q. Do you agree that at this time, you didn't
10:32 13 know whether it would -- whether it would require
10:32 14 two-way communication?
10:32 15 A. No. We knew.
10:32 16 Q. This says it "would likely imply," doesn't it?
10:32 17 A. That -- that's most likely the way it is
10:32 18 written, but we definitely knew that we needed two-way
10:32 19 communication.
10:32 20 Q. Okay. But the document says it would imply
10:32 21 it, correct?
10:32 22 A. Yes.
10:32 23 Q. Could you turn back to Page 189? I'm sorry.
10:33 24 I'm sorry. 190. I'm sorry. 191. I'm sorry.
10:33 25 Okay. So this is the diagram you discussed

10:33 1 with Mr. Lanier, correct?
10:33 2 A. Yes.
10:33 3 Q. And I think you also said that this was a
10:33 4 living document, some multiple versions were created
10:33 5 over time?
10:33 6 A. Yes.
10:33 7 Q. Okay. So before this page, if you go back two
10:33 8 pages to the page ending in 189, before that document,
10:33 9 do you see a screenshot of a phone?
10:33 10 A. Yes.
10:33 11 Q. Do you see that Tweet from Lady Gaga that
10:33 12 says: I'm sort of obsessed with these little cuties?
10:33 13 A. Yes.
10:33 14 Q. Do you know the date of that Tweet?
10:33 15 A. No.
10:34 16 Q. Did you know the date of that Tweet is
10:34 17 March 8th, 2012?
10:34 18 A. I'll take your word for it.
10:34 19 Q. You don't have any reason to disagree with
10:34 20 that, correct?
10:34 21 A. No.
10:34 22 Q. Okay. You can set that aside.
10:34 23 Now, you don't remember -- well, you say you
10:34 24 don't remember meeting with Touchstream, correct?
10:34 25 A. Yes.

10:34 1 Q. You don't deny that that happened, do you?
10:34 2 A. No.
10:34 3 Q. You've seen the calendar invites and the
10:34 4 e-mails, correct?
10:34 5 A. Yes.
10:34 6 Q. And you don't have any reason to doubt that a
10:34 7 nondisclosure agreement was executed between
10:34 8 Touchstream and Google, correct?
10:34 9 A. Correct.
10:34 10 Q. And you'd agree that a nondisclosure agreement
10:34 11 is in place to protect a party's confidential
10:34 12 information being used improperly, correct?
10:35 13 A. Yes.
10:35 14 Q. So those meetings, you understand, happened in
10:35 15 December of 2011 and January of 2012, correct?
10:35 16 A. Yes.
10:35 17 Q. And when -- you say you were working on this
10:35 18 beforehand, correct?
10:35 19 A. Yes.
10:35 20 Q. And you don't recall meeting with Touchstream
10:35 21 and saying, Hey. You need to stop. I'm already
10:35 22 working on something like this, correct?
10:35 23 A. I don't recall.
10:35 24 Q. You don't remember thinking, Oh, man. These
10:35 25 guys are working on something just like what I'm doing,

10:35 1 correct?
10:35 2 A. No.
10:35 3 Q. And then you continued working on Chromecast
10:35 4 in your telling, correct?
10:35 5 A. Yes.
10:35 6 Q. You didn't isolate, correct? After you
10:35 7 learned any information -- and I understand you don't
10:35 8 remember it.
10:35 9 But you didn't isolate from that project, did
10:35 10 you?
10:35 11 A. I did not isolate.
10:35 12 MR. DYKAL: No further questions.
13 MR. LANIER: Just a few questions, Your
10:35 14 Honor. Thank you.
10:35 15 REDIRECT EXAMINATION
10:35 16 BY MR. LANIER:
10:36 17 Q. Mr. Bakar, when were you married?
10:36 18 A. August 9, 1997.
10:36 19 Q. Why do you remember that date?
10:36 20 A. It's an important date for me.
10:36 21 Q. Do you remember important dates in a business
10:36 22 context?
10:36 23 A. Yes.
10:36 24 Q. Do you remember presenting to a VP at Google
10:36 25 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
10:36 Chromecast, that you considered many different possible
10:36 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
10:36 enable. So you explore, okay. A user wants to do
10:36 Action A. How do we do that? Or a user wants to do
10:36 Action B.
10:36 And then at some -- sometime over the course
10:36 of the development, we realized this Scenario B doesn't
10:36 make sense or we want to implement it differently. So
10:36 things change as we move forward in our development.
10:37 Q. So is it possible that for some use cases, you
10:37 might be thinking of one plan of action, for other use
10:37 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
10:37 consider?
10:37 A. No.
10:37 Q. Does the team freely exchange ideas within

10:37 1 Google?
10:37 2 A. Yes.
10:37 3 Q. Does every idea make it out into the final
10:37 4 product?
10:37 5 A. No.
10:37 6 Q. Even as you're considering different use
10:37 7 cases, did the basic architecture of Chromecast change
10:37 8 from its original conception?
10:37 9 A. No.
10:37 10 Q. Okay. Now, let's talk about another way to
10:37 11 remember things.
10:37 12 Do you remember the sequence of events?
10:37 13 A. Yes.
10:37 14 Q. Do you remember that there was an idea?
10:37 15 A. Yes.
10:37 16 Q. Do you remember pitching it to Google in your
10:37 17 interview?
10:37 18 A. Yes.
10:37 19 Q. Do you remember starting to work on it when
10:37 20 you were at Google?
10:37 21 A. Yes.
10:37 22 Q. Do you remember that strategy offsite?
10:37 23 A. Yes.
10:37 24 Q. Do you remember the -- putting together the
10:37 25 PRD?

10:37 1 A. Yes.
10:37 2 Q. Do you remember that big presentation to
10:38 3 management?
10:38 4 A. Yes.
10:38 5 Q. Was that all done by December 2011?
10:38 6 A. Yes.
10:38 7 Q. Do you remember engaging with outside vendors,
10:38 8 We want to build this thing with these pieces?
10:38 9 A. Yes.
10:38 10 Q. Was that done by December of 2011?
10:38 11 A. Yes.
10:38 12 Q. Do you remember talking with content
10:38 13 providers, We've got this idea. We'd love to have your
10:38 14 movies on it?
10:38 15 A. Yes.
10:38 16 Q. Was that started by December of 2011?
10:38 17 A. Yes.
10:38 18 Q. Okay. Couple of other questions for you.
10:38 19 There was a discussion of a server on the
10:38 20 Chromecast.
10:38 21 Do you recall that?
10:38 22 A. Yes.
10:38 23 Q. That's software, right?
10:38 24 A. Correct.
10:38 25 Q. And that's on the Chromecast dongle itself,

10:38 1 correct?
2 A. Correct.
10:38 3 Q. Is there a server between the Chromecast and
10:38 4 the phone in their communication?
10:38 5 A. Never.
10:38 6 Q. Was it designed that way?
10:38 7 A. Yes.
10:38 8 Q. Was that an intentional choice?
10:38 9 A. It is intentional.
10:38 10 Q. Now, are there servers out in the cloud that
10:38 11 somehow relate to the user's experience of casting?
10:38 12 A. Yes.
10:38 13 Q. The phone says, I want to watch this movie.
10:39 14 Where does the TV get that movie?
10:39 15 A. The TV streams it directly from Netflix or
10:39 16 Hulu or whoever that -- that content provider from
10:39 17 their servers.
10:39 18 Q. And if you want to press on your phone, I'd
10:39 19 like to watch this movie, does your phone go check to
10:39 20 see if you have a Netflix account?
10:39 21 A. Yes.
10:39 22 Q. But when the phone says, Hey, TV. Or Hey,
10:39 23 display. Play, pause, press -- here's what I want you
10:39 24 to do, is there anything in between them?
10:39 25 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
10:39 Honor.
10:39 MR. DYKAL: Nothing from us, Your Honor.
10:39 THE COURT: May he be excused and remain
10:39 in the courtroom?
10:39 MR. DYKAL: Yes, Your Honor.
10:39 THE COURT: You're free to -- you're out
10:39 from under the rule. You're welcome to stay in the
10:39 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
10:39 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
10:41 gentlemen of the jury, Mr. Robins.
10:41 My name's Tracy Stitt, again, and I
10:41 represent Google.
10:41 DIRECT EXAMINATION

10:41 1 BY MS. STITT:
10:41 2 Q. Mr. Robins, would you please just take a
10:41 3 moment to introduce yourself to the jury and tell them
10:41 4 what it is that you do for a living?
10:41 5 A. Sure.
10:41 6 Hi there. My name is Corey Robins, and I lead
10:41 7 a team of product marketers at Google. And we're
10:41 8 responsible for Google's smart home portfolio,
10:41 9 otherwise known as Google Home or Google Nest or
10:41 10 Chromecast.
10:41 11 Q. Let's talk a little bit about your path, your
10:41 12 career path to that position at Google.
10:41 13 What's your educational background?
10:41 14 A. I graduated from UC Berkeley in 2005 with a
10:42 15 majors in business administration, and then I graduated
10:42 16 from Columbia Business School in 2011 with a master's
10:42 17 in business administration.
10:42 18 Q. And how long have you worked for Google?
10:42 19 A. I started at Google in about 2015.
10:42 20 Q. About how long have you had your current
10:42 21 position as global product marketing director?
10:42 22 I want to make sure I get that right.
10:42 23 A. That's right. I took on this role in about
10:42 24 2019.
10:42 25 Q. Do you have anyone who reports to you,

10:42 1 Mr. Robins?
10:42 2 A. Yes.
10:42 3 Q. About how many people report to you?
10:42 4 A. Roughly 13 people.
10:42 5 Q. And you've mentioned the Google smart home or
10:42 6 Nest portfolio of products. The jury's heard a little
10:42 7 bit about various products at issue in this case.
10:42 8 Do you have a demonstrative that explains the
10:42 9 different groups of products that you're responsible
10:42 10 for?
10:42 11 A. Yes.
10:42 12 MS. STITT: Mr. McDonald, can we pull
10:42 13 that up, please?
10:42 14 A. Great.
10:42 15 BY MS. STITT:
10:42 16 Q. Mr. Robins, can you just walk the jury through
10:42 17 what's shown here?
10:43 18 A. Yes. So this is a subset of Google's total
10:43 19 devices.
10:43 20 THE COURT: Can you all hear him?
10:43 21 THE WITNESS: Can you hear me okay? Oh,
10:43 22 I'll scoot a little closer.
10:43 23 BY MS. STITT:
10:43 24 Q. Maybe if you move the mic a little closer to
10:43 25 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

10:43 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

10:43 sell -- that Google sells for -- in our smart home

10:43 portfolio.

10:43 All of these devices you see here support

10:43 casting. And so the title here is Chromecast products.

10:43 On the left-hand column, you see some of our

10:43 Chromecast devices. On the top, you see our 3rd

10:43 Generation Chromecast and our 1st Generation

10:43 Chromecast. On the bottom is one of our newer

10:43 Chromecasts.

10:43 In the middle we have something called Nest

10:43 speakers, which are smart speakers. You might have

10:43 heard of these.

10:43 On the top right, we have smart displays that

10:43 we also market and sell.

10:43 And then on the bottom right, you see

10:44 something called Chromecast built-in. And there's a

10:44 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

10:45 1 launch by reviewing work, ensuring it met the quality
10:45 2 bar we needed, we had buy-in across the organizations,
10:45 3 those sorts of things.
10:45 4 Q. And in terms of strategic product marketing
10:45 5 for products like Chromecast at Google, can you explain
10:45 6 to the jury a little bit, what does that entail?
10:45 7 A. Absolutely. It's kind of a jargony term. But
10:45 8 basically, we want to ensure that when Google was
10:45 9 building a product, that it's something people actually
10:45 10 want and sort of provides value to people; it's not
10:45 11 just a product for product sake.
10:45 12 And then the second is that we have a way to
10:45 13 explain it to people that's appealing. Because
10:45 14 sometimes even if you solve a need, if you don't
10:45 15 understand it, you know, you're not going to really
10:45 16 consider it. And so we want to make sure we describe
10:45 17 it in a way that people understand.
10:45 18 Q. One of the things you mentioned is you want to
10:45 19 make sure that the product is meeting the needs of the
10:45 20 consumer.
10:45 21 Can you tell the jury, how does Google go
10:45 22 about making sure that it meets a user's needs?
10:45 23 A. Absolutely. At its most basic, we talk to
10:45 24 people. We -- we run focus groups. We do interviews.
10:45 25 We might do quantitative surveys online to get a sense

10:46 1 of where they might have an unmet need or a pain point
10:46 2 with an existing product or service.
10:46 3 Q. Let's talk a little bit about the evolution of
10:46 4 the Chromecast devices from a strategic marketing
10:46 5 perspective, from the original Chromecast to the recent
10:46 6 launch that you mentioned of the Chromecast with Google
10:46 7 TV.
10:46 8 Let's start -- what kind of research does
10:46 9 Google do before launching a product like Chromecast?
10:46 10 A. So we -- we do a lot of research. And we are
10:46 11 trying to answer four types of questions.
10:46 12 The first type of question is really we -- we
10:46 13 call them a target user. But it's who are we building
10:46 14 for? Who's the person we think we want to serve, and
10:46 15 what sort of needs do they have?
10:46 16 The second might be, can we build a product
10:46 17 that meets those needs in a credible or maybe a
10:46 18 differentiated way?
10:46 19 Third would be, do we have a compelling value
10:46 20 proposition or way to explain it? So this would be
10:46 21 like positioning -- what we call positioning research,
10:46 22 which is actually what's the types of words we would
10:47 23 use to describe this to somebody, to that target user.
10:47 24 And then the fourth is really around how do we
10:47 25 best present the story to a user? So that might be

10:47 1 picking a product name, picking the colors of the
10:47 2 product we're going to show, naming features, things of
10:47 3 that nature.
10:47 4 Q. And what about after Google decides to launch
10:47 5 a product? What types of marketing research does
10:47 6 Google perform at that point?
10:47 7 A. At that point, so we do a fair number of
10:47 8 research studies, some of which are publicly available
10:47 9 like social media. We'll sort of get a sense of, you
10:47 10 know, sentiment behind the brand or a product, like are
10:47 11 people liking it, are people unhappy with it and what's
10:47 12 kind of driving that.
10:47 13 But the main thing we do is something called
10:47 14 "net promoter score" or NPS. And what this is is we
10:47 15 basically -- you probably had one of these surveys
10:47 16 before, but ask people. We say: On a scale of one to
10:47 17 ten, how satisfied are you with this product and how
10:47 18 likely are you to recommend it to a friend?
10:48 19 And then we have a little free text box
10:48 20 afterwards that you can type in, you know, here's what
10:48 21 I like or here's what I don't like.
10:48 22 On the back end, we sort of average that out
10:48 23 to see how satisfied people are with the product, and
10:48 24 then we correlate that with the words that you've
10:48 25 input.

10:48 1 And everyone else has to say: When people are
10:48 2 satisfied with the product, what are the things they
10:48 3 talk about? Is it -- is it performance? Is it speed?
10:48 4 Is it design? And when they're really unhappy, what do
10:48 5 they tell us? Is it slow? Is it laggy? Is it buggy?
10:48 6 That kind of thing.
10:48 7 Q. And do you and your team take that
10:48 8 information, all of the research that you have done to
10:48 9 prepare, and you sort of internal documents to capture
10:48 10 your marketing strategy for products like Chromecast?
10:48 11 A. We do.
10:48 12 Q. You have a binder there in front of you, and
10:48 13 it doesn't have any tabs because lucky for you, it only
10:48 14 has one document. If you could pull up that binder,
10:48 15 grab that binder, and take a look at DTX-254.
10:48 16 And tell me if you're familiar with that
10:48 17 document.
18 A. I am familiar with this document.
10:48 19 Q. And what is this document that you're looking
10:48 20 at?
10:48 21 A. So this is something called a Product
10:48 22 Marketing Guide. And I'd say the best way to think
10:49 23 about it is it's kind of a greatest hits of all of the
10:49 24 work that my team has done, that we think other
10:49 25 marketers need to know to bring the product to market

10:49 1 through retail channels, so on.
10:49 2 Q. And you mentioned your team.
10:49 3 Is this a -- did you have any role in
10:49 4 preparing this document?
10:49 5 A. I did. I reviewed and edited this multiple
10:49 6 times.
10:49 7 Q. And what is the approximate date of this
10:49 8 document?
10:49 9 A. The date, I believe, is February 2020. Yes.
10:49 10 MS. STITT: At this point, Your Honor, we
10:49 11 would move to admit into evidence DTX-254.
10:49 12 MR. BERGSTEN: No objections.
10:49 13 THE COURT: Admitted.
10:49 14 MS. STITT: All right. And,
10:49 15 Mr. McDonald, if we could pull up Page 2 of the
10:49 16 document.
17 BY MS. STITT:
10:49 18 Q. Mr. Robins, looking at Page 2, it says
10:49 19 "Sabrina."
10:49 20 What's Sabrina?
10:49 21 A. Yeah. So Sabrina is -- it's a code name.
10:49 22 It's an internal code name that was meant to represent
10:49 23 the Chromecast device we were preparing to launch
10:49 24 called Chromecast with Google TV.
10:49 25 Q. We've heard a little bit about Eureka.

10:49 1 Do you -- do you recall that name?
10:50 2 A. Yes.
10:50 3 Q. And what was Eureka? Just remind us.
10:50 4 A. Yeah. Eureka was the code name for the 1st
10:50 5 Generation Chromecast. We launched a second. It was
10:50 6 called Earth, a third that was called Caprica, and then
10:50 7 the ultra version that was called Luther. So a lot of
10:50 8 code names.
10:50 9 Q. Who chooses the code names for these products
10:50 10 internally?
10:50 11 A. Interestingly, it's the product manager, the
10:50 12 person ultimately responsible for building the product,
10:50 13 and they can pick from anything that they're interested
10:50 14 in or familiar with.
10:50 15 Q. Okay. So -- so we're calling -- this is --
10:50 16 the Chromecast with Google TV is Sabrina; is that
10:50 17 right?
10:50 18 A. That's right.
10:50 19 Q. All right. And what is the purpose of this
10:50 20 document with respect to Sabrina?
10:50 21 A. So the primary purpose of this document's
10:50 22 twofold. The first is for my team to put, again, like
10:50 23 I mentioned, all of our greatest hits into one place.
10:50 24 (Clarification by Reporter.)
10:50 25 A. Oh, sorry. I'm so familiar with all this.

10:50 1 This is my day-to-day. So I just go off on a tangent
10:50 2 sometimes or a rant.
10:50 3 We compile all of our work here, and then this
10:50 4 serves as our source of truth for my team.
10:50 5 Secondly, we have marketers all around the
10:51 6 world that are helping to bring products to market on
10:51 7 our behalf. And this is really meant to serve as a
10:51 8 reference for them. So anything they're doing, if
10:51 9 they're thinking about writing an e-mail, say, to
10:51 10 introduce a product, they'll look here to say -- to
10:51 11 look at what to say about it.
10:51 12 Q. Let's turn to Page 6 of this document, please,
10:51 13 Mr. Robins.
10:51 14 Can you tell us, what are we looking at here?
10:51 15 A. Yes. So this is -- there's a couple things on
10:51 16 this page worth calling out.
10:51 17 The first is on the top left, the name,
10:51 18 Chromecast with Google TV. That was the name we gave
10:51 19 it.
10:51 20 We have a tag line right below that. That's
10:51 21 meant to represent the -- to simply represent the value
10:51 22 proposition in a user-friendly way, and we said: The
10:51 23 entertainment you love with a little help from Google.
10:51 24 Then we have the price, anticipated countries
10:51 25 we were going to launch in. And then the thing that

10:52 1 probably got your attention first, we have a picture of
10:52 2 the product. And you can see it as two parts.
10:52 3 The first is what we call a dongle. That's
10:52 4 what you plug into the back of the TV through an HDMI
10:52 5 port.
10:52 6 And then on the right is a -- the all new
10:52 7 voice remote.
10:52 8 Q. And you mentioned the remote.
10:52 9 Did prior iterations of Chromecast before this
10:52 10 Sabrina version have a remote?
10:52 11 A. No.
10:52 12 Q. If there wasn't a remote in prior versions,
10:52 13 how did users control playback of content?
10:52 14 A. Absolutely. So on your phone, you probably
10:52 15 have apps like Netflix or Hulu or Amazon Prime Video or
10:52 16 Disney+. When you go into those apps, you can select a
10:52 17 show you like. Yellowstone.
10:52 18 You can -- when you start to play it, you'll
10:52 19 often see a little icon on the top right, and that icon
10:52 20 will either have, depending on your phone, something to
10:52 21 represent Cast or something to represent AirPlay.
10:52 22 And when you -- when you click on that, you'll
10:52 23 see a list of devices that your phone can talk to and
10:53 24 send data to. And usually it'll say living room TV or
10:53 25 bedroom TV.

10:53 And you select that, and then your content
10:53 shows up on the TV in realtime. And you can control
10:53 the content from your phone through that app.
10:53 Q. From Google's perspective, and sticking on the
10:53 original Chromecast device, what was the primary
10:53 feature that drove consumer demand?
10:53 A. The primary feature was really the ability to
10:53 quickly get content from your phone or tablet onto a
10:53 much bigger screen for a better viewing experience and
10:53 to be able to do this without having to purchase a
10:53 Smart TV, which was much more expensive.
10:53 Q. Were consumers concerned with how the content
10:53 got there?
10:53 A. No.
10:53 Q. Were they concerned with any of the particular
10:53 tools that were used to get the content from one place
10:53 to another?
10:53 A. No.
10:53 Q. Was the absence of a remote something that
10:53 Google found was important to consumers with respect to
10:53 the original Chromecast?
10:53 A. No. We had an aspiration, but what we
10:54 actually found was for most users, it was a clunkier
10:54 experience. Because if you just think about how you're
10:54 watching TV, holding your phone, you get distracted.

10:54 1 You know, a text comes in, an e-mail comes in, you
10:54 2 start surfing the web, and then let's say, for example,
10:54 3 somebody wants to tell you something.
10:54 4 Well, you got to pause the TV. And you can't
10:54 5 just pick up your remote to do that, you have to
10:54 6 remember which app you were in, get back over to that
10:54 7 app, press pause and time has passed. It was a fairly
10:54 8 clunky experience for most people.
10:54 9 Q. And so turning back to Exhibit 254, this is --
10:54 10 this document talks about Sabrina and represents a bit
10:54 11 of a shift in Google's marketing strategy with respect
10:54 12 to Chromecast.
10:54 13 A. That's right.
10:54 14 Q. Does this document explain why Google decided
10:54 15 to release the Sabrina device?
10:54 16 A. Yes.
10:54 17 Q. And you mentioned that Google conducts a lot
10:54 18 of market research in connection with the decision to
10:54 19 launch a product.
10:54 20 Does this document include that market
10:54 21 research?
10:54 22 A. Yes.
10:54 23 MS. STITT: If you could turn to Page 59
10:55 24 of the document, please.
10:55 25 A. Absolutely.

BY MS. STITT:

10:55 Q. It's up on the screen as well once you get
10:55 there.
10:55 A. Oh, good. It's there.
10:55 Q. Mr. Robins, can you tell the jury what we're
10:55 looking at here?
10:55 A. Yes. So this is meant to be a summary of some
10:55 market research we did.
10:55 So on the left-hand side, you see the devices
10:55 we were currently selling: Chromecast, that's the 3rd
10:55 Generation in HD; the Chromecast Ultra, which is our 4K
10:55 version; and then there were Chromecast built-in TVs
10:55 available on the market.
10:55 Below that, you can see a pie chart
10:55 representing market share. So it's total sales of
10:55 streaming dongles in the U.S.
10:55 And the takeaway for us was that Amazon and
10:55 Roku combined had roughly two-thirds of the market and
10:56 Chromecast was roughly 15 to 16 percent. So we were
10:56 kind of a distant third player.
10:56 On the right-hand side, this is output of some
10:56 of our surveys to users, really users of any streaming
10:56 device. And we -- this is -- this chart shows two
10:56 questions we asked them.
10:56 The first was about consideration. So we've

10:56 1 talked to someone. They've said, I'm interested in a
10:56 2 streaming dongle. And we say, Are you considering
10:56 3 purchasing from any of these brands, or would you
10:56 4 consider purchasing from any of these brands?
10:56 5 And Chromecast is on there, Amazon. If they
10:56 6 say yes, they're counted in this chart.
10:56 7 We then asked them, What brand are you most
10:56 8 likely to purchase from?
10:56 9 And that is what we call purchase intent, and
10:56 10 that's the second bar.
10:56 11 So what you can see, just like with the pie
10:56 12 chart on the left, Amazon and Roku led in consideration
10:57 13 and purchase, with Chromecast kind of in a distant
10:57 14 third.
10:57 15 Q. So what did this market research tell Google?
10:57 16 A. Yeah. It said -- it said we had opportunity,
10:57 17 that we were -- we had staying power, we were still in
10:57 18 the market, but that we weren't meeting user needs as
10:57 19 best we could. Competitor brands were doing that.
10:57 20 Q. And so were any of these market insights used
10:57 21 to inform Google's strategy for releasing the Sabrina
10:57 22 product?
10:57 23 A. Yes.
10:57 24 MS. STITT: If you could turn to Page 60,
10:57 25 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 1 number of apps and shows that were out there. And so
10:58 2 what they said is, God. Wouldn't it be great if
10:58 3 somebody could say, Hey. I know what you like. Why
10:59 4 don't you check out this show over here rather than
10:59 5 sort of having to ask family or friends or go online
10:59 6 and search?
10:59 7 And just one last point to make, under the key
10:59 8 takeaways in that third column, we said, Consumers'
10:59 9 biggest wish is for a UX that fully integrates multiple
10:59 10 apps and services into a single cohesive experience.
10:59 11 What people told us is they were tired of
10:59 12 flipping through apps, having to go from Apple TV+ to
10:59 13 Netflix to Amazon to Hulu and remember which shows were
10:59 14 in which ones and where they were at when they were
10:59 15 used to having a cable box with sort of one DVR and all
10:59 16 their shows in one place.
10:59 17 Q. So did Google take this research that's
10:59 18 summarized here and identify a user need?
10:59 19 A. Yes.
10:59 20 MS. STITT: And if you could turn to Page
10:59 21 56.
10:59 22 A. Yes. So this -- I'm just going to stop using
10:59 23 that.
10:59 24 BY MS. STITT:
10:59 25 Q. Go ahead. You can look at the screen if

10:59 1 that's easier for you.
10:59 2 A. Yes.
10:59 3 Q. The slide says "The Problem."
11:00 4 What's the problem here?
11:00 5 A. Yes. So there's a lot of text on this page.
11:00 6 I'm actually going to focus on the second -- the first
11:00 7 and second paragraphs, and then just tell you what
11:00 8 we -- how we internalized this.
11:00 9 It's been a long day. You get home from
11:00 10 school or work, do your usual routine and plop down on
11:00 11 the couch. All you want is to put something you like
11:00 12 on TV so you can turn off your brain and relax.
11:00 13 You go into Netflix and you scroll through
11:00 14 looking for the perfect show to settle into the night,
11:00 15 but nothing catches your eye. You go back to all your
11:00 16 apps, select Hulu and take a look at your options. No
11:00 17 luck there either.
11:00 18 Rinse and repeat.
11:00 19 Why is it so hard to choose something to
11:00 20 watch?
11:00 21 Frustrated after 30 minutes of searching, you
11:00 22 put on Friends again. It's the fifth time you've
11:00 23 watched the show.
11:00 24 We found this to be a very credible and
11:00 25 relatable moment for many of our users that were

11:00 1 frustrated. And after we heard this enough, we gave it
11:00 2 a term. It's kind of silly term, a very marketing
11:01 3 mumbo jumbo, but the term we gave it was "show
11:01 4 overload," which is that was the problem people were
11:01 5 facing. There was just too many shows out there, and
11:01 6 they didn't -- they wanted help on what to watch. They
11:01 7 liked watching.
11:01 8 Q. So how did the Sabrina device aim to solve
11:01 9 this problem?
11:01 10 A. On the next page, we have a good overview of
11:01 11 that. Yes. Aptly titled "The Solution."
11:01 12 Again, there's a lot of text on this page. So
11:01 13 maybe let's go through the bullets, if you're okay with
11:01 14 that.
11:01 15 I think that's just a good way -- these
11:01 16 bullets represent the main user benefits we were
11:01 17 bringing to market with Sabrina.
11:01 18 Q. That sounds great.
11:01 19 MS. STITT: Let's start with the first
11:01 20 bullet right there, and we can pull that one up.
11:01 21 A. Okay. So the first bullet says: Puts all
11:01 22 your entertainment in one place.
11:01 23 And the feature that this was really talking
11:01 24 about was our new software, our new integrated software
11:01 25 platform called Google TV.

11:01 It was a very -- it's a very well-designed,
11:02 easy-to-navigate software interface that allows you to
11:02 quickly see your apps, organize your entertainment, and
11:02 find what you want to watch.
11:02 The second bullet says: Helps you decide what
11:02 to watch.
11:02 So we've talked about this a couple of times,
11:02 but this really referred to two features that were part
11:02 of Google TV.
11:02 The first is something called "universal watch
11:02 list." So rather than having a separate watch list in
11:02 each streaming app, we gave users the ability to have
11:02 one watch list across all of their apps that was
11:02 part -- that was built into the software.
11:02 And then the second is personalized
11:02 recommendations. So let's say you just finished
11:02 watching this season of The Office or Yellowstone, any
11:02 show will do. It finishes. And you're thinking, Oh,
11:02 that was really fun. I want to watch some more of a
11:02 show like that, but I don't know where to -- you know,
11:02 so now what?
11:02 Well, we could say, Oh, you liked Yellowstone.
11:03 Why not try 24? Or you liked NCIS, why not try CSU?
11:03 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.

11:03 Those first two bullets that you described, those are features that are on Sabrina.

11:03 Were they on prior iterations of Chromecast dongle devices?

11:03 A. No.

11:03 Q. And what about the next bullet?

11:03 A. The next bullet says: Includes a voice remote with Google Assistant.

11:03 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.

11:03 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.

11:03 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.

11:04 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.

11:04 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 --

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

11:05 the time, but when you look back at them, you realize
11:05 how fuzzy they were.
11:05 That was roughly what we called now standard
11:05 definition, and then you probably saw HD, high def, and
11:05 then the evolution after that was called 4K, and that's
11:05 sort of the top of the market.
11:05 So here you see all of the devices that were
11:05 offered, and one of the things that was very clear to
11:05 us, if you look at the fourth row, was that everybody
11:05 except Chromecast offered a remote at the time. And so
11:05 we felt to be competitive, we needed to launch a remote
11:05 to better meet that user need.
11:05 MS. STITT: And let's go back to -- was
11:06 it Page 56 that we were looking at?
BY MS. STITT:
11:06 Q. To be clear, any of the features that we've
11:06 just discussed, were any of those available on the
11:06 earlier versions of Chromecast before Sabrina?
11:06 A. No.
11:06 Q. Sabrina still supports casting, right?
11:06 A. Yes.
11:06 Q. Based on your market research, where does
11:06 casting rank in terms of consumer preferences compared
11:06 to the new features that we just discussed with respect
11:06 to Sabrina?

11:06 A. Yeah. I would say it would fall really
11:06 towards the bottom of this list, and the reason is
11:06 because, as I mentioned, back in 2013 when we launched,
11:06 people were very interested in streamable content. It
11:06 was relatively new.
11:06 But over the years, Smart TVs became cheaper
11:06 and faster and more available. And so by the time
11:06 we're in 2020, I mentioned roughly two-thirds of people
11:06 already -- of households already had a Smart -- some
11:06 version of a Smart TV. It meant that the content was
11:07 already there on the screen. They could already get it
11:07 on their big screen. What they needed help with was
11:07 navigating that content and having a better
11:07 entertainment experience.
11:07 And so the -- the casting benefits or the
11:07 benefit enabled by casting was just less important.
11:07 That's why it was intentionally left off of this page.
11:07 Q. From Google's perspective and what you learned
11:07 in terms of the market research for Sabrina, what would
11:07 you say the primary driver of consumer demand was for
11:07 that particular product?
11:07 A. For Sabrina, it was Google TV.
11:07 MS. STITT: Mr. McDonald, can you put
11:07 that demonstrative back up for me? I want to go back
11:07 to our list of different products.

BY MS. STITT:

11:07 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

11:08 1 speakers and smart displays, but they also have
11:08 2 additional features?
11:08 3 A. That's correct.
11:08 4 Q. I want to start with the Nest smart speaker
11:08 5 devices.
11:08 6 Can you provide to the jury some examples of
11:08 7 additional features that are available on those
11:08 8 devices?
11:08 9 A. Yes. The core benefit of a smart speaker is
11:08 10 really that you could talk to it and ask it to do
11:08 11 things for you. And that is enabled by the Google
11:09 12 Assistant.
11:09 13 And so we found that people had three reasons
11:09 14 they really used a voice assistant.
11:09 15 The first was to control smart home devices.
11:09 16 So that's saying, Hey, Google, turn on the lights.
11:09 17 Hey, Google, put down the blinds.
11:09 18 The second would likely be around searching.
11:09 19 So just like you go to Google.com and you're searching
11:09 20 in the search bar, you might say, Hey, Google, what's
11:09 21 the weather? You know, Hey, Google, when is this show
11:09 22 on? Things like that.
11:09 23 And then the third would be entertainment. A
11:09 24 lot of people like to use smart speakers to play music,
11:09 25 and they loved the ability to do it very quickly by

11:09 1 saying, Hey, Google, play Top 40. Things like that.
11:09 2 Q. And what about the smart displays? They also
11:09 3 have additional features?
11:09 4 A. Yes.
11:09 5 Q. Can you explain to the jury some examples of
11:09 6 additional features that are available on smart
11:09 7 displays in addition to casting?
11:09 8 A. Absolutely. So when we launched smart
11:09 9 displays, many called them a smart speaker with a
11:09 10 screen. And I just think it's important to say that
11:10 11 because all the benefits I just went through apply here
11:10 12 as well. So don't need to go through them again.
11:10 13 But you had the benefit of a screen because
11:10 14 sometimes it's better to see the answer.
11:10 15 An example might be if you're asking for a
11:10 16 recipe, it's going to be really hard to, like, follow
11:10 17 along with the whole thing. So you could see it on the
11:10 18 screen and sort of flick up and down as you made
11:10 19 progress.
11:10 20 Similarly, with smart home control, you know,
11:10 21 you can just go to the home control panel and click
11:10 22 whatever you wanted.
11:10 23 But we also had some other really unique
11:10 24 features. Our more premium smart display had a camera
11:10 25 built in so that you could video call with friends and

11:10 1 family. It also doubled as a security camera.
11:10 2 And our smaller version, the 7-inch Nest Hub,
11:10 3 had a sleep feature built into it that could help you
11:10 4 understand the factors impacting your sleep and then
11:10 5 give you suggestions or tips on how to sleep better.
11:10 6 Q. So we talked about different features on the
11:10 7 speakers and the displays.
11:10 8 In terms of marketing, which features does
11:11 9 Google focus on for those products?
11:11 10 A. For both we focus primarily on benefits
11:11 11 enabled by the Google Assistant. That is the core
11:11 12 reason we built the products and the core reason people
11:11 13 bought them.
11:11 14 Q. So with respect to those two types of devices,
11:11 15 what does Google understand to be the core driver of
11:11 16 consumer demand?
11:11 17 A. The ability to use the Google Assistant.
11:11 18 Q. And in terms of -- if you were to rank the
11:11 19 features that we've talked about, where would you put
11:11 20 casting compared to these other additional features on
11:11 21 the smart speakers and smart displays?
11:11 22 A. I would put it towards the bottom, if not at
11:11 23 the bottom.
11:11 24 Q. And why?
11:11 25 A. As I mentioned, voice was really the reason.

11:11 1 Google Assistant was really the reason. And if people
11:11 2 wanted another way to get content on these devices,
11:11 3 they could use casting. They could also use Bluetooth.
11:11 4 We didn't really talk about either of those because it
11:11 5 wasn't really something people did a lot.
11:11 6 Q. So we've talked a lot about all of the
11:12 7 additional features that are available on the multiuse
11:12 8 devices that Google has in addition to casting.
11:12 9 Does Google still sell the original Chromecast
11:12 10 dongle Eureka device?
11:12 11 A. No.
11:12 12 Q. In the United States, I should say?
11:12 13 A. No. We do not. In fact, we stopped selling
11:12 14 the Chromecast 3rd Gen because that -- that was our HD
11:12 15 offering. We stopped selling that in 2022 when we
11:12 16 launched the HD version of Chromecast with Google TV.
11:12 17 And we stopped selling Chromecast Ultra in
11:12 18 2020, which was our 4K version, when we launched
11:12 19 Sabrina or Chromecast with Google TV 4K.
11:12 20 Q. What drove the decision to stop selling the
11:12 21 Chromecast device?
11:12 22 A. Quite simply, the market had shifted over the
11:12 23 years, and it looked markedly different than it did in
11:12 24 2013. As I -- as I mentioned, you know, Smart TVs
11:12 25 became much more prevalent and sort of solved the

11:12 1 problem that users had of getting content onto that big
11:12 2 screen.
11:12 3 So we said, Let's -- let's look at what
11:12 4 Google's really good at. Like, we are a company built
11:13 5 on intelligence and search. We organized the
11:13 6 Internet's information. We can organize entertainment.
11:13 7 And we did.
11:13 8 So we thought, Let's build a tool that
11:13 9 actually helps our users do that. And to do that, we
11:13 10 needed to build Google TV. And -- and we offered --
11:13 11 Sabrina really has a way to get Google TV into their
11:13 12 homes.
11:13 13 MS. STITT: Thank you, Mr. Robins. I
11:13 14 have no further questions. And pass the witness.
11:13 15 CROSS-EXAMINATION
11:13 16 BY MR. BERGSTEN:
11:13 17 Q. Jordan Bergsten for Touchstream.
11:13 18 Good morning, Mr. Robins.
11:13 19 A. Good morning.
11:13 20 Q. And the jury heard a video of you yesterday
11:13 21 explaining your thoughts on some of this stuff. So I'm
11:13 22 going to try to keep this brief.
11:14 23 Now, you started at Google in 2015, correct?
11:14 24 A. That's right.
11:14 25 Q. And your first involvement with the Chromecast

11:14 1 product was in 2019, correct?
11:14 2 A. That's right.
11:14 3 Q. And so you can't really speak to how Google as
11:14 4 a company planned to make money on the Chromecast back
11:14 5 in 2013, right?
11:14 6 A. That's right. I was not directly involved.
11:14 7 Q. Okay. Now, you talked a little bit about
11:14 8 Google adding a separate remote control for one of its
11:14 9 products in 2020, right?
11:14 10 A. That's right.
11:14 11 Q. And adding a remote control added to the cost
11:14 12 of the product, right?
11:14 13 A. Yes.
11:14 14 Q. And at the time that this was -- feature was
11:14 15 added, there were already several Chromecast dongles in
11:14 16 people's homes, correct?
11:14 17 A. Depends on the home. But yes.
11:14 18 Q. In homes across America, right?
11:14 19 A. Yeah.
11:14 20 Q. Okay. Now, you talked a lot about a product
11:14 21 that was released in 2020 called Chromecast with Google
11:15 22 TV, right?
11:15 23 A. That's right.
11:15 24 Q. And that product is not called Google TV with
11:15 25 Chromecast, right?

11:15 A. That's right.
11:15 Q. And the Google TV being referenced in that
11:15 product, that's different than the Google TV product
11:15 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
11:15 you talked about on your direct examination.
11:15 The first one, it's the ninth page. You can
11:15 look at it and we'll also pull it up on the slide, so
11:15 whatever's easier.
11:15 This is the ninth page in the document, and it
11:15 ends in Bates number 923 in the bottom right-hand
11:15 corner.
11:15 A. Yep. I see it.
11:15 Q. Okay. So I'm looking at the second column
11:15 from the left. There's a bunch of features. And then
11:15 the second one from the bottom there, and we'll
11:15 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.
11:16 Stream from your phone to your TV. Just tap the cast
11:16 button from thousands of supported iOS and Android
11:16 apps.

11:16 Did I read that correctly?
11:16 A. Yes.
11:16 Q. And this appears in a 2020 document, right?
11:16 A. That's right.
11:16 Q. And if we look to one of -- so there's a bunch
11:16 of features on this page, right?
11:16 A. Yeah.
11:16 Q. And these are all features that are in the
11:16 2020 release of the Chromecast with Google TV product,
11:16 right?
11:16 A. Mostly. We had a couple that didn't make it.
11:16 But yes.
11:16 Q. Okay. So if we just go to the next column
11:16 over to the right, there's one called "Google Photos."
11:16 Do you see that?
11:16 A. Yes.
11:16 Q. And Google did not decide to call this product
11:16 Google Photos with Google TV, right?
11:16 A. That's right.
11:16 Q. And if we look one more column over to the
11:16 right, there's one -- or two more columns, there's one
11:16 called "Stream Transfer," or maybe it is one more
11:17 column.
11:17 So that's another feature with the 2020
11:17 product, right?

11:17 1 A. That's right.
11:17 2 Q. And Google didn't decide to name this 2020
11:17 3 product Stream Transfer with Google TV, did it?
11:17 4 A. No.
11:17 5 Q. Okay. I'd like to turn to another page, and
11:17 6 this was one you discussed on your direct examination.
11:17 7 MR. BERGSTEN: This one ends in 973 in
11:17 8 the bottom right-hand corner.
9 BY MR. BERGSTEN:
11:17 10 Q. Do you remember talking about this in your
11:17 11 direct examination?
11:17 12 A. Yes.
11:17 13 Q. All right. If we can look at the very bottom
11:17 14 left corner, it says "Chromecast streaming."
11:17 15 A. Yes.
11:17 16 Q. And it says: 3.3 hours a day per active
11:17 17 device.
11:17 18 Do you see that?
11:17 19 A. Yes.
11:17 20 Q. And below, it says: 12B hours per year.
11:17 21 You see that?
11:17 22 A. Yes.
11:17 23 Q. Do you understand that to refer to 12 billion
11:17 24 hours per year?
11:17 25 A. Yes.

11:17 1 Q. All right. And you were including -- Google's
11:18 2 including this in their 2020 document; is that right?
11:18 3 A. Yes.
11:18 4 Q. Okay.
11:18 5 MR. BERGSTEN: And if we can turn to
11:18 6 another page about three-fourths of the way through the
11:18 7 presentation that ends in 7007 as the Bates number in
11:18 8 the bottom right-hand corner.
11:18 9 Thank you.
11:18 10 BY MR. BERGSTEN:
11:18 11 Q. Do you see this page titled Naming Strategy
11:18 12 Directives?
11:18 13 A. Yes.
11:18 14 Q. And it says: Get value out of our existing
11:18 15 brands. Chromecast is known and loved. "With Google
11:18 16 TV" is used as the descriptor to differentiate from
11:18 17 Caprica.
11:18 18 Did I read that correctly?
11:18 19 A. Yes.
11:18 20 Q. And I believe you said on your direct that
11:18 21 Caprica was an earlier form of the Chromecast dongle,
11:18 22 right?
11:18 23 A. That's correct.
11:18 24 Q. So this document is saying they're adding the
11:18 25 words "with Google TV" to the product to differentiate

11:18 1 this new product from the old Chromecast dongle product
11:18 2 called Caprica, right?
11:18 3 A. That's right.
11:18 4 MR. BERGSTEN: If we can turn to the very
11:18 5 last slide of the presentation.
6 BY MR. BERGSTEN:
11:19 7 Q. At the very top, it says: Chromecast made
11:19 8 streaming simple for 100 million homes, right?
11:19 9 A. That's right.
11:19 10 Q. And when you released this product in 2020,
11:19 11 this had already occurred, right?
11:19 12 A. Yes.
11:19 13 Q. So the Chromecast dongle had already been sold
11:19 14 into 100 million homes at this point, right?
11:19 15 A. Yes.
11:19 16 Q. And it has a picture of the Google Chromecast,
11:19 17 right?
11:19 18 A. Yes.
11:19 19 Q. And it has a picture of the Google Chromecast
11:19 20 Ultra, correct?
11:19 21 A. Yes.
11:19 22 Q. Thank you.
11:19 23 MR. BERGSTEN: No further questions.
11:19 24 MS. STITT: Nothing further, Your Honor.
11:19 25 THE COURT: May this witness be excused

11:19 and remain in the courtroom?

11:19 MR. BERGSTEN: That's fine by us, Your Honor.

11:19 THE COURT: You're welcome to stay or go.

11:19 THE WITNESS: Okay. Thank you.

11:19 THE COURT: Who's your next witness?

11:19 MR. LANIER: Your Honor, our next is Rajiv Lulla by deposition.

11:20 (Video deposition of Rajiv Lulla played as follows.)

11:20 Q. Mr. Lulla, good afternoon. Again, my name is Greg Lanier, and I represent Google in this lawsuit.

11:20 A. Hi, Greg.

11:20 Q. Sir, do you recall receiving a subpoena in this case?

11:20 A. I do.

11:20 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.

11:20 A. Sure.

11:20 Q. We'll give him a moment.

11:20 Mr. Garcia, could you scroll until you get the -- to -- I think it's about five pages in -- the subpoena cover page itself.

11:20 Right there. Yeah. Page 4.

11:20 1 Thank you.
11:20 2 So, Mr. Lulla, we can show you any or all of
11:20 3 this, but what I'm showing you right now is a copy of
11:20 4 the face page of a subpoena issued in this case.
11:21 5 We can scroll through more of it if you need,
11:21 6 but does this look like the subpoena you received?
11:21 7 A. Yeah. Uh-huh.
11:21 8 Q. Are you appearing here today in response to
11:21 9 this subpoena?
11:21 10 A. Yes.
11:21 11 Q. Are you receiving any compensation by
11:21 12 anyone -- from anyone for your time here today?
11:21 13 A. I'm not.
11:21 14 Q. Have you ever had a formal relationship with
11:21 15 Shodogg or Touchstream?
11:21 16 A. Formal relationship? Let's see. Yes. I
11:21 17 would say. Yeah.
11:21 18 Q. How would you -- or describe that
11:21 19 relationship.
11:21 20 A. Sure. And I might -- I might babble a little
11:21 21 bit, so stop me if it goes too long.
11:21 22 So yeah. I was approached by Shodogg's
11:21 23 founders, Touchstream's founders -- I mean, it wasn't
11:21 24 Touchstream at that time. It was --
11:21 25 Q. Well, let me just stop you there, sir, in part

11:21 1 for the benefit of our reporter. I'll break this up a
11:21 2 little bit more.
11:21 3 So I will ask you about the history, but let
11:21 4 me just start with this simpler question.
11:22 5 That relationship, did it have a particular
11:22 6 type of name or role, like employee --
7 A. Oh, yeah. Advisor.
11:22 8 Q. -- or consultant?
11:22 9 Advisor?
11:22 10 A. Yeah. Advisor. Uh-huh.
11:22 11 Q. Okay. Okay. Were you aware that -- were you
11:22 12 a member of the board of advisors of Touchstream or
11:22 13 Shodogg?
11:22 14 A. I believe I was. Yeah.
11:22 15 Q. Did you have any other type of relationship
11:22 16 with Touchstream or Shodogg besides being an advisor?
11:22 17 A. Nothing formal.
11:22 18 Q. Well, did you have an informal relationship?
11:22 19 A. Yeah. Yeah. I mean, I have -- I coached a
11:22 20 few people several times. I've helped them find some
11:22 21 team members. I've been to some fundraising. I've
11:22 22 been to some fundraising conversations with VCs.
11:22 23 I have been to -- I forget the -- CES once
11:23 24 to -- to represent the product, talk about that with
11:23 25 the people who would visit the CES.

11:23 1 I remember going out to London to meet one of
11:23 2 the strategic partners/customers, you know, with the
11:23 3 team, with the founding team.
11:23 4 Q. And over what period of time did your advisory
11:23 5 and informal relationship exist with Touchstream?
11:23 6 A. So I could be off a little bit here, yeah. So
11:23 7 I'll just fall back on my recollection, right? The
11:23 8 best of what I remember.
11:23 9 It was mostly around, I'm thinking, 2012. I
11:23 10 think -- yeah. 2012 sounds right.
11:23 11 Q. And how long did that last?
11:23 12 A. So the formal relationship, I think, lasted
11:23 13 for about two years. In reality, it was maybe a few
11:24 14 months, maybe six months. I say, you know, formal
11:24 15 because -- yeah -- there was a -- there was an actual
11:24 16 termination of our relationship in a letter that I
11:24 17 received from them a few years later. I'd already
11:24 18 forgotten about the relationship by that time. So...
11:24 19 Q. We'll come back to that in a moment.
11:24 20 In the course of your work, this relationship,
11:24 21 advisor and informal, with Touchstream, did you engage
11:24 22 in any activities specifically related to Google?
11:24 23 A. I remember going out to meet with a person at
11:24 24 the Google office in Mountain View with one of the
11:24 25 founders.

11:24 1 Q. So I'm going to break down and ask very
11:24 2 concrete little questions about this meeting.
11:24 3 A. Sure.
11:24 4 Q. Say whatever -- your answers can be as long as
11:24 5 they want, but I'm going to try to make my questions
11:24 6 pretty concrete.
11:25 7 A. Uh-huh.
11:25 8 Q. So you had a meeting at Google physically in
11:25 9 person; is that correct?
11:25 10 A. That is correct. Yes.
11:25 11 Q. Do you remember when that was?
11:25 12 A. Yeah. I have to -- just one second. I think
11:25 13 I -- if I remember, it was around February 14th of that
11:25 14 year.
11:25 15 Q. 2011? 2012? 2013? Any idea?
11:25 16 A. I think 2012. Yeah.
11:25 17 Q. Okay. Do -- who went to that -- who attended
11:25 18 that meeting in person?
11:25 19 A. Yeah. So there were -- there was a founder --
11:25 20 a cofounder of Touchstream/Shodogg, Michael Rinzler,
11:25 21 and me. There were only two of us in person --
11:25 22 Q. Okay. So --
11:25 23 A. -- from the company. Yeah.
11:25 24 Q. So you and Mr. Rinzler were there for
11:25 25 Touchstream.

11:25 1 Was there -- who was there for Google?
11:25 2 A. So there was a person called Shanna Prevé. I
11:26 3 don't know if I'm pronouncing her name correctly.
11:26 4 Q. Was there anybody else at that meeting?
11:26 5 A. I don't recall anybody else.
11:26 6 Q. Okay. And how did that meeting get set up?
11:26 7 How did it come to pass?
11:26 8 A. So, I mean, my recollection is going to be a
11:26 9 little -- not -- not that clear. It's been 12, 10
11:26 10 years at least, 10 years -- yeah -- since then.
11:26 11 So I remember it was through an e-mail
11:26 12 introduction. I believe I'd reached out to many people
11:26 13 at Google trying to do an introduction. And she was
11:26 14 the one that responded and, you know, we just kind of
11:26 15 went there.
11:26 16 Q. So you were reaching out to Google on behalf
11:26 17 of Touchstream to set up a meeting; is that correct?
11:26 18 A. Yes. Uh-huh.
11:26 19 Q. And what was the purpose of the meeting as you
11:26 20 intended it?
11:26 21 A. Yeah. We just wanted to kind of give them a
11:26 22 demo of the product, kind of just seek any kind of
11:27 23 help. It was during the same month we were trying to
11:27 24 raise funds for the company. We were meeting VCs
11:27 25 around California, all down kind of Page Hill -- Page

11:27 1 Mill Road.
11:27 2 And yeah. This was one strategic, you know,
11:27 3 investor/strategic partner. It could be, right? So
11:27 4 the intent wasn't very clear. It could be any of those
11:27 5 combinations.
11:27 6 Q. Did Google tell -- did Ms. Prevé or anybody
11:27 7 from Google tell you what they expected the purpose of
11:27 8 the meeting was going to be?
11:27 9 A. I think they were just being kind, you know,
11:27 10 to -- reached out to a few people and they were just
11:27 11 being kind. They wanted to at least give us a chance
11:27 12 to come over. I think she was in a business
11:27 13 development role at that time.
11:27 14 So yeah. I'd been in a previous role in the
11:27 15 past. I don't think they had huge expectations.
11:27 16 Q. You went to this meeting in person.
11:28 17 Was that at Google itself?
11:28 18 A. Yes. Uh-huh.
11:28 19 Q. Do you happen to remember which one of its
11:28 20 many buildings it was?
11:28 21 A. I don't. I don't. No. I don't. It was one
11:28 22 of the --
11:28 23 Q. Do you remember what -- oh, sorry. Please.
11:28 24 A. No. It was one of Google's buildings. Yes.
11:28 25 It was one of the, you know, small conference rooms.

Yeah. I mean, I can -- in my mind's eye, I can
11:28 picture, you know, where it was, but I don't remember
11:28 the number of the building.
11:28 Q. Okay. And how long did the meeting last?
11:28 A. I believe it -- you know, it was scheduled for
11:28 half an hour. The meeting itself lasted for, I
11:28 believe, less than 12 minutes.
11:28 Q. Are you done, sir? I can -- there was a
11:28 little glitch. I couldn't tell if you were done.
11:28 A. Yes.
11:28 Q. Thank you. Thank you.
11:28 And so it was yourself, Mr. Rinzler, and
11:28 Ms. Prevé.
11:28 Was anybody else at that meeting for any part
11:29 of it?
11:29 A. I don't remember seeing anybody else. Yeah.
11:29 Shanna Prevé is kind of, you know, clearly in my mind's
11:29 eye -- I mean, she was in the room, and then Michael
11:29 and me.
11:29 Q. Did you or Mr. Rinzler demonstrate the
11:29 Touchstream technology to Ms. Prevé?
11:29 A. So I don't believe we were able to do the
11:29 demo. I think we tried. I mean, we -- I can get into
11:29 why, if that's interesting. But I don't believe we
11:29 actually did the demo.

11:29 Q. Why were you not able to or didn't do the demo?

11:29 A. Yeah. So there were two reasons why.

11:29 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.

11:29 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.

11:30 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.

11:30 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

11:30 1 show on PowerPoint presentations.
11:30 2 It was basically a very elementary
11:30 3 screenshare. But that required certain ports to be
11:30 4 opened on the firewall. And I believe it worked on
11:30 5 port 80 and port 8080. And -- yeah. I mean, you know,
11:30 6 those ports had to be opened. The cache server had to
11:31 7 be opened. I mean, everything had to be kind of lined
11:31 8 up for the demo to actually work.
11:31 9 And in the just -- you know, last, like,
11:31 10 12 minutes, out of that half an hour, it just wasn't
11:31 11 possible to do all of that.
11:31 12 Q. So no demo was given then; is that correct?
11:31 13 A. I -- I don't remember us doing a demo.
11:31 14 Q. Do you remember whether you or Mr. Rinzler --
11:31 15 oh, by the way, that Michael you referred to a few
11:31 16 moments ago, that was Mr. Rinzler?
11:31 17 A. That's right. Yes. Yeah, yeah.
11:31 18 And then, by the way, there was another team
11:31 19 on the standby. There were -- you know, there was kind
11:31 20 of two developers, and there was this then CTO of
11:31 21 Shodogg that was on standby in New York because, you
11:31 22 know, they had to be on the standby to do the demo. It
11:31 23 wasn't just that we'll just sit there and kind of do
11:31 24 it.
11:31 25 And then I believe it was just hard to kind of

11:31 1 coordinate that.
11:31 2 Q. Right. But the people who were on standby
11:31 3 remotely, was it phone or video?
11:31 4 A. Yeah. I mean, they knew, you know,
11:32 5 approximately when we were kind of going in, you know.
11:32 6 So they were just sitting there just making sure, you
11:32 7 know, the system at least stays up. It was a very
11:32 8 unstable, kind of your half-baked kind of product at
9 that time.
11:32 10 They didn't have any clients. They didn't
11:32 11 know, you know, how to scale a cache product. It was
11:32 12 just on a small server. Right?
11:32 13 So yeah. That whole coordination, to do that
11:32 14 in under 12 minutes and go through the Google firewalls
11:32 15 and all that, it's monumental work.
11:32 16 Q. Did you or Mr. Rinzler give any kind of a
11:32 17 description of the Touchstream technology instead of
11:32 18 doing the demo?
11:32 19 A. Yeah. We did. Yeah. I mean, just kind of a
11:32 20 broad brush. There's a whole lot of companies trying
11:32 21 to kind of do the same thing at that time. It was a
11:32 22 screenshare kind of product. So we -- we tried to
11:32 23 describe it to the best of our ability in words. Yeah.
11:32 24 Q. And do you -- do you -- as you sit here today,
11:32 25 do you remember what was said about the description in

11:33 1 that 12 minutes or so?
11:33 2 A. You know, it was a spiel. It's just been too
11:33 3 long. I won't remember the exact words. It wasn't
11:33 4 anything kind of special that would not already be on
11:33 5 some kind of pamphlet.
11:33 6 Q. On some kind of what? I'm sorry. I didn't
11:33 7 hear the end.
11:33 8 A. Some kind of a pamphlet, some kind of a
11:33 9 handout. You know, yeah. The team was making trips to
11:33 10 CES around that time. Right? So it was -- yeah. And
11:33 11 then Rinzler was a good salesman. So it was mostly his
11:33 12 spiel. Yeah.
11:33 13 Q. Okay. Do you recall whether you or
11:33 14 Mr. Rinzler left any materials with Ms. Prevé, you
11:33 15 know, a pamphlet, a handout, a PowerPoint printout?
11:33 16 A. We did not. We did not.
11:33 17 Q. Okay. In connection with that meeting we just
11:33 18 have been talking about, did any such materials get
11:33 19 e-mailed to Ms. Prevé or somebody at Google?
11:33 20 A. Not to my recollection.
11:33 21 Q. Okay. At this discussion -- at this meeting,
11:33 22 was there any discussion of patents that Touchstream
11:34 23 had or was applying for?
11:34 24 A. It was way too early. I don't think Shodogg
11:34 25 had a patent at that time. I don't think we actually

11:34 1 even kind of, you know, filed one. I was the one who
11:34 2 started kind of pushing and, you know, had them start
11:34 3 thinking about filing a patent. I don't believe we
11:34 4 talked about patents.
11:34 5 We may have said something, you know, just so
11:34 6 that -- I guess, you know, you get support from -- from
11:34 7 an investor, a prospective investor about, you know,
11:34 8 getting some support, so, you know, in their minds they
11:34 9 can see some valuation. I mean, we may have. I can't
11:34 10 for sure remember.
11:34 11 Q. Do you remember any questions that Ms. Prevé
11:34 12 asked you or Mr. Rinzler?
11:34 13 A. She did not have a lot of questions. You
11:34 14 know, she very politely told us that Google was not
11:34 15 interested. I mean, she was generous. She was kind.
11:35 16 She gave us the time. She thanked us for coming. And
11:35 17 then she politely told us, yeah. She was not
11:35 18 interested in, you know, hearing more or seeing any
11:35 19 demos.
11:35 20 Q. Did she explain anything about -- anything
11:35 21 else about why they weren't interested or anything else
11:35 22 in addition to saying that to you?
11:35 23 A. No. She did not. Yeah. We were not really
11:35 24 sure if they didn't like the product, if, you know,
11:35 25 they had too much on their hands. Yeah. I mean, it's

11:35 1 Google. And we didn't have a lot of time to ask those
11:35 2 questions anyways.
11:35 3 Q. Do you remember anything else that was
11:35 4 discussed at that meeting?
11:35 5 A. That was basically it.
11:35 6 Q. Were you involved in any discussions with
11:35 7 Google at or on the margins of CES in any particular
11:35 8 year?
11:35 9 A. Not -- not with Google in particular. At CES,
11:36 10 you know, we were there for, I believe, two days. It
11:36 11 could be like two and a half, maybe three days. You
11:36 12 know, there was a whole lot of people that stopped by
11:36 13 for demos.
11:36 14 There were -- from Touchstream/Shodogg, we
11:36 15 were -- I'm thinking maybe five or six of us there.
11:36 16 And then essentially our role there was just, you know,
11:36 17 give demos to people. So there could have been people
11:36 18 from Google or Facebook or probably who knows, all kind
11:36 19 of people that we gave demos to.
11:36 20 Q. Okay. Now I want to talk a little bit about
11:36 21 you mentioned that you were at a physical meeting with
11:36 22 Google in Mountain View, California in February of
11:36 23 2012; is that correct?
11:36 24 A. Uh-huh. Yes.
11:36 25 Q. And I just want to make sure that I have got

11:36 1 this completely clear.
11:36 2 At the meeting there were only three people,
11:36 3 correct?
11:36 4 A. You know, I -- my recollection is that, yeah.
11:37 5 I mean, there could be somebody else. I don't
11:37 6 remember.
11:37 7 Q. Okay. But --
11:37 8 A. I remember -- I remember the three: me,
11:37 9 Michael Rinzler, and then Shanna Prevé. I don't
11:37 10 remember anybody else.
11:37 11 Q. So there could have been somebody there and
11:37 12 you don't remember it or, you know --
11:37 13 A. That's right. Yeah.
11:37 14 Q. You mentioned that Mr. Rinzler was a good
11:37 15 salesman. It was his spiel.
11:37 16 What -- what do you mean by that?
11:37 17 A. Well, his background was in toy sales. He's
11:37 18 not a technologist. He's not an engineer. He used to
11:37 19 sell toys, you know, and he went on to sell toys after.
11:37 20 He sells toys. That's what it means.
11:37 21 Q. Do you remember anything specific you said
11:37 22 that day?
11:37 23 A. The many -- the regular -- I mean, surely, you
24 know, many of the quotes that are on that article that
25 you showed. I mean, you know, those were the things on

our minds at that time that we were trying to tell
11:37 everybody.
11:37 Q. Okay. But do you remember anything specific
11:37 that you told Google at that meeting that day?
11:37 A. No.
11:37 Q. You mentioned that at the time of this meeting
11:38 in February 2012 -- I think you recall, but I'd like
11:38 you to clarify if you need to -- I think you recall
11:38 that you said that the patents were not filed yet; is
11:38 that correct?
11:38 A. That is my -- that is my recollection. Yes.
11:38 Q. So as of February 2012, your knowledge is that
11:38 there were no patents filed?
11:38 A. Yeah. I think they were still in the process
11:38 of kind of drafting it.
11:38 Q. Is Google now or have they ever been a client
11:38 of your firm?
11:38 A. Yes.
11:38 Q. Have you ever personally done any work for
11:38 Google as --
11:38 A. Yes.
11:38 Q. -- part of your firm, where you work -- where
11:38 you work now?
11:38 A. Yes. I have.
11:38 Q. And what is the work that you've done for

11:38 1 Google where you work now?
11:38 2 A. So I've been part of two executive searches
11:38 3 with Google in the last five years.
11:38 4 Q. And what were the searches?
11:38 5 A. I'm trying to remember it clearly. One of
11:39 6 them was the GM for Google BigQuery. And the other one
11:39 7 was the GM for Google Cloud, Google Private Cloud.
11:39 8 Q. So there were two searches. One for general
11:39 9 manager of Google BigQuery; is that right?
11:39 10 A. Yes. Uh-huh.
11:39 11 Q. And one executive search for general manager
11:39 12 of Google Private Cloud; is that right?
11:39 13 A. That's right. Yeah. Uh-huh.
11:39 14 Q. And who did you work with at Google for those
11:39 15 searches?
11:39 16 A. Well, yeah. So I have a question before I
11:39 17 answer that question.
11:39 18 May I ask a question?
11:39 19 Q. Actually, I'd like an answer to my question
11:39 20 first, and then I'll -- then we can find out what it
11:39 21 is.
11:39 22 A. I don't remember who did I work with, you
11:39 23 know, from within Google. It's been just too long.
11:39 24 Q. Okay. What was your question to me?
11:39 25 A. So my question was, you know, I work for a

11:40 1 different company at the moment, a lot of the work I do
11:40 2 is highly confidential. I don't feel comfortable
11:40 3 answering some of the questions related to my firm. It
11:40 4 has nothing to do with what happened with Shodogg and
11:40 5 me and 12 years ago.
11:40 6 Is that -- so the question is: Should I
11:40 7 answer questions? I mean, can I just say, Hey, you
11:40 8 know what? Yeah. None of your business.
11:40 9 Q. Thank you. I will follow up very briefly on
11:40 10 one topic relating to something that Mr. Gray asked you
11:40 11 about.
11:40 12 Mr. Lulla, you recall that -- we don't need to
11:40 13 put it up again, but do you recall that news article
11:40 14 and there was a quote from you about tossing and
11:40 15 fetching and all that?
11:40 16 A. Yeah.
11:40 17 Q. Do you recall that?
11:40 18 A. Yes.
11:40 19 Q. Are you aware of Google ever being given any
11:40 20 more concrete demonstration of the Touchstream
11:40 21 technology, more specific or more concrete than that
11:40 22 statement in the article?
11:40 23 A. You know, I would say the article, it was just
11:40 24 words. Because CES, there was a demonstration, right?
11:41 25 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 1 is that there are a couple of objections from the
11:42 2 Touchstream side to a demonstrative or two and then an
11:42 3 exhibit or two in Dr. Mayer-Patel's testimony that'll
11:42 4 come up this afternoon, and to one exhibit in the video
11:42 5 testimony of Johnny Levai that we will play before
11:42 6 that.
11:42 7 We could take them up now or right after
11:42 8 the lunch break, whatever you prefer.
11:42 9 THE COURT: I'm happy to take them up
11:42 10 now.
11:42 11 MR. LANIER: My colleague Mr. Garcia will
11:42 12 be -- and Mr. Boule will be prepared to address
11:42 13 whatever objections they articulate.
11:42 14 THE COURT: If you'll just show me the
11:42 15 demonstratives, I'll take a look at them.
11:42 16 MR. DYKAL: If you give us one moment, I
11:43 17 think the attorney arguing that is out in the hall.
11:43 18 THE COURT: Everyone, since we're taking
11:43 19 a little time here, I'm having him tell them to be back
11:43 20 at 1:15, just -- I want to make sure you all have an
11:43 21 adequate break.
11:43 22 MR. LANIER: Thank you, Your Honor.
11:43 23 THE COURT: While we're waiting, so
11:43 24 remind me what we have left. You have your technical
11:44 25 expert, and do you have a rebuttal damages expert?

11:44 1 MR. LANIER: We do have a damages expert,
11:44 2 Your Honor.
11:44 3 So what I expect the order of operations
11:44 4 will be is we will -- after lunch, we'll have Mr. Van
11:44 5 Der Staay, then we'll play -- it's 20ish minutes of
11:44 6 testimony from Mr. Levai, subject to that one objection
11:44 7 that needs to be resolved, then we'll have
11:44 8 Dr. Mayer-Patel.
11:44 9 Given that we're ending at 5:00 today, I
11:44 10 wouldn't be surprised if that takes us to the end of
11:44 11 the day. And then we have Mr. Martinez, our damages
11:44 12 expert.
11:44 13 THE COURT: And is your technical expert
11:44 14 going to handle both infringement and validity at the
11:44 15 same time?
11:44 16 MR. LANIER: Yes. He is, Your Honor.
11:44 17 THE COURT: And so when we finish him,
11:44 18 then the witness you'll have left is your damages
11:44 19 expert?
11:44 20 MR. LANIER: That's correct, Your Honor.
11:44 21 That should be it for us. I think that's all our depos
11:44 22 and all our witnesses.
11:44 23 THE COURT: Okay.
11:44 24 MR. LANIER: Thank you.
11:44 25 THE COURT: So let's maintain -- if you

11:44 had something to say, you're welcome to say it.

11:44 MR. DYKAL: No. I was just going to say, after that, we'll have a short rebuttal on validity.

11:44 THE COURT: Sure. And so the rebuttal will be limited to validity.

11:44 MR. DYKAL: Okay.

11:44 THE COURT: So we will finish the -- so it looks like we'll be finished by tomorrow morning.

11:45 MR. LANIER: It depends how long --

11:45 THE COURT: It will -- okay.

11:45 MR. LANIER: Mr. Van Der Staay's direct will be in the neighborhood of an hour.

11:45 THE COURT: At any rate, it still works for us to do the charge conference at 5:00 --

11:45 MR. LANIER: Yes, Your Honor.

11:45 THE COURT: -- get that resolved, and then we'll just see how it goes tomorrow what we do.

11:45 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.

11:45 Because I don't think we want to send them home at 2:00, for example, and then wait till Friday.

11:45 MR. LANIER: Sure. Perhaps we could take

11:45 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 1 can make a few comments that might guide the
11:46 2 discussion, I believe, with the buckets.
11:46 3 All of the exhibits that we identified,
11:46 4 except for one, were exhibits that they did not object
11:46 5 to through the entire process until yesterday.
11:46 6 Several of them, most of them are JTXs.
11:46 7 Other --
11:46 8 THE COURT: If they were a JTX when we
11:46 9 started trial, they're admitted. You can't change
11:47 10 that.
11:47 11 If you all agreed that they were going to
11:47 12 be admitted at the beginning of trial, they're going to
11:47 13 be admitted. You don't get to change your mind during
11:47 14 the trial because the other side doesn't get a chance
11:47 15 to prepare for it.
11:47 16 So what -- what is the plaintiff unhappy
11:47 17 about that the defendant wants to use that was not in a
11:47 18 joint exhibit?
11:47 19 MR. LONG: It's a video of a Google TV
11:47 20 remote.
11:47 21 THE COURT: Okay. And explain to me
11:47 22 what -- you tell me what it is you want to put on, then
11:47 23 you tell me --
11:47 24 MR. GARCIA: Sure, Your Honor. So the
11:47 25 next bucket of exhibits besides the JTXs are a bunch of

11:47 1 our exhibits that they had no objections to either. So
11:47 2 we would argue that that is waived.
11:47 3 Beyond that --
11:47 4 THE COURT: I agree with you. If they
11:47 5 had no -- if they didn't object before you started, the
11:47 6 objection -- that's why we exchange exhibit lists and
11:47 7 the other side gets to say what you object to.
11:47 8 If they -- this is bilateral. If you --
11:47 9 what do you -- what do you have an -- what does the
11:48 10 plaintiff have an objection to the defendant using
11:48 11 where it was -- they told you they were going to use it
11:48 12 and you objected to it?
11:48 13 MR. GARCIA: I can help with that, Your
11:48 14 Honor.
11:48 15 There's DTX-156. That's the only one
11:48 16 that had an objection. We are not going to be using
11:48 17 that exhibit.
11:48 18 THE COURT: There.
11:48 19 Anything else we need to take up.
11:48 20 MR. LONG: DTX-421, we had an original
11:48 21 objection to. We preserved it. We did it last time --
11:48 22 THE COURT: Okay.
11:48 23 MR. LONG: -- and that's the video of the
11:48 24 Google TV remote.
11:48 25 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
11:48 get to use it.
11:48 MR. LONG: Understood.
11:48 THE COURT: Okay. That's -- that's why
11:48 we exchange exhibit lists, so that I don't have to deal
11:48 with this now. If either of you listed it as an
11:48 exhibit, the other side, it's fair for the other side
11:48 to assume it's coming in.
11:48 MR. GARCIA: For the sake of cleaning
11:48 everything up, they also had objections to our
11:49 demonstratives with our --
11:49 THE COURT: Until they make them --
11:49 they're all overruled.
11:49 MR. GARCIA: Thank you, Your Honor.
11:49 THE COURT: Anything else we need to take
11:49 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
01:25 the jury.

01:25 1 (Jury entered the courtroom.)
01:25 2 THE COURT: Thank you.
01:25 3 You may be seated.
01:25 4 Counsel?
01:26 5 MS. STITT: Your Honor, Google calls
01:26 6 Mr. Matt Van Der Staay.
01:26 7 (The witness was sworn.)
01:26 8 DIRECT EXAMINATION
01:26 9 BY MS. STITT:
01:26 10 Q. Good afternoon, Mr. Van Der Staay.
01:26 11 A. Good afternoon.
01:26 12 Q. Now, you've been sitting here in the courtroom
01:26 13 all week, right?
01:26 14 A. Yes. I have.
01:27 15 Q. And the jury's seen and heard you, but now is
01:27 16 your chance to personally introduce yourself to them
01:27 17 and tell them what you do.
01:27 18 A. Hi, everybody. My name is Matt Van Der Staay,
01:27 19 and I -- I work at Google as a software engineering
01:27 20 director.
01:27 21 Q. I'd ask you if you've testified in court
01:27 22 before, but I saw you do it the other day.
01:27 23 How was it being in the courtroom to watch
01:27 24 yourself on TV?
01:27 25 A. It's a little awkward. This is the -- this is

01:27 the first I've ever actually testified actually in a
01:27 courtroom, but it was definitely awkward to watch the
01:27 deposition testimony for sure.
01:27 Q. Tell us a little bit about yourself.
01:27 A. So I have a lovely wife of 15 years, four
01:27 little kids, from 4 to 11. So they keep us really
01:27 busy. And as you mentioned, I work at Google.
01:27 Q. I'm sure your wife and kids have been missing
01:27 you this past week. So thank you for being here with
01:27 us.
01:27 What's your current title at Google?
01:27 A. It is director of engineering.
01:27 Q. And since you've been here, you heard
01:28 Mr. Bakar testify earlier today, right?
01:28 A. Yes. I did.
01:28 Q. Do you know Mr. Bakar?
01:28 A. I do. Yes.
01:28 Q. And how do you know him?
01:28 A. I worked with Majd on Chromecast and
01:28 cast-related technologies.
01:28 Q. And you also saw Mr. Robins testify.
01:28 Do you know him?
01:28 A. Yes. I do.
01:28 Q. And how do you know Mr. Robins?
01:28 A. Same thing. I -- I work with Corey on

01:28 multiple things as part of my normal job.

01:28 Q. And as a -- let's talk a little bit about your

01:28 career path to the director of engineering at Google,

01:28 starting with your educational background.

01:28 A. So I -- out of high school I attended UCLA

01:28 where I received my degree in computer science and

01:28 engineering.

01:28 While I was in school, I actually put myself

01:28 through school by working for NASA at JPL, which is

01:28 their jet propulsion laboratories, where I worked on

01:28 the systems that allow us to communicate to the Mars

01:28 rover. So worked on a -- I'm part of a big system that

01:28 allowed, you know, scientists here on Earth to talk to

01:29 the Mars rovers.

01:29 After I graduated college, I went to work for

01:29 Microsoft, where I worked in the streaming media space.

01:29 I worked on a team called "Media Room." And our job

01:29 there was to basically figure out how to bring cable TV

01:29 to people via the Internet.

01:29 On top of that, we also tried to bring what we

01:29 call, like, streaming clients onto things like Xboxes.

01:29 Or I don't know if people here have used AT&T U-verse.

01:29 That was the product -- one of the products that we

01:29 worked on.

01:29 After Microsoft, I went to work for Google. I

01:29 1 was with Microsoft for about eight years. I went to
01:29 2 work at Google, where I spent the majority of my career
01:29 3 working on cast or cast-related products.
01:29 4 Q. And what was the year that you started at
01:29 5 Google?
01:29 6 A. 2013.
01:29 7 Q. And you mentioned you were the director of
01:29 8 engineering.
9 Could you get a little closer to the mic? I
01:29 10 think --
01:29 11 A. Sorry.
01:29 12 (Clarification by Reporter.)
13 MS. STITT: Slow down.
14 THE WITNESS: Slow down. I'm so sorry.
15 I talk very fast. I'm so sorry. I will try to slow
01:29 16 down.
01:29 17 BY MS. STITT:
01:29 18 Q. How long have you held your current position
01:29 19 as the director of engineering at Google?
01:30 20 A. So I was promoted to director about three
01:30 21 years ago.
01:30 22 Q. Now, the jury's heard a lot about Chromecast
01:30 23 in this case.
01:30 24 When did you start working on Chromecast?
01:30 25 A. I started working on Chromecast around

01:30 1 November -- October or November of 2013.
01:30 2 Q. What was your initial role on the Chromecast
01:30 3 products?
01:30 4 A. So when I initially started working on the
01:30 5 Chromecast product, I worked on something that we call
01:30 6 "backdrop" or also may have been referred to as IMAX in
01:30 7 some of the deposition testimony.
01:30 8 But that's basically a server that provides
01:30 9 experiences when you're not casting. So it would
01:30 10 provide the screen saver experience, which had curated
01:30 11 pictures and things -- pretty pictures and things to --
01:30 12 when you're not casting or also your personal photos
01:30 13 that you could put on the TV.
01:30 14 Q. What other responsibilities have you had for
01:30 15 Chromecast over the years at Google?
01:30 16 A. Yeah. So my responsibilities have changed
01:31 17 dramatically over the past ten years. So I -- as I
01:31 18 mentioned, I started out working on that screen saver
01:31 19 experience, but then I also went on to take on the
01:31 20 other servers and -- servers that supported the
01:31 21 Chromecast devices, as well as our analytics servers,
01:31 22 which is basically -- analytics is how you determine,
01:31 23 like, how devices are being used.
01:31 24 And then I also took on what we call the cast
01:31 25 SDK or the -- or the software developer kits for Cast.

01:31 1 You may have heard of those as part of the earlier
01:31 2 testimony.
01:31 3 And then ultimately took on responsibility
01:31 4 also for the device that runs on the -- the devices
01:31 5 themselves that do the casting.
01:31 6 Q. We'll come back to the cast SDK in a little
7 bit.
01:31 8 During your time at Chromecast or working on
01:31 9 Chromecast, did you -- were you involved in the launch
01:31 10 of any particular products?
01:31 11 A. Yes. So I was involved in pretty much the
01:31 12 launch of every cast-related product after the first
01:31 13 product. I did join right after we launched the first
01:32 14 version of the Chromecast, but the 2nd Generation
01:32 15 Chromecast, you heard, the 3rd Generation Chromecast,
01:32 16 the Chromecast 4K.
01:32 17 We had speakers that we released, Assistant
01:32 18 speakers that were released, smart displays. Also
01:32 19 worked on the WiFi routers that had some casting
01:32 20 functionality in them.
01:32 21 Q. Now, you mentioned cast SDK.
01:32 22 Can you explain to the jury what the cast SDK
01:32 23 is and how that relates to some of the other terms
01:32 24 we've heard? You know, we've heard "casting," for
01:32 25 example.

01:32 1 Just give the jury some context. What are we
01:32 2 talking about here?
01:32 3 A. Okay. That's a good question. So cast SDK or
01:32 4 software development kit, it basically is something
01:32 5 that companies build to help other companies build
01:32 6 things.
01:32 7 So you build some software to make it easier
01:32 8 for other people to build experiences. So they take
01:32 9 your software and then they build their own software on
01:32 10 top of it.
01:32 11 Q. Was "casting" a term that was coined by
01:32 12 Google?
01:32 13 A. Yes. It was.
01:32 14 Q. Besides the Chromecast devices, are there
01:33 15 other devices that use the cast SDK that you mentioned?
01:33 16 A. Yeah. So every device that is out there that
01:33 17 supports cast uses the cast SDK in some way or another,
01:33 18 as well as the phones that you have in your pockets,
01:33 19 they have portions of the cast SDK on them. And Chrome
01:33 20 browsers have portions of the cast SDK in them as well.
01:33 21 Q. And throughout your time at Google, have you
01:33 22 had responsibilities for the products that use the cast
01:33 23 SDK?
01:33 24 A. Yes. I have.
01:33 25 Q. To clarify, are there any products that

01:33 1 support casting that your team wasn't involved in?
01:33 2 A. No. There was not.
01:33 3 Q. In all, how long have you been working on cast
01:33 4 and cast-related devices at Google?
01:33 5 A. A little over nine and a half years. I think
01:33 6 it's like nine years, nine months.
01:33 7 Q. And in your estimation, about how many people
01:33 8 have worked on those products while you've been at
01:33 9 Google?
01:33 10 A. Oh, wow. There's been hundreds of people,
01:33 11 probably even thousands of people that have worked on
01:33 12 Chromecast with me over the past nine years.
01:34 13 Q. How large is your team currently?
01:34 14 A. My current team is about 250 people.
01:34 15 Q. And does your team still work on Chromecast
01:34 16 products?
01:34 17 A. Yes. It does.
01:34 18 Q. Mr. Van Der Staay, I want to talk a little bit
01:34 19 with you about the details of the casting process and
01:34 20 what's happening during that process. But let's start
01:34 21 at a high level for me, if you will.
01:34 22 And can you explain to the jury what are the
01:34 23 basic components that are necessary for casting to
01:34 24 occur?
01:34 25 A. So at the most fundamental level, there's two

01:34 1 things involved in casting. There's your phone, which
01:34 2 we often refer to as the sender, and then there's your
01:34 3 Chromecast device in your TV, which is -- we often
01:34 4 refer to as the receiver. So it's basically your phone
01:34 5 talking directly to your Chromecast device on the local
01:34 6 WiFi network.
01:34 7 Q. Do those two devices use the Internet at all
01:34 8 for the direct communications?
01:34 9 A. They do not.
01:34 10 Q. Now, one thing we've done a lot this week is
01:35 11 talk about casting. One thing we haven't done is seen
01:35 12 exactly what casting looks like and the user interface
01:35 13 for a person wanting to cast content.
01:35 14 Do you have a video that shows how users
01:35 15 actually cast?
01:35 16 A. Actually, yeah. I think there's a -- there's
01:35 17 a really good, like, help video that the Google help
01:35 18 team put together that is designed to kind of help
01:35 19 explain to users, like, how casting works. I think
01:35 20 that would be a really good demonstration of -- of the
01:35 21 casting experience.
01:35 22 Q. And you mentioned -- who prepared this video?
01:35 23 A. It was prepared by the Google team but by our
01:35 24 customer support team. So it's a -- it's a video that
01:35 25 you can view on our website. But, again, it's designed

01:35 1 to help users who might be interested in buying a
01:35 2 Chromecast or have bought a Chromecast device, to show
01:35 3 them how they cast.
01:35 4 Q. And in your experience as someone who's worked
01:35 5 on casting, is this video an accurate depiction of how
01:35 6 casting works to a user?
01:35 7 A. Yes. It is.
01:35 8 MS. STITT: Your Honor, we would move to
01:35 9 admit JX-333 and be able to have permission to play it
01:36 10 for the jury.
01:36 11 MS. DOUVILLE: There's no objection, Your
01:36 12 Honor.
01:36 13 THE COURT: Admitted.
01:36 14 MS. STITT: All right. Mr. McDonald will
01:36 15 put that up.
01:36 16 And stop at 40 seconds, if you would.
01:36 17 (Video played.)
01:36 18 MS. STITT: Thank you, Mr. McDonald.
19 BY MS. STITT:
01:36 20 Q. And was that the video that you were referring
01:37 21 to?
01:37 22 A. Yes. It was.
01:37 23 Q. So now that we've actually seen what casting
01:37 24 looks like and have an idea of the user interface, I
01:37 25 want to dive in a little bit into the details of what's

01:37 1 happening on those two components that you identified
01:37 2 during the casting process.
01:37 3 And in your binder, you have a document
01:37 4 JTX-187, which has already been admitted into evidence,
01:37 5 I believe. So if you could flip back to that document.
01:37 6 A. Okay.
01:37 7 Q. Is this a document that you discussed during
01:37 8 your deposition in this case?
01:37 9 A. It is. Yes.
01:37 10 Q. So is this one of the documents that was seen
01:37 11 on TV when you were testifying earlier?
01:37 12 A. Yes. It was. Yes.
01:37 13 Q. What is this document intended to show?
01:37 14 A. So the purpose of this document is basically
01:37 15 to help Google engineers that work on the Cast product
01:37 16 to explain to other engineers who don't work on the
01:37 17 Cast product how it works.
01:37 18 So it's kind of meant to be, like, almost,
01:37 19 like, a training type of document to explain to other
01:37 20 engineers how Cast works.
01:38 21 Q. And if you could turn to Page 2 of the
01:38 22 document.
01:38 23 You mentioned two basic components, and I want
01:38 24 to start with the Chromecast component that you
01:38 25 identified.

01:38 1 Can you -- first of all, what's the -- there's
01:38 2 a vertical line on this slide.
01:38 3 Do you see that?
01:38 4 A. I do. Yes.
01:38 5 Q. Can you identify for the jury, what does that
01:38 6 represent?
01:38 7 A. So this vertical line basically just means the
01:38 8 separation between the Chromecast device and other
01:38 9 devices that would be on the network.
01:38 10 Q. And we've heard a bit about the cast service
01:38 11 that shows up in the box to the left of that line.
01:38 12 Can you give some context as to what the Cast
01:38 13 service does with respect to casting?
01:38 14 A. So yes. So in this situation, Cast service
01:38 15 basically means a piece of software that's just always
01:38 16 running on the device. So that's why it's called Cast
01:38 17 service.
01:38 18 And the job of Cast service is really two
01:38 19 primary things.
01:38 20 One is to make it so that other devices can
01:38 21 find the Chromecast device. Like, you have to be able
01:39 22 to find it if you want to be able to cast to it.
01:39 23 And then the second piece of functionality it
01:39 24 provides is launching the applications.
01:39 25 Q. Are there any other names for the Cast service

01:39 1 that the jury might have heard throughout the week?
01:39 2 A. Yeah. So depending on who you talk to, you
01:39 3 may have heard the word "cast shell" or "media shell"
01:39 4 or "cast agent." They're all basically referring to
01:39 5 the same thing, and that's the software that runs on
01:39 6 the cast-enabled devices.
01:39 7 Q. Can you turn to Page 3 of this document?
01:39 8 A. Yes.
01:39 9 Q. One of the functions that you identified for
01:39 10 the Cast service was allowing the device to be
01:39 11 discoverable.
01:39 12 What does it mean to be "discoverable," and
01:39 13 what's shown on this slide?
01:39 14 A. Yes. "Discoverable" basically means that,
01:39 15 again, you can find the device on the network. So how
01:39 16 do you know that there's a Chromecast device in your
01:39 17 home?
01:39 18 That's basically what discovery means, and
01:39 19 that's the role that it's playing.
01:39 20 Q. Does discovery have to happen before you can
01:40 21 cast content?
01:40 22 A. That's correct. Yes. So that's the very
01:40 23 first thing that has to happen. It's kind of a
01:40 24 prerequisite to casting. You have to be able to
01:40 25 discover that there's a device.

01:40 1 Q. If we look at the text on the left in the top
01:40 2 of this slide, the first bullet says: Enables peers on
01:40 3 local network to discover the cast device.
01:40 4 We've heard a little bit about this concept,
01:40 5 but what are peers? What does that mean?
01:40 6 A. Yeah. So what "peers" means is another device
01:40 7 on the network or on your WiFi that makes a direct
01:40 8 connection to the cast device. That's what "peer"
01:40 9 means.
01:40 10 Q. Is there an alternative to a peer-to-peer
01:40 11 relationship between devices?
01:40 12 A. Yes. So when you have two peers like that
01:40 13 that are talking to each other, that's considered
01:40 14 peer-to-peer.
01:40 15 And so, for example, if you had three
01:40 16 Chromecasts in your home and you had three phones, all
01:40 17 three phones would have a connection to all three
01:40 18 Chromecasts. So you have this kind of like
01:40 19 crisscross-y connections happening all throughout your
01:41 20 home.
01:41 21 Whereas, the alternative to that is you have
01:41 22 what was called in -- generally in software
01:41 23 engineering, is a client-server relationship.
01:41 24 And in the client-server relationship, instead
01:41 25 of having all those things crisscross into each other,

01:41 you have them all point to, like, one box, like one
01:41 thing. Often that thing is in the Internet, somewhere
01:41 out in the Internet in some data center somewhere.
01:41 And they would all connect to that one
01:41 centralized location, and that centralized location
01:41 would get a message from the phone, do some processing
01:41 or something, and then decide what to do with it, where
01:41 to send it down.
01:41 So everything kind of funnels into that single
01:41 point. You can think of it as kind of a big funnel.
01:41 Everything goes into one location and comes out from
one location.
01:41 And that's kind of the difference between
01:41 peer-to-peer, where there are all this
01:41 meshed-together-type thing in your home, versus
01:41 client-server, where everything goes into one location
01:41 and comes out of that one location.
01:41 Q. Have you heard peer-to-peer referred to as
01:41 one-to-one?
01:41 A. Yes. That is another word that we use in
01:41 software is one-to-one versus peer-to-peer.
01:41 Q. And have you heard client-server referred to
01:42 as one-to-many?
01:42 A. That's correct. So we often consider it
01:42 one-to-many. Again, that's talking about, you know,

01:42 1 one-to-one, if there's one of these, one client,
01:42 2 another client over here, one-to-one, versus one up
01:42 3 here and lots of things connected, one-to-many.
01:42 4 Q. Why did Google choose an architecture where
01:42 5 the Chromecast and the phone were peers?
01:42 6 A. So there's actually three major reasons that
01:42 7 we decided this.
01:42 8 The first is something we call scalability.
01:42 9 And that's kind of a weird word, right, scalability?
01:42 10 But what it actually really means is that -- how easy
01:42 11 it is to do this when -- if you were really successful,
01:42 12 if we have lots of these devices out there, and what it
01:42 13 would take to be able to offer this service to users.
01:42 14 And if you'd picked a client-to-server
01:42 15 relationship, like -- as you saw in the video, you open
01:42 16 up your phone app and there's a little box that -- has
01:42 17 a little square box with little squigglies on it that
01:42 18 that person clicked, that means that it has found a
01:43 19 cast device.
01:43 20 And if we wanted to provide that experience
01:43 21 every time you open an app that supported casting and
01:43 22 had that little squiggly box, you have to understand,
01:43 23 like, is there a cast device available?
01:43 24 So if we were doing a client-to-server
01:43 25 relationship or design here, every time that anybody

01:43 1 anywhere opened an app on their phone, it would have to
01:43 2 go call out to some server to say, Figure out where I
01:43 3 am. Is there any cast device near me?
01:43 4 And I don't know about you, but you probably
01:43 5 all have phones and -- in this courtroom and only a few
01:43 6 of you may have a cast-enabled device at home.
01:43 7 So it doesn't really scale, is what we would
01:43 8 say. Like, it doesn't -- the amount of people that
01:43 9 have phones and that use apps all the time doesn't
01:43 10 match the amount of people that have Chromecasts.
01:43 11 So it's not a great design choice for, you
01:43 12 know, doing this client-to-server relationship.
01:43 13 Q. Other than scalability, were there additional
01:43 14 reasons to choose peer-to-peer?
01:43 15 A. Yeah. So that was the first major one. The
01:43 16 second major reason was actually for privacy.
01:43 17 So, you know, you don't want people outside
01:44 18 your home playing random videos on your TV, right?
01:44 19 You don't want, like, people you don't know
01:44 20 playing random videos on your TV. You don't want,
01:44 21 like, the stranger that you let in to, you know, doing
01:44 22 the gardening -- sorry.
23 Am I going too fast? I'm so sorry.
01:44 24 You don't want this, like, you know, somebody
01:44 25 that you let into your home as a salesman to start

01:44 1 watching random movies on your TV.
01:44 2 So, you know, the fact that it's peer-to-peer
01:44 3 means also on the local WiFi network. So we wanted to
01:44 4 make sure that people were actually in the homes,
01:44 5 actually on the local WiFi network. You trust them
01:44 6 enough to give them the WiFi password before they could
01:44 7 show the content on your TV.
01:44 8 Q. Were there any other reasons?
01:44 9 A. Yeah. The final reason I think was really
01:44 10 around speed. You know, you want this to be fast,
01:44 11 faster than I can talk.
01:44 12 And, you know, you really would like -- you
01:45 13 know, when something happens that you need to pause a
01:45 14 movie, say, somebody rings a doorbell, you want to be
01:45 15 able to pause right away.
01:45 16 In a client-server relationship, those servers
01:45 17 are hundreds, thousands of miles away. It takes a
01:45 18 really long time for something to come out from your
01:45 19 phone, go out to the Internet, go to some server, do
01:45 20 some processing, come back, go down to the TV and send
01:45 21 that pause. That could be five seconds in certain
01:45 22 situations.
01:45 23 So that's not a very good user experience.
01:45 24 Somebody's waiting at your door for five seconds while
01:45 25 you're, like, sitting there trying to pause the game or

01:45 1 something. Like, it just -- it's not a great
01:45 2 experience.
01:45 3 So that's what we refer to in terms of
01:45 4 latency, what we talk about in software engineering.
01:45 5 And a peer-to-peer connection is on the local WiFi,
01:45 6 it's almost instantaneous, and it's really to be able
01:45 7 to provide that seamless experience that you would
01:45 8 expect from your remote control.
01:45 9 Q. Mr. Van Der Staay, can you turn to Page 8 of
01:45 10 this document, please?
01:45 11 A. Yes.
01:45 12 Q. And we've added a cast browser box.
01:45 13 Can you explain generally the responsibilities
01:45 14 of the cast browser as it relates to casting?
01:46 15 A. Yes. So in this diagram, I do want to call
01:46 16 out that it shows two separate boxes. It's really all
01:46 17 part of one thing here. It's all part of the same
01:46 18 software that runs on the Chromecast device.
01:46 19 The reason that we split them out is because
01:46 20 they are serving different sets of functionality. And
01:46 21 the cast browser is here, and that box is just like any
01:46 22 browser that you may use on your phone or on your
01:46 23 computer at home.
01:46 24 And it's just a web browser. And that web
01:46 25 browser is there to allow the Chromecast device to load

01:46 1 a website URL or a web app to do the video playback.
01:46 2 Q. And just to clarify, you mentioned two boxes.
01:46 3 So what is the relationship between the cast
01:46 4 browser and the Cast service?
01:46 5 A. So between the cast browser and the Cast
01:46 6 service, they're on the same device. They're actually
01:46 7 part of the same physical piece of software in those
01:46 8 cases.
01:46 9 Q. Now, within the cast browser on this slide, we
01:46 10 see a partner app in a slightly different color.
01:46 11 What is that talking about?
01:46 12 A. So the different color here, that yellowish
01:47 13 color, denotes that partner application or that partner
01:47 14 web app that's running inside that browser. So that
01:47 15 would be like Netflix or ESPN.
01:47 16 Just like, again, on your computer when you
01:47 17 open up a Chrome tab, you go to a website. That's what
01:47 18 that denotes. Like, each one of those is a website
01:47 19 that is loaded on that browser.
01:47 20 Q. And we also see a box that says "Receiver
01:47 21 SDK," and you explained what the cast SDK is.
01:47 22 For those of us who aren't software developers
01:47 23 and may not use kits for that purpose, can you tell us
01:47 24 in layman's terms, what does the receiver SDK do?
01:47 25 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 1 Q. Are you aware of any partner apps that do not
01:48 2 use all of the Google receiver SDK?
01:49 3 A. Yes. I am. So actually, some of our biggest
01:49 4 apps that -- that you probably use at home don't use
01:49 5 all of the receiver SDK. So Netflix, for example, does
01:49 6 not use all of the receiver SDK. YouTube does not use
01:49 7 all of the receiver SDK.
01:49 8 In fact, I think Facebook doesn't use any --
01:49 9 if -- if -- like maybe a tiny bit, but I don't think
01:49 10 they use any of the receiver SDK in their application.
01:49 11 Q. So if a partner application doesn't use
01:49 12 Google's provided receiver SDK, what do they do?
01:49 13 A. That's up to them. They can do whatever they
01:49 14 want. But I don't know. Like, we -- if they decide to
01:49 15 do all their own experience, build their own things,
01:49 16 they can do that.
01:49 17 Again, we just provide this to make their jobs
01:49 18 easier, to make it easier for them to do that. If they
01:49 19 want to go down to the low level and handle everything
01:49 20 themselves, they can.
01:49 21 Q. Mr. Van Der Staay, we've been focused till now
01:49 22 on the left side of that dotted line, so things that
01:49 23 are on the Chromecast device. Let's talk a little bit
01:49 24 about the other component that you identified as
01:50 25 necessary for casting and flip to Page 9 of this

01:50 1 document.
01:50 2 A. Okay.
01:50 3 Q. Is that component shown here?
01:50 4 A. Yes. It is. So -- so this is what we call
01:50 5 the cast sender, which in this situation is the phone.
01:50 6 There's many different devices that this could be, but
01:50 7 I think phone is probably the most prevalent.
01:50 8 Q. And within the phone that's shown to the right
01:50 9 of the dotted line there, there's another little box
01:50 10 that says "partner app."
01:50 11 Does that correspond to what we were looking
01:50 12 at on the device?
01:50 13 A. Yep. Exactly. So it's the same set of idea.
01:50 14 That's the partner's application, that they build their
01:50 15 iOS app or their Android app, depending on what type of
01:50 16 phone you have, and it's completely their application.
01:50 17 They own that, they build that, they manage all of
01:50 18 that.
01:50 19 Q. And I see "sender SDK" on the phone.
01:50 20 What is that?
01:50 21 A. So the sender SDK is just like we had on the
01:50 22 receiver side. Again, that's some software that we
01:51 23 provide them to make it easier for them to do those
01:51 24 common casting-type experiences if they decide to use
01:51 25 it.

01:51 Q. Does this slide that we're looking at,
01:51 Slide 9, include all of the components that are used in
01:51 the standard casting process?
01:51 A. Yes. It does.
01:51 Q. Does this slide depict any Google servers?
01:51 A. No. It does not.
01:51 Q. Why not?
01:51 A. Because there's no servers that are used in
01:51 the normal casting flow. When you go cast something,
01:51 it's just these two pieces of software, your phone and
01:51 this device directly talking to each other.
01:51 Q. And on this slide, it says -- on the top left
01:51 under Cast Sender, there's a first bullet that says:
01:51 Network peer that speaks Cast V2.
01:51 What does it mean to "speak Cast V2"?
01:51 A. Yeah. So Cast V2 is what we refer to as a
01:51 protocol. I think you may have heard Majd talk about
01:51 this a little bit earlier today.
01:51 But it's basically just a definition of how to
01:52 talk to somebody, like a language almost, you know.
01:52 And it is a speak -- network peer that speaks V2 means
01:52 that we make a direct connection on the network, and
01:52 then once they make that connection, they -- they talk
01:52 that protocol or that language to each other.
01:52 Q. Okay. So we've got the components. Now

01:52 let's -- let's talk a little bit about what happens
01:52 next. If we can flip to Slide 18, please.
01:52 What's shown here?
01:52 A. So this shows -- this slide shows it's
01:52 switched from just the boxes to how the different flows
01:52 and steps work. And this basically shows that process
01:52 of creating a connection between your phone and your
01:52 Chromecast device on the local network.
01:52 Q. Is there any intermediary between the phone
01:52 and the Chromecast when they use the Cast protocol as
01:52 shown on the slide?
01:52 A. No. There is not.
01:52 Q. Let's turn to Page 20. That's the one I want.
01:53 What happens next?
01:53 A. So the next -- the next step that happens
01:53 after you make that connection is you want to launch
01:53 some application. And that's what this -- this slide
01:53 is showing. It's -- it's showing that it's -- wants to
01:53 launch the Spotify app in this example.
01:53 Q. And so what is shown here? How -- how does
01:53 that happen?
01:53 A. So the way that happens is that over that
01:53 connection that was made, it would basically send what
01:53 we -- like a launch command, and that launch command
01:53 would provide this -- this weird looking number that

01:53 you see here, this CC32E753. That's what we call an
01:53 app ID or an application ID. It sends that over and --
01:53 to let the Chromecast know what -- what app that user
01:53 wants to launch.
01:53 Q. So I want to stop you there for a moment
01:53 because we've heard a lot about this cast app ID over
01:53 the past few days.
01:53 Can you clarify what is the cast app ID and
01:54 what does it include?
01:54 A. So the cast app ID is -- is basically just --
01:54 just a number or kind of a number that is assigned by
01:54 Google to a partner. So Spotify wants to create -- in
01:54 this example, wants to do casting, wants to create a
01:54 cast app.
01:54 They would go to a Google website somewhere
01:54 and say, Hey, I want to register to do casting. And we
01:54 would give them a cast ID.
01:54 And then they would specify, based on that
01:54 cast ID, you know, what different web apps they wanted
01:54 to load for what different device types. And we would
01:54 do a review when they submit that to make sure that
01:54 their apps are, you know, safe for users and meet our
01:54 content policies and things.
01:54 And when we approve it, they're able to use
01:54 that number to launch an application on a Chromecast

01:54 1 device.
01:54 2 Q. Is there a one-to-one relationship between the
01:54 3 cast app ID and the web address or URL of the
01:54 4 application that is to be launched?
01:54 5 A. There is not.
01:55 6 Q. Does any of the message -- does the message
01:55 7 that we see in this slide from the phone to the device
01:55 8 include a URL or web address for the application that
01:55 9 is to be launched?
01:55 10 A. It does not.
01:55 11 Q. Is there a reason why that message doesn't
01:55 12 include a URL or web address?
01:55 13 A. Yes. There's actually a few very good reasons
01:55 14 why we don't just use web addresses.
01:55 15 First of all, as we mentioned, you don't want
01:55 16 random things to be launched on your network, right?
01:55 17 You don't want your TV to show random shows. And if
01:55 18 you just provide a URL, there's no way of knowing what
01:55 19 that URL could be.
01:55 20 So one of the major reasons that we have this
01:55 21 is that -- so it can be registered and that we can go
01:55 22 check what those apps -- how those apps work and make
01:55 23 sure that they're safe for people in the home and meet
01:55 24 our policies around the type of content that we allow
01:55 25 on Chromecast devices. So that's -- that's the first

01:55 1 big reason.

01:55 2 The second big reason is to actually allow

01:56 3 partners to build unique experiences, depending on what

01:56 4 device that they're, you know, playing stuff on.

01:56 5 So I think you saw in -- in Corey's

01:56 6 presentation the other day, you saw all those different

01:56 7 types of devices that we have that support cast. You

01:56 8 saw those speakers and those things with screens and

01:56 9 displays. And then you saw TVs, and you saw

01:56 10 third-party TVs.

01:56 11 Each one of those, a partner might say, like,

01:56 12 Hey, I have a different type of experience, a different

01:56 13 type of player that I want to load on those different

01:56 14 screens because, you know, this one has a touchscreen.

01:56 15 So I want a room I can go up and I can poke on

01:56 16 some things and select some things or drag. You know,

01:56 17 this one has a remote. So I want to be able to support

01:56 18 the remote play/pause commands.

01:56 19 So it's up to each individual app developer

01:56 20 what they want to do in order to kind of optimize that

01:56 21 experience to get the best possible experience to their

01:56 22 users. So this allows them to do that, because they

01:56 23 can target different web apps or different URLs for

01:56 24 different devices in the home that support Cast.

01:57 25 Q. So if the cast app ID doesn't include a web

01:57 1 address or a URL, how can it be used to launch the app?
01:57 2 A. So the Chromecast device, right, when it
01:57 3 starts up, it basically goes and checks into Google.
01:57 4 It calls a Google server somewhere. And it says --
01:57 5 when it boots up, it says, Hey, here's the device I am.
01:57 6 I am this type of device. And it will get a list of
01:57 7 all the approved apps and the URLs for that individual
01:57 8 app to be loaded for that individual device.
01:57 9 Q. Let's talk about what happens once the -- once
01:57 10 the application is launched.
01:57 11 MS. STITT: If we could turn to Page 25
01:57 12 of this document.
01:57 13 A. Okay.
01:57 14 BY MS. STITT:
01:57 15 Q. What's being shown on this page?
01:57 16 A. So this page shows that step after you've done
01:57 17 the launch and shows that when a phone is actively open
01:57 18 and you have the -- I think -- yeah, this is Spotify --
01:58 19 you have the Spotify app open on your phone and you're
01:58 20 playing something on Spotify on the Chromecast device.
01:58 21 And this shows how the phone is connected
01:58 22 directly to the Chromecast device and how the Spotify
01:58 23 app is directly connected to the -- Spotify app on the
01:58 24 Chromecast device is directly connected to the Spotify
01:58 25 app on the phone, and then the types of messages that

01:58 it can send generally while playing media.
01:58 Q. So does this show all the different commands
01:58 that can be sent between the phone and the Chromecast
01:58 device?
01:58 A. This shows a set of the common commands, I
01:58 would say. They can send any command they want.
01:58 It's -- you know, you can think about this as we
01:58 basically allow the people who are building these apps
01:58 to basically send letters to each other.
01:58 So they can write whatever they want in those
01:58 letters, and it gets passed from the application
01:58 running the phone directly into the application running
01:58 on the Chromecast device.
01:58 Q. So looking at this slide, the -- the green
01:58 arrow is the connection. And it goes from the phone
01:58 through the Cast service to the partner app?
01:59 A. That's correct. Yes. So this is --
01:59 Q. Why is that?
01:59 A. This is -- this is what we call a passthrough
01:59 connection, basically, in software. Basically, it
01:59 means that it is just going straight through that and
01:59 connecting directly into the application running inside
01:59 the Chromecast.
01:59 I think the easiest way to think about this is
01:59 to kind of think about -- go back to that letter

01:59 1 analogy I mentioned earlier. And, you know, what
01:59 2 they're sending is letters back and forth.
01:59 3 This green arrow basically is -- is like the
01:59 4 postal route. And that blue box, the only thing that
01:59 5 the blue box is doing -- that Cast service box is doing
01:59 6 in this diagram is making sure -- acting as the post
01:59 7 office and making sure that it gets delivered to the
01:59 8 right application and the right location.
01:59 9 So just like the post office doesn't open your
01:59 10 mail, right? We all hope the post office doesn't open
01:59 11 our mail. It just passes it right through and makes
01:59 12 sure it gets delivered to the right address.
01:59 13 Q. And this diagram and the way Chromecast is set
01:59 14 up, is there any need to translate or modify those
01:59 15 messages that are being passed along that green arrow?
01:59 16 A. No. There's not.
02:00 17 Q. Mr. Van Der Staay, while we're on this slide,
02:00 18 do you recall seeing some of your deposition played
02:00 19 earlier this week and testimony about some functions
02:00 20 called store session and resume session?
02:00 21 A. Yes. I do.
02:00 22 Q. What do those functions do?
02:00 23 A. So what I was talking about in that -- when
02:00 24 they played that video was what happens when -- in this
02:00 25 exact scenario shown on this page, what happens when

02:00 1 that phone -- when that Spotify app on your phone, you
02:00 2 want to go use your phone for something else, you want
02:00 3 to, you know, put that app into the background, maybe
02:00 4 go check your e-mail, go read the news or something or
02:00 5 if you turn the screen off on your phone and started
02:00 6 walking around your house or whatever you were doing.
02:00 7 So when that happens, that direct peer-to-peer
02:00 8 Cast V2, you know, connection that we have, that green
02:00 9 line disappears.
02:00 10 So what we wanted to make sure is that
02:00 11 whenever someone gets their phone back open, turns the
02:00 12 screen back on, opens that Spotify app, that there's a
02:01 13 way for them to go, you know, go reconnect and, you
02:01 14 know, be able to go regain control of the -- of what's
02:01 15 happening on the Chromecast device.
02:01 16 So what store session does is basically keep
02:01 17 one ID, one identifier, like, that tells the phone,
02:01 18 like, I had a connection. This was the connection that
02:01 19 I had, that green line. What is that green line? And
02:01 20 allows it to resume that connection, re-establish that
02:01 21 connection.
02:01 22 Q. Thank you, Mr. Van Der Staay.
02:01 23 We heard a lot about servers over the past few
02:01 24 days. I want to turn to Page 10 of this diagram.
02:01 25 Are servers used in any aspect of this

02:01 1 standard casting flow that we've been discussing till
02:01 2 now?
02:01 3 A. No. It's not.
02:01 4 Q. And on this slide here -- we've seen this
02:01 5 slide before, right?
02:01 6 A. I have. Yes.
02:01 7 Q. And at the bottom right, there's a box to the
02:01 8 right of the dotted line that we've been looking at
02:01 9 that's labeled Cast Services Cloud and it has three
02:01 10 little boxes in it.
02:02 11 Do you see that?
02:02 12 A. I do. Yes.
02:02 13 Q. And I think you were here when Dr. Almeroth
02:02 14 talked about the servers in these boxes, right?
02:02 15 A. I was. Yes.
02:02 16 Q. Can you explain generally what these servers
02:02 17 are?
02:02 18 A. Yes. So these servers are not actually
02:02 19 directly involved in that casting experience that I
02:02 20 just talked about, but they do provide some additional
02:02 21 functionality for Chromecast in general.
02:02 22 So there's three major servers. They all have
02:02 23 very similar names, so it's a bit confusing. But
02:02 24 there's the DCS, which is called the device
02:02 25 configuration server. There is the CCS, which is --

02:02 1 stands for the cloud casting server. And then there's
02:02 2 the COS, which is the cast orchestration server.
02:02 3 So there are three different servers that help
02:02 4 provide some level of functionality for the overall
02:02 5 Chromecast.
02:02 6 Q. That's a lot of acronyms.
02:02 7 A. Yes. It is.
02:02 8 Q. Can we start with the DCS? What does it do?
02:02 9 A. Yes. We can.
02:02 10 So the DCS basically provides -- the basic
02:03 11 functionality it provides is the thing I talked about
02:03 12 earlier around how a developer will come in and want
02:03 13 to, say, register their application and make sure
02:03 14 everything's okay with that application.
02:03 15 That's the job of the DCS server. It has that
02:03 16 list of approved applications and the appropriate,
02:03 17 like, web app URLs for them for each different cast
02:03 18 device type.
02:03 19 And what happens when the Chromecast device
02:03 20 boots up for that first time, when you turn it on, it
02:03 21 goes and fetches that list from the DCS server and it
02:03 22 gives all that config information, which, again, is
02:03 23 basically just the list of all the apps that are
02:03 24 supported by that device.
02:03 25 Q. You said "config information," you mean

02:03 configuration?

02:03 A. Yes. Configuration. Sorry. I'm so sorry for

02:03 using the short forms.

02:03 Yes. Configuration, which is why it's called

02:03 device configuration service. It gives the device its

02:03 configuration information.

02:03 Q. And the next one is the CCS server.

02:03 What about that server?

02:03 A. Yes. So the CCS server is actually used for

02:04 something we haven't talked about really at all during

02:04 this trial. I think Corey briefly mentioned it in his,

02:04 you know, explanation of the types of different use

02:04 cases that the device uses and the value of those use

02:04 cases that he saw from the user perspective.

02:04 It's basically there to support something

02:04 called "voice casting." And what voice casting is is

02:04 the ability for you to use your voice to ask Google to

02:04 play a particular song or a particular movie.

02:04 So if you want to watch those reruns of

02:04 Friends, you could say, Hey, Google. Play Friends,

02:04 Episode 1. And it would go find Friends, Episode 1 and

02:04 start a cast session on a Chromecast device or

02:04 cast-enabled device.

02:04 Q. In voice casting, just to clarify, does that

02:04 use a mobile device or a similar device as a sender

02:04 1 device?
02:04 2 A. No. It does not. So it doesn't work the same
02:04 3 as -- the standard cast we've been talking about does
02:04 4 not have that mobile sender device that we showed.
02:05 5 It's just about using your voice.
02:05 6 And, again, we just haven't talked about it at
02:05 7 all here in the trial.
02:05 8 Q. We've got one more server on this slide. That
02:05 9 is the COS server.
02:05 10 What does that one do?
02:05 11 A. Yes. So the COS server here, or the cast
02:05 12 orchestration server, it is basically used for, again,
02:05 13 something we haven't really talked much about in this
02:05 14 trial. And that's actually most -- this main client is
02:05 15 something called the Home app, which is an app that you
02:05 16 download on your phone to set up your devices, your
02:05 17 Chromecast devices.
02:05 18 So if you went and you bought a Chromecast
02:05 19 device or a Nest speaker, the way that you go get those
02:05 20 devices on your network is you open -- you download the
02:05 21 Home app on your phone, you open the Home app on your
02:05 22 phone, and then you go through the steps to set it up.
02:05 23 And that server is there to help facilitate
02:05 24 that phone do things like your personal preferences and
02:05 25 what you want to name things and, you know, your --

02:05 what you named your home and basically just to support
02:05 that application to be able to set up devices.
02:06 Q. Okay. So we've been through all three. And
02:06 thank you for the clarification on voice casting.
02:06 Going back to the standard casting flow that
02:06 we've talked about.
02:06 A. Yes.
02:06 Q. Are these cloud servers that we've just
02:06 talked, the three of them, used to communicate Cast
02:06 protocol messages between the phone and the Chromecast
02:06 in the standard casting flow?
02:06 A. They are not. No.
02:06 Q. Mr. Van Der Staay, you were here this morning,
02:06 right?
02:06 A. Yes.
02:06 Q. And you were here when Mr. Bakar was asked
02:06 whether there was a server running on the Chromecast
02:06 device to receive messages?
02:06 A. Yes. I was. Yes. I remember that.
02:06 Q. And you recall him testifying that there was
02:06 and it was a piece of software?
02:06 A. That's correct. Yes. What he was referring
02:06 to there is some -- a piece of software that is called
02:06 mDNS server, which is running on the Chromecast device.
02:06 Q. So what does the mDNS server do?

02:06 A. So mDNS server is a piece of software that
02:06 actually is a piece of software that's used by tons of
02:06 different companies. It is not something that is
02:06 unique to Google. In fact, I actually belive it was
02:07 built by Apple back in the late '90s.
02:07 And it's used to help facilitate that
02:07 prerequisite step that I talked of, like, how do you
02:07 find a cast device or how do you find any device of a
02:07 particular type on a network?
02:07 So this is also in your printers. This is how
02:07 your computer finds your printers.
02:07 Q. Does the mDNS server on the Chromecast have
02:07 any role in the communications between the phone and
02:07 the Chromecast during the casting process?
02:07 A. No. It does not.
02:07 Q. And other than the mDNS server, are you aware
02:07 of any other servers on the Chromecast device?
02:07 A. I am not.
02:07 Q. Now, we've used the term "standard casting" a
02:07 few times in our discussion today.
02:07 Are the -- and that's what we've been talking
02:07 about up until now through these slides.
02:07 Are there other ways to cast content?
02:07 A. Yes. There are other ways to cast content.
02:07 So the first one is one we just kind of talked

02:07 1 very briefly about, which is the voice casting, which
02:08 2 is, again, where you use your voice.
02:08 3 The other two types of casting, which may have
02:08 4 actually been mentioned in the trial, are open casting
02:08 5 and relay casting.
02:08 6 Q. Let's start with open casting.
02:08 7 How does open casting work?
02:08 8 A. So open casting is also called guest mode.
02:08 9 And based on that, you might be able to figure out what
02:08 10 it's designed for.
02:08 11 But the idea behind guest mode is in the
02:08 12 situations where you didn't want somebody on your WiFi
02:08 13 network but you did want them to be able to show some
02:08 14 content on your screen, you have a visitor at your home
02:08 15 and they want to show you their videos or their
02:08 16 favorite YouTube videos but you don't want to give them
02:08 17 your WiFi password, open casting allows that to happen.
02:08 18 And the way that that works is that there's a
02:08 19 server that will facilitate that discovery and
02:08 20 connection thing that we talked about. But instead of
02:08 21 that being, like, local in the network, it creates a
02:08 22 peer-to-peer connection that goes through the Internet.
02:08 23 So it's still one to-one, peer-to-peer, but
02:08 24 it's going through the Internet.
02:09 25 Q. What, if anything, does the server in open

02:09 1 casting do with the messages sent from the phone to the
02:09 2 Chromecast device?
02:09 3 A. It doesn't do anything to them. So going back
02:09 4 to that, like, letter and post office analogy and that
02:09 5 postal route analogy that I talked about earlier for
02:09 6 the local casting, it works the same way with open
02:09 7 casting except for the Open Cast server becomes that
02:09 8 post office and makes sure that those messages go to
02:09 9 the right place. And that's all it does.
02:09 10 It doesn't look at them, doesn't modify them,
02:09 11 doesn't open them. It just simply routes them to the
02:09 12 right address.
02:09 13 Q. What about relay casting? What's that?
02:09 14 A. So relay casting actually does use a lot of
02:09 15 similar technology as open casting, but it's used for a
02:09 16 different use case.
02:09 17 So versus it being a guest coming into your
02:09 18 home that you want to be able to let cast content on
02:09 19 your TV, relay casting is used in the case where you
02:09 20 happen to be at home and, for whatever reason, you lose
02:10 21 WiFi on your phone while you're casting.
02:10 22 So relay casting is designed for those kind
02:10 23 of, like, edge cases or error cases or maybe you were
02:10 24 listening to some Spotify music that we had in our
02:10 25 example and you went out back to your backyard and your

02:10 1 WiFi is a little spotty out in your backyard.
02:10 2 It would fall back to using cellular to be
02:10 3 able to allow you to continue to control that session.
02:10 4 Q. And what, if anything, does the remote Google
02:10 5 server do with messages that it receives during relay
02:10 6 casting?
02:10 7 A. It does not do anything to them. So -- again,
02:10 8 just like the local -- local scenario that you saw,
02:10 9 just like the Open Cast or guest mode scenario you saw,
10 same deal, same -- if we're using that same analogy,
02:10 11 it, again, acts as that post office, making sure that
02:10 12 the messages get to the right location, but it doesn't
02:10 13 do anything to those messages.
02:10 14 Q. Is there any translation done?
02:10 15 A. No. There's not.
02:10 16 Q. Do you have an understanding as to how often
02:10 17 relay casting is used compared to standard casting?
02:10 18 A. Yeah. Relay casting is very limited in its
02:11 19 uses. As I mentioned, it is something that we built
02:11 20 actually pretty recently to support the sort of error
02:11 21 cases.
02:11 22 And we did that because people would complain
02:11 23 that -- you know, especially as we had more speakers
02:11 24 where you can hear music throughout the house, that
02:11 25 they were going locations around the house more when

02:11 they were casting than before, and they were going to
02:11 locations where potentially WiFi wasn't working as
02:11 well.
02:11 So it's just there as an extra added boost to
02:11 make the experience better for users, but it hardly
02:11 ever gets used. It's only in those scenarios where
02:11 you're going to your backyard or whatever.
02:11 Q. Switching gears just a little bit, Mr. Van Der
02:11 Staay, do you recall hearing some testimony about
02:11 something called DIAL/MDx?
02:11 A. I do. Yes.
02:11 Q. And what is DIAL/MDx used for in this context?
02:11 A. So DIAL/MDx is actually not related to Google
02:11 Cast at all. DIAL/MDx is a particular thing that
02:11 YouTube has built and it's to enable what they call
02:12 second screen experiences.
02:12 So we heard a bit about second screen
02:12 experiences this morning and you've heard that
02:12 throughout the trial, but YouTube wants to support
02:12 those same sort of second screen experiences on
02:12 noncast-enabled devices.
02:12 So DIAL/MDx is what allows you to do that
02:12 on -- again, on devices that are not cast-enabled.
02:12 Q. Can you give the jury some examples of devices
02:12 that are noncast-enabled that use DIAL/MDx?

02:12 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

02:13 to see landscapes? What do you want to see? And we
02:13 have a collection of photos that we've gotten from
02:13 partners to show on the TVs.
02:13 Also, it allows you to show your personal
02:13 photos. So you can pick people that you know and -- or
02:13 you can pick photo albums that you have, and it will
02:13 show those on your TV when you're not actively casting
02:13 or on your display, when you're not using it. Kind of
02:13 like a -- you know, it's like a digital photo frame on
02:13 steroids. It's a good way to kind of think of it.
02:13 Another way that we support bringing content
02:14 over besides casting is mirroring. And you've heard a
02:14 little bit, I think, about mirroring during the trial.
02:14 And what mirroring is is the ability to take the screen
02:14 that you have on one device and then mirror or show
02:14 that screen on another device.
02:14 So you can do a dropdown on your phone, and
02:14 you can, say, click mirroring, and select device. And
02:14 it will take that full screen, and it will show it on
02:14 that other device.
02:14 The third way that we support additional
02:14 content on the cast device is, again, something called
02:14 remote display, which I don't think was mentioned
02:14 during the trial at all.
02:14 And what remote display is is a way that a app

02:14 1 developer wants to build an experience where they can
02:14 2 have complete control of the screen on a Chromecast.
02:14 3 So instead of writing a web app, they want to have
02:14 4 complete control. They want to be able to draw all the
02:14 5 graphics and do everything that they want.
02:14 6 And the way that they do that is they actually
02:15 7 write an app on the phone, and that app on the phone
02:15 8 can run in the background, and it can decide what it
02:15 9 wants to show and what it wants to draw, and then it
02:15 10 outputs that to the Chromecast.
02:15 11 So you can still use your phone for other
02:15 12 things, do whatever you want on your phone, but that
02:15 13 app is running in that background, and it's doing all
02:15 14 the hard work to figure out what it wants to show and
02:15 15 then display on the Chromecast.
02:15 16 So that's actually used today for the Google
02:15 17 Photos experience on Chromecast. So if you wanted to
02:15 18 cast Google photos, that's actually what it's doing.
02:15 19 It's creating a surface in the background.
02:15 20 And that's how they can do like these
02:15 21 animations and transitions from one photo to another
02:15 22 photo. I don't know if you ever used Google Photos.
02:15 23 They have these things where they, like, kind of
02:15 24 dynamically create these, like, videos out of your
02:15 25 photos. It can kind of do those experiences on your

02:15 TV.

02:15 Q. And were all three of those ways that you just

02:15 mentioned to show content that aren't casting available

02:15 on all Chromecast devices?

02:15 A. Yes. They are.

02:15 Q. Including the original Chromecast?

02:15 A. Yes. They are.

02:15 Q. You mentioned earlier that you worked on

02:15 implementing Cast in other Google devices that support

02:15 casting, like smart speakers and smart displays.

02:16 Are you familiar with additional features

02:16 available on those devices in addition to casting?

02:16 A. I am. Yes.

02:16 Q. And in your work on Chromecast over the years,

02:16 did you have any responsibilities to analyze or

02:16 understand how it is that users were using those

02:16 devices and the various features that were available to

02:16 them?

02:16 A. Yes. I did.

02:16 So as I mentioned earlier, throughout my

02:16 career progression at Google, one of the additional

02:16 responsibilities I took on was what we call analytics,

02:16 which, again, is the ability -- all the -- all the

02:16 tools and infrastructures and things that we build at

02:16 Google to understand our business, understand how our

02:16 users are using things.

02:16 Q. And based on your experience over the years,

02:16 what are the top use cases or uses of Google's multiuse

02:16 devices such as the speakers and displays that we've

02:16 been talking about?

02:16 A. So I'll talk about each individually because

02:16 they are a little different. Because, you know, they

02:16 work differently, they look differently. Different

02:16 people will buy them for different reasons.

02:16 So I'll start out with the speakers.

02:17 The top three use cases for speakers are voice

02:17 casting, which we talked about, which is, Hey, how do I

02:17 use my voice to play music? That's what people want to

02:17 do, and that's the most common use case.

02:17 The second most common use case generally has

02:17 to do with something we call productivity. So this is

02:17 where you would, you know, ask Google to set a timer

02:17 for you, do a reminder, what temperature is it outside,

02:17 potentially ask about a recipe or something like that.

02:17 And then the -- so sorry. I'm blanking on the

02:17 third.

02:17 So it's -- first is audio casting.

02:17 Productivity.

02:17 Ah. And then the third use case is Smart

02:17 Home. So I think you heard Corey mention Smart Home.

02:17 1 What Smart Home really is is that you can go buy fancy
02:17 2 light bulbs and things like that at Home Depot or
02:17 3 wherever, and you can plug those in and put those light
02:17 4 bulbs on your WiFi.
02:17 5 If you bought a new dishwasher lately, you may
02:18 6 notice they have WiFi. Everywhere you go, every device
02:18 7 is getting WiFi on it now. So the world's kind of
02:18 8 transitioning to everything being a "smart device."
02:18 9 And when they're these smart devices, they're
02:18 10 able to link up to Google, and you're able to then
02:18 11 control them with your voice on those devices.
02:18 12 So that's the third primary use case that we
02:18 13 have in terms of usage on those speaker devices.
02:18 14 Q. In your experience, where does casting fall in
02:18 15 terms of the usage of features on such devices?
02:18 16 A. The traditional cast we've been talking about
02:18 17 here is very low. Very low.
02:18 18 Q. Mr. Van Der Staay, we're nearly done. I only
02:18 19 have a few more questions for you. Obviously you've
02:18 20 been in this room for the whole trial, and you sat here
02:18 21 from the opening through now.
02:18 22 Before this case, had you, as someone who's
02:18 23 worked in the industry, ever heard of Touchstream?
02:18 24 A. No. I had not.
02:18 25 Q. And you described all of the work that you've

02:18 1 done on Chromecast over the years.
02:18 2 Was all of that work done internally at
02:19 3 Google?
02:19 4 A. Yes. It was.
02:19 5 Q. And you were here, and you heard when
02:19 6 Mr. Strober testified.
02:19 7 Do you recall that?
02:19 8 A. I do. Yes.
02:19 9 Q. And do you recall hearing him say that he felt
02:19 10 that he was the inventor of Chromecast?
02:19 11 A. I did. Yes.
02:19 12 Q. What was your reaction to that?
02:19 13 A. I was very surprised by that proclamation.
02:19 14 Q. Why?
02:19 15 A. I mean, I've worked on cast and cast-related
02:19 16 technologies for ten years. Prior to that, I was in a
02:19 17 related space at Microsoft, you know, doing a lot of
02:19 18 very kind of similar media-type things, streaming
02:19 19 media-type things.
02:19 20 You know, I've worked with hundreds of people,
02:19 21 maybe even thousands of people at Google building these
02:19 22 things, talking about these things, investing in these
02:19 23 things, building out functionalities for users. And I
02:19 24 had never heard of Touchstream or any of their products
02:19 25 or anything that they've built before.

02:19 1 So all this was completely new information for
02:19 2 me when -- as part of these proceedings.
02:20 3 Also, I think just thinking back to -- to his
02:20 4 testimony earlier in the trial, and kind of the problem
02:20 5 that he was trying to solve and the reason that he
02:20 6 started working at Touchstream and started, you know,
02:20 7 building his prototype was to solve a use case of he
02:20 8 was in the lunchroom at his community college and he
02:20 9 wanted to get some content onto the screen.
02:20 10 He couldn't do it because he couldn't put a
02:20 11 device on the network. And that's why he started going
02:20 12 down this path.
02:20 13 And Chromecast works very differently than
02:20 14 that. We're going after a different use case. And if
02:20 15 a Chromecast device was available at that day, that
02:20 16 Chromecast V1 device or whatever was available that
02:20 17 date, it wouldn't have worked to solve his problem
02:20 18 either.
02:20 19 So it -- it's handling a completely different
02:20 20 problem.
02:20 21 MS. STITT: Thank you, Mr. Van Der Staay.
02:20 22 I have no further questions for you.
02:20 23 CROSS-EXAMINATION
02:20 24 BY MS. DOUVILLE:
02:21 25 Q. Good afternoon.

02:21 1 A. Good afternoon.
02:21 2 Q. I'm Lauren Douville. I'm representing
02:21 3 Touchstream.
02:21 4 A. Nice to meet you.
02:21 5 Q. And I think you mentioned that you've been
02:21 6 here throughout this trial, correct?
02:21 7 A. That's correct. Yes.
02:21 8 Q. And your deposition testimony was played in
02:21 9 this trial, correct?
02:21 10 A. That is correct. Yes.
02:21 11 Q. And that includes the testimony that
02:21 12 Touchstream's expert, Dr. Almeroth, relied on; is that
02:21 13 right?
02:21 14 A. I believe so. Yes.
02:21 15 Q. And that testimony was accurate, correct?
02:21 16 A. To the best of my knowledge. Yes.
02:21 17 Q. And you stand by that testimony, right?
02:21 18 A. Again, to the best of my knowledge. Yes.
02:21 19 Q. And if someone wanted to figure out how
02:21 20 Chromecast works, do you think it's reasonable for them
02:21 21 to review the source code relating to it?
02:21 22 A. I think that you can try to review source code
02:21 23 to figure out how things work. Yes.
02:21 24 Q. And to clarify something, I think you
02:22 25 mentioned that you first joined or started working on

02:22 1 the Chromecast device in October or November of -- was
02:22 2 it 2013?
02:22 3 A. That is correct. Yes.
02:22 4 Q. And Chromecast was first sold in early summer
02:22 5 of 2013, correct?
02:22 6 A. That is correct. Yes.
02:22 7 Q. You weren't there for those development
02:22 8 efforts, were you?
02:22 9 A. I was not there for the original Chromecast.
02:22 10 No.
02:22 11 Q. Okay. You weren't at Google when Mr. Bakar
02:22 12 and Mr. Kenghe allegedly came up with Chromecast,
02:22 13 correct?
02:22 14 A. I was not. I was still working for Microsoft
02:22 15 at that time.
02:22 16 Q. And I think you've testified that Chromecast
02:22 17 allows for casting, correct?
02:22 18 A. That is correct. Yes.
02:22 19 Q. And if a user casts from their phone to the
02:22 20 Chromecast, the phone isn't responsible anymore for
02:22 21 sending the video, correct?
02:22 22 A. In the traditional casting flow, that is
02:22 23 correct. Yes.
02:22 24 Q. And the Chromecast casting functionality does
02:22 25 not interrupt a user's phone calls while they are

02:22 1 casting, correct?
02:22 2 A. Sorry. Can you repeat that?
02:22 3 Q. Yeah. The Chromecast casting functionality
02:23 4 does not interrupt a user's phone calls while they are
02:23 5 casting, correct?
02:23 6 A. So you can take a phone call while you're
02:23 7 casting, if that's what you mean. Yes.
02:23 8 Q. That is what I mean. Yes. Thank you.
02:23 9 A. Yes. You can.
02:23 10 Q. And you mentioned quite a bit about
02:23 11 peer-to-peer messages, correct?
02:23 12 A. Yes.
02:23 13 Q. Do you have any understanding of what, if at
02:23 14 all, those have anything to do with the patents in this
02:23 15 case?
02:23 16 A. I'm not a patent expert. No.
02:23 17 Q. And you don't have opinions in this case
02:23 18 relating to infringement, correct?
02:23 19 A. Like I said, I'm not a patent expert. So no.
02:23 20 I'm not here to weigh in on that.
02:23 21 Q. And peer-to-peer communications can be
02:23 22 accomplished using servers, correct?
02:23 23 A. Servers can create peer-to-peer --
02:23 24 Q. Just yes or no.
02:23 25 THE COURT: Ma'am, you don't get to tell

02:23 the witness how to answer. He can answer, and I'll
02:23 deal with it.
02:23 MS. DOUVILLE: All right. Yes, Your
02:23 Honor.
02:23 BY MS. DOUVILLE:
02:23 Q. Peer-to-peer communications can be
02:23 accomplished using servers, correct?
02:23 A. Servers are one way that you can create a
02:24 peer-to-peer connection. Yes.
02:24 Q. And Mr. Bakar testified earlier today that
02:24 it's probable there's a server running on that
02:24 Chromecast in the peer-to-peer situation to receive
02:24 messages from the phone, correct?
02:24 A. I believe I already talked about that. Yes.
02:24 This was the mDNS server.
02:24 Q. And he stated that that would be a server
02:24 running on that Chromecast in the peer-to-peer
02:24 situation that you've testified to to receive messages
02:24 from the phone, correct?
02:24 A. Again, yes. That's the mDNS server that I
02:24 talked about.
02:24 Q. Sometimes servers can be remote, correct?
02:24 A. Yes. I would say that. Yes.
02:24 Q. But servers can also run locally on devices,
02:24 correct?

02:24 1 A. You could have a server running on a device.
02:24 2 Yes.
02:24 3 Q. And a server can serve many clients, correct?
02:24 4 A. Generally servers are designed to support
02:24 5 multiple clients. Yes.
02:24 6 Q. But they can also serve one client, correct?
02:24 7 A. In general, there isn't a limitation to the
02:25 8 number of clients that a server supports.
02:25 9 Q. So it's also the case that a server can serve
02:25 10 one client, correct?
02:25 11 A. At a given time, yes.
02:25 12 Q. And, in fact, in the case of Chromecast, the
02:25 13 Cast service can interface with multiple receiver apps,
02:25 14 correct?
02:25 15 A. Can you define exactly what you mean by that?
02:25 16 Q. Like what part of --
02:25 17 A. Like, can it? Does it at one time? Like,
02:25 18 what do you mean by "can"? That's kind of --
02:25 19 Q. It's capable of interfacing with multiple
02:25 20 receiver apps, correct?
02:25 21 A. At the same time?
02:25 22 Q. Not at the same time.
02:25 23 A. Okay. As in it can -- yes. The Cast service
02:25 24 can start an application, stop an application, start
02:25 25 another application. So from that perspective. Yes.

02:25 1 It has multiple applications that it deals with.
02:25 2 MS. DOUVILLE: And can we please bring up
02:25 3 I think what was marked as JTX-187?
02:26 4 And if we could turn to the Page -- I
02:26 5 believe it's 11. It ends in 3106.
6 BY MS. DOUVILLE:
02:26 7 Q. And it should also be on the screen for you,
02:26 8 Mr. Van Der Staay.
02:26 9 A. Okay. Yeah. This is really fuzzy. So I'll
02:26 10 use this.
02:26 11 Q. Sure.
02:26 12 All right. Do you see that?
02:26 13 A. Yes. I do.
02:26 14 Q. And I think you mentioned that in this diagram
02:26 15 there are some Cast services that are in the cloud,
02:26 16 correct?
02:26 17 A. Yes. There are some Cast services that are
02:26 18 there in the cloud. Yes.
02:26 19 Q. And those Cast services include servers,
02:26 20 correct?
02:26 21 A. Yes. It does. So the DCS, CCS, and COS on
02:26 22 this diagram are servers. Also, Assistant is a server
02:26 23 as well. But it can also be a client, so it's a little
02:26 24 ambiguous there what Assistant means.
02:26 25 Q. And those are referred to as Cast services,

02:26 1 correct?
02:26 2 A. Yes.
02:26 3 Q. And this is a document that Google uses to
02:26 4 train other people about Chromecast, correct?
02:26 5 A. It is a document that was used at one
02:27 6 particular meeting to train particular engineers, not
02:27 7 generally to train all engineers on that. Yes.
02:27 8 Q. Thank you for the clarification.
02:27 9 And in this document, Google also refers to
02:27 10 services on the device as Cast service as well,
02:27 11 correct?
02:27 12 A. It's using Cast service to mean a process -- a
02:27 13 software process that is always running on the device.
02:27 14 Q. And so Google refers to both of these things,
02:27 15 both on the device and in the cloud, as Cast service,
02:27 16 correct?
02:27 17 A. We generally do not refer to them as Cast
02:27 18 service as the same thing. The Cast services or
02:27 19 servers -- services and servers are generally used
02:27 20 interchangeably at Google.
02:27 21 "Cast service" means system service, which is
02:27 22 a very particular computer science term that means
02:27 23 something that is always running on a physical device
02:27 24 in an operating system.
02:27 25 Q. Okay. And this document refers to both as a

02:27 1 Cast service, correct?
02:27 2 A. This document is, from that perspective, a
02:28 3 little bit ambiguous. You'd have to understand the
02:28 4 details that one is on-device and talking in on-device
02:28 5 terminology, and the other one is talking about network
02:28 6 and network terminology.
02:28 7 They are very distinct, different meanings.
02:28 8 They just happen to have very similar names.
02:28 9 Q. Okay. Now, I think you also were here for the
02:28 10 testimony of Mr. Rupersburg, correct?
02:28 11 A. I saw a video of his deposition. Yes.
02:28 12 Q. And he's a Google engineer; is that right?
02:28 13 A. Yes. He was.
02:28 14 Q. And do you recall some testimony from him
02:28 15 relating to the receiver SDK?
02:28 16 A. I do remember some of his testimony. Yes.
02:28 17 Q. And you've testified today also to the
02:28 18 functionality of the receiver SDK somewhat; is that
02:28 19 fair?
02:28 20 A. Somewhat. Yes.
02:28 21 Q. Okay. And the receiver SDK, that's used in
02:28 22 casting, correct?
02:28 23 A. It is something that is -- as I mentioned, the
02:28 24 receiver SDK is something that is used to help people
02:28 25 build cast receiver applications.

02:28 1 Q. And the document that's in front of us shows
02:28 2 that that's on the -- do you see the receiver SDK on
02:29 3 the on-device side?
02:29 4 A. Yes. Yes. I do.
02:29 5 Q. All right. And did you hear Mr. Rupersburg
02:29 6 testify that that's a library that sits on a Google
02:29 7 server, correct?
02:29 8 A. Where the library's hosted doesn't really
02:29 9 matter very much. But yes. Generally, since it's
02:29 10 Google-provided code, that library will sit -- any of
02:29 11 our SDK libraries do sit on a Google server for
02:29 12 partners to download.
02:29 13 Q. Okay. And that receiver SDK is used in
02:29 14 casting, correct?
02:29 15 A. As I mentioned, it -- how much is used or if
02:29 16 it's used is optional. But yes. It can be used for
02:29 17 casting.
02:29 18 Q. Okay. And it's a JavaScript file that sits on
02:29 19 a Google server, correct?
02:29 20 A. Yes.
02:29 21 Q. You don't dispute Mr. Rupersburg's testimony
02:29 22 on that, correct?
02:29 23 A. I do not dispute what you -- how you
02:29 24 characterized that testimony so far.
02:29 25 Q. Are you -- and you're aware of the fact that

02:29 1 Chromecast has been set up in hotel rooms, correct?
02:29 2 A. I'm aware that there are some hotel rooms
02:30 3 which use Chromecast. Yes.
02:30 4 Q. And there are instances where the Chromecast
02:30 5 can operate on the Internet, correct?
02:30 6 A. Can you specify what you mean by that,
02:30 7 operate --
02:30 8 Q. So, for example, in the Open Cast scenario.
02:30 9 A. In the Open Cast scenario, you're saying where
02:30 10 you can create a cast connection through the Internet?
02:30 11 Q. Correct.
02:30 12 A. The Chromecast is not operating in the
02:30 13 Internet in that. I wouldn't call it that. But I
02:30 14 would agree with there are situations where a cast
02:30 15 connection goes through the Internet. Yes.
02:30 16 Q. Okay. Thank you.
02:30 17 Just a couple more questions.
02:30 18 You were not present during any meetings with
02:30 19 any Touchstream employees, correct?
02:30 20 A. I was not.
02:30 21 Q. And I think as you've testified, you've never
02:30 22 met any before you entered this courtroom, correct?
02:30 23 A. As far as I know.
02:30 24 Q. And you can't deny that any Touchstream
02:30 25 employees disclosed the ideas for Chromecast technology

02:30 1 to Mr. Kenghe or Mr. Bakar, correct?
02:30 2 A. I wasn't there, so I can't say.
02:31 3 MS. DOUVILLE: No further questions.
02:31 4 REDIRECT EXAMINATION
02:31 5 BY MS. STITT:
02:31 6 Q. Mr. Van Der Staay, just a few brief questions
02:31 7 for you. On redirect -- or on cross there, you were
02:31 8 asked a few questions again about the mDNS server.
02:31 9 What exactly does the mDNS server on the
02:31 10 Chromecast do?
02:31 11 A. So -- excuse me.
02:31 12 As I mentioned, the mDNS server is a very
02:31 13 common piece of software that works on almost any
02:31 14 device in your home that is on a network that is needed
02:31 15 to be discovered by the devices.
02:31 16 So all that the mDNS server does is help
02:31 17 facilitate finding a device on the network -- a generic
02:31 18 device on the network.
02:31 19 And yes. It is a piece of technology that
02:31 20 Google has chosen to use, along with printer
02:31 21 manufacturers, to be able to find Chromecast devices
02:31 22 when you're on the local network.
02:32 23 Q. Is it involved in the flow of commands between
02:32 24 the phone and the receiver, the Chromecast, during
02:32 25 casting?

02:32 A. No. It is not.
02:32 Q. You were also asked a couple of questions on
02:32 cross about the receiver SDK that was shown on the
02:32 document. And I won't put it back up. I think we've
02:32 all seen that one enough.
02:32 But you were asked about the receiver SDK and
02:32 where it sits and whether it sits on a Google server.
02:32 Do you recall that testimony?
02:32 A. Yes. I do.
02:32 Q. Once the partner downloads and uses the Google
02:32 receiver SDK, does it sit on the Google server at that
02:32 point?
02:32 A. So when it's being used in the app, it's not
02:32 on the Google server. So the app -- as part of loading
02:32 the app, it loads all of its SDKs and things it's using
02:32 from all over the Internet, you know, stuff from
02:32 Facebook, stuff from Google, wherever.
02:32 And then no. It is not running on the server
02:32 at that time. It is just literally like a file you
02:32 would download, like an e-mail that you would download.
02:32 Q. And once it's downloaded and used by the
02:32 partner app, it's embedded in their application, isn't
02:32 it?
02:32 A. That is correct. So when the application
02:33 loads, it's -- it all becomes embedded.

02:33 1 MS. STITT: Nothing further. Thank you
02:33 2 very much for your time and for answering my questions.
02:33 3 MS. DOUVILLE: Nothing further here.
02:33 4 THE COURT: Thank you.
02:33 5 You may step down, sir.
02:33 6 THE WITNESS: Thank you.
02:33 7 THE COURT: Your next witness?
02:33 8 MR. LANIER: Your Honor, our next witness
02:33 9 is Janos or Johnny Levai by deposition.
02:33 10 (Video deposition of Janos Levai played as follows.)
02:33 11 Q. Mr. Levai, my name is Greg Lanier. I'm one of
02:33 12 the lawyers for Google in this case. Thank you for
02:33 13 joining us today.
02:33 14 Would you introduce yourself to the jury,
02:33 15 please?
02:33 16 A. Of course.
02:33 17 My name is Janos Levai, and I work as a
02:33 18 software engineer at Google.
02:33 19 Q. Are you sometimes known as Johnny Levai when
02:33 20 speaking with people who speak English?
02:33 21 A. Yes. That's my more English-friendly
02:33 22 nickname.
02:33 23 Q. Where are you sitting today, sir?
02:33 24 A. Today I'm sitting in Zurich, Switzerland.
02:34 25 Q. Is that where you generally work, in Zurich,

02:34 1 Switzerland?
02:34 2 A. Yes. I generally work in Zurich.
02:34 3 Q. Do you live in Switzerland?
02:34 4 A. Yes. I live in Switzerland.
02:34 5 Q. Thank you for joining us by video today. You
02:34 6 mentioned you're a software engineer.
02:34 7 Do you have any technical or academic training
02:34 8 in software engineering?
02:34 9 A. Yes. I have a bachelor's degree in computer
02:34 10 science.
02:34 11 Q. And when did you get that bachelor's degree?
02:34 12 A. Approximately in the summer of 2011.
02:34 13 Q. I thought I heard you say that you are with
02:34 14 Google.
02:34 15 When did you first start working with Google
02:34 16 in any capacity?
02:34 17 A. I first started working at Google as an intern
02:34 18 in 2011, July.
02:34 19 Q. Were you working on any particular project
02:35 20 when you started working at Google?
02:35 21 A. Yes. My main project was something called
02:35 22 YouTube Remote.
02:35 23 Q. What is YouTube Remote?
02:35 24 A. Well, YouTube Remote is mostly known by an
02:35 25 Android application that we launched, and it allowed

02:35 1 people to look for YouTube videos, then play back those
02:35 2 videos on a big screen device, like a TV, and then
02:35 3 control the playback of those videos from the YouTube
02:35 4 Remote Android application.
02:35 5 Q. And so YouTube Remote, was that something you
02:35 6 could access from a -- a phone and -- and use your
02:35 7 phone to do those things you just described?
02:35 8 A. Correct.
02:35 9 Q. Using YouTube Remote, could you use your phone
02:35 10 to find video that you wanted to watch?
02:35 11 A. Yes.
02:35 12 Q. Using YouTube Remote, could you use your phone
02:35 13 to direct that that video actually be displayed on a
02:36 14 different screen, something other than your phone?
02:36 15 A. Yes. Like a -- like a TV, for example.
02:36 16 Q. In that example, use -- in YouTube Remote,
02:36 17 could you use your phone to control the playback of the
02:36 18 video on that other screen such as the TV?
02:36 19 A. Yes.
02:36 20 Q. You could start it, stop it, rewind it, things
02:36 21 like that?
02:36 22 A. Yes. All of those actions were supported in
02:36 23 YouTube Remote.
02:36 24 Q. And those actions were -- those actions were
02:36 25 engaged in by the user on their phone, but it had

02:36 1 effect on the display as you were watching it on the
02:36 2 TV; is that correct?
02:36 3 A. Correct.
02:36 4 Q. Was YouTube Remote already out and available
02:36 5 in the world when you started at Google?
02:36 6 A. Yes.
02:36 7 Q. As you started to get to work at Google, did
02:36 8 you learn when YouTube Remote was launched?
02:36 9 A. Yes.
02:36 10 Q. And what did you learn about when YouTube
02:37 11 Remote was first launched at Google?
02:37 12 A. I learned that the YouTube Remote application
02:37 13 for Android was first launched approximately
02:37 14 November 2010.
02:37 15 Q. Have you heard of something called YouTube
02:37 16 Leanback?
02:37 17 A. Yes.
02:37 18 Q. What's that?
02:37 19 A. It is one of the technologies that is
02:37 20 essential for the YouTube Remote system to work.
02:37 21 Q. And have you heard of YouTube Lounge?
02:37 22 A. Yes.
02:37 23 Q. And what is that?
02:37 24 A. It also encompasses a set of technologies that
02:37 25 are part of the YouTube Remote system.

02:37 Q. And were YouTube Leanback and YouTube Lounge, were they around when you started at Google?
02:37 A. Yes.
02:37 Q. Have you heard of something called MDx protocol?
02:38 A. Yes.
02:38 Q. What is MDx protocol?
02:38 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.
02:38 Q. And was MDx protocol part of the YouTube Remote technology when you started at Google?
02:38 A. Yes.
02:38 Q. So it had been developed already by the time you got there?
02:38 A. Yes.
02:38 Q. You mentioned servers in your answer.
02:38 What did you mean by "servers"?
02:38 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.
02:39 Q. Did servers play a role in YouTube Remote?
02:39 A. Yes. They were an essential part of the

02:39 1 YouTube Remote system.
02:39 2 Q. What -- what part or what role did servers
02:39 3 play in the YouTube Remote system at a high level?
02:39 4 A. At a high level, they would connect the
02:39 5 YouTube Remote Android application to the big screen
02:39 6 devices, like a TV, and allow them to change
02:39 7 information.
02:39 8 Q. Did the servers store information relating to
02:39 9 the operation of YouTube Remote?
02:39 10 A. Yes. There was information on the server
02:39 11 about YouTube Remote operations.
02:39 12 Q. Are you familiar with a capacity or
02:39 13 functionality on the servers in the YouTube Remote
02:39 14 system called memcache?
02:39 15 A. Yes.
02:39 16 Q. What is memcache?
02:40 17 A. Memcache is a technology that allows to store
02:40 18 key value pairs. Yeah. Pretty much that's -- that's
02:40 19 what memcache is as a -- as a technology library.
02:40 20 Q. You said "key value pairs."
02:40 21 What did you mean by that?
02:40 22 A. Key value pairs are types of information used
02:40 23 to generally identify certain parts of information that
02:40 24 can be retrieved with a key which is usually an
02:40 25 identifier.

02:40 1 Q. And was that identifying information used in
02:40 2 YouTube Remote to help the communication that
02:40 3 ultimately resulted in you picking a video on your
02:40 4 phone and watching it on your TV?
02:40 5 A. It -- it was essential to allow communication
02:40 6 of the YouTube Remote app with the TV.
02:41 7 Q. Did Google keep written documentation of how
02:41 8 the MDx protocol worked?
02:41 9 A. Yes.
02:41 10 Q. Did Google keep written documentation of APIs
02:41 11 related to YouTube Remote?
02:41 12 A. Yes. Most of the APIs were documented.
02:41 13 Q. What's an API?
02:41 14 A. An API defines the way two digital systems can
02:41 15 communicate with each other. It's kind of like the
02:41 16 rules of how two systems can exchange information.
02:41 17 Q. Did you review APIs during your -- relating to
02:41 18 YouTube Remote during your time at Google?
02:41 19 A. API documentation?
02:41 20 Q. Yes.
02:41 21 A. Yes.
02:41 22 Q. Ms. Dill, could you load into the exhibit
02:41 23 folder what we'll mark as Exhibit 1? It's been
24 Production No. GOOG PA 2268 through 2270.
02:42 25 Mr. Levai, that will go into the exhibit

02:42 1 folder, and when you see it pop in there, if you would
02:42 2 open it. Thank you. And please tell us when that
02:42 3 happens.
02:42 4 I see it in the folder. It's titled Appendix
02:42 5 to Levai Declaration. It goes from there. If you
02:42 6 wouldn't mind opening that, sir, and tell me when
02:42 7 you're ready.
02:42 8 (Off-the-record discussion.)
02:42 9 A. And it ends with 2270, right?
02:42 10 Q. That's correct.
02:42 11 A. Okay. I have it open.
02:42 12 Q. All right. If you would turn to the second
02:42 13 page of this exhibit, sir, up at the top it says:
02:42 14 7/12/2010. And under that in big letters: API server
02:42 15 documentation.
02:42 16 Do you see that?
02:42 17 A. Yes.
02:42 18 Q. Do you recognize this to be documentation of
02:42 19 an API relating to YouTube Remote?
02:42 20 A. Yes.
02:43 21 Q. And in very general terms, what does this
02:43 22 particular documentation describe or disclose?
02:43 23 A. In general terms, it describes certain parts
02:43 24 of the MDx API implemented by the server. And, yes.
02:43 25 It's -- it's mostly around video playback, playlist

02:43 1 management and disconnecting.
02:43 2 Q. Well, up at the top, there's numbers that look
02:43 3 to be like a date, 7/12/2010.
02:43 4 Do you see that?
02:43 5 A. Yes.
02:43 6 Q. Now, Mr. Levai, I know you are in Europe, and
02:43 7 sometimes Europeans write their dates differently than
02:43 8 we do in the United States.
02:43 9 Did Google have a practice in dating
02:43 10 documentation as to whether to use the European or
02:43 11 American format?
02:43 12 A. Yes. Google generally uses the American
02:43 13 format, mostly because it's an American company.
02:43 14 Q. And so 7/12/2010 in the American format would
02:44 15 be July 12, 2010. Is that how you understand it?
02:44 16 A. Yes. Especially if you see these date formats
02:44 17 with slashes, we see these as month, day and year, so
02:44 18 the American format.
02:44 19 Q. Was it typical at this time for Google to keep
02:44 20 dates on API documentation?
02:44 21 A. Yes. It's -- it's generally good practice to
02:44 22 keep a date on the documentation.
02:44 23 Q. And from your work at Google, what's your
02:44 24 understanding of the purpose of keeping the date on the
02:44 25 documentation?

02:44 A. Generally, the date on documentation refers to
02:44 the date that the documentation was last updated on.
02:44 Q. Would reading this API documentation be one
02:44 way that you, doing your work at Google, would
02:44 understand how YouTube Remote operated?
02:45 A. Yes. This is one of -- one of the ways to
02:45 understand how an API works.
02:45 Q. Okay. All right. I'm -- I am done with this
02:45 now. You may close this document, Mr. Levai. Thank
02:45 you.
02:45 I'm not going to show it to you, but I'm going
02:45 to talk to you about source code.
02:45 Did you work with source code during your time
02:45 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
02:45 readable list of instructions that later, then, can be
02:45 executed by computers.
02:45 Q. So if you -- you've seen those movies or I've
02:45 even seen people actually sit there clicking away,
02:45 software engineers like you clicking away like this, is
02:46 it often that they are working on source code?
02:46 A. Yes. Generally, software engineers spend most
02:46 of their time working on source code.

02:46 Q. And are software engineers able to read source code and understand something about how a particular system operates?

02:46 A. Yes.

02:46 Q. When you were working on YouTube Remote, did you regularly review source code for that product?

02:46 A. Yes.

02:46 Q. Did you regularly work on it and make changes or updates to it?

02:46 A. Yes.

02:46 Q. Did Google have a practice at that time of keeping source code relating to its product operation?

02:46 A. Yes. Every -- every product is, by definition, made up of source code.

02:46 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?

02:47 A. Back in the time it -- yes. Source code generally had in the header the creation date and -- as -- as a comment.

02:47 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?

02:47 A. Generally, that was the date of which the -- the source code file was created on.

02:47 1 Q. Earlier in the course of this case, did you
02:47 2 review source code relating to YouTube Remote?
02:47 3 A. Yes.
02:47 4 Q. And did you prepare -- and did you verify that
02:47 5 source code that you reviewed was actually the source
02:47 6 code that related to YouTube Remote back in the past?
02:48 7 A. Yes.
02:48 8 Q. Do you recall signing a declaration in this
02:48 9 case that, among other things, talked about the source
02:48 10 code for YouTube Remote?
02:48 11 A. Yes.
02:48 12 Q. And did you verify before signing that
02:48 13 declaration that the source code that you reviewed was,
02:48 14 in fact, source code for YouTube Remote at particular
02:48 15 points in time?
02:48 16 A. Yes.
02:48 17 Q. So one way to understand how a product -- a
02:48 18 software product works is to read API documentation,
02:48 19 correct?
02:48 20 A. Yes. That's one way.
02:48 21 Q. And another way to understand how a product
02:48 22 works -- a software product works is to read the source
02:48 23 code, correct?
02:48 24 A. Correct.
02:48 25 Q. And these were both things that you did

02:48 1 regularly in your time at Google as a software
02:48 2 engineer, correct?
02:48 3 A. Yes.
02:48 4 Q. Now, just to make sure I understand
02:48 5 everything, when you -- the -- the version of YouTube
02:49 6 Remote that you first started working with, that was
02:49 7 the public version that had already been released,
02:49 8 correct?
02:49 9 A. Sorry. You're asking if I was working on the
02:49 10 version of YouTube Remote that was already released?
02:49 11 Q. Yes. That was my question. When you first
02:49 12 started -- let me just ask again.
02:49 13 And Mr. Dykal may have an objection, so please
02:49 14 give him a moment.
02:49 15 But when you first started working at Google
02:49 16 on YouTube Remote, you -- that product was already
02:49 17 released, correct?
02:49 18 A. Yes.
02:49 19 Q. It was already out in the public; is that
02:49 20 right?
02:49 21 A. Yes.
02:49 22 Q. And you could use that YouTube Remote to find
02:49 23 content on your phone, have it displayed on another
02:49 24 screen, and control that playback on that other screen
02:49 25 when you started at Google, correct?

02:49 A. Yes.
02:49 Q. Okay. Thank you, sir. I have no more
02:49 questions.
02:49 Q. Do you personally know what was happening with
02:49 those projects prior to July 2011, from your personal
02:50 knowledge?
02:50 A. No. Before I joined Google, I did not know
02:50 what sort of development phase was the project in. I
02:50 just know that there existed an app on the Play Store.
02:50 Q. And you said YouTube Remote was discontinued,
02:50 correct?
02:50 A. The YouTube Remote Android application was,
02:50 indeed, discontinued eventually.
02:50 Q. Do you know whether YouTube Remote became or
02:50 was incorporated into the Chromecast product?
02:50 A. No. The YouTube Remote Android application
02:50 was not incorporated into Chromecast.
02:50 Q. Is it possible that a user could have a server
02:50 located in their house?
02:50 A. You mean generally a server regardless of -- I
02:50 mean, like a computing device that can act as a server?
02:50 Q. Correct.
02:50 A. Yes. That's possible.
02:51 Q. Would you agree that many computing devices
02:51 could act as servers depending on the functions that

02:51 1 they perform?
02:51 2 A. They could.
02:51 3 Q. What's a Raspberry Pi?
02:51 4 A. A Raspberry Pi is a really small footprint
02:51 5 computer.
02:51 6 Q. And could someone have a Raspberry Pi in their
02:51 7 house functioning as a server?
02:51 8 A. They could.
02:51 9 Q. How much stock do you own in Google? More
02:51 10 than $1 million?
02:51 11 A. I think so. Yeah.
02:51 12 Q. One question about that exhibit, if you could
02:51 13 pull that back up.
02:51 14 Let me know when you have it open.
02:51 15 A. Okay. I have it open.
02:51 16 Q. So this documentation was -- there's a date on
02:52 17 it that says July 12, 2010.
02:52 18 Do you see that?
02:52 19 A. Yes.
02:52 20 Q. Do you have personal knowledge that this
02:52 21 document was created and existed in this form as of
02:52 22 July 12, 2010?
02:52 23 A. Well, I trust the date that's part of the
02:52 24 digital documents.
02:52 25 Q. Okay. But you don't personally know that this

02:52 is the form that this document existed in in July 2010;
02:52 is that correct?
02:52 A. I mean, I'm basing my knowledge on the -- on
02:52 the date that's part of the document.
02:52 Q. Okay. So your -- your knowledge is just based
02:52 on the date that's on this document, correct?
02:52 A. Yes. It's based on the digital information.
02:53 Q. So reviewing this document, there are a number
02:53 of commands.
02:53 Do you see that? videoPlay, videoPause,
02:53 videoNext?
02:53 A. Yes.
02:53 Q. Do you see any command in this document that
02:53 identifies a particular video to play?
02:53 A. That was probably achieved by setting the
02:53 playlist with a list of videos.
02:53 Q. So you would agree that this document is
02:53 concerned with manipulating playlists; is that true?
02:53 A. It also covers manipulating the playlist,
02:53 among other things.
02:53 Q. Do you agree that there's no command in here
02:53 that specifically identified the video to play?
02:53 A. There is. Once the playlist has been set,
02:53 setVideoIndex actually picks the video from the
02:53 playlist to be played.

02:53 1 Q. I understand. So you can set up a playlist
02:54 2 and then navigate through the playlist, correct?
02:54 3 A. If you set up a playlist, the setPlaylist
02:54 4 command also has a video index field or parameter and
02:54 5 that would actually pick the video from a playlist.
02:54 6 Now, if you -- if you later want to select a
02:54 7 different video from the playlist that already exists,
02:54 8 then you can use, for example, the setVideoIndex
02:54 9 command.
02:54 10 Q. Would you agree that the YouTube Remote is
02:54 11 only intended to be used with the YouTube application?
02:54 12 A. Yes. YouTube Remote works with YouTube.
02:54 13 Q. Is that also true with YouTube Leanback?
02:54 14 A. YouTube Leanback is part of YouTube. Yes.
02:54 15 Q. Did you talk to any people other than lawyers
02:54 16 to prepare for your deposition?
02:55 17 A. Yes.
02:55 18 Q. To whom did you speak other than lawyers?
02:55 19 A. To previous colleagues, like Romona Bobohalma.
02:55 20 Q. Did you speak to any other colleagues besides
02:55 21 Ms. Bobohalma?
02:55 22 A. Yes. To Oliver Heckman.
02:55 23 Q. And did you learn from them about the creation
02:55 24 and early development of the YouTube Remote project?
02:55 25 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
02:55 the project and how the project came to be in -- in
02:55 Google.
02:55 Q. How did the project come to be?
02:55 A. The project materialized during something that
02:56 was called a Hackathon, which was a one-week event
02:56 where people from YouTube could get together and they
02:56 could create some sort of new technology.
02:56 Q. And this Hackathon, was that before the public
02:56 release of YouTube Remote?
02:56 A. Yes.
02:56 Q. Last topic, sir.
02:56 When you started at Google, did you do
02:56 anything to try to learn about how YouTube Remote
02:56 worked?
02:56 A. Yes. Of course. It was needed to be able to
02:56 do my job.
02:56 Q. And what did you do to learn how YouTube
02:56 Remote worked when you showed up there?
02:56 A. A few things like reviewing documentation,
02:56 talking to coworkers, and reviewing code.
02:56 Q. You mentioned reviewing documentation.
02:56 Is that documentation such as that API server
02:57 documentation that we've looked at today?

02:57 A. Exactly.
02:57 Q. And you reviewed code. By that did you mean
02:57 source code?
02:57 A. Yes. I meant source code.
02:57 Q. Thank you, sir. I have no additional
02:57 questions for you.
02:57 MR. DYKAL: Nothing else from me.
02:57 (End of video deposition.)
02:57 MR. LANIER: Your Honor, at this time,
02:57 Google would move admission of JTX-63.
02:57 MR. DYKAL: I think we would object, but
02:57 Your Honor has overruled that, I believe.
02:57 THE COURT: Okay. It's admitted.
02:57 MR. LANIER: Thank you, Your Honor.
02:57 THE COURT: Next witness.
02:57 MR. LANIER: Our next is Dr. Ketan
02:57 Mayer-Patel.
02:57 (The witness was sworn.)
02:58 MR. LANIER: And, Your Honor, if you
02:58 could give us 30 seconds, we're just grabbing a binder.
02:58 THE COURT: Just 30.
02:58 MR. LANIER: Thank you, Your Honor.
02:58 DIRECT EXAMINATION
02:58 BY MR. LANIER:
02:58 Q. Good afternoon, sir.

02:58 A. Hi.
02:58 Q. Would you introduce yourself to the jury,
02:58 please?
02:58 A. Sure.
02:58 My name is Ketan -- rhymes with Nathan --
02:58 Mayer-Patel, and I'm an associate professor at the
02:58 University of North Carolina in Chapel Hill.
02:59 Q. Dr. Mayer-Patel, I understand you'll be
02:59 offering some opinions today.
02:59 Did you prepare some demonstratives to help
02:59 illustrate your testimony?
02:59 A. I did.
02:59 Q. Is it okay with you if we have Mr. McDonald
02:59 over there put them up on the screen and do the
02:59 clicking for us?
02:59 A. Please do.
02:59 Q. Thank you.
02:59 Before we get into that, sir, on behalf of
02:59 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
02:59 case?
02:59 A. I am.
02:59 Q. Does your compensation depend in any way on
02:59 the outcome of this case?

02:59 A. Absolutely not.
02:59 Q. Are the opinions you'll offer in this case
02:59 your own?
02:59 A. They are.
02:59 Q. Let's understand a little more about your
02:59 background.
02:59 MR. LANIER: Can we see the next slide,
02:59 please?
02:59 BY MR. LANIER:
02:59 Q. Would you summarize for the jury your
02:59 educational background?
02:59 A. Sure. So I went to the University of
02:59 California at Berkeley and graduated with my bachelor
02:59 of -- a BA in computer science and economics.
02:59 And then about a year later, about a year and
03:00 a half after graduating, I reentered school in the
03:00 graduate program and -- the intent to get my Ph.D., and
03:00 along the way, also got my master's. So I got my MS in
03:00 computer science in 1997 on the way to getting my Ph.D.
03:00 in computer science in 1999.
03:00 Q. And would you generally describe your work
03:00 experience over the last few decades?
03:00 A. Sure.
03:00 So near the end of college, I was a programmer
03:00 for a research lab at the United States Department of

03:00 1 Agriculture that has a lab near Berkeley. And then in
03:00 2 that year and a half between graduating and entering
03:00 3 graduate school, I was actually a software programmer
03:00 4 for a research lab that was part of the department.
03:00 5 And that's where I met the person who
03:00 6 eventually became my advisor. So he -- he recruited me
03:00 7 to stop being paid and start being a graduate student.
03:00 8 And so that's when I joined the graduate program.
03:00 9 So then after I got my Ph.D., I joined
03:01 10 immediately the faculty at the University of North
03:01 11 Carolina as an assistant professor and then made my way
03:01 12 to associate professor having gotten tenure. And along
03:01 13 the way, I took a brief sabbatical when I worked for
03:01 14 the Microsoft Bay Area Research Center for about nine
03:01 15 months.
03:01 16 Q. Have you prepared a demonstrative that
03:01 17 illustrates something about the recognition of your
03:01 18 work and other focus of your career? Is this it?
03:01 19 A. Yeah. It is.
03:01 20 So one of the things I'm most proud of is in
03:01 21 2003, I was selected for a National Science Foundation
03:01 22 CAREER Award. This is a very prestigious research
03:01 23 grant given to select number of young faculty in order
03:01 24 to support their careers, in order to support their
03:01 25 research direction.

03:01 1 I've also won the department's teaching award.
03:01 2 I was selected to be the associate editor for the top
03:01 3 two leading multimedia computing journals, and I am
03:01 4 currently the steering committee chair for the top
03:02 5 multimedia systems conference.
03:02 6 And I also sit on the board of the main
03:02 7 professional society for multimedia computing and
03:02 8 networking, the computer scientists that are interested
03:02 9 in that particular part of computer science.
03:02 10 And that organization that -- that -- they
03:02 11 organize and oversee a number of the various
03:02 12 conferences, workshops, and journals that the computer
03:02 13 scientists that explore multimedia systems publish in.
03:02 14 Q. Have you published in the field?
03:02 15 A. Yes. I've had many peer-reviewed publications
03:02 16 in both journals as well as conferences and workshops.
03:02 17 I've written a book chapter or two, and that's kind of
03:02 18 what we do as professors.
03:02 19 Q. Are you still an active teacher?
03:02 20 A. Yes. So these days I teach mostly in our
03:02 21 undergraduate program, mostly foundational courses in
03:03 22 our intro sequence because I'm the director of
03:03 23 undergraduate studies. So I like to have a lot of
03:03 24 contact with the undergrads.
03:03 25 But over the years I've taught a variety of

03:03 1 courses. I regularly teach web programming, so the
03:03 2 technologies involved in creating web applications.
03:03 3 I've -- in the graduate level, I often teach a high --
03:03 4 advanced courses in data compression and in multimedia
03:03 5 computing and networking for building large scale
03:03 6 distributed systems. And then I've taught a variety of
03:03 7 other courses here and there.
03:03 8 Q. And do you continue your research as well?
03:03 9 A. Yes. So I try to do -- I like to investigate
03:03 10 all kinds of different problems, and over the years
03:03 11 I've -- I've done -- have had a number of different
03:03 12 research directions.
03:03 13 But in general, I think a good way to describe
03:03 14 the kinds of research that I do is to describe one
03:03 15 particular project that I worked on kind of early in my
03:03 16 career, which was facilitating remote 3D environments.
03:04 17 In other words, you might have a surgical
03:04 18 theater that is being captured by 50 different cameras
03:04 19 so that they can see what the surgeon's doing, and then
03:04 20 you want to recreate that experience, almost like the
03:04 21 Star Trek Holodeck, you know, somewhere else.
03:04 22 And so you want to kind of, you know, have a
03:04 23 cave of projectors, and so you're kind of recreating
03:04 24 holographically that -- that 3D experience.
03:04 25 So you can imagine, you have all of these

03:04 1 cameras, and you need to send all of that visual
03:04 2 information over to the other side in order to display
03:04 3 it, and there's lots of interesting problems and
03:04 4 challenges involved in building such a system.
03:04 5 And so -- and so, you know, that's the kinds
03:04 6 of multimedia systems that I like to -- to work on.
03:04 7 Q. Dr. Mayer-Patel, have you been qualified as an
03:04 8 expert in previous court proceedings?
03:04 9 A. I have.
03:04 10 MR. LANIER: Your Honor, at this time, we
03:04 11 offer Dr. Ketan Mayer-Patel as a technical expert in
03:04 12 computer science and specifically areas of interactive
03:05 13 systems with networked media or media playback systems.
03:05 14 MR. DYKAL: No objection.
03:05 15 THE COURT: He'll be admitted as such.
03:05 16 MR. LANIER: Thank you, Your Honor.
03:05 17 Let's look at the next slide, if we
18 could.
19 BY MR. LANIER:
03:05 20 Q. Dr. Mayer-Patel, have you prepared a summary
03:05 21 of your opinions for the jury?
03:05 22 A. I have.
03:05 23 Q. Would you, at a high level, summarize what the
03:05 24 opinions are that you're prepared to offer today?
03:05 25 A. Sure. So first and foremost, I'm going to

03:05 1 opine that Google's accused products do not infringe
03:05 2 the asserted patents. And so -- and then furthermore,
03:05 3 that those patents themselves, in light of existing
03:05 4 prior art at the time, really should be considered
03:05 5 invalid.
03:05 6 I will have an opinion on the fact that
03:05 7 Touchstream has not provided any evidence to establish
03:05 8 that they conceived all of the features of the claimed
03:05 9 patents before April 2011, when the patent application
03:05 10 was filed.
03:05 11 And finally, I'll have a small discussion on
03:06 12 comparing the technical comparability of the
03:06 13 patents-in-suit with other patents that are part of
03:06 14 Google's -- that are already licensed by Google.
03:06 15 Q. Are you prepared to walk through those
03:06 16 opinions today, sir?
03:06 17 A. Yes. I am.
03:06 18 Q. Just a general background question.
03:06 19 Do you look at several of these topics from a
03:06 20 particular perspective or background?
03:06 21 A. Yes.
03:06 22 MR. LANIER: Let's look at the next
03:06 23 slide, please.
03:06 24 A. So we've heard from Dr. Almeroth and, you
03:06 25 know, this is the same for me, that you have to do all

03:06 of this analysis and form these opinions with respect
03:06 to this hypothetical person of ordinary skill in the
03:06 art.
03:06 And so this is a person that you have to put
03:06 yourself in the mind-set of, so at that time, and to
03:06 think of that person as someone who is technically
03:06 capable, who can read the patent and understand it, who
03:06 is aware of the state of the art and the various, you
03:06 know, systems that were available.
03:06 So for this particular case, the
03:06 qualifications that would be appropriate for such a
03:07 person would be someone who has a bachelor's degree in
03:07 electrical engineering or computer science and a couple
03:07 of years experience, you know, implementing interactive
03:07 systems using multimedia data types.
03:07 And of course with more experience, you could
03:07 have less education, and with less education, you could
03:07 have more experience. So it's not, you know, an exact
03:07 formula. But this gives us an understanding of the
03:07 technical basis for this hypothetical person.
03:07 BY MR. LANIER:
03:07 Q. Sir, around the date of the filing of the
03:07 asserted patents in this case, April of 2011, were you
03:07 at least at that level of skill in the art?
03:07 A. By at least about 20 years.

03:07 Q. And based on your work in teaching and
03:07 everything else, were you familiar with plenty of
03:07 people at that level of skill in the art in April of
03:07 2011?
03:07 A. I had many students who would have fit this
03:07 definition.
03:07 Q. Did you consider materials to prepare your
03:07 opinions in this case?
03:07 A. Yes. So --
03:07 Q. Generally speaking, what did you review?
03:07 A. Sure. So in addition to my own experience,
03:08 obviously I looked at the asserted patents, their file
03:08 histories, and the cited prior art in their
03:08 applications.
03:08 I looked at the various documents that were
03:08 exchanged as part of this litigation, including
03:08 deposition testimony and exhibits, the documents
03:08 produced in this case, source code that was made
03:08 available to me so that I can understand how certain
03:08 things worked.
03:08 Certainly I read the technical expert reports
03:08 of Dr. Almeroth and the materials he cited.
03:08 And then for the technical comparability, I
03:08 also examined some patents from those portfolios that
03:08 have already been licensed by Google.

03:08 1 Q. You reviewed all those materials in doing your
03:08 2 work in this case?
03:08 3 A. I did.
03:08 4 Q. Did you consider what the state of the art was
03:08 5 around the time of the filing for the patents in this
03:08 6 case?
03:08 7 A. Yes. I did. So here --
03:08 8 Q. Just back up a step -- sorry.
9 A. Sure.
03:08 10 Q. What is the state of the art?
03:08 11 A. Right. So the state of the art is basically
03:08 12 what kinds of things were already known about, what
03:08 13 kinds of systems were already available, what kind of
03:09 14 products, what people were working on. So basically,
03:09 15 the state of the art is the state of the technology, if
03:09 16 you will.
03:09 17 And so what I've listed here are just some
03:09 18 representations of some of the things that I would have
03:09 19 considered state of the art at the time.
03:09 20 On the left, on the far left, I have a very --
03:09 21 I have something called a "proxy principle." And it is
03:09 22 illustrated here as the cover page of a paper that was
03:09 23 published in 1986.
03:09 24 And this is a very old idea. And, generally,
03:09 25 this general old idea is the use of a server to sit

03:09 1 between two other components in order to facilitate
03:09 2 communication and help translate information or solve
03:09 3 some other challenging problem that these two
03:09 4 components are having communicating between themselves
03:09 5 directly.
03:09 6 So that general idea has already been
03:09 7 well-known and then got applied in various context and
03:10 8 places over the years.
03:10 9 So that's important here because this notion
03:10 10 of a server mediating access or being intermediary was
03:10 11 really well-known at the time.
03:10 12 More specific to multimedia systems, to
03:10 13 playing back content on a screen and controlling it
03:10 14 remotely, there were a number of systems already being
03:10 15 developed and already available to do -- to accomplish
03:10 16 that task.
03:10 17 First was the Google TV system that -- and
03:10 18 we'll -- I'll talk about that. That'll come back later
03:10 19 as part of my invalidity analysis.
03:10 20 And then there was also a system being
03:10 21 developed by a company called Peel. And they had a
03:10 22 related patent that was related to a system they were
03:10 23 developing, and that also will be part of my invalidity
03:10 24 analysis later.
03:10 25 There were also other systems that I won't

03:10 1 talk about further on, but that were existing at the
03:11 2 time.
03:11 3 So, for example, there was a company called
03:11 4 PacketVideo. They had a system that they called
03:11 5 "Twonky," and it had some related patents related to
03:11 6 how they were building the Twonky system.
03:11 7 We had already heard about Apple AirPlay as a
03:11 8 mirroring option. That was already out in the world
03:11 9 and well-known.
03:11 10 And there were even some consumer electronic
03:11 11 devices that would connect to your TV that you could
03:11 12 use a remote phone app to control. And I listed one
03:11 13 here that was called Boxee.
03:11 14 Q. As of April 2011, or 2010/2011, was -- were
03:11 15 there many ways to pick content on your phone, watch it
03:11 16 on another screen, and control it from your phone?
03:11 17 A. Yes. Those kinds of systems were starting to
03:11 18 be available.
03:11 19 Q. Did you also become familiar with the products
03:11 20 that are accused of infringement in this case?
03:11 21 A. I did.
03:11 22 Q. Would you briefly describe, sir, what you came
03:11 23 to understand about these products?
03:11 24 A. Sure. So primarily, what's being accused here
03:12 25 are Chromecast devices that we've talked about. Those

03:12 are the dongles that we plug into our TV. And we see
03:12 some early generation versions on the upper left.
03:12 And then we've just heard this morning about
03:12 future versions of that that came with the remote
03:12 control, and so that's on the lower left.
03:12 In the middle column, we've -- we -- there are
03:12 Nest speakers. Nest is part of Google now. And those
03:12 have some casting technologies built into them.
03:12 Google themselves made smart displays, and
03:12 Dr. Almeroth showed a couple of them.
03:12 And then Google, of course, worked with other
03:12 partners, third-party partners, to have Chromecast
03:12 built into, you know, TVs, like Smart TVs. And so
03:12 those are the kinds of products that are at issue.
03:12 Q. Was casting the only thing that this range of
03:12 products could do?
03:12 A. No. So these products include a number of
03:12 different capabilities as well as technologies
03:13 generally that are not part of the accused features.
03:13 All right?
03:13 So, you know, Chromecast dongles have web
03:13 application technology that allows them to run a
03:13 Chromium browser and to have that browser interpret
03:13 JavaScript code as part of the applications that are
03:13 running.

03:13 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.

03:13 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.

03:13 The technologies used to create the HDMI signal to show the screen on the TV, those technologies are not part of the accused functionality.

03:13 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.

03:14 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.

03:14 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.

03:14 Q. Did you hear the testimony of Mr. Robins as

03:14 well about the other features of some of these
03:14 products?
03:14 A. Yes.
03:14 Q. Based on all of this and your own review, is
03:14 it your opinion that the success of the Google
03:14 products, the accused products here, was based solely
03:14 on their casting functionality?
03:14 A. It is my opinion it was not based solely on
03:14 the casting functionality. There were other things
03:14 that these things could do and the success of the
03:14 products had other factors like marketing and whatnot.
03:15 Q. Okay. Well, let's now start talking about
03:15 your more specific opinions in this case.
03:15 Do you have an opinion about noninfringement?
03:15 A. I do.
03:15 MR. LANIER: Let's go to the next slide
03:15 there.
BY MR. LANIER:
03:15 Q. And would you describe for us, sir, at a high
03:15 level, what your opinion is on noninfringement?
03:15 A. Sure. So it's going to boil down to three
03:15 main arguments.
03:15 And the first is really the one that is -- I
03:15 think first and foremost applies to all of the claims
03:15 at issue. And that is that the claimed server system

03:15 1 simply does not exist in the Chromecast products.
03:15 2 So the claims are very clear about what the
03:15 3 server system is and what it needs to do, and there
03:15 4 simply is no server system in the Chromecast products.
03:15 5 And so that will apply to all the claims.
03:15 6 Specific to the '251 patent and Claims 1 and 8
03:15 7 of the '251 patent, there's a requirement for a
03:15 8 database. And more -- furthermore, that database needs
03:15 9 to store certain information for certain purposes.
03:16 10 I found that that database element is missing
03:16 11 from the Chromecast products and, therefore, would not
03:16 12 infringe Claims 1 and 8 of the '251 patent.
03:16 13 And then, finally, affecting the '528 patent's
03:16 14 Claims 1 and 14 and the '289 patent's Claims 1 and 2, I
03:16 15 find that the Chromecast products do not identify a
03:16 16 location of a particular media player, which is one of
03:16 17 the claim element steps that is required by the patent.
03:16 18 And so the way Chromecast operates, that step
03:16 19 does not occur.
03:16 20 Q. So is it your opinion then that each of the
03:16 21 asserted claims in this case are not infringed for at
03:16 22 least two reasons?
03:16 23 A. Yes. That is correct.
03:16 24 Q. Before we just get into the specifics of your
03:16 25 opinion, I see some circles down at the bottom and

03:16 1 independent claims and dependent claims.
03:16 2 What are you trying to tell the jury with
03:16 3 that?
03:16 4 A. Sure. So -- and we've heard this, again, from
03:16 5 Dr. Almeroth before. When claims are defined as part
03:16 6 of a patent, they can either be independent claims that
03:17 7 stand alone or they can be defined as dependent claims
03:17 8 that basically add on to a prior claim.
03:17 9 So in this, for example, I'm illustrating that
03:17 10 Claim 8 of the '251 patent is a dependent claim of
03:17 11 Claim 1, which means that Claim 8 includes all of the
03:17 12 things that Claim 1 is supposed to include plus
03:17 13 whatever additional elements are expressed as part of
03:17 14 Claim 8.
03:17 15 Now, the reason why this relationship is
03:17 16 important to understand is for the purposes of
03:17 17 noninfringement, even if a single step of the claimed
03:17 18 invention is missing, if there's even a single part of
03:17 19 the claim that is not present, then that claim is not
03:17 20 infringed.
03:17 21 And so if a single part of Claim 1 of the '251
03:17 22 patent is not -- is not infringed, then that means that
03:17 23 Claim 8 automatically cannot be infringed. Because all
03:18 24 of the parts of Claim 1 are also part of Claim 8
03:18 25 because Claim 8 is a dependent claim.

03:18 1 So, for example, the server system -- when I
03:18 2 talk about the server system and how it's missing, the
03:18 3 server system is part of all three Claim 1s of all
03:18 4 three patents.
03:18 5 And so when I conclude that the server system
03:18 6 does not exist as claimed, then that will render as
03:18 7 noninfringing all three Claim 1s of all three patents.
03:18 8 And then by that reference, by that
03:18 9 dependency, all three dependent claims of all three
03:18 10 patents at issue in this case would also not infringe.
03:18 11 Q. All right. Well, let's turn to the first of
03:18 12 those opinions, the ones you've mentioned, the server
03:18 13 system.
03:18 14 So I take it your opinion is -- or what is
03:18 15 your opinion about the server system issue and its
03:18 16 impact on noninfringement?
03:18 17 A. So the server system as claimed, right, as,
03:19 18 you know, the server system doing the things that the
03:19 19 claims say the server system needs to do, does not
03:19 20 exist in the Chromecast products.
03:19 21 And because of that, I find that Claim 1 of
03:19 22 all three patents is not infringed. And by reference,
03:19 23 all three dependent claims are also not infringed.
03:19 24 Q. Where did you start your analysis of
03:19 25 noninfringement?

03:19 A. We always start with the claim language. So
03:19 we start with the claims in order to understand what
03:19 they say and what is required.
03:19 And here, what I'm highlighting here -- I'm
03:19 not going to read all three Claim 1s, but what I'm
03:19 trying to show is that all three Claim 1s very much
03:19 require a server system.
03:19 So I've highlighted, you know, where the word
03:19 "server system" appears in all three Claim 1s. And the
03:19 other language in the claims relate to that server
03:19 system. They relate, like, to -- you know, they
03:19 describe the steps that need to be taken by the server
03:19 system and what that server system needs to do. And
03:19 so -- right.
03:19 So then, you know, the rest of my analysis
03:20 will be showing that the server system as claimed does
03:20 not exist in the Chromecast products.
03:20 Q. Did you prepare a demonstrative to summarize
03:20 your opinion on this server system issue?
03:20 A. Yes. So if we go to the next slide, at the
03:20 highest level, at -- you know, at the most abstract,
03:20 the most basic, I'm illustrating it as shown here.
03:20 On the left is effectively what the patents
03:20 are about. They're about putting a server system in
03:20 between the phone and the content presentation device

03:20 1 in order to take certain specific actions.
03:20 2 And that server system being in the middle is
03:20 3 not only -- you know, it's not just there to pass
03:20 4 messages. It's there to take certain actions and be in
03:20 5 control. It has certain responsibilities.
03:20 6 And so that's -- that's what the patent wants
03:20 7 to do. Right? So that's what the patent is trying to
03:20 8 describe.
03:20 9 And what we're going to see, when we examine
03:21 10 Google's products, is Google has chosen for various
03:21 11 reasons to go in a different direction, to not include
03:21 12 a server system that mediates or intermediates access
03:21 13 between the phone and the display device, but instead,
03:21 14 to have the phone talk directly to the Chromecast, to
03:21 15 the content presentation device.
03:21 16 So the phone is our personal computing device
03:21 17 in the parlance of the patents, and the Chromecast
03:21 18 dongle is our content presentation device.
03:21 19 And in Google's products, this communication
03:21 20 happens directly with no intermediary service system
03:21 21 and performing the steps as claimed in the patents.
03:21 22 Q. So these Google products, they're talking
03:21 23 directly to each other. We've heard discussion of a
03:21 24 peer-to-peer system.
03:21 25 Is this a peer-to-peer relationship?

03:21 A. That is exactly how I would characterize the
03:21 Google products.
03:21 Q. Okay. All right. Well, let's -- let's dig
03:22 deep further.
03:22 Did you look at other parts of the patent
03:22 besides the claim --
A. Yes.
03:22 Q. -- the claims to inform your opinion?
03:22 A. Yes.
03:22 Q. Let's look at that.
03:22 A. So -- so here we see a illustration. You
03:22 know, if we want to understand the patents, in addition
03:22 to reading the claims, we have to read the
03:22 specification, right? The specification in the -- all
03:22 three patents share the same specification, and that
03:22 includes figures in the specification.
03:22 And the text of the specification and the
03:22 figures help us understand what the claims mean. And
03:22 so this figure, Figure 1, which is part of all three
03:22 patents, very clearly kind of describes -- shows these
03:22 three different components and their relationship to
03:22 each other. Right? They're all separate components
03:22 that can communicate over a network, right?
03:22 And we see that this -- this -- described in
03:22 the specification, the server system really has two

03:22 1 primary roles.
03:22 2 The first is to act as a -- as -- as an agent
03:23 3 to connect between the phone and the content display
03:23 4 device via a synchronization code.
03:23 5 So there is great discussion in the
03:23 6 specification and in the claim language talking about
03:23 7 using a synchronization code so that the server system
03:23 8 can create an association between the phone and the
03:23 9 content display device.
03:23 10 And it's doing this because the use case, the
03:23 11 situation that the patent is addressing, is one in
03:23 12 which the phone and the content presentation device
03:23 13 either can't talk directly to each other or don't want
03:23 14 to talk directly to each other.
03:23 15 So -- so the server is -- is acting as this --
03:23 16 not just the go-between but really as the thing that is
03:23 17 managing that connection and making that connection
03:23 18 possible.
03:23 19 On the next slide --
03:23 20 Q. Let me just ask you, sir, just to be sure.
03:23 21 MR. LANIER: Let's go back to where we
03:23 22 were there, Mr. McDonald. Go back.
03:23 23 Thank you, sir.
24 BY MR. LANIER:
03:23 25 Q. So you're referring to Figure 1 of all three

03:24 1 patents, and from the '289 patent, Column 2, Lines 16
03:24 2 to 23 of the specification; is that fair?
03:24 3 A. Yes. I've called out that specific text as an
03:24 4 example of the text that describes what the server
03:24 5 system's doing with respect to synchronizing these two
03:24 6 other devices.
03:24 7 Q. And did you look at additional pieces of the
03:24 8 specification of the patents to inform your opinion?
03:24 9 A. Yes.
03:24 10 Q. Let's take a look at that.
03:24 11 A. So the -- the other main role that the server
03:24 12 system plays, as claimed in the patents, is to act as a
03:24 13 universal adapter in order to convert or translate the
03:24 14 commands of the phone into appropriate programming code
03:24 15 that is then -- you know, for the specific media player
03:24 16 for -- that's running on the content presentation
03:24 17 device.
03:24 18 And so here, again, from the text of the
03:24 19 specification and how we understand the claim language,
03:24 20 we understand the server system's role here is to step
03:25 21 into this communication gap where the phone does not
03:25 22 know how to issue commands that the media player on the
03:25 23 content presentation device understands. They don't
03:25 24 speak the same language.
03:25 25 And so the server system is able to translate

03:25 1 what the phone can say into the appropriate commands
03:25 2 that the -- that can control the content presentation
03:25 3 device and the programs and media player that is
03:25 4 running on it.
03:25 5 And so that's the second main role for the
03:25 6 server system. And -- right. And so that is also
03:25 7 understood from the specification.
03:25 8 Q. And so specifically, that's from the '251
03:25 9 patent, Column 5, Lines 59 to 64, in Figures 1 and 5?
03:25 10 A. Yes. That's what I've used on this
03:25 11 demonstrative.
03:25 12 Q. All right. So you've formed an understanding
03:25 13 of what the patent claims required with respect to the
14 server system.
03:25 15 Did you then compare that to how the Google
03:25 16 products worked?
03:25 17 A. I did.
03:25 18 Q. And -- and what did you do --
03:25 19 THE COURT: Counsel.
03:26 20 MR. LANIER: Oh, sorry, Your Honor.
03:26 21 THE COURT: I've been trying to find --
03:26 22 it seems to me this might be a good place to break
03:26 23 before he gets into that.
03:26 24 So ladies and gentlemen of the jury, if
03:26 25 you'll remember my instructions, we'll be in recess for

03:26 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.

03:27 1 MR. DYKAL: One other minor thing. We
03:27 2 made some objections to some of the exhibits that I
03:27 3 think they're going to enter. Would you want me to
03:27 4 object when those come up?
03:27 5 THE COURT: They're demonstrative
03:27 6 exhibits?
03:27 7 MR. DYKAL: I think they're actual
03:27 8 exhibits. These are exhibits we did object to, and we
03:27 9 feel we've preserved that, and I understand Your
03:27 10 Honor's overruled, but do you want --
03:27 11 THE COURT: No. No. If you have
03:27 12 objections to make, what I said earlier --
03:27 13 You may be seated.
03:27 14 What I said earlier was if you all were
03:27 15 objecting -- anyone's objecting, either side objects to
03:27 16 something that when you started trial was a joint
03:27 17 exhibit, too late to change that.
03:27 18 If it's an exhibit that they offered but
03:27 19 you also offered, too late to object to that.
03:27 20 But if you have objected to something,
03:27 21 make your objection, and I'll rule on it.
03:27 22 MR. DYKAL: Just -- I just want
03:27 23 Your Honor to be clear of the situation. So these were
03:27 24 exhibits that they included with their expert report,
03:27 25 and then our rebuttal report expert also discussed

03:28 1 them. So they ended up on both sides' slides, but we
03:28 2 did object to theirs. We -- for hearsay and other
03:28 3 reasons, but we just want to preserve it.
03:28 4 THE COURT: You can certainly -- you can
03:28 5 certainly make those objections.
03:28 6 MR. DYKAL: Okay. Thank you.
03:28 7 THE COURT: I'm not sure how good a
03:28 8 hearsay objection would be with an expert.
03:28 9 MR. DYKAL: I understand. They're
03:28 10 foundational. And we feel they're not proper prior
03:28 11 art. That's really all it is.
03:28 12 THE COURT: Okay. Anything else?
03:28 13 MR. LANIER: Nothing, Your Honor. Thank
03:28 14 you.
03:28 15 (Recess taken.)
03:46 16 THE BAILIFF: All rise.
03:47 17 THE COURT: Please remain standing for
03:47 18 the jury.
03:47 19 (Jury entered the courtroom.)
03:47 20 THE COURT: Thank you.
21 You may be seated.
03:47 22 Yes, sir.
03:47 23 MR. LANIER: Thank you, Your Honor.
03:47 24 BY MR. LANIER:
03:47 25 Q. Dr. Mayer-Patel, just to reset the stage, we

03:47 had just finished going through looking at the patents
03:47 about the server system issue.
03:47 So the next question for you, sir, is, did you
03:47 look at evidence about the operation of the Google
03:47 products to inform your infringement opinion on this
03:47 issue?
03:47 A. I did.
03:47 MR. LANIER: Let's bring up and start
03:47 from Slide 17, please.
BY MR. LANIER:
03:47 Q. So here we're referring to JTX-187. I have a
03:47 feeling we all recognize this document.
03:47 A. Yes.
03:47 Q. But just to remind us, what are we looking at
03:47 here?
03:47 A. Sure. So we've seen this multiple times now,
03:48 but this is a set of documents that describes the
03:48 discovery. And I'm going to concentrate on the
03:48 discovery, launch, and control, so just those three
03:48 steps because that's the most relevant to my analysis.
03:48 Q. Okay. So discovery, that's the -- what is the
03:48 discovery step?
03:48 A. So the discovery step is how the phone and the
03:48 Chromecast find that connection. And we've heard the
03:48 testimony of Mr. Van Der Staay and through documents

03:48 that I reviewed that that discovery step is done on the
03:48 local network. They both have to be part of the same
03:48 WiFi.
03:48 And because they're part of the same local
03:48 environment and the same WiFi network, that's what
03:48 enables the phone and the Chromecast device to discover
03:48 each other.
03:48 Q. In the discovery step, are you sending
03:48 press -- play, pause, rewind, all that sort of stuff?
03:48 A. No. Not yet.
03:48 Q. At this point, are you just discovering each
03:48 other and hooking up?
03:48 A. That's right. The phone is discovering the
03:48 existence of the cast device and -- and being able to
03:49 connect to it.
03:49 Q. Were you here in the courtroom today for
03:49 questions about this mDNS server?
03:49 A. I was.
03:49 Q. Is the mDNS server a server system of the
03:49 claims?
03:49 A. No. So that is not part of the claim server
03:49 system.
03:49 MR. LANIER: Now, let's look at Slide 18.
BY MR. LANIER:
03:49 Q. You've moved to launch step.

03:49 What's the launch step?

03:49 A. So the launch step is how the app on the

03:49 phone -- so we have two apps, actually. There's an app

03:49 on the phone, like a Spotify app, and there's going to

03:49 be a receiver app that's going to be run on the

03:49 Chromecast device. And that's -- those two apps are

03:49 the ones that are talking to each other.

03:49 And so the phone, running the app on the

03:49 phone, whether that's Spotify or YouTube or whatever,

03:49 the controller part, the sender app, will ask the

03:49 Chromecast device to launch the corresponding receiver

03:50 app. So -- and it does that by sending the app ID of

03:50 the receiver app.

03:50 So every receiver app needs to be registered

03:50 with Google and is given a app ID. And so it's that

03:50 number, which, you know, here is CC32753. It's that

03:50 code, that app ID, that the sender app sends to the

03:50 Chromecast in order to launch the corresponding

03:50 receiver app.

03:50 Q. Is there an external server involved in this

03:50 launch step?

03:50 A. No. There's not.

03:50 Q. Does the communication go from the cast sender

03:50 or phone to the device directly?

03:50 A. Directly, yes.

03:50 Q. Over that same local WiFi network?
03:50 A. That is correct.
03:50 Q. All right. What's the next step in the
03:50 process?
03:50 A. So I'm going to skip to the last step, which
03:50 is control.
03:50 So when the launch command is given, then the
03:50 Chromecast device will at that time find a location for
03:51 the application, right?
03:51 So the Chromecast device already has
03:51 downloaded in it all of the locations for the
03:51 application, right, all these receiver applications.
03:51 And so given the code, the app ID, it finds
03:51 the corresponding location and then downloads and
03:51 starts executing the partner app, is what it's listed
03:51 here in this screen, but that's also known as the
03:51 receiver app.
03:51 And so once that -- that's the -- that's the
03:51 actual media player, right?
03:51 So in the parlance of the patent, that's the
03:51 thing that's going to play your video.
03:51 And so once that app is running inside that
03:51 browser component of the device -- of the Chromecast
03:51 device, now the sender app can send commands to control
03:51 the receiver app directly.

03:51 And the key thing here, and it's labeled as
03:51 part of that green arrow, is these are Cast V2
03:52 messages.
03:52 The sender app speaks the language of the
03:52 receiver app. They both know how to talk to each
03:52 other. The sender app can say play and pause and load
03:52 and next, and it does that by sending the appropriate
03:52 Cast V2 command.
03:52 So Cast V2 is a specific way of sending these
03:52 messages in a specific format for these messages. And
03:52 the receiver app, in receiving these messages, knows
03:52 what to do because the receiver app knows how to
03:52 interpret these messages in order to control itself.
03:52 Q. Does -- is there something in between these
03:52 two, the phone and the device, that translates those
03:52 commands for the device?
03:52 A. There is not.
03:52 Q. And is there an external server in between
03:52 them?
03:52 A. There is not.
03:52 Q. Okay. Now, did you -- is this an example of
03:52 that peer-to-peer architecture you talked about?
03:53 A. It is.
03:53 Q. Did you look at other evidence within this
03:53 document about the -- about the operation of Google's

03:53 1 products on that point?
03:53 2 A. I did.
03:53 3 MR. LANIER: Next slide.
4 BY MR. LANIER:
03:53 5 Q. So here we're at, boy, Page 098 as it was
03:53 6 produced of Joint Trial Exhibit 187.
03:53 7 What are you showing us here from that
03:53 8 document?
03:53 9 A. What I'm trying to highlight, what I'm trying
03:53 10 to point out is that these technical documents
03:53 11 describing how the cast system worked describes this
03:53 12 relationship exactly as a peer-to-peer relationship
03:53 13 over and over and over again.
03:53 14 And so, for example, in the discovery step, it
03:53 15 talks about enabling peers on a local network to
03:53 16 discover the cast device. And so this is how I know
03:53 17 the phone and the cast device, the content presentation
03:53 18 device, are in a peer-to-peer relationship.
03:53 19 Q. All right. So now let's step back and look at
03:53 20 the overall architecture of this. We've seen this page
03:53 21 as well also from Joint Trial Exhibit 187.
03:54 22 What is this showing to the jury?
03:54 23 A. So, again, we've seen this many, many times.
03:54 24 And what this is is an architecture document, which
03:54 25 shows the different components of the system in an

03:54 1 abstract way, right?
03:54 2 And so two things that I really want to point
03:54 3 out is that everything to the left of the vertical
03:54 4 dotted line we know is on the Chromecast device. And
03:54 5 so everything on the left, that's the content
03:54 6 presentation device.
03:54 7 And all of these boxes that are listed on the
03:54 8 left, that's just software. It's just the code that's
03:54 9 running on that device. It's not really broken up into
03:54 10 these separate distinct pieces. It's all one piece of
03:54 11 software that is running. And we heard that from
03:54 12 Mr. Van Der Staay, for example.
03:54 13 And then on the right are two separate
03:54 14 entities. One, the cast sender, the phone, right, and
03:54 15 so that's my, you know, my controlling device, my
03:55 16 remote control.
03:55 17 And so it is separate from the cast device and
03:55 18 it is on the network. But what's, you know, an
03:55 19 important point to remember is it's not just anywhere
03:55 20 on the network. It has to be on the same local area
03:55 21 network, the same WiFi, as the content presentation
03:55 22 device, as the Chromecast dongle.
03:55 23 And then on the lower right, we saw these Cast
03:55 24 services in the cloud and we heard some discussion
03:55 25 about what those are. Those are servers. Those are

03:55 1 servers in Google's infrastructure, out on the
03:55 2 Internet, not on the local WiFi. And they do play a
03:55 3 role in this technology but not as the claimed server
03:55 4 system.
03:55 5 Q. Do those Cast services cloud, the DCS, CCS,
03:55 6 and COS, play a role in the casting flow --
03:55 7 A. No. They --
03:55 8 Q. -- between the phone and the device?
03:55 9 Sorry, sir.
03:55 10 A. No. They do not.
03:55 11 Q. Did you hear Mr. Van Der Staay's testimony
03:56 12 earlier today?
03:56 13 A. I did.
03:56 14 Q. Did -- was his testimony consistent with what
03:56 15 you learned from reviewing the documents and other
03:56 16 information you described?
03:56 17 A. It is.
03:56 18 Q. All right. Did you see other pieces of this
03:56 19 document that illustrated anything about the
03:56 20 peer-to-peer nature of this system?
03:56 21 A. I did.
03:56 22 Q. So here we're looking at another page of Joint
03:56 23 Trial Exhibit 187.
03:56 24 A. Yes. And so, again, I'm just trying to
03:56 25 highlight the idea that in these high-level

03:56 1 architecture documents, it's recognized that the cast
03:56 2 sender and the cast device, the Chromecast device, are
03:56 3 peers and that they speak the same language, Cast V2.
03:56 4 That's really important, because that's how the cast
03:56 5 sender can control the receiver app without needing any
03:56 6 sort of translator.
03:56 7 Q. Did you look at documents from the development
03:56 8 of the Chromecast project to see whether this
03:57 9 peer-to-peer setup was part of the plan?
03:57 10 A. Yes.
03:57 11 MR. LANIER: Let's look at the next
03:57 12 slide.
03:57 13 BY MR. LANIER:
03:57 14 Q. Here, we're referring to Joint Trial Exhibit
03:57 15 159 at Page 82.
03:57 16 What is this?
03:57 17 A. This is a document describing how the
03:57 18 envisioned cast architecture would operate. And in
03:57 19 particular, they are describing the messages to be
03:57 20 transported over a peer-to-peer connection.
03:57 21 In other words, that we're not going to
03:57 22 involve our servers. We're going to allow the media
03:57 23 player and the media controller talk directly to each
03:57 24 other.
03:57 25 Q. Did you prepare a slide to summarize some of

03:57 1 these issues about peer-to-peer versus client-server
03:57 2 architectures?
03:57 3 A. I have.
03:57 4 MR. LANIER: Let's look at that next one.
5 BY MR. LANIER:
03:57 6 Q. But before we talk about this specifically,
03:57 7 did you hear the discussion today with Mr. Bakar and
03:57 8 Mr. Van Der Staay about the reasons why Google chose a
03:57 9 peer-to-peer architecture?
03:57 10 A. I did.
03:57 11 Q. Did you -- did that -- the description they
03:58 12 gave and the statements they made, were they consistent
03:58 13 with what you learned in looking at the documents and
03:58 14 the evidence about how Google's products work?
03:58 15 A. It was.
03:58 16 Q. So what are you illustrating for the jury here
03:58 17 in talking about peer-to-peer is preferable?
03:58 18 A. So on this slide, I'm just summarizing some of
03:58 19 the reasons why a peer-to-peer architecture would be
03:58 20 preferred, especially for this particular situation.
03:58 21 The first is: There's really no reason or
03:58 22 need to mediate or have a proxy be between these two
03:58 23 devices, right?
03:58 24 The way it's been designed, it has largely
03:58 25 avoided the problems that the patents were trying to

03:58 1 solve. So they're on the same network, so we don't
03:58 2 need a server to connect us.
03:58 3 We can talk directly to each other, so -- and
03:58 4 we can speak the same language. And because of that,
03:58 5 we don't need somebody sitting in the middle
03:58 6 translating the language of the commands from the phone
03:59 7 to the language understood by the media player.
03:59 8 And so in this situation, this direct
03:59 9 peer-to-peer communication would be -- would be
03:59 10 superior for the reasons we heard from both Mr. Bakar
03:59 11 and Mr. Van Der Staay, who pointed out safety reasons,
03:59 12 not wanting to be able to have your TV controlled from
03:59 13 somewhere else on the Internet as well as, you know,
03:59 14 safety reasons for not wanting applications that are
03:59 15 just randomly provided to run on your computer,
03:59 16 et cetera.
03:59 17 Q. Okay. Now, you understand that Dr. Almeroth
03:59 18 disagrees with you, right?
03:59 19 A. I do.
03:59 20 Q. And he contends that there is a server system
03:59 21 in the accused products, correct?
03:59 22 A. That is his contention. Yes.
03:59 23 Q. A server system of the claims, he says,
03:59 24 correct?
03:59 25 A. That is correct.

03:59 Q. Have you attempted to illustrate what he has
03:59 described as that server system?
03:59 A. I have.
03:59 MR. LANIER: Let's look at the next
03:59 slide.
BY MR. LANIER:
03:59 Q. What have you illustrated here?
03:59 I see this very familiar document but some
03:59 yellow text here.
04:00 A. Right. So --
04:00 Q. Yellow highlighting. Sorry.
04:00 A. -- what I've done here is I have highlighted
04:00 the components that Dr. Almeroth is claiming is -- or
04:00 is saying is the claimed server system.
04:00 And what I'm trying to express here, what I'm
04:00 trying to show is that a person of ordinary skill in
04:00 the art in reading these claims and the specification
04:00 and understanding the state of the art for servers and
04:00 server systems at the time would not have understood
04:00 these components as being the claimed server system.
04:00 First, because a person of ordinary skill in
04:00 the art would have understood that the server system
04:00 and the display device were separate and distinct
04:00 entities. And I'll have some slides about why a person
04:00 of ordinary skill in the art would have understood

04:00 1 that.

04:00 2 But in seeing this diagram, we can clearly see

04:00 3 that in order for Dr. Almeroth to find infringement, he

04:01 4 has to pick and choose components from things that are

04:01 5 in the cloud, that are running on Google servers,

04:01 6 software that's running on the Chromecast device, and

04:01 7 even a component of the media player itself. And he

04:01 8 has to say that all of those things together are the

04:01 9 server system.

04:01 10 And a person of ordinary skill in the art

04:01 11 would not have recognized that as a server system.

04:01 12 Q. Were you here in the courtroom yesterday when

04:01 13 Dr. Almeroth volunteered that was a box-drawing

04:01 14 exercise?

04:01 15 A. I was.

04:01 16 Q. Do you think that's an appropriate way to

04:01 17 approach an infringement analysis?

04:01 18 A. No. Because basically, he's going backwards.

04:01 19 He's reading the claims of the patent, seeing what the

04:01 20 server system needs to do, and then looking at the

04:01 21 accused products and trying to find the places that

04:01 22 those kinds of steps are taken, and then drawing a box

04:01 23 around all of them and saying, That's the server

04:01 24 system.

04:01 25 Q. Do you believe that a person of skill in the

04:01 1 art, starting from the claims, would think that the --
04:01 2 this was an appropriate identification of the server
04:02 3 system?
04:02 4 A. I do not.
04:02 5 Q. Let's look at the claims.
04:02 6 MR. LANIER: Let's look at the next slide
04:02 7 here.
8 BY MR. LANIER:
04:02 9 Q. Here, we've illustrated Claim 1 of the '251
04:02 10 patent.
04:02 11 What are you illustrating to the jury here?
04:02 12 A. So here, I'm laying out the idea that -- why a
04:02 13 person of ordinary skill in the art would have
04:02 14 understood the server system and the display device as
04:02 15 being separate and distinct.
04:02 16 And one way that I know this is because when a
04:02 17 person of ordinary skill in the art would have read the
04:02 18 claims, they would have found the display device and
04:02 19 the server system being claimed separately with
04:02 20 distinct terms and being related to each other in a way
04:02 21 that clearly shows them as being different entities.
04:02 22 So just to pick one of these, like, for
04:02 23 example, assigning by a server system a synchronization
04:02 24 code to the display device. Right?
04:02 25 So, again, there's this -- it -- over and over

04:02 1 again it uses different terms to decide the server
04:03 2 system from the display device and provides no hint
04:03 3 that these are expected to be the same thing, and talks
04:03 4 about them in relationship to each other and the
04:03 5 personal computing device that makes it clear there are
04:03 6 three different components at play in this patent.
04:03 7 Q. So we've looked at this claim through the
04:03 8 perspective of someone of skill in the art in April of
04:03 9 2011, right?
04:03 10 A. Yes.
04:03 11 Q. And they have to have a certain amount of
04:03 12 training and experience, right?
04:03 13 A. That is correct.
04:03 14 Q. Do we also assume that they -- they read
04:03 15 English because they are reading in a U.S. patent here
04:03 16 and they understand how grammar works?
04:03 17 A. That's right.
04:03 18 Q. They read words like "to" and "by" and "from."
04:03 19 Is that part of what a person of skill in the
04:03 20 art would think about when they're reading the patent
04:03 21 claims?
04:03 22 A. Exactly.
04:03 23 Q. Okay. Did you look at any other specific
04:03 24 elements of the claims to -- to support your opinion
04:03 25 that a person of skill in the art would understand that

04:03 1 the server system and display device are separate and
04:03 2 distinct?
04:03 3 A. I did.
04:03 4 Q. What are you illustrating here, sir?
04:04 5 A. So here, I've kind of highlighted two specific
04:04 6 parts out of the claim language that illustrates this
04:04 7 even further.
04:04 8 So, for example, this portion of '251 patent,
04:04 9 Claim 1, talks about storing in a database associated
04:04 10 with a server system information for transmission to or
04:04 11 retrieval by the display device. Right.
04:04 12 So, again, you know, a person of ordinary
04:04 13 skill in the art would understand, oh, we're
04:04 14 transmitting information from a database that's part of
04:04 15 the server system to something different, a display
04:04 16 device. Right?
04:04 17 This snippet from the '289 patent, Claim 1,
04:04 18 says -- you know, shows us something similar. Where it
04:04 19 says: Wherein, based on information received or
04:04 20 retrieved from the server system, the content
04:04 21 presentation device uses the particular media player.
04:04 22 So, again, right, just -- not even just a
04:04 23 person of ordinary skill in the art, just an ordinary
04:05 24 person who's reading this would understand that, well,
04:05 25 if I'm sending information from one thing to a

04:05 1 different thing, that these are different things.
04:05 2 Q. Did you look to portions of the specification
04:05 3 of the patents to support this opinion?
04:05 4 A. I did.
04:05 5 Q. This is Figure 1. We've seen it a lot.
04:05 6 So just in -- in brief, sir, what are you
04:05 7 illustrating here?
04:05 8 A. So here, I'm showing that the main figure of
04:05 9 the patent clearly shows three separate components
04:05 10 where the server system, that is labeled separately and
04:05 11 distinctly, connected to the Internet differently than
04:05 12 the content display device and the phone.
04:05 13 And so, again, this supports the idea that
04:05 14 someone reading this patent and understanding it,
04:05 15 looking at its figures, reading its specification,
04:05 16 would understand that the server system and the content
04:05 17 presentation device were different things.
04:05 18 Q. Did you also look to pieces of the
04:05 19 specification itself, the words in the columns, in
04:05 20 addition to this figure?
04:05 21 A. I did.
04:05 22 Q. So we've illustrated here several pieces of
04:06 23 the specification from the '251 patent. And maybe,
04:06 24 just because the jury's heard a lot of this, pick out a
04:06 25 couple of examples that really illustrate your

04:06 1 analysis.
04:06 2 A. Sure. So I'm making the same point again,
04:06 3 which is if you read this language that's in the
04:06 4 patent, it clearly talks about these things as separate
04:06 5 and distinct.
04:06 6 The one that I think is most illustrative is
04:06 7 the one on the upper left, which it talks about, at the
04:06 8 end of that text, establish a connection between the
04:06 9 mobile phone and the display device through the server
04:06 10 system. Right.
04:06 11 And so clearly we see, oh, there's supposed to
04:06 12 be a server system between these two. And so we're
04:06 13 establishing a connection through the server system.
04:06 14 Right?
04:06 15 And so, you know, over and over again in
04:06 16 various places in the specification, we see these three
04:06 17 components related to each other in ways that clearly
04:06 18 give the idea that these are separate and distinct
04:06 19 components.
04:06 20 Q. Well, just one more example from here. That
04:07 21 was from Lines -- Column 5, Lines 36 to 41.
04:07 22 Just below that on the left, Column 6,
04:07 23 Lines 23 to 29, it says: The server system can push
04:07 24 the messages to the display device.
04:07 25 Does that support your analysis in the same

04:07 1 way?
04:07 2 A. Exactly right.
04:07 3 Q. All right.
04:07 4 MR. LANIER: So now let's -- let's --
04:07 5 let's look at the next slide.
6 BY MR. LANIER:
04:07 7 Q. And I wanted to talk to you about this
04:07 8 receiver SDK.
04:07 9 So we've heard a bit about it, but just really
04:07 10 to make it very clear to us, what is the receiver SDK?
04:07 11 A. Yeah. This is a really important point.
04:07 12 So remember, the media player is loaded by
04:07 13 being asked to be loaded into the -- the Chromecast
04:07 14 device. And that media player is known as a web
04:07 15 application.
04:07 16 So a web application is just a fancy name for
04:07 17 a web page that comes with code that gets run in the
04:07 18 web browser in order to make that web page come alive
04:07 19 to do things, be interactive, be able to, you know,
04:08 20 respond to your interactions with it, for example,
04:08 21 right?
04:08 22 And so the way a web application works is
04:08 23 there's a main web page, an HTML page, and that page is
04:08 24 linked to a number of JavaScript files. JavaScript is
04:08 25 just the computer language used to write web

04:08 1 applications.
04:08 2 And so that main web page will probably
04:08 3 have -- most web applications will have a number of
04:08 4 JavaScript files that together make up the programming
04:08 5 code for the web application.
04:08 6 So here's the really important part.
04:08 7 The receiver SDK is just another JavaScript
04:08 8 file that's part of that web application. It's not any
04:08 9 different than any of the other programming code that
04:08 10 was written in order to make that web application
04:08 11 works -- work. Right?
04:08 12 So it's actually part of the media player.
04:08 13 It's not even on the cast device when it starts. It
04:09 14 comes as part of launching that media player.
04:09 15 And so I think that, again, starts to really
04:09 16 stretch the imagination that we're going to take this
04:09 17 part of the media player and make that part of the
04:09 18 server system as well.
04:09 19 And so yes. That's what I'm trying to
04:09 20 illustrate here.
04:09 21 Q. Were you here for the testimony earlier today
04:09 22 from Mr. Van Der Staay about how some of those third
04:09 23 parties make their own media players?
04:09 24 A. Yes.
04:09 25 Q. And they provide them, and they're downloaded

04:09 1 onto the device, correct?
04:09 2 A. That is correct.
04:09 3 Q. But are those made by Google?
04:09 4 A. No.
04:09 5 Q. Okay. All right. So now have we got through
04:09 6 the evidence that you highlighted here -- I know you
04:09 7 looked at a lot of evidence, but that you highlighted
04:09 8 here to support your opinion with respect to the server
04:09 9 system issue?
04:09 10 A. We have.
04:09 11 Q. All right.
04:09 12 MR. LANIER: Let's just jump back quickly
04:09 13 to Slide 13, if we could.
14 BY MR. LANIER:
04:09 15 Q. That's the claims, I believe. And here,
04:09 16 you've highlighted the server system element in each of
04:09 17 the independent claims.
04:09 18 Are -- is that server system element met in
04:10 19 these claims?
04:10 20 A. No. And so that's the problem, right? If we
04:10 21 don't have the server system, and we don't have the
04:10 22 server system and the server system as claimed, the
04:10 23 steps of the code -- of the claims that require a
04:10 24 server system, they just don't exist in Chromecast.
04:10 25 And because of that, we can conclude that we

04:10 do not infringe Claim 1 of the '251 patent. We do not
04:10 infringe Claim 1 of the '528 patent. And we do not
04:10 infringe Claim 1 of the '289 patent.
04:10 Q. I have apparently just turned off my own
04:10 monitor, unfortunately, trying to let you cross those
04:10 things out with nice Xs.
04:10 But is the point that none of those
04:10 elements -- none of those server system elements are
04:10 met in the accused devices?
04:10 A. That is correct.
04:10 Q. All right. Thank you, sir.
04:10 I apologize. I pushed a button I shouldn't
04:10 have.
04:10 Thank you very much.
04:10 All right.
04:10 MR. LANIER: So now let's go back to
04:10 Slide 31.
BY MR. LANIER:
04:10 Q. So we've discussed the server system.
04:10 And I will make you a promise, sir. Until we
04:10 come at the end and we summarize all this, I will try
04:11 not to say those words again. We've heard them a lot.
A. Sure.
04:11 Q. But are there some other reasons why you
04:11 believe that the claims -- all the asserted claims are

04:11 1 not infringed?
04:11 2 A. Yeah. So the next opinion is going to be
04:11 3 about the term "database" as it's used in '251 patent,
04:11 4 Claims 1 and 8.
04:11 5 Q. Now, is this argument independent of and in
04:11 6 addition to the discussion we just went through on
04:11 7 server system?
04:11 8 A. It is.
04:11 9 Q. Okay. So let's turn to that.
04:11 10 MR. LANIER: Let's look at the next
04:11 11 slide.
12 BY MR. LANIER:
04:11 13 Q. So here, you've illustrated Claim 1 of that
04:11 14 '251 patent again.
04:11 15 What are you illustrating here with this
04:11 16 highlighting and underlining?
04:11 17 A. Sure. So I'm trying to point out or, you
04:11 18 know, pick out the parts that are going to be relevant
04:11 19 to my opinion about whether this database exists.
04:11 20 So most of the relevant information is in the
04:11 21 yellow highlighted part, where we see that we need to
04:11 22 store information in a database.
04:11 23 And so the -- what we need to store in a
04:12 24 database is information for transmission to or
04:12 25 retrieval by the display device.

04:12 1 So that tells us that what's in the database
04:12 2 is intended to be either transmitted to the content
04:12 3 presentation device or retrieved by the content display
04:12 4 device, but that the information in the database is
04:12 5 meant to go to the content presentation device.
04:12 6 And what that information includes -- it's
04:12 7 specified that it includes the video file to be acted
04:12 8 upon, you know, the location of the video file to be
04:12 9 acted upon, the identity of the particular media
04:12 10 player, and -- and the underlining on the next part's
04:12 11 important -- the corresponding programming code for
04:12 12 controlling the playback of the video content.
04:12 13 And so the idea here is that the server system
04:12 14 that is associated with this database is going to store
04:12 15 in this database, you know, these pieces of
04:13 16 information, but most importantly, programming code in
04:13 17 the database, which is then sent to the content display
04:13 18 device in order to control the playback of the video.
04:13 19 Q. So that information needs to be stored and
04:13 20 then go to the content presentation device?
04:13 21 A. That's right.
04:13 22 Q. Okay. Did you look at the specification to
04:13 23 support your opinion on this issue?
04:13 24 A. I did.
04:13 25 MR. LANIER: Let's turn to that now.

BY MR. LANIER:

04:13 Q. So here we've illustrated, again, Figure 1 and
04:13 Column 6, Lines 9 to 29, of the '251 patent.
04:13 What point are you making with this evidence?
04:13 A. So with this evidence, I'm showing where the
04:13 patent envisioned the database being. So the database
04:13 associated with the server system is shown to be part
04:13 of the server system, which makes sense.
04:13 And then the text from the specification talks
04:13 specifically about how the display device either
04:13 periodically checks for these messages or is
04:13 transmitted to these messages.
04:13 And that's, you know -- the role of the
04:14 database is to store the programming code that is then
04:14 delivered to the presentation device which then
04:14 controls the playback.
04:14 Q. Now, Dr. Almeroth disagrees with you on this
04:14 point as well, correct?
04:14 A. He does.
04:14 Q. Have you illustrated how -- where he finds
04:14 that database?
04:14 A. I do. I have.
04:14 MR. LANIER: Let's look at the next
04:14 slide.
BY MR. LANIER:

04:14 1 Q. Where does Dr. Almeroth say that that database
04:14 2 is?
04:14 3 A. So Dr. Almeroth seems to be pointing to
04:14 4 information stored on the phone. So it's associated
04:14 5 with the phone, not associated with the server system
04:14 6 at all.
04:14 7 And he seems to be indicating that that phone,
04:14 8 in storing information like a session ID, which is
04:14 9 helpful for the phone to re-establish contact with the
04:14 10 Chromecast device, that that satisfies the elements of
04:14 11 the claim.
04:14 12 And the problem here is that that session ID
04:14 13 is used by the phone in order to re-establish that
04:14 14 peer-to-peer connection. It is not the -- we haven't
04:15 15 seen any evidence that it includes the location of the
04:15 16 file, and we haven't seen any evidence at all that it
04:15 17 includes any sort of programming code, which is either
04:15 18 retrieved by or sent to the content presentation device
04:15 19 for controlling playback of the video.
04:15 20 So he's basically pointed to something that
04:15 21 looks like a database and says, Oh, well, that must be
04:15 22 our database.
04:15 23 But if we look at what the database needs to
04:15 24 store and how the database -- you know, the role of the
04:15 25 database with respect to the claims, then we see that

04:15 1 that database on the phone doesn't satisfy that.
04:15 2 Q. As you understand your roles as between you
04:15 3 and Dr. Almeroth, whose job is it to point to the
04:15 4 evidence that proves the -- that element is met?
04:15 5 A. That is his burden.
04:15 6 Q. Okay. And do you have an opinion as to
04:15 7 whether he's met his burden on that element?
04:15 8 A. I do not believe he's met this burden.
04:15 9 Q. Okay. Now, let's move to your next argument
04:16 10 on noninfringement.
04:16 11 MR. LANIER: Slide 35.
12 BY MR. LANIER:
04:16 13 Q. So this is -- if I understand your structure
04:16 14 here correctly, this is an issue that's present in both
04:16 15 Independent Claims '528 and '289 so that if you're
04:16 16 right, none of these claims are infringed as well, the
04:16 17 dependent claims as well, correct?
04:16 18 A. That is correct.
04:16 19 Q. All right. Well, let's understand what that
04:16 20 issue is. Let's look at those claims.
04:16 21 What have you illustrated here on the claims?
04:16 22 A. So on Claim 1 of both the '528 patent and the
04:16 23 '289 patent, we see that the messages from the personal
04:16 24 computing device, the phone, need to identify a
04:16 25 location of the particular media player, and that is in

04:16 1 both of these claims.
04:16 2 And it is -- the fact that the phone does not
04:16 3 provide a location to the Chromecast device, that is
04:16 4 why this step of these elements is not met.
04:16 5 Q. Now, did Dr. Almeroth identify something that
04:17 6 he says meets this limitation?
04:17 7 A. He does.
04:17 8 Q. All right. Let's look at that.
04:17 9 MR. LANIER: Next slide, please.
10 BY MR. LANIER:
04:17 11 Q. What -- this is back to our friend JTX-187,
04:17 12 that mesh foundation architecture document.
04:17 13 What does Dr. Almeroth point to as identifying
04:17 14 the location?
04:17 15 A. He points to the app ID, which we all know by
04:17 16 now is just a number. It is not a URL or a location on
04:17 17 the web that you can go and retrieve.
04:17 18 He points to that as identifying a location,
04:17 19 and I think it's very clear that that is not a
04:17 20 location.
04:17 21 Q. Why not?
04:17 22 A. Well, because I can't take that number and
04:17 23 then go find that -- like, just by itself, that number
04:17 24 does not provide me the information necessary to go
04:17 25 retrieve the receiver application, right?

04:17 1 Q. Were you here -- oh, sorry. I didn't mean to
04:17 2 interrupt.
04:17 3 Were you here this morning -- or this
04:17 4 afternoon when Mr. Van Der Staay was talking about what
04:17 5 that code did?
04:17 6 A. Yes.
04:17 7 Q. Did -- his testimony on that, was that
04:18 8 consistent with what you concluded looking at the
04:18 9 evidence?
04:18 10 A. It is.
04:18 11 Q. Do you have an opinion, bottom line, as to
04:18 12 whether this identifying a location element is met?
04:18 13 A. It is not.
04:18 14 Q. Okay. So, sir, we've now been through the
04:18 15 server system issue -- sorry. I said that phrase one
04:18 16 more time -- the database issue and the identify a
04:18 17 location issue.
04:18 18 Those are three different arguments, correct?
04:18 19 A. That is correct.
04:18 20 Q. They stand or fall each on their own merit,
04:18 21 correct?
04:18 22 A. That is correct.
04:18 23 Q. And adding up, are there two reasons for each
04:18 24 of the asserted claims in this case that you think they
04:18 25 are not infringed?

04:18 A. There are.
04:18 Q. Okay. Are any of the asserted claims in this
04:18 case infringed by the Google products?
04:18 A. They are not.
04:18 Q. Thank you, sir.
04:18 Well, now we're going to move to a topic about
04:18 which we've hinted a little bit, but we have not yet
04:18 really talked too directly to the jury about, and
04:18 that's invalidity.
04:18 Sir, do you have opinions on whether the
04:19 asserted patents are valid or invalid?
04:19 A. I do.
04:19 MR. LANIER: Let's skip to Slide 40.
04:19 BY MR. LANIER:
04:19 Q. Let's first off just lay some basic
04:19 groundwork.
04:19 So what does it mean for a patent to be
04:19 invalid?
04:19 A. Right. So a patent is invalid if there
04:19 existed public documents or publicly available systems,
04:19 products or, you know, or other prototypes or whatnot,
04:19 that describe or teach each of the elements of the
04:19 patent to a person of ordinary skill in the art, where
04:19 a person of ordinary skill in the art in understanding
04:19 this prior art would have -- it would have been obvious

04:19 1 to that person of ordinary skill in the art all of the
04:19 2 different steps of the claimed patents.
04:19 3 Q. Is it your opinion that the asserted claims,
04:19 4 all of them, are obvious?
04:19 5 A. Yes.
04:19 6 Q. And you've identified -- you've got them
04:19 7 broken up into two groups, the '251 patent and the '528
04:20 8 and '289 patent.
04:20 9 Why have you done that?
04:20 10 A. Because the prior art systems I'm going to
04:20 11 rely upon for this argument -- for the '251 patent, I
04:20 12 believe the Google TV system, which -- including
04:20 13 YouTube Leanback and YouTube Remote, working with the
04:20 14 Google TV system, that that system, that was prior art
04:20 15 at the time, would have rendered the claims of the '251
04:20 16 patent as obvious.
04:20 17 For the '528 and the '289 patents, there are a
04:20 18 couple of places in those patents where I need to
04:20 19 combine the Google TV system with another system that
04:20 20 was also available at the time. And that combination
04:20 21 of Google TV system and the patent of Muthukumarasamy
04:20 22 would have rendered those patents obvious.
04:20 23 Q. Are you permitted to put two things together
04:20 24 like GTS and Muthukumarasamy to render a patent
04:21 25 invalid?

04:21 A. You are.
04:21 Q. All right. We'll talk about that when we get
04:21 to that combination. Let's start with this GTS.
04:21 MR. LANIER: Let's look at the next
04:21 slide, please.
04:21 Sorry. The next one.
BY MR. LANIER:
04:21 Q. So here you say: Google TV (GTS) System.
04:21 What is the GTS system?
04:21 A. Sure. So GTS didn't exist as an acronym at
04:21 the time. That's something that I'm using in order to
04:21 name the Google TV system operating with YouTube Remote
04:21 and YouTube Leanback functionality and associated
04:21 documents that describe aspects of this system.
04:21 So I'm calling that bundle of evidence, that
04:21 bundle of things, the "GTS system" as a shorthand.
04:21 But basically, Google TV with YouTube Remote
04:21 and YouTube Leanback running with the Google TV, that's
04:21 the GTS system.
04:21 Q. Did you reach a conclusion as to whether what
04:21 you labeled for convenience the GTS system was prior
04:22 art to the patents in this case?
04:22 A. It is.
04:22 MR. LANIER: Let's look at the next
04:22 slide.

BY MR. LANIER:

04:22 Q. What evidence did you rely on or what did you
04:22 look at to conclude that it was prior art?
04:22 A. So the patents are allowed a priority date to
04:22 their provisional application, which is April 21st,
04:22 2011.
04:22 And so the evidence that the GTS system was
04:22 prior art is the fact that YouTube Remote was launched
04:22 on November 9th, several -- many months before and that
04:22 the YouTube Leanback functionality and Google TV
04:22 aspects were publicly available even prior to that,
04:22 early October.
04:22 And we know this from Mr. Levai and, you know,
04:22 and the documents produced about these systems.
04:22 Q. Did you hear the testimony of Mr. Levai that
04:22 was played in the court?
04:22 A. I did.
04:22 Q. And you understood that was testimony he had
04:22 given under oath in a previous part of this proceeding?
04:22 A. That is correct.
04:22 Q. He mentioned in his testimony a declaration, a
04:23 written statement.
04:23 Did you review that written statement as well?
04:23 A. I did.
04:23 Q. Did you rely on all that as part of your

04:23 1 conclusion that the GTS system is prior art?
04:23 2 A. I did.
04:23 3 Q. All right. Well, then let's take a look at
04:23 4 the GTS system.
04:23 5 MR. LANIER: Let's look at the next
04:23 6 slide, please.
04:23 7 BY MR. LANIER:
04:23 8 Q. So we've got a little note here about a
04:23 9 placeholder, but just in general terms, what are we
04:23 10 illustrating on this slide here?
04:23 11 A. So this slide and then the subsequent slides
04:23 12 here, we're going to go through the different pieces of
04:23 13 evidence that document the GTS system that I used.
04:23 14 And this particular one is a video that
04:23 15 demonstrates using YouTube Remote with YouTube Leanback
04:23 16 running on the Google TV.
04:23 17 Q. All right.
04:23 18 MR. LANIER: So let's look -- first,
04:23 19 we're going to jump out of this presentation for a
04:23 20 moment and look at Joint Trial Exhibit 3, JTX-3.
21 BY MR. LANIER:
04:23 22 Q. So JTX-3 looks like it's a printout from a
04:23 23 YouTube page.
04:23 24 What do you -- what do you see on there?
04:24 25 MR. LANIER: Maybe we can just highlight

04:24 1 the top half and not the comments and the ads.
04:24 2 Thank you.
04:24 3 A. So there's a video that's part of this.
04:24 4 BY MR. LANIER:
04:24 5 Q. Yes. There's a -- there's a video we will
04:24 6 see. Right now we're looking at a printout.
04:24 7 A. Oh, sure.
04:24 8 Q. Do you see the date up there at the top?
04:24 9 A. I do.
04:24 10 Q. October 14, '21?
04:24 11 A. Yes.
04:24 12 Q. That's the date this was printed out, correct?
04:24 13 A. That is correct.
04:24 14 Q. Do you see a -- you've seen YouTube videos
04:24 15 before?
04:24 16 A. I have.
04:24 17 Q. You're aware that generally, the date it's
04:24 18 first posted is placed on there?
04:24 19 A. Yes.
04:24 20 Q. Do you see a date on this video?
04:24 21 A. Where is it?
22 Q. Toward the bottom --
04:24 23 A. Down below -- yeah. It's a little bit cut off
04:24 24 on my screen, but it says November 14th, 2010.
04:24 25 Q. All right. And the title is How to Control

04:24 1 Google TV or YouTube Leanback with YouTube Remote.
04:24 2 Right?
04:24 3 A. That's right.
04:24 4 Q. Okay. All right. So now let's watch the
04:24 5 video.
04:24 6 A. Sure.
04:24 7 MR. LANIER: If we could pull up
04:24 8 Defendant's Trial Exhibit 118-A.
04:24 9 (Video played.)
04:27 10 MR. LANIER: We can stop that and go back
04:27 11 to the presentation.
12 BY MR. LANIER:
04:27 13 Q. Now, sir, did you watch this video or review
04:27 14 it in connection with forming your opinions?
04:27 15 A. I did.
04:27 16 Q. Does this video illustrate the operation of
04:27 17 YouTube Remote, YouTube Leanback, and Google TV out in
04:27 18 the world, in the wild, by November 14th of 2010?
04:27 19 A. It does.
04:27 20 Q. All right. Did you look at -- did you
04:27 21 consider that video in forming your opinions about
04:27 22 invalidity in this case?
04:27 23 A. I did.
04:27 24 Q. Did you look at other evidence of how the GTS
04:27 25 system worked?

04:27 A. I did.
04:27 Q. Now, let's just back up and make sure I
04:27 understand why.
04:27 Was there -- was there one document that had
04:27 every piece of the GTS system all stitched nicely
04:27 together?
04:27 A. Not necessarily. No. There were lots of
04:28 different documents that describe different aspects of
04:28 the GTS system.
04:28 Q. So we're talking about one system, but you
04:28 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
04:28 says JTX-1 or Joint Trial Exhibit 1, and it also says
04:28 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
04:28 exhibits yet. And so I needed a way to refer to the
04:28 different pieces of evidence. So in my report, I
04:28 labeled these different pieces of evidence GTS-1,
04:28 GTS-2, et cetera.
04:28 And so for the purposes of this discussion, we
04:28 will have both the trial exhibit numbers as well as the
04:28 original GTS numbers that I used in my report.
04:28 Q. Okay. All right.

04:28 1 MR. LANIER: So now let's -- let's look
04:28 2 at JTX-1, Joint Trial Exhibit 1.
3 BY MR. LANIER:
04:28 4 Q. What is this and what does it teach us?
04:28 5 A. So this is a description of YouTube Remote and
04:28 6 how it can be used with YouTube Leanback, that was
04:28 7 written by a senior product manager at Google for this
04:29 8 product. And basically, it was part of their
04:29 9 announcement of YouTube Remote.
04:29 10 It's dated from November 9th, 2010, and it
04:29 11 describes exactly what we saw in the video, that you
04:29 12 could log into a YouTube account with your Leanback on
04:29 13 your Google TV system, you could log into your Google
04:29 14 account -- or your YouTube account with your phone.
04:29 15 And because you were both logged into the same
04:29 16 server -- see, it uses a server in between -- then it
04:29 17 would allow you to use your phone to pick videos to be
04:29 18 played on the Leanback, on the Google TV system, and to
04:29 19 control them.
04:29 20 Q. So is this more evidence of what the Google --
04:29 21 the GTS system, as you called it, did by November 9th
04:29 22 of 2010?
04:29 23 A. It is.
04:29 24 Q. Okay. Did you look at other evidence of what
04:29 25 the system did?

04:29 1 A. I did.
04:29 2 MR. LANIER: Let's look at the next
04:29 3 slide.
4 BY MR. LANIER:
04:29 5 Q. So here, we've illustrated a patent.
04:29 6 First -- first question. What's this patent
04:29 7 or patent application?
04:29 8 A. So this patent application was filed by some
04:30 9 of the same people who worked on the YouTube Remote and
04:30 10 Leanback systems and describes how certain -- how that
04:30 11 system works as part of this patent application.
04:30 12 Q. Is this Joint Trial Exhibit 21 or GTS-8?
04:30 13 A. It is.
04:30 14 Q. Okay. And is this -- why do you rely on this
04:30 15 patent application to understand something about how
04:30 16 this system worked out in the world?
04:30 17 A. Because it's my understanding that this patent
04:30 18 application describes aspects of that system. It was
04:30 19 written by the same people who developed that system.
04:30 20 And so the description of the specification and what is
04:30 21 in this patent is related to the system they built.
04:30 22 Q. And is this patent being assigned to someone
04:30 23 under common ownership with that GTS system, the Google
04:30 24 TV, YouTube Remote, YouTube Leanback?
04:30 25 A. Yes.

04:30 1 Q. So that's another piece of evidence you looked
04:30 2 at.
04:30 3 Did you look at some additional evidence about
04:30 4 the features and functions of the GTS system?
04:30 5 A. I did.
04:30 6 MR. LANIER: Let's look at the next
04:30 7 slide.
8 BY MR. LANIER:
04:30 9 Q. And here, we're referring, it looks like, to
04:31 10 Joint Trial Exhibit 51 or GTS-19.
04:31 11 What are you illustrating here, sir, from that
04:31 12 document?
04:31 13 A. These are portions from a feature description
04:31 14 of the Google TV system or Google TV. So these are
04:31 15 basically marketing documents and other documents that
04:31 16 Google TV was -- or Google is using to describe their
04:31 17 Google TV system -- or Google TV as a product.
04:31 18 And we see specifically that YouTube Leanback
04:31 19 was intended to be or was touted as part of the Google
04:31 20 TV experience. And we also see that Google TV had
04:31 21 other applications as well, besides YouTube Leanback,
04:31 22 and we see, you know, a depiction of some of those
04:31 23 other applications as well.
04:31 24 Q. All right. And we saw earlier today some
04:31 25 testimony from Mr. Levai.

04:31 1 Did you look at some of the evidence that was
04:31 2 discussed in his testimony as part of your analysis?
04:31 3 A. I did.
04:31 4 MR. LANIER: Let's look at that in Joint
04:31 5 Trial Exhibit 63 already in evidence.
6 BY MR. LANIER:
04:31 7 Q. What is this and what does it -- how does it
04:32 8 relate to this exercise we're in?
04:32 9 A. So this is the API documentation for the
04:32 10 YouTube Remote servers. So an important difference
04:32 11 between how Chromecast worked and how this prior art
04:32 12 system worked and what is -- makes it render the
04:32 13 patents invalid is here, we do use the server system.
04:32 14 And so there is a server that sits between
04:32 15 YouTube Remote and YouTube Leanback running on Google
04:32 16 TV that does translate commands from the YouTube Remote
04:32 17 into the appropriate control for YouTube Leanback. And
04:32 18 this is the documentation that describes the commands
04:32 19 that YouTube Remote can send to the server.
04:32 20 These commands are not then sent to the
04:32 21 YouTube Leanback directly. Instead, the server
04:32 22 interprets these commands and turns around and then
04:32 23 controls the YouTube Leanback experience.
04:32 24 And so this is the documentation of the
04:33 25 commands that YouTube Remote can issue, can send to the

04:33 1 server to control the Leanback.
04:33 2 Q. All right. So I want to be really clear on
04:33 3 that server system.
04:33 4 You're talking here about that server system,
04:33 5 about the GTS system, correct?
04:33 6 A. That is correct.
04:33 7 Q. That's YouTube Remote, YouTube Leanback, and
04:33 8 Google TV, what they called that failed product, right?
04:33 9 A. That is right.
04:33 10 Q. And that old failed product worked the same
04:33 11 way that their patents work, right?
04:33 12 A. That is correct.
04:33 13 Q. That's the analysis we'll be going through
04:33 14 soon?
04:33 15 A. Yes.
04:33 16 Q. Now, is -- that old failed approach, is that
04:33 17 what Chromecast did?
04:33 18 A. No.
04:33 19 Q. Is Chromecast different than that?
04:33 20 A. It is.
04:33 21 Q. And we've talked about some of those reasons.
04:33 22 We don't have to repeat them.
04:33 23 But this analysis is about the old product,
04:33 24 correct?
04:33 25 A. That is correct.

04:33 Q. That came before their patents?
04:33 A. That is right.
04:33 Q. All right.
04:33 MR. LANIER: Let's look at one more
04:33 slide, Slide 49, the next slide here. Now, here --
04:33 thank you.
BY MR. LANIER:
04:33 Q. Here, we've just illustrated source code for
04:33 the moment.
04:33 MR. LANIER: And, Your Honor, just for
04:34 the record, we will in a little bit ask to clear the
04:34 courtroom, but to avoid doing it too many times, we're
04:34 just going to make a general point first.
BY MR. LANIER:
04:34 Q. So, sir, did you review source code in looking
04:34 under the hood at how that old product worked?
04:34 A. Yes. I examined source code that was part of
04:34 the YouTube Leanback component of this system.
04:34 Q. And was that source code collected in what you
04:34 called GTS-27 but is also DTX or Defendant's Trial
04:34 Exhibit 632?
04:34 A. That is correct.
04:34 Q. Okay. So now let's turn to the claims.
04:34 So we --
04:34 MR. LANIER: That's the next slide,

04:34 1 please.
2 BY MR. LANIER:
04:34 3 Q. So now we -- we've seen a lot of evidence, at
04:34 4 least the evidence you highlighted today, about how the
04:34 5 GTS system worked, right?
04:34 6 A. That is correct.
04:34 7 Q. To show that the patent is obvious, do you
04:34 8 have to compare that system to the claims?
04:34 9 A. You do.
04:34 10 Q. And sort of the flip side of infringement, do
04:34 11 you have to show that all of those things are -- all of
04:34 12 the elements of the claims are in that old GTS system?
04:35 13 A. That is correct.
04:35 14 Q. So are you prepared to walk the jury through
04:35 15 that?
04:35 16 A. Yes.
04:35 17 Q. Now, I see here you've got one of these
04:35 18 representations of the patent claim. It's broken into
04:35 19 little bits with letter -- number and letter labels,
04:35 20 sort of like Dr. Almeroth did, right?
04:35 21 A. That is correct.
04:35 22 Q. This is a common way to present these issues?
04:35 23 A. Very common.
04:35 24 Q. So let's start walking through the claims.
04:35 25 Let's start with -- we're focusing right now on Claim 1

04:35 1 of '251 and it says: 1[pre]. The preamble.
04:35 2 A. Sure.
04:35 3 Q. Did you look at evidence to determine whether
04:35 4 the preamble of the '251 claim was in the GTS system?
04:35 5 A. I did.
04:35 6 Q. What did you look at?
04:35 7 A. And so -- so if we read the preamble --
04:35 8 Q. Oh, I'm sorry.
04:35 9 MR. LANIER: Go back, please.
04:35 10 A. Oh, actually -- well, if we read the preamble,
04:35 11 it says: A machine-implemented method of controlling
04:35 12 presentation of video content on a display device that
04:35 13 loads any one of a plurality of different media
04:35 14 players.
04:35 15 If you go to the next slide, that actually is
04:35 16 shown in lots of different places in our evidence,
04:35 17 first and foremost by the video. We saw this
04:36 18 happening, right? We saw clearly in the video the
04:36 19 Google TV system running Leanback and being able to be
04:36 20 controlled by the YouTube Remote running on the phone.
04:36 21 And we also saw through the various marketing
04:36 22 materials that many different media players were
04:36 23 available for Google TV.
04:36 24 So these are just a few examples that give me
04:36 25 the evidence to show that this limitation of the

04:36 1 preamble of the -- of '251, Claim 1, would have been
04:36 2 obvious to a person of ordinary skill in the art.
04:36 3 BY MR. LANIER:
04:36 4 Q. And is that referring to Joint Trial Exhibit 3
04:36 5 and Joint Trial Exhibit 51?
04:36 6 A. It is.
04:36 7 MR. LANIER: So let's go to the next
04:36 8 slide.
9 BY MR. LANIER:
04:36 10 Q. So you check that box and you look at the next
04:36 11 ones. Is that what we're doing?
04:36 12 A. That is exactly correct.
04:36 13 Q. So here it looks like you've grouped Elements
04:36 14 1[a], 1[b], and 1[c].
04:36 15 Have you done that?
04:36 16 A. Yes. We're going to deal with those together.
04:36 17 Q. All right. So let's look at the evidence that
04:36 18 you found on those three elements.
04:36 19 What evidence are you illustrating here?
04:36 20 A. So a couple of different examples of the
04:37 21 evidence that went into my opinion that this would have
04:37 22 been obvious for a person of ordinary skill in the art
04:37 23 who was aware of the Google TV system or GTS.
04:37 24 So if we look at 1[a], it says: Assigning, by
04:37 25 a server system, a synchronization code.

04:37 1 If we read the API documentation, there is a
04:37 2 token that is assigned by the server that is connected
04:37 3 to or basically is associated with the YouTube Leanback
04:37 4 experience that is being controlled.
04:37 5 And it is that token that the YouTube Remote
04:37 6 application needs to provide to the server when it --
04:37 7 when it issues these commands that it wants to then
04:37 8 control the YouTube Leanback experience.
04:37 9 And so we see that that is assigned by the
04:37 10 server and acts as a synchronization code for the
04:37 11 display device.
04:37 12 On 1[b], we see that we need to receive in the
04:37 13 server system a message. These are the API messages.
04:38 14 These are the HTTP messages that are sent from the
04:38 15 YouTube Remote to the YouTube Remote server for
04:38 16 controlling the -- that includes the synchronization
04:38 17 code, right, and has the token, right.
04:38 18 And so -- and, you know, and that server is
04:38 19 separate from the display device, the Google TV system.
04:38 20 And so this is also -- and that -- you know,
04:38 21 confirmed by the declaration of Mr. Levai, which talked
04:38 22 about YouTube Remote being an application that could
04:38 23 control the YouTube Leanback experience.
04:38 24 And then in 1[c]: Storing, by the server
04:38 25 system, a record establishing an association between

04:38 1 the personal computing device and the display device
04:38 2 based on the synchronization code.
04:38 3 We, again, see that that token is going to be
04:38 4 the synchronization code and that the server system --
04:38 5 and, you know, I think that's actually going to be on
04:38 6 the next slide -- is going to store information about
04:39 7 that interaction.
04:39 8 Q. So here so far, you've been looking at
04:39 9 Defendant's Trial Exhibit 120 and Joint Trial Exhibit
04:39 10 63, correct?
04:39 11 A. Yes.
04:39 12 Q. All right.
04:39 13 MR. LANIER: Well, let's look at the next
04:39 14 piece of evidence you just mentioned.
15 BY MR. LANIER:
04:39 16 Q. Is this some testimony from Mr. Levai?
04:39 17 A. Yes. And so in this testimony, we see the
04:39 18 element of 1[c] where we're storing, by the server
04:39 19 system, a record establishing an association.
04:39 20 And so Mr. Levai confirms that there was
04:39 21 information on the server about the YouTube Remote
04:39 22 operations that was stored.
04:39 23 Q. All right. And did you look at additional
04:39 24 evidence for these Elements 1[a], 1[b], and 1[c]?
04:39 25 A. Yes.

04:39 1 MR. LANIER: Let's look at that.
2 BY MR. LANIER:
04:39 3 Q. What evidence are you showing us here in Joint
04:39 4 Trial Exhibit 21?
04:39 5 A. So the GTS-8 or the patent application that I
04:39 6 referred to that I -- that is associated with the GTS
04:39 7 system, the patent also describes these claim elements
04:39 8 as occurring.
04:39 9 In particular, the Figure 5 of the patent
04:40 10 clearly shows a server sitting between the remote
04:40 11 control and the control device.
04:40 12 And, in particular, it -- in the
04:40 13 specification, it describes the role of the server.
04:40 14 And in one part of the specification, it talks about
04:40 15 the servers assigning unique identification numbers to
04:40 16 the remote control and the control device. And so that
04:40 17 is part of the elements that require a synchronization
04:40 18 code.
04:40 19 And then it also describes storing data in the
04:40 20 server that is required to carry out data transfer
04:40 21 between remote control and control device and
04:40 22 associating the remote control and the control device
04:40 23 as indicated in 1[c], for example.
04:40 24 Q. All right. So summing up all of those
04:40 25 elements -- or all of this evidence together, did you

04:40 1 reach an opinion as to whether Elements 1[a], 1[b], and
04:40 2 1[c] of the '251 patent, Claim 1, were met?
04:40 3 A. Yes. I believe that -- in my opinion, these
04:41 4 would have been rendered obvious in light of the GTS
04:41 5 system.
04:41 6 MR. LANIER: Let's look at the next
04:41 7 slide.
8 BY MR. LANIER:
04:41 9 Q. So we check those off and we go to 1[d]; is
04:41 10 that fair?
04:41 11 A. That is fair.
04:41 12 MR. LANIER: Let's take a look at the
04:41 13 evidence for 1[d].
14 BY MR. LANIER:
04:41 15 Q. What did you look at to start with?
04:41 16 A. So 1[d] we're going to take piece by piece.
04:41 17 And so it's a little bit long, little bit complicated,
04:41 18 but we're going to take it one thing at time.
04:41 19 So we're going to start off at the top of 1[d]
04:41 20 where it says: Receiving, in the server system, one or
04:41 21 more signals from the personal computing device.
04:41 22 And so that, the evidence for that is -- comes
04:41 23 from the related patent application where we see the
04:41 24 remote -- the personal computing device, the remote
04:41 25 control sending signals to the server, in the middle,

04:41 1 between it and the control device.
04:41 2 And it's described as: Receive, by a server,
04:41 3 a first message from a remote control.
04:41 4 And so that is our evidence that GTS-8, as
04:41 5 part of describing the GTS system generally, renders
04:41 6 obvious this portion of 1[d].
04:41 7 Q. And that's Joint Trial Exhibit 21?
04:42 8 A. That is correct.
04:42 9 Q. All right. Did you look at additional
04:42 10 evidence?
04:42 11 A. I did.
04:42 12 Q. And this looks like you're referring to Joint
04:42 13 Trial Exhibit 63 and that video again, correct?
04:42 14 A. That is correct.
04:42 15 Q. All right. So what does these two things
04:42 16 together tell you about the next part of Element 1[d]
04:42 17 of Claim 1?
04:42 18 A. So the next part of Element 1[d] says: The
04:42 19 one or more signals specifying a video file to be acted
04:42 20 upon.
04:42 21 So the evidence I've chosen to demonstrate
04:42 22 this or to kind of show that this would have been
04:42 23 obvious is, first, the evidence that we saw with our
04:42 24 own eyes, the video, right?
04:42 25 So we saw that we were able to specify a video

04:42 1 to be acted upon. We saw that person specify a video
04:42 2 and then it showed up on the Google TV.
04:42 3 And more technically, we can read the API
04:42 4 documentation. And the API documentation shows us that
04:42 5 there are specific commands that the YouTube Remote can
04:42 6 send to the YouTube Remote servers to set the playlist,
04:42 7 and that basically means to, you know, provide a list
04:43 8 of videos that can be played, and then -- and then set
04:43 9 which video is playing by issuing commands like
04:43 10 videoNext and videoPrevious.
04:43 11 Q. All right. So did you look at more evidence
04:43 12 to march further down this long element?
04:43 13 A. I did.
04:43 14 MR. LANIER: Let's look at that.
15 BY MR. LANIER:
04:43 16 Q. So here you're referring again to Joint Trial
04:43 17 Exhibits 21 and 51 and Defendant's Trial Exhibit 120.
04:43 18 What did you see from those pieces of
04:43 19 evidence?
04:43 20 A. Sure. So here we're identifying a particular
04:43 21 media player. And from Mr. Levai, we understood that
04:43 22 the YouTube video would identify the Leanback as the
04:43 23 video player for YouTube and that, generally, from the
04:43 24 patent application, that they envisioned that there
04:43 25 would be many different media players.

04:43 And from the marketing information, we know
04:43 that Google TV, in fact, came with many different media
04:43 players.
04:43 Q. All right. So now, this element goes on, so I
04:43 take it you probably looked at some more evidence?
04:44 A. Yes.
04:44 Q. All right. Now, at this point -- actually,
04:44 no. For this piece, we don't have to quite get there
04:44 yet.
04:44 But what evidence are you looking at here in
04:44 JTX-63 and JTX-3?
04:44 A. So here, as we conclude Element 1[d]:
04:44 Including a universal playback control command for
04:44 controlling playing of the video content on the display
04:44 device by the particular media player.
04:44 And, again, we're going to look to the video
04:44 to show that we can see this being demonstrated by the
04:44 video, that this does occur.
04:44 And we can look at the API documentation to
04:44 show -- to see that YouTube Remote indeed issued
04:44 playback -- universal playback control commands like
04:44 videoPlay and videoPause for controlling the playback
04:44 of a video.
04:44 Q. All right.
04:44 MR. LANIER: So let's go to the next

04:44 1 slide.

2 BY MR. LANIER:

04:44 3 Q. So did you conclude that Element 1[d] was met?

04:44 4 A. I did.

04:44 5 Q. And now we get to Elements 1[e] and 1[f]?

04:44 6 A. That's correct.

04:44 7 MR. LANIER: Your Honor, at this point,

04:44 8 we're going to be showing some source code sporadically

04:45 9 through those two elements, and I'd request we clear

04:45 10 the courtroom for those two.

04:45 11 THE COURT: Anyone who's not under the

04:45 12 protective order needs to exit the courtroom until you

04:45 13 all give me a heads-up that they can return.

04:45 14 MR. LANIER: Thank you, Your Honor.

04:45 15 (Sealed proceedings.)

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04:45 17 [redacted]

04:45 18 [redacted]

04:45 19 [redacted]

04:45 20 [redacted]

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09:42 20 (Sealed proceedings end.)
04:52 21 BY MR. LANIER:
04:52 22 Q. All right. So now we have to look at the
04:52 23 other claim of the '251 patent, don't we, Claim 8,
04:52 24 correct?
04:52 25 A. We do.

04:52 1 Q. All right. And do we have to do all that work
04:52 2 that we just did for Claim 1 over again to do Claim 8?
04:52 3 A. No. Because it's a dependent claim. That
04:52 4 analysis for Claim 1 remains the same. We just need to
04:53 5 look at the additional claim elements that are added by
04:53 6 Claim 8.
04:53 7 Q. And so here we've illustrated Claim 8.
04:53 8 Have you shown the evidence that -- that
04:53 9 persuaded you or showed you that these additional
04:53 10 elements were met?
04:53 11 A. Yes.
04:53 12 Q. And what evidence are we looking at here?
04:53 13 A. So the element -- the language that we're
04:53 14 looking to find is: A synchronization code is uniquely
04:53 15 associated with the display device on which the video
04:53 16 content is to be played.
04:53 17 And so we see two places where this is
04:53 18 described.
04:53 19 One in the patent application, which describes
04:53 20 providing unique identifiers to both the -- the remote
04:53 21 control as well as the control device. And so that is
04:53 22 going to act as our synchronization code.
04:53 23 And then we see in the API documentation
04:53 24 itself that the messages from the remote control needs
04:53 25 to include the synchronization code as -- here, listed

04:53 1 as a token, which then, you know, identifies the
04:54 2 specific control device that is being controlled.
04:54 3 Q. All right. So based on this evidence with
04:54 4 this much shorter claim, did you reach a conclusion as
04:54 5 to whether '251 patent, Claim 8, was obvious in view of
04:54 6 the GTS system?
04:54 7 A. I did.
04:54 8 Q. What was your conclusion?
04:54 9 A. That it was rendered obvious.
04:54 10 Q. And so as a result of that, since Claims 1 and
04:54 11 Claims 8 are the claims of the '251 patent that are
04:54 12 being asserted in this case, are any asserted claims of
04:54 13 the '251 patent valid?
04:54 14 A. Not in my opinion. No.
04:54 15 Q. And that's because of the GTS system we've
04:54 16 been through and the evidence we've been through?
04:54 17 A. That's right.
04:54 18 MR. LANIER: All right. Let's go to the
04:54 19 next slide. Thank you.
20 BY MR. LANIER:
04:54 21 Q. So now we're going to talk about the '528 and
22 '289 patents.
04:54 23 Now, I remember when Dr. Almeroth was talking
04:54 24 yesterday, he saved us a little time by not repeating
04:54 25 things he had said that were similar across the three

04:54 1 patents.
04:54 2 Do you remember that?
04:54 3 A. That is correct.
04:54 4 Q. Are you going to do the same thing for us too?
04:54 5 A. I'm going to rely on that same strategy. Yes.
04:54 6 Q. Thank you very much, sir.
04:55 7 So let's now look at '528 and '289.
04:55 8 A. Sure.
04:55 9 Q. So here, it looks like we've illustrated the
04:55 10 '528 patent, and several boxes are already checked.
04:55 11 Why have you already checked those?
04:55 12 A. So these claim elements are technically
04:55 13 comparable to the claim elements of the -- of the -- of
04:55 14 the -- we did the '251 --
04:55 15 Q. Yeah. We did the '251 patent.
04:55 16 A. -- '251 patent that we just completed.
04:55 17 And so wherever the claim elements of the '528
04:55 18 patent were technically the same as corresponding
04:55 19 elements of the '251 patent, I went ahead and checked
04:55 20 those off as -- as applying that same analysis here.
04:55 21 So what we're left with is just the parts that
04:55 22 are unique to the '528 patent that we did not see in
04:55 23 the '251 patent.
04:55 24 Q. Great. All right.
04:55 25 MR. LANIER: So let's look at the --

04:55 1 let's actually look at some of the other evidence we're
04:55 2 going to look at.
3 BY MR. LANIER:
04:55 4 Q. Now, this is a combination, correct?
04:55 5 A. This is correct.
04:55 6 Q. So we'll take the GTS system and add something
04:55 7 else to it, correct?
04:55 8 A. That is correct.
04:55 9 Q. Let's look at that other thing.
04:55 10 So we've issued -- we've illustrated here the
04:56 11 Muthukumarasamy patent.
04:56 12 Is that the other -- what we'll call a
04:56 13 reference that you'll combine with the GTS system?
04:56 14 A. It is.
04:56 15 Q. So now, do you have any proof that anyone out
04:56 16 in the world actually put those two things together?
04:56 17 A. Not specifically, but in our understanding of
04:56 18 a person of ordinary skill in the art, that
04:56 19 hypothetical person, we do assume or we are allowed
04:56 20 to -- to have that person understand and know about all
04:56 21 of the relevant prior art as part of our analysis.
04:56 22 Q. Sort of like that hypothetical negotiation
04:56 23 thing?
04:56 24 A. Exactly.
04:56 25 Q. So we look to see what's the art in the world

04:56 1 that would have been available to one of skill in the
04:56 2 art, correct?
04:56 3 A. That's correct.
04:56 4 Q. Is this patent one of those things?
04:56 5 A. It was.
04:56 6 Q. And is this patent prior art?
04:56 7 A. It is. So we can see that its publication
04:56 8 date is September 23rd, 2010, which is well before
04:56 9 April 2011.
04:56 10 Q. So in very general terms, what did this patent
04:56 11 teach or disclose?
04:56 12 A. So this patent basically talks about a remote
04:57 13 control system again. So you want to have a remote
04:57 14 control that is controlling devices that are capable of
04:57 15 playing back media.
04:57 16 In this particular context, they were coming
04:57 17 from a consumer electronics viewpoint. So a lot of the
04:57 18 devices that they wanted to control weren't necessarily
04:57 19 computers or things that could -- you know, to run
04:57 20 software. Instead, they were devices that were like
04:57 21 DVRs and TVs and other things where you had to use a
04:57 22 infrared remote control.
04:57 23 And so this -- overall, the idea behind this
04:57 24 patent was to provide a way to bridge the remote
04:57 25 control app and the devices to be controlled by using a

04:57 1 server that would convert the commands that you're
04:58 2 sending on your remote control app into the appropriate
04:58 3 infrared signals that were used to control the devices.
04:58 4 And so it's almost as if we are converting the
04:58 5 universal commands into maybe not software programming
04:58 6 code, but programming code of another sort of infrared
04:58 7 code in order to control these devices.
04:58 8 There was also as part of this system an idea
04:58 9 to have -- and then you see it here as part of one of
04:58 10 the entertainment systems, a WiFi HDMI plug.
04:58 11 So they did think about having a dongle-like
04:58 12 device, and that dongle-like device was a
04:58 13 remote-controllable Internet browser. And that's going
04:58 14 to come into play in why this -- this system would have
04:58 15 rendered obvious elements of the '528 patent.
04:58 16 Q. So did you analyze whether one of skill in the
04:58 17 art would have been motivated to combine that GTS
04:59 18 system together with this patent?
04:59 19 A. I did.
04:59 20 Q. Did you reach a conclusion about that?
04:59 21 A. Yes.
04:59 22 MR. LANIER: Let's look at the next --
04:59 23 let's look at the next slide.
24 BY MR. LANIER:
04:59 25 Q. So they're adding them together here. Why

04:59 1 would one of skill in the art have a motivation to do
04:59 2 that?
04:59 3 A. Sure. So we can see that these two systems
04:59 4 actually share a very common architecture, where we
04:59 5 have a remote control, we have things that we're trying
04:59 6 to control and a server in the middle that is
04:59 7 facilitating this.
04:59 8 And so they have common, you know, aims,
04:59 9 right, for, you know, providing this ability to remote
04:59 10 control your -- you know, your video experience.
04:59 11 And the lessons learned from one can be
04:59 12 applied to the other. So the Muthukumarasamy system
04:59 13 talked about converting your remote control commands
04:59 14 into programming code of a sort of infrared control and
04:59 15 the GTS-8 system -- or the GTS system, the patent there
04:59 16 talked about converting from the remote control to the
05:00 17 appropriate commands for the control device.
05:00 18 So the advantages of one and the advantages of
05:00 19 the other are -- could -- you know, it would have been
05:00 20 obvious to a person of skill in the art to combine
05:00 21 these in order to get the benefits of both.
05:00 22 Q. Did you look behind the pictures to this
05:00 23 language from the specification of various patents to
05:00 24 talk about combining them together?
05:00 25 A. I did.

05:00 Q. And what did you see?
05:00 A. So I saw places where the specification of one
05:00 could easily apply to what you would want to do with
05:00 the other.
05:00 So, for example, Muthukumarasamy talked about
05:00 enabling a device-agnostic and source-agnostic
05:00 entertainment experience. And this is very much
05:00 similar to and inline with the goals of the GTS system
05:00 as described in the patent application, which talked
05:00 about enabling pairing of nearly limitless number of
05:00 remote controls and control devices.
05:00 And so this -- just a number of different
05:00 examples where the descriptions of one are applicable
05:01 to the situation of the other and you would have gotten
05:01 the benefit of both.
05:01 Q. All right. So now let's look at what impact
05:01 this has.
05:01 Did you apply the -- this combination
05:01 together, the GTS system with this patent in Joint
05:01 Trial Exhibit 22 together to look at the remaining
05:01 pieces of the '528 patent, Claim 1?
05:01 A. I did.
05:01 Q. All right.
05:01 MR. LANIER: Let's look at that.
05:01 A. Right. So one of the remaining pieces that

05:01 1 was not in our prior analysis, which we need to show is
05:01 2 there for the '528 patent, is this portion which says:
05:01 3 Identify a particular media player for playing content
05:01 4 from the file, identify a location of the particular
05:01 5 media player.
05:01 6 And so if we look at the Muthukumarasamy
05:01 7 patent and what it envisioned, remember that dongle
05:01 8 that it talked about, that was a remote control
05:01 9 Internet browser. And in describing how it -- that
05:02 10 system would work with such a remote-controllable
05:02 11 Internet browser, it basically indicated that you could
05:02 12 load, right, you could specify third-party video
05:02 13 players and third-party video with -- and the video
05:02 14 with those players.
05:02 15 And so we see that Muthukumarasamy
05:02 16 anticipated, right, you know, described this idea of
05:02 17 being able to identify a particular media player and a
05:02 18 file for that particular media player to operate on.
05:02 19 Q. So based on that evidence, did you conclude
05:02 20 that this piece of '528 patent, Claim 1, that's part of
05:02 21 Element 1[a], that it was shown by that combination?
05:02 22 A. I did.
05:02 23 Q. Let's now look -- let's look at what we need
05:02 24 to do.
05:02 25 So now we need to look at Element 1[d] of the

05:02 1 '528 patent; is that correct?
05:02 2 A. That's correct.
05:02 3 Q. Did you look at some evidence about that?
05:02 4 A. Yes.
05:02 5 MR. LANIER: Let's turn to that evidence,
05:02 6 sir.
7 BY MR. LANIER:
05:02 8 Q. And here you're citing something from the
05:02 9 Google TV system part of JTX-21, correct?
05:03 10 A. That is correct.
05:03 11 Q. And what is this showing us about that missing
05:03 12 Element 1[d]?
05:03 13 A. So the missing element is: Obtaining, by the
05:03 14 content presentation device, the particular media
05:03 15 player, wherein the particular media player is obtained
05:03 16 over a network from a content provider.
05:03 17 And what I've shown here as the evidence is
05:03 18 Figure 4 from JTX-21, the patent application related to
05:03 19 the GTS system. And that figure is a schematic of the
05:03 20 control device, basically the content presentation
05:03 21 device.
05:03 22 And we see different aspects of that control
05:03 23 device, the fact that it has a processor and storage
05:03 24 applications, et cetera.
05:03 25 But one of the things it has is applications,

05:03 1 basically media players that could be run on that
05:03 2 control device.
05:03 3 And if we look to the specification describing
05:03 4 this -- you know, these, you know, how this control
05:03 5 device might operate, we see -- I've highlighted here
05:03 6 in green the "may be downloaded" -- or actually we'll
05:04 7 start at the top.
05:04 8 Applications 130 -- so basically these
05:04 9 applications that are on the control device, and then
05:04 10 we'll kind of skip down to the green part -- may be
05:04 11 downloaded by a user from a server via a network.
05:04 12 And so that's exactly what we see is required
05:04 13 by the claim limits.
05:04 14 MR. LANIER: So then let's look at what
05:04 15 you concluded.
16 BY MR. LANIER:
05:04 17 Q. Based on this -- what you had already done and
05:04 18 this additional evidence you just described, did you
05:04 19 reach a conclusion that Claim 1 of the '528 patent was
05:04 20 rendered obvious in view of that combination?
05:04 21 A. I did.
05:04 22 Q. Did you also look at the dependent claim
05:04 23 that's asserted in this case, Claim 14?
05:04 24 A. I did.
05:04 25 Q. Now, here you've already checked the box.

05:04 Why is that?

05:04 A. So this claim is reasonably straightforward on

05:04 the face of it. I think we've seen plenty of evidence

05:04 both in the video and other descriptions of the system

05:04 that this claim is met.

05:04 But basically -- and I think this came -- you

05:04 know, Dr. Almeroth, you know, explained this also.

05:05 This claim limitation is repeating what you

05:05 did with the first command with a second command. So

05:05 it basically means that you can do more than one thing,

05:05 you can play and pause. And we've seen different parts

05:05 of our evidence that shows that you can do multiple

05:05 functions.

05:05 And so that's why I think this is obvious

05:05 based on what we've already seen.

05:05 Q. Like in that video where he pressed play and

05:05 then he pressed pause or --

05:05 A. That's right.

05:05 Q. -- he skipped, right?

A. Exactly.

05:05 Q. All right. So now let's turn to the '289 --

05:05 so are we done with the '528 patent?

05:05 A. We are.

05:05 Q. In your opinion, are the asserted claims of

05:05 the '528 patent invalid as obvious?

05:05 A. Yes. They are.

05:05 MR. LANIER: Now, let's turn to the '289 patent.

BY MR. LANIER:

05:05 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?

05:05 A. That is correct.

05:05 Q. And you've checked those three boxes for the reasons you've already described?

05:05 A. That's correct. They are technically comparable with things we've already seen in the other two patents.

05:05 Q. And you're relying on all that same evidence you already described?

05:05 A. That's correct.

05:06 Q. Okay.

05:06 MR. LANIER: So then let's look at Element 1[a](v).

BY MR. LANIER:

05:06 Q. So here you're illustrating some stuff from Joint Trial Exhibit 21 and 51.

05:06 What are you showing us about that element?

05:06 A. So the element claim is somewhat relatively straightforward: Wherein the media player is a

05:06 1 computer application operable to present content and
05:06 2 control presentation of the content.
05:06 3 So we've actually already seen that pretty
05:06 4 directly, but, you know, the material describing the
05:06 5 Google TV system clearly shows the applications that
05:06 6 are operable to present content, like Netflix and
05:06 7 Pandora and Hulu, et cetera.
05:06 8 And then in the related patent application as
05:06 9 well, this is specifically described as the processor
05:06 10 executing the video or web browser application. So
05:06 11 it's a computer application to causing display to
05:06 12 display the content, so presenting the content.
05:06 13 Q. Did you reach a conclusion that this piece of
05:07 14 Claim 1 of the '289 patent was met?
05:07 15 A. I did.
05:07 16 Q. And so then as a result, did you reach a
05:07 17 conclusion -- with all the other work you did, did you
05:07 18 reach a conclusion about the validity of this claim?
05:07 19 A. I have.
05:07 20 Q. And what is your conclusion?
05:07 21 A. The '289 patent is invalid.
05:07 22 Q. Is it invalid as obvious over that combination
05:07 23 that we've previously discussed?
05:07 24 A. That is correct.
05:07 25 Q. All right. So now '289 patent has a dependent

05:07 1 claim, Claim 2.
05:07 2 MR. LANIER: Let's turn to that one.
3 BY MR. LANIER:
05:07 4 Q. This is another one where you've checked the
05:07 5 box already.
05:07 6 Why have you done that?
05:07 7 A. Again, I think we've already seen the evidence
05:07 8 for this. If you read the claim, it's pretty
05:07 9 straightforward: The method at Claim 1 further
05:07 10 including loading the particular media player in the
05:07 11 content presentation device prior to executing the
05:07 12 programming code with respect to the file.
05:07 13 And we saw that with the Muthukumarasamy
05:07 14 talking about load third-party video applications, and
05:07 15 we saw that directly in the video as he demonstrated
05:07 16 this step.
05:07 17 Q. All right. So now having gone through this
05:07 18 exercise, have you reached an opinion about the
05:08 19 validity of all the asserted claims in this case?
05:08 20 A. I have.
05:08 21 Q. And what is your opinion?
05:08 22 A. My opinion is all the asserted claims in this
05:08 23 case are rendered obvious in light of existing prior
05:08 24 art systems, including GTS and Muthukumarasamy.
05:08 25 Q. Thank you, sir.

05:08 1 Now I have two very short topics to cover with
05:08 2 you, and then I'll pass the witness.
05:08 3 So we heard some discussion earlier in the
05:08 4 trial about when Mr. Strober came up with his idea and
05:08 5 working on it. We saw some source code and things like
05:08 6 that, right?
05:08 7 A. Yes.
05:08 8 Q. Are you familiar with a concept called
05:08 9 "conception"?
05:08 10 A. I am.
05:08 11 Q. Well, in this context, what does -- what's
05:08 12 "conception" mean?
05:08 13 A. So the idea of conception is when the inventor
05:08 14 had full possession of the claimed invention. So
05:08 15 certainly when they filed the application, because they
05:08 16 laid out the claims, that application date, they
05:08 17 obviously had full possession of the claimed invention
05:08 18 because they described it in the claims.
05:08 19 But for the inventor to claim a conception
05:09 20 date that is earlier than the application date of the
05:09 21 patent, they have to provide some sort of evidence that
05:09 22 they were in possession or it had conceived of the full
05:09 23 features as claimed.
05:09 24 Q. So when you file on a particular date, that's
05:09 25 the date you get, and we don't really get to fight with

05:09 1 that one, right?
05:09 2 A. That's correct.
05:09 3 Q. If you want to go before the date you went to
05:09 4 the government and said, Give me a patent, do you have
05:09 5 to prove you had your whole idea?
05:09 6 A. Exactly.
05:09 7 Q. Do you also have to prove that you reduced it
05:09 8 to practice?
05:09 9 A. That is a part of that. Yes.
05:09 10 Q. What is reduction to practice?
05:09 11 A. So reduction to practice is the idea that you
05:09 12 built essentially a working version of what you are
05:09 13 trying to file.
05:09 14 Q. Whose job is it to prove whether you have that
05:09 15 earlier conception or earlier reduction to practice?
05:09 16 A. That would be the plaintiff's job.
05:09 17 Q. Did you listen to the evidence that we heard
05:09 18 in this trial and reach your own conclusion on the
05:09 19 matter?
05:09 20 A. I have.
05:09 21 Q. Let's -- let's look at that briefly.
05:09 22 Did you -- hearing the evidence, did you see
05:10 23 that the plaintiffs described and Dr. Almeroth
05:10 24 described that Mr. Strober was in possession of all of
05:10 25 the elements of his invention way back when he said he

05:10 1 did it, October, November?
05:10 2 A. He was not.
05:10 3 Q. What's missing?
05:10 4 A. So as he described, you know, his original
05:10 5 idea and what he did to try to get to work as a
05:10 6 prototype, it was missing many of the different
05:10 7 features that eventually turned part of the claims.
05:10 8 So for example, the idea that he -- as he
05:10 9 originally conceived and the prototypes he originally
05:10 10 started to build had no -- nothing about
05:10 11 synchronization code.
05:10 12 They didn't store in the server system a
05:10 13 record establishing the association. There were no,
05:10 14 you know, signals identifying the particular media
05:10 15 player. There was no converting of the universal
05:10 16 playback controls into programming code which was then
05:11 17 transmitted to the display device.
05:11 18 So these various parts of the claim language
05:11 19 which were certainly part of the application, right, so
05:11 20 when he applied for the application in April of 2011,
05:11 21 that was part of the claim language and that -- you
05:11 22 know, that's -- that date clearly is there.
05:11 23 But back in October, when he was in his
05:11 24 lunchroom and he was trying to play his video, these
05:11 25 parts of the claim language were not part of what he

05:11 conceived.
05:11 Q. And even if Dr. Strober or Mr. Strober had
05:11 built -- done some coding and built some pieces of it
05:11 or thought about some pieces of it, did you see
05:11 evidence that he had thought about all the pieces as
05:11 reflected in the claims?
05:11 A. I did not.
05:11 Q. And did you see evidence that he had built the
05:11 entire thing that reflected all elements of the claims?
05:11 A. I did not.
05:11 Q. And so let's look at the next slide.
05:11 So did you see evidence sufficient to reach a
05:11 conclusion that Dr. -- Mr. Strober had reduced it to
05:11 practice way back when he first started working on it?
05:12 A. I did not. So when we -- when we think about
05:12 reduction to practice, there's a two-prong test that
05:12 we -- we apply.
05:12 The first prong is that they constructed an
05:12 embodiment or performed the process that met every
05:12 claim element, right? So we have to look at what he
05:12 built as his prototypes in November, et cetera, you
05:12 know, and whether or not it embodied all of the claims
05:12 of -- you know, all of the parts of the claimed
05:12 elements. And the same parts that I've described
05:12 earlier as not having been conceived of originally were

05:12 also missing from his attempted prototypes.

05:12 And then second, we need to see that the

05:12 invention must have been sufficiently tested to

05:12 demonstrate that it works for its intended purpose.

05:12 And again, we haven't seen that the prototype -- you

05:12 know, the prototypes he built did so with respect to

05:12 many of the elements of the claims.

05:12 Q. So is half a loaf, half an idea, is that the

05:12 full idea?

05:12 A. It is not.

05:12 Q. Building half a loaf, slicing half of it, is

05:13 that slicing the whole thing?

05:13 A. It is not.

05:13 Q. And the consequence of not proving that you

05:13 had that full idea or built the whole thing, what's the

05:13 consequence of that?

05:13 A. The consequence is that we need to hold them

05:13 to the April 2011 date as the priority date for the

05:13 patent.

05:13 Q. So things that came before April are prior

05:13 art?

05:13 A. Exactly.

05:13 Q. Thank you, sir. One more topic.

05:13 There's been some discussion of licenses that

05:13 Google took as part of the damages claims in this case.

05:13 Are you aware of that topic generally?
05:13 A. Yes.
05:13 Q. Did you look at any of the licenses to
05:13 evaluate whether they were technically comparable with
05:13 the patents at issue in this case?
05:13 A. I examined patents that were part of two
05:13 license agreements for technical comparability with the
05:13 patents-in-suit.
05:13 Q. So let's take a quick look at that.
05:13 What standards did you apply in doing this
05:13 technical comparability analysis?
05:13 A. So the thing to understand about technical
05:14 comparability is that this is noninfringement. This is
05:14 not invalidity. So we are not saying that one patent
05:14 describes the same idea as the other patent or does
05:14 things in the same way as the other patent.
05:14 Instead, we're just trying to compare whether
05:14 these patent are comparable. And by comparable, we
05:14 want to look at the similarities and differences of the
05:14 technical fields of these two patents, their goals and
05:14 objectives, and how they might -- you know, how they
05:14 might map onto each other and the various benefits and
05:14 claims.
05:14 And so the idea here is that we're not trying
05:14 to say that the patents that are part of the license

05:14 1 agreements render the patents that are part of the suit
05:14 2 invalid or obvious in any way.
05:14 3 Instead, we're just trying to take a
05:14 4 high-level view of these two patents and to say, are
05:14 5 these comparable in what their aims are and how they
05:14 6 approach the different problems that they're trying to
05:14 7 solve.
05:14 8 Q. Did you take a look at the patents that were
05:15 9 licensed by Nest, now part of Google, from SIPCO?
05:15 10 A. I did.
05:15 11 Q. Let's take a look at -- oh, it's right in
05:15 12 front of us.
05:15 13 Briefly describe the analysis you did and the
05:15 14 conclusion that you reached.
05:15 15 A. So what I've shown here on the left is the
05:15 16 patent-in-suit here, right? So this is patent '251,
05:15 17 and we can see its title is talked about: Play Control
05:15 18 of Content on a Display Device. Right?
05:15 19 And then on the right is one of the patents
05:15 20 that is part of the SIPCO agreement. And here, we see
05:15 21 also it is the intent of this patent, this technology,
05:15 22 is System and Method For Controlling Remote Devices.
05:15 23 And so we see immediately from their titles
05:15 24 that, you know, these patents are in the same technical
05:15 25 field of invention, right? They're talking about

05:15 1 controlling remote devices.

05:15 2 And if we go to the next slide, now when we

05:15 3 look at the figures of the '251 patent and the figures

05:16 4 and specification of the '692 patent that is part of

05:16 5 the SIPCO licensing agreement, now we can see even more

05:16 6 comparisons to show that these are technically

05:16 7 comparable, right?

05:16 8 Just like the '251 patent has introduced a

05:16 9 server system to act as an intermediary between a

05:16 10 remote control and a content presentation device, the

05:16 11 '692 patent, as part of the agreement, introduces a

05:16 12 server system that acts as an intermediary between a

05:16 13 controlling device -- here it's a workstation -- and a

05:16 14 device to be controlled.

05:16 15 It's not a video player. In this case it is a

05:16 16 heating system. It's home -- it's like smart home

05:16 17 sensors and networks. And we see in the specification

05:16 18 this idea that this server is going to be the one to

05:16 19 help facilitate communication and translate controls

05:16 20 into the appropriate signals for the remote device.

05:17 21 So one's a video player; one's a smart home

05:17 22 system. So I'm not saying that these are exactly the

05:17 23 same thing, but we can see how there are many

05:17 24 similarities in the architecture of the system, the

05:17 25 goals of the system, and the general idea of having

05:17 1 introduced an intermediary server.
05:17 2 So for those reasons, I can conclude that the
05:17 3 patents-in-suit are technically comparable to some of
05:17 4 the patents in this agreement.
05:17 5 Q. Did you also look at the patents licensed from
05:17 6 the SMR and YMR?
05:17 7 A. I have.
05:17 8 Q. Let's turn to those.
05:17 9 What -- briefly describe your analysis and
05:17 10 conclusion there.
05:17 11 A. So I'm not going to again step through what's
05:17 12 on the left, which is the '251 patent figure. And I
05:17 13 think we all kind of understand what that's about.
05:17 14 But the patent that's part of the licensed SMR
05:17 15 agreement shows a -- a component that is acting -- that
05:18 16 is attached to your phone in this case, a component
05:18 17 that is acting as a intermediary between a source of a
05:18 18 phone call or a media -- like a text or a video or some
05:18 19 sort of medias being sent to you to this phone.
05:18 20 And then instead of using your phone to listen
05:18 21 to the phone call or listen to the message or to read
05:18 22 the text, what this phone is doing is it's -- it's
05:18 23 cloning -- or it's -- it's translating the information
05:18 24 into the appropriate form for a presentation on some
05:18 25 other device in -- that might be more appropriate or

05:18 1 give you a better experience in your -- in your
05:18 2 environment.
05:18 3 Q. And there you're comparing Figures 1 and --
05:18 4 Figures 1 and 2 of U.S. Patent No. 7,969,990 to the
05:18 5 '251 asserted patent, correct?
05:18 6 A. That is correct.
05:18 7 MR. LANIER: And just again for the
05:18 8 record, if we could jump back to Slide 94.
9 BY MR. LANIER:
05:19 10 Q. For that analysis of SIPCO, you were comparing
05:19 11 the '251 patent with U.S. Patent No. 6,437,692, its
05:19 12 Figure 2, and pieces of Columns 1 and 10 of the
05:19 13 specification, correct?
05:19 14 A. That is correct.
05:19 15 Q. All right.
05:19 16 MR. LANIER: So now let's jump to Slide
05:19 17 96.
18 BY MR. LANIER:
05:19 19 Q. So, sir, have you stated your opinions today?
05:19 20 A. I have.
05:19 21 Q. Would you briefly summarize your opinions for
05:19 22 the jury?
05:19 23 A. First and foremost, the accused products do
05:19 24 not infringe any of the asserted patents for a number
05:19 25 of reasons, but server system not being there is a

05:19 1 really big one.
05:19 2 And second, the -- each asserted patent is
05:19 3 invalid. And we've shown in light of the Google TV
05:19 4 system, YouTube Remote and YouTube Leanback that was
05:19 5 available before April 2011, as well as the
05:19 6 Muthukumarasamy system, we went through that analysis
05:19 7 to show that a person of ordinary skill in the art in
05:20 8 view of that prior art would have rendered the patents
05:20 9 obvious.
05:20 10 Third, that there is no evidence that
05:20 11 establishes a conception of the full -- of a full
05:20 12 claimed features of the patent prior to April 2011.
05:20 13 And finally, that there are technologically
05:20 14 comparable patents in licenses -- you know, that Google
05:20 15 has already licensed in their licensed portfolio.
05:20 16 Q. Thank you, sir.
05:20 17 MR. LANIER: Your Honor, before I pass
05:20 18 the witness, I'd move admission of exhibits just
05:20 19 discussed.
05:20 20 Defense Trial Exhibits: 118A, 120, 632.
05:20 21 And Joint Trial Exhibits: 1, 3, 21, 22,
05:20 22 51, 63, 159 and 187.
05:20 23 One or two of these may be in, and I
05:20 24 apologize if I duplicate moved.
05:20 25 MR. DYKAL: I'm sorry. You were moving a

05:21 1 little too fast. Could you read through them one more
05:21 2 time?
05:21 3 MR. LANIER: Sure.
05:21 4 Defense Trial Exhibits: 118A, 120, and
05:21 5 632.
05:21 6 And Joint Trial Exhibits: 1, 3, 21, 22,
05:21 7 51, 159.
05:21 8 And I think that's it that I need to move
05:21 9 in.
05:21 10 MR. DYKAL: Okay. We object to Joint
05:21 11 Exhibits 1 and 51 under 802 and 901.
05:21 12 THE COURT: I'll overrule those
05:21 13 objections. They'll be admitted.
05:21 14 MR. LANIER: Thank you, Your Honor.
05:21 15 With that, I pass the witness.
05:21 16 THE COURT: Ladies and gentlemen of the
05:21 17 jury, we're done for this afternoon. If you all would
05:21 18 be so kind as to be back at 8:15 tomorrow, we will
05:21 19 resume the trial. And please remember my instructions
05:21 20 and please be safe out there.
05:21 21 THE BAILIFF: All rise.
05:21 22 (Jury exited the courtroom.)
05:22 23 THE COURT: Thank you. You may be
05:22 24 seated.
05:22 25 Is there anything we need to take up?

05:22 1 MR. LANIER: We have no new issues to
05:22 2 raise. We understand the charge conference coming,
05:22 3 but...
05:22 4 MR. DYKAL: No. Does the Court -- same
05:22 5 discussion we had earlier about when closing will be.
05:22 6 It could be tomorrow, just depends on how fast things
05:22 7 wrap up?
05:22 8 THE COURT: So you have -- I'm sorry.
05:22 9 You have the -- about how long will your cross be?
05:22 10 Just ballparking, an hour?
05:22 11 MR. DYKAL: Probably 45 minutes to an
05:22 12 hour maybe.
05:22 13 THE COURT: Let's say an hour. Let's say
05:22 14 90 minutes for cross/redirect. Let's estimate -- let's
05:23 15 go long. So that's 90 minutes.
05:23 16 Then the defendant has a damages expert.
05:23 17 MR. LANIER: That's correct.
05:23 18 THE COURT: How long will he or she?
05:23 19 MR. LANIER: Mr. Jones, how long?
05:23 20 MR. JONES: Your Honor, I think he will
05:23 21 probably be from my part on direct and redirect, like,
05:23 22 you know, 45 minutes to an hour, maybe an hour.
05:23 23 THE COURT: So let's say 90 minutes.
05:23 24 For cross?
05:23 25 MR. MILLER: Cross will be maybe 30 or

05:23 40 minutes.

05:23 THE COURT: Okay. Let's go with

05:23 120 minutes.

05:23 And then if I allocate 60 minutes for

05:23 your direct and redirect, will that get your expert

05:23 done?

05:23 MR. DYKAL: Probably, yes.

05:23 THE COURT: And another 60 minutes for

05:23 your cross?

05:23 I don't know that you'll take that long.

05:23 MR. LANIER: I doubt I'll take that long,

05:23 Your Honor.

05:23 THE COURT: And then any other witnesses?

05:23 MR. LANIER: No, Your Honor. We'll rest

05:23 after Mr. Martinez.

05:23 THE COURT: So I have down two hours,

05:24 four hours, five hours. If we start at 8:30, we'll go

05:24 three hours. I would suggest what we plan on, even if

05:24 it winds up we fall short in terms of -- I would

05:24 suggest we just plan on 8:30, doing closing arguments

05:24 at 8:30 on Friday so you all have a set time, if that's

05:24 okay with you?

05:24 MR. DYKAL: Yes.

05:24 MR. LANIER: Absolutely, Your Honor.

05:24 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.

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05:24