UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AYLO FREESITES, LTD and fuboTV MEDIA, INC.,

Petitioner,

vs.

DISH TECHNOLOGIES, L.L.C.,

Patent Owner.

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IPR2024-000431 (Patent 11,677,798 B2)

IPR2024-00044 (Patent 11,470,138 B2)

IPR2024-00045 (Patent 10,469,544 B2)

IP42024-00046 (Patent 10,951,680 B2)

IPR2024-00146 (Patent 10,469,555 B2)2

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Washington, D.C.

Tuesday, October 1, 2024

Deposition of DR. KEVIN JAFFAY in the above-entitled matter, pursuant to notice, the witness being duly sworn by Barbara J. Moore, a Notary Public in and for the District of Columbia, taken at the offices of BAKER BOTTS, LLP, 700 K Street, NW, Washington, D.C., commencing 9:06 a.m. and the proceedings being taken down by Stenotype by BARBARA MOORE, CRR, RMR, and transcribed under her direction.

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25 HUDSON COURT REPORTING & VIDEO (800) 310-1769

TABLE OF CONTENTS


| WITNESS | PAGE |
|---|---|
| KEVIN JAFFAY | |
| By Attorney Sheng | 5 |

EXHIBITS

| EXHIBIT | DESCRIPTION | PAGE |
|---|---|---|
| BY ATTORNEY WILSON | | 300 |
| Exhibit 1 | Patent | 57 |
| Exhibit 2 | Declaration | 60 |
| Exhibit 3 | Declaration | 77 |
| Exhibit 4 | Patent | 83 |
| Exhibit 5 | Article | 110 |
| Exhibit 6 | Declaration | 145 |
| Exhibit 7 | Patent | 165 |
| Exhibit 8 | Patent | 165 |
| Exhibit 9 | Patent | 201 |
| Exhibit 10 | Patent | 250 |


***Exhibit 6 was retained by counsel***

1 P R O C E E D I N G S
2 THE VIDEOGRAPHER: We are now on
3 the record at 9:06 a.m. Eastern time on
4 Tuesday, October 1, 2024, for the
5 stenographically recorded and
6 video-recorded deposition of Dr. Jaffay
7 in the action Aylo Freesites, LTD, and
8 Fubo TV Media, Inc., versus Dish
9 Technologies.
10 My name is Deshawn White,
11 videographer, and Ms. Barbara Moore is
12 the court reporter. We are with Hudson
13 Court Reporting and Video Nationwide.
14 This deposition is being held at Baker
15 Botts, LLP, at 700 K Street, NW,
16 Washington, D.C.
17 Counsel, can you please introduce
18 yourselves for the record, followed by
19 the court reporter administering the
20 oath.
21 ATTORNEY SHENG: My name is Philip
22 Sheng with the law firm Venable, LLP.
23 I'm joined today with my colleague, Ian
24 Paquette, also with Venable. We
25 represent the Aylo Freesites petitioner.

1 ATTORNEY WILSON: Andrew Wilson
2 with Baker Botts, LLP, for patent owner
3 Dish. I'm joined here with Jamie Lynn,
4 also with Baker Botts and also with
5 Elliot Williams, also with Baker Botts.
6 **********
7 KEVIN JAFFA,
8 having been called as a witness on behalf of the
9 Patent Owner and having been first duly sworn, was
10 examined and testified as follows:
11 EXAMINATION BY
12 ATTORNEY SHENG:
13 Q. Doctor, good morning. Have you been
14 deposed before?
15 A. I have.
16 Q. Approximately how many times?
17 A. Enough that I think I've lost count.
18 Q. Not counting the IPRs at issue
19 today, approximately how many IPRs have you been
20 involved with as an expert?
21 A. Probably 15 or 20.
22 Q. Among those 15 or 20 IPRs you've
23 been involved with, approximately how many of those
24 IPRs were you retained by a patent owner as opposed
25 to a petitioner?

1 A. It's probably a -- patent owner
2 versus petitioner, probably a 30/70 split.
3 Q. Do you have a personal preference
4 representing a patent owner as opposed to a
5 petitioner?
6 A. No. It really all depends on the
7 specifics of the patent.
8 Q. What do you mean by that?
9 A. Well, before I agree to take on a
10 case, I review the patents and try and make my own
11 determination as to what are the chances that I
12 think the patent is valid or invalid. So in that
13 sense, it doesn't really matter to me whether it's
14 a patent owner or a petitioner. If I think the
15 patent is valid or likely valid, I'm happy to work
16 for a patent owner. If I think the patent is
17 invalid or likely invalid, then I'm happy to work
18 for a challenger.
19 Q. You said that approximately
20 30 percent of your work is for patent owners and
21 70 percent is for petitioners; is that correct?
22 A. Yeah. That's a guess, but that's
23 probably -- that's my best guess.
24 Q. In your experience then, do you
25 agree that around 70 percent of the cases that are

1 proposed to you, you believe that the petitioner is
2 challenging an invalid patent?
3 ATTORNEY WILSON: Objection.
4 Form.
5 THE WITNESS: No, that's not
6 accurate.
7 BY ATTORNEY SHENG:
8 Q. Among the cases that you've been
9 asked to handle, you just testified that about
10 30 percent are for patent owners, 70 percent are
11 for petitioners; correct?
12 A. No, that was not my testimony.
13 Q. What was your testimony?
14 A. My testimony was that those that
15 I've actually accepted and worked on, that's the
16 split.
17 Q. Okay. So among the cases that
18 you've actually worked on, would you agree that
19 70 percent of your work involves patents that are
20 likely invalid?
21 A. It involves -- so, again, that's
22 just a guess, but for that guess, those were the
23 cases for which I had a basis for believing the
24 patent was invalid.
25 Q. Do you understand that this

1 deposition relates to five IPR petitions filed by
2 petitioner Aylo Freesites, LTD?
3 A. I do.
4 Q. Each IPR challenges a different Dish
5 patent; is that correct?
6 A. That's my understanding.
7 Q. I'm handing you what's been
8 previously marked as Exhibit 2001.
9 A. Thank you.
10 Q. Exhibit 2001 is the expert report
11 you submitted in support of Dish's patent owner
12 preliminary response.
13 Do you agree?
14 A. That's what it appears to be.
15 Q. If I refer to patent owner
16 preliminary response as POPR, will you understand
17 what I'm referring to?
18 A. Yes.
19 Q. Can you turn to paragraph 3.
20 A. Okay. (Witness complies with
21 request.)
22 Q. Do you believe that the patents
23 listed in Paragraph 3 of Exhibit 2001 are the Dish
24 patents at issue in these IPRs?
25 A. For the five IPRs, this looks like

1 the list of the five patents.
2 Q. In paragraph 3, you refer to Dish's
3 patents as the ABR patents.
4 Do you see that?
5 A. I do.
6 Q. I'm going to do the same today and
7 refer to the patents that are at issue in these
8 IPRs collectively as the ABR patents, okay?
9 A. That's fine.
10 Q. The ABR patents at issue in these
11 IPR proceedings are related. Do you agree?
12 A. Yes.
13 Q. The ABR patents share the same
14 specifications. Agree?
15 A. Yes.
16 Q. My goal is to get us out of here as
17 quickly as possible. Can we agree that if we
18 discuss one patent's disclosure such as the '138
19 patent's disclosure, our discussions will apply to
20 the other ABR patents at issue in these IPR
21 proceedings?
22 A. If you're referring to the figures
23 and the specification of that patent, I can agree.
24 Q. Fair enough. Are you aware that MG
25 Freesites changed its name to Aylo Freesites?

1 A. No.
2 Q. Have you heard of the term MG
3 Freesites before?
4 A. No.
5 Q. Have you ever used the term "MG
6 Freesite" before?
7 A. I doubt it.
8 Q. You've never used the word "MG
9 Freesites" in any of your expert reports?
10 A. Other than this matter, I don't
11 think I've ever encountered them.
12 Q. So you're not aware that a company
13 once known as MG changed its name to Aylo?
14 A. Correct.
15 Q. Do you understand that outside of
16 these IPRs, Aylo and Dish are involved in a
17 litigation in other courts?
18 A. Yeah, I have some understanding of
19 that.
20 Q. When were you first approached by
21 Dish to serve as an expert for Dish?
22 A. I believe it was in 20 -- either
23 late 2020 or early 2021.
24 Q. Was that for a specific litigation,
25 do you recall?

1 A. Yes.
2 Q. Do you remember what case that was
3 for?
4 A. It was for an action in the
5 International Trade Commission.
6 Q. And following that action in the
7 International Trade Commission, when was the next
8 time -- or what was the next case that you were
9 asked by Dish to serve as an expert, do you
10 remember?
11 A. I believe it was the case related to
12 these IPRs.
13 Q. Were you retained on behalf of Dish
14 to serve as an expert in a case in the Northern
15 District of California, do you recall?
16 A. I don't recognize any case like
17 that.
18 Q. What about a case in the District
19 Utah, do you recall?
20 A. I know there is a case in the
21 District of Utah, and I believe they asked me to
22 submit a declaration for that, but other than that,
23 I don't have -- yet have any involvement in that
24 case.
25 Q. Other than the declaration you

1 submitted in the District of Utah, you've had no
2 involvement in the District of Utah case; is that
3 correct?
4 A. Correct.
5 Q. Are you aware that Aylo and Dish are
6 involved in litigation overseas in the United
7 Kingdom, Germany in Unified Patent Court?
8 A. No.
9 Q. You haven't been asked by Dish to
10 serve as an expert in any deposition overseas; is
11 that correct?
12 A. That's correct.
13 Q. You've never seen any filings in any
14 of the overseas litigation; is that correct?
15 A. I believe that is correct.
16 Q. When Dish first contacted you to
17 serve as an expert in these IPRs, who contacted
18 you?
19 A. I don't remember.
20 Q. Was it Baker Botts?
21 A. Yes, it was definitely Baker Botts.
22 I thought you were asking for a person.
23 Q. You don't recall the name of the
24 attorney?
25 A. No. It was one of the attorneys

1 that I had worked with in the ITC, but there was
2 several attorneys, and I just don't recall which
3 ones specifically contacted me.
4 Q. On this initial call, before you
5 were retained as an expert, what did you and this
6 attorney discuss, do you recall?
7 ATTORNEY WILSON: Objection.
8 Privileged.
9 THE WITNESS: I'm sorry, ask that
10 question again.
11 BY ATTORNEY SHENG:
12 Q. Before you were retained as an
13 expert on these IPRs, what did you and this
14 attorney discuss, do you recall?
15 ATTORNEY WILSON: Same objection.
16 THE WITNESS: No, I don't recall.
17 BY ATTORNEY SHENG:
18 Q. You have no recollection at all?
19 A. My only recollection was that I was
20 asked to help with IPRs that had been filed
21 challenging the patents, some of the patents that
22 had been at issue in the ITC.
23 Q. You're being compensated by Dish for
24 your time today; correct?
25 A. Correct.

1 Q. What's your hourly rate?
2 A. $800 an hour.
3 Q. Is that your customary rate?
4 A. It is today.
5 Q. Are you giving Dish any discounts,
6 given the amount of work that you've done for them?
7 A. No.
8 Q. Has your rates increase since the
9 ITC action?
10 A. I think it has.
11 Q. Did you charge -- strike that.
12 Did you increase your rates that you charge
13 Dish after you increased them after the ITC action?
14 ATTORNEY WILSON: Object to the
15 form.
16 THE WITNESS: I'm sorry. You're
17 going a little fast, can you say that
18 again.
19 BY ATTORNEY SHENG:
20 Q. Sure. You testified that you
21 increased your rate after the ITC action; correct?
22 A. My rate was increased after the ITC
23 action. The increase in the rate had nothing to do
24 with the ITC action.
25 Q. And did you -- for this -- for these

1 IPRs, are you charging Dish the same rate that you
2 charged in the ITC action or the increased rate?
3 A. I believe I'm charging my -- I'm
4 charging Dish the same rate I charge everybody else
5 today, which is I believe more than what my rate
6 was in 2020.
7 Q. What did you do to prepare for this
8 deposition?
9 A. I reviewed the declarations that I
10 submitted. I reviewed the patents. I reviewed
11 Dr. Houh's declaration. I reviewed the exhibits
12 that are cited in the declaration. I reviewed the
13 prior art references that Dr. Houh was relying on.
14 And then I had discussions with Dish's counsel.
15 Q. Which counsel is that?
16 A. It was -- do you want the individual
17 names?
18 Q. Sure.
19 A. It was Mr. Wilson, Mr. Williams,
20 Mr. Lynn was there for some of it, and then another
21 person that I only know -- I don't remember his
22 last name. First name was Nolan.
23 Q. How long did you guys meet for?
24 A. We had several calls. Each was
25 about an hour and a half to two hours.

1 Q. Did you meet in person?
2 A. No.
3 Q. When was the last time that you guys
4 met? Was it over Zoom?
5 A. Yes.
6 Q. When was the last time you had met
7 over Zoom?
8 A. Or over Teams. We met over Teams
9 yesterday.
10 Q. How long was that meeting yesterday?
11 A. I think it was about two hours.
12 Q. So you said that you reviewed your
13 declarations in this matter. Is that the
14 declaration for the POPR?
15 A. Yes, I believe so.
16 Q. And then you also submitted
17 declarations in support of Dish's patent owner
18 response, POR; is that correct?
19 A. Yes. I was primarily referring to
20 the POR declarations.
21 Q. Did you review the declaration you
22 submitted in support of Dish's POPR?
23 A. I believe I did.
24 Q. How many times did you review that
25 declaration cover to cover?

1 A. I don't know. It wasn't a
2 discreet -- it wasn't a discreet reading cover to
3 cover.
4 Q. Did you review each declaration for
5 each patent, or did you review just one declaration
6 for one patent?
7 A. I think for the POPR, I reviewed
8 one, and for the POR I reviewed them all.
9 Q. Ballpark, approximately how many
10 hours total did you spend preparing for this
11 deposition?
12 A. Maybe fifteen-ish.
13 Q. And you testified that you, in
14 preparation for this deposition, reviewed the ABR
15 patents; is that correct?
16 A. Correct.
17 Q. Did you review each one of the ABR
18 patents, or did you just review one of them?
19 A. I reviewed them all.
20 Q. How many times would you say you
21 read each patent cover to cover in preparation for
22 this deposition?
23 A. I don't know. I did not read each
24 cover to cover, because, as you say, they
25 essentially have the same specification.

1 Q. So you would agree that the ABR
2 patents have essentially the same specification; is
3 that correct?
4 A. Yes.
5 Q. How many times did you review the
6 declaration that Dr. Houh submitted in support of
7 Aylo's IPR petitions?
8 A. In total? Probably about three,
9 three-ish times.
10 Q. In preparation for this deposition,
11 did you review the transcript of Dr. Houh's
12 deposition that was taken earlier this year?
13 A. No.
14 Q. Have you ever reviewed it?
15 A. I don't recall if I reviewed it or
16 not.
17 Q. Sitting here today, you don't recall
18 ever having reviewed Dr. Houh's deposition
19 transcript in these IPRs; correct?
20 A. In these IPRs, as I said, I don't
21 recall if I reviewed his transcript or not.
22 Q. Are you aware of that -- strike
23 that.
24 Do you know who Robert Drew Major is?
25 A. I do.

1 Q. Who is he?
2 A. He is one of the named inventors on
3 the patents.
4 Q. Have you spoken to him before?
5 A. I don't believe so.
6 Q. You've never spoken to Mr. Major;
7 correct?
8 A. That's my recollection.
9 Q. Do you understand that Mr. Major was
10 deposed in these IPRs?
11 A. Yes.
12 Q. Have you reviewed his deposition
13 transcript?
14 A. Yes.
15 Q. Why did you review his deposition
16 transcript?
17 A. I was asked to review it.
18 Q. And are you aware that Mr. Major
19 submitted a declaration in these IPRs?
20 A. Yes.
21 Q. Have you reviewed that declaration?
22 A. Yes.
23 Q. Was it in preparation for this
24 deposition?
25 A. Well, initially it was in -- I

1 reviewed it during the course of writing these
2 declarations.
3 Q. Do you know who David Ericson is? I
4 asked you that already. Yes, do you know who David
5 Ericson is?
6 A. I have some understanding of who
7 David Ericson is.
8 Q. Have you ever spoken to him?
9 A. No, I don't believe so.
10 Q. What's your understanding of who
11 Mr. Ericson is?
12 A. He was an employee at EchoStar, then
13 Sling, I guess.
14 Q. Do you understand that Mr. Ericson
15 had his deposition taken in these IPRs?
16 A. Yes.
17 Q. Have you reviewed his deposition
18 transcript?
19 A. Yes.
20 Q. Why did you review his deposition
21 transcript?
22 A. I was asked to review it.
23 Q. Have you reviewed Mr. Ericson's
24 declaration that he submitted in these IPRs?
25 A. No, I don't believe so.

1 Q. So you've never reviewed
2 Mr. Ericson's declaration; is that correct?
3 A. I don't have a recollection of
4 having reviewed Mr. Ericson's declaration.
5 Q. Please go back to Exhibit 2001.
6 This is the expert report you submitted in support
7 of Dish's POPR.
8 A. Right.
9 Q. I'll represent to you that the
10 expert reports you submitted in support of Dish's
11 POPRs for all the ABR patents is substantively
12 identical.
13 Do you have a reason to disagree with me?
14 A. No, not really.
15 Q. How much time did you spend drafting
16 the expert report that has been marked
17 Exhibit 2001?
18 A. I didn't review any of the records
19 for the POPR declaration, so I really don't recall.
20 Q. You didn't review any of the records
21 for the POPR declaration?
22 A. Any of my records, like timesheets.
23 Q. Okay. Are you able to give me an
24 approximation as to how many hours you spent
25 drafting the expert report, 2001?

1 A. No. As I say, I mean, this one was
2 long enough ago. I really don't recall how long I
3 spent working on this.
4 Q. Did you draft Exhibit 2001 yourself?
5 A. I believe, if my recollection is
6 correct, that I generated the first draft of this,
7 and then iterated on it with Dish's counsel.
8 Q. How many times did you review the
9 draft of your expert report cover to cover prior to
10 signing it?
11 A. I don't recall.
12 Q. Before you signed it, you confirmed,
13 though, that the opinions in Exhibit 2001 were your
14 own?
15 A. Yes. And that they were correct.
16 Q. So before signing Exhibit 2001, you
17 confirmed that everything in that report was
18 correct?
19 A. To the best of my knowledge at that
20 time, that is the case.
21 Q. As you sit here today, are you aware
22 of anything in Exhibit 2001 that needs to be
23 corrected?
24 A. No.
25 Q. Please turn to page 1 of

1 Exhibit 2001.
2 A. (Witness complies with request.)
3 Okay.
4 Q. There's a Section B titled
5 "Background and Qualifications."
6 Do you see that?
7 A. I do.
8 Q. I don't want you to read the entire
9 section, but can we agree generally that you've
10 accurately stated your background and
11 qualifications in this section?
12 A. That was certainly my attempt.
13 Q. Are you aware of anything in the
14 Background and Qualifications section that needs to
15 be corrected?
16 A. No. And I think I misspoke. I
17 think I said my attempt. I meant it was my intent.
18 Sitting here today, I'm not aware of any errors in
19 this background section.
20 Q. Are you the named inventor on any
21 patents?
22 A. I am.
23 Q. How many patents are you a named
24 inventor on, do you know?
25 A. I believe it's four.

1 Q. When was the last time you applied
2 for a patent or had someone apply for a patent on
3 your behalf?
4 A. I think the last patent -- so all
5 the patents that my name appears on has been
6 patents that came out of graduate students'
7 dissertation research projects, and they were
8 primarily because the graduate student wanted to
9 file a patent.
10 So the last patent -- the last graduate
11 student that I remember that wanted to do this was
12 a fellow named Ben Newton, and I will say we
13 filed -- he wanted to file in 2016, maybe.
14 Q. Are you generally familiar with the
15 patenting process?
16 A. I have some familiarity with it,
17 yes.
18 Q. Do you understand what a
19 non-provisional patent application is?
20 A. It's been explained to me in the
21 past. I don't recall the distinctions between the
22 non-provisional and the provisional, sitting here
23 today.
24 Q. Are you familiar with the term
25 "prosecution history"?

1 A. Yes.
2 Q. What's your understanding of what
3 prosecution history means in the context of
4 patents?
5 A. It's a record of all the
6 back-and-forth between the applicant and the PTO.
7 Q. You would agree that the prosecution
8 history of a patent includes the non-provisional
9 patent application; correct?
10 ATTORNEY WILSON: Objection.
11 Calls for a legal conclusion.
12 THE WITNESS: I don't know that
13 one way or another as a factual matter.
14 BY ATTORNEY SHENG:
15 Q. You have no understanding as a
16 factual matter whether or not a non-provisional
17 patent application is considered part of a patent's
18 prosecution history; correct?
19 ATTORNEY WILSON: Same objection.
20 THE WITNESS: I can only say that
21 today I don't recall much about what the
22 details of a non-provisional application
23 are. I know that the file history
24 consists of all of -- as I say, all of
25 the proceedings between the applicant and

1 the patent office. I would assume it
2 would -- it would include something
3 like -- something like an application or
4 the provisional application or
5 non-provisional application, but as a
6 factual matter, I mean, I just don't
7 know.
8 BY ATTORNEY SHENG:
9 Q. So the answer to my question is yes,
10 you have no understanding as a factual matter
11 whether or not a non-provisional patent application
12 is considered part of a patent's prosecution
13 history; correct?
14 ATTORNEY WILSON: Same objection.
15 THE WITNESS: As a factual matter,
16 I don't know that one way or another.
17 BY ATTORNEY SHENG:
18 Q. Do you know as a legal matter?
19 A. No.
20 Q. What about a provisional patent
21 application? Do you have any understanding as a
22 factual matter whether or not the provisional
23 patent application is considered part of a patent's
24 prosecution history?
25 A. I've certainly seen provisional

1 applications in the file history, so it would be my
2 assumption that it's part of the file history, but,
3 you know, as a legal matter, I don't know.
4 Q. If someone asked you to review the
5 entire prosecution history of Dish's ABR patents,
6 in your view, would that include a patent's
7 provisional application?
8 A. I would assume the provisional
9 application would be part of the file history.
10 Q. So the answer is yes?
11 A. Sorry, what was the question?
12 Q. If someone asked -- if someone asked
13 you to review the entire prosecution history of
14 Dish's ABR patents, in your view, would that
15 include a patent's provisional application?
16 A. Yes. As I say, my assumption is
17 that it would.
18 Q. Could you please turn to page 6 of
19 Exhibit 2001.
20 A. (Witness complies with request.)
21 Okay.
22 Q. On page 6 of your expert report, you
23 have a section titled "Well-known legal
24 principles."
25 Do you see that?

1 A. I do.
2 Q. Can you review paragraph 22 of your
3 expert report to yourself and let me know when
4 you're done.
5 A. Sure. I'm done.
6 Q. The legal principles you discuss in
7 Section 2 of your expert report marked Exhibit 2001
8 were provided to you by Dish's counsel; correct?
9 A. Yes.
10 Q. And you applied these legal
11 principles in Section 2 of your expert report in
12 arriving at the opinions set forth in these IPRs;
13 correct?
14 A. Yes.
15 Q. Can we -- strike that.
16 Can we agree that you applied the legal
17 principles in Section 2 of your expert report
18 consistently throughout these IPRs? In other
19 words, you didn't apply one definition of prior art
20 in this expert report and a different definition of
21 prior art in one of your later expert reports?
22 ATTORNEY WILSON: Object to the
23 form.
24 THE WITNESS: With respect to this
25 statement about prior art, that is

1 absolutely true.
2 BY ATTORNEY SHENG:
3 Q. So focusing on Section A, prior art,
4 for example, you applied the legal principles in
5 Section A titled Prior Art consistently throughout
6 these declarations; is that right?
7 A. I believe I did.
8 Q. And the same is true for Section B,
9 Presumption of Validity?
10 A. Yes.
11 Q. You applied the same legal standards
12 in Section B consistently throughout these IPRs in
13 forming your opinions; correct?
14 A. Yes.
15 Q. You didn't change the legal standard
16 or apply a different one midway through these IPRs;
17 is that correct?
18 A. I'm looking at paragraph 26. It
19 says that the MG defendants bear the burden of
20 proving invalidity through facts supported by clear
21 and convincing evidence. And I thought the
22 standards for an IPR were just a preponderance of
23 the evidence.
24 So I mean, this declaration says what it
25 says, and these were the correct standards that

1 were provided to me.
2 Q. Okay. Can you please review
3 paragraph -- strike that.
4 Can you please review paragraph 26 to
5 yourself and let me know when you're done.
6 A. I've reviewed it.
7 Q. In paragraph 26 of your expert
8 report, you describe your understanding of the
9 clear and convincing evidence standard; is that
10 correct?
11 A. Yes.
12 Q. And in paragraph 26 you state, "It
13 is my further understanding that the MG defendants
14 bear the burden of proving invalidity through facts
15 supported by clear and convincing evidence."
16 Did I read that right?
17 A. You did.
18 Q. If I represented to you that MG has
19 rebranded its name to Aylo, do you have any reason
20 to dispute that?
21 A. No.
22 Q. It is your understanding that
23 petitioner Aylo bears the burden of proving
24 invalidity with clear and convincing evidence;
25 correct?

1 A. That appears to have been my
2 understanding at the time I wrote this declaration.
3 Q. It's your understanding that the
4 clear and convincing evidence standard means
5 evidence which reduces an abiding conviction of the
6 truth of a factual convention is highly probable;
7 correct?
8 A. That was the understanding that I
9 was given.
10 Q. Can you please review paragraph 27
11 to yourself and let me know when you're done.
12 A. Sure.
13 Q. It's your understanding that in
14 these IPRs, the burden of proving invalidity --
15 A. Actually, I don't mean to interrupt.
16 When I said "sure," I was meaning yes, I will do
17 what you asked.
18 Q. Very good.
19 A. So I wasn't done. Okay. Now you
20 can proceed.
21 Q. It is your understanding that in
22 these IPRs, the burden of proving invalidity by
23 clear and convincing evidence based on a reference
24 or a combination of references is especially
25 difficult when any of those references was before

1 the USPTO examiner during the prosecution of the
2 relevant patent application; is that right?
3 A. That was the understanding that I
4 was given.
5 Q. Is it your understanding or the
6 understanding that was given to you?
7 A. This is the understanding that I was
8 given.
9 Q. Prior to these IPRs, did you have
10 any understanding whether or not the burden of
11 proving invalidity based on a reference or a
12 combination of references was especially difficult
13 when any of those references was before the USPTO
14 examiner?
15 A. Yes.
16 Q. What was that understanding?
17 A. It was similar to this, that if a
18 reference had been before the examiner of the PTO,
19 it was to be assumed that the examiner had fully
20 considered that reference.
21 Q. So let me ask you again, is it your
22 understanding that in these IPRs, the burden of
23 proving invalidity by clear and convincing evidence
24 based on a reference or a combination of references
25 is especially difficult when any of those

1 references was before the USPTO examiner during the
2 prosecution of the relevant patent application;
3 correct?
4 A. Yes.
5 Q. And according to you, the reason is
6 because it is presumed that the examiner considered
7 those references prior to allowing the claims; is
8 that right?
9 A. Yes.
10 Q. In this paragraph, you used the
11 phrase "before the USPTO examiner."
12 Do you see that?
13 A. I do.
14 Q. Is a reference cited on the face of
15 a patent, but not substantively discussed in the
16 prosecution and history, a reference, in your view,
17 that is before the USPTO examiner?
18 ATTORNEY WILSON: Objection.
19 Form.
20 THE WITNESS: If it's cited on the
21 cover page, then I think that's the
22 definition of -- that the reference was
23 before the examiner.
24 BY ATTORNEY SHENG:
25 Q. Sitting here today, do you know how

1 many references are cited on the face of Dish's
2 '138 patent?
3 A. No.
4 Q. If I represented to you that there
5 were 340 references listed on the face of the
6 patent, would you have any reason to disagree with
7 me?
8 A. No.
9 Q. Let's assume that Dish's '138 patent
10 has 340 references listed on the face of the
11 patent. Is it your opinion that all 340
12 references listed on the face of the patent were
13 before the USPTO examiner?
14 A. Yes, they were -- the examiner was
15 made aware of those 340 references.
16 Q. You don't know if the USPTO examiner
17 actually read any of the references listed on the
18 face of Dish's '138 patent, do you?
19 ATTORNEY WILSON: Objection.
20 Calls for speculation.
21 THE WITNESS: As a factual matter,
22 no.
23 BY ATTORNEY SHENG:
24 Q. You don't know; right?
25 A. I answered your question.

1 Q. You don't know; right?
2 ATTORNEY WILSON: Same objection.
3 THE WITNESS: What I said was as a
4 factual matter, I think I said as a
5 factual matter, no.
6 BY ATTORNEY SHENG:
7 Q. Have you ever done prior art
8 searches in the past on behalf of parties
9 challenging a patent?
10 A. Yes.
11 Q. What is your approach generally to
12 conducting a prior art search?
13 A. Well, when I've been asked to do it,
14 it's typically been to specifically search in the
15 academic literature. And what I typically do is I
16 search in some digital libraries that I have access
17 to.
18 Q. Let's say -- strike that.
19 Let's say as part of a prior art search,
20 you were charged with a task of reviewing all 340
21 references on the face of Dish's '138 patent. What
22 would your approach be?
23 A. I don't know.
24 Q. Is it fair to say that the title of
25 the patent is one of the first things you would

1 look at?
2 A. Me personally, probably not.
3 Q. Why not?
4 A. Because in my experience, patent
5 titles aren't uniquely informative as to the
6 content of the patent.
7 Q. What about the abstract?
8 A. The abstract I would definitely look
9 at.
10 Q. What about the claims?
11 A. I'm sorry, the claims?
12 Q. Yes.
13 A. At some point, sure, I would
14 probably look at the claims.
15 Q. At the title abstract and claims of
16 the prior patent listed on the face -- strike that.
17 If you were reviewing a patent as part of a
18 prior art search, a prior art patent, and the
19 abstract of the patent seemed irrelevant to the
20 patent you were trying to invalidate, would you
21 move on to one of the other 340 patents, or would
22 you still review the prior art patent?
23 ATTORNEY WILSON: Objection.
24 Form, scope, incomplete hypothetical.
25 THE WITNESS: I don't know. I

1 can't answer that. I mean, I think it
2 would depend on what exactly I was
3 looking for and what exactly the abstract
4 said.
5 BY ATTORNEY SHENG:
6 Q. Let's go back to paragraph 27 of
7 Exhibit 2001.
8 A. Sure.
9 Q. I'm particularly interested in this
10 phrase you used, "especially difficult". You say
11 that it is especially difficult to prove invalidity
12 by clear and convincing evidence if a reference was
13 before the examiner. What do you mean by
14 "especially difficult"?
15 A. Just that in your analysis, you have
16 to consider the fact that the patent examiner
17 considered the reference. And so if you're trying
18 to invalidate based on the reference that was
19 before the examiner, you effectively have to be
20 saying the examiner made some mistake. And I think
21 that's difficult to do.
22 Q. Is Petitioner's burden of proof in
23 these IPRs higher than clear and convincing
24 evidence?
25 A. No.

1 Q. Have you heard of the standard
2 "beyond a reasonable doubt?"
3 A. Yes.
4 Q. You're not applying the beyond a
5 reasonable doubt standard in these IPRs, are you?
6 A. No.
7 Q. You're applying the clear and
8 convincing evidence, are you sure?
9 A. In this declaration, what I was
10 saying was that this is the burden that I
11 understood that the defendants bear.
12 Q. Can you turn to paragraph 41 of your
13 expert report.
14 A. (Witness complies with request.)
15 Okay.
16 Q. Paragraph 41, you state your
17 understanding that claims are to be given their
18 plain and ordinary meaning according to a person
19 with skill in the art at the time of the invention;
20 correct?
21 A. Yes.
22 Q. In paragraph 41, you also mention
23 that the ITC previously construed the term
24 "streamlets."
25 Do you see that?

1 ATTORNEY WILSON: Objection.
2 Misstates testimony.
3 THE WITNESS: You guys kind of
4 talked over each other. Could you just
5 reask the question.
6 BY ATTORNEY SHENG:
7 Q. I made a mistake there. Strike
8 that.
9 In paragraph 40, you mention that the ITC
10 previously considered the term "streamlets."
11 Do you see that?
12 A. Yes.
13 Q. You conclude paragraph 40 by stating
14 that the construction of streamlets from the ITC is
15 not required for purposes of rendering the opinions
16 you express in the report marked Exhibit 2001.
17 Do you see that?
18 A. I do.
19 Q. Your opinions don't depend on the
20 ITC's construction of streamlets. Agree?
21 A. For this declaration, that is
22 correct.
23 Q. What do you mean, "for this
24 declaration"?
25 A. Just -- I don't know what's

1 ambiguous about that. I mean, for this document,
2 that statement is true.
3 Q. Is the statement true for other
4 documents?
5 A. We'd have to look at those other
6 documents.
7 Q. Sitting here today, you have no
8 understanding as to whether or not the ITC's
9 construction of streamlet is relevant to -- strike
10 that.
11 Sitting here today, you have no
12 understanding whether or not the opinions you
13 expressed in other documents or declarations depend
14 on the ITC's construction of streamlets?
15 ATTORNEY WILSON: Object to the
16 form. Misstates testimony.
17 THE WITNESS: It depended on it.
18 I would have stated it in the -- my other
19 declarations. Sitting here today, I
20 don't recall any argument that turns on
21 this particular construction.
22 BY ATTORNEY SHENG:
23 Q. In paragraph 42 of Exhibit 2001, you
24 discuss the term "virtual timeline"; correct?
25 A. Yes.

1 Q. In the last paragraph -- in the last
2 sentence of paragraph 42, you state that the term
3 "virtual timeline" does not require a specific
4 construction; correct?
5 A. Correct.
6 Q. It's your opinion that a person with
7 skill in the art would understand the plain and
8 ordinary meaning of virtual timeline; correct?
9 ATTORNEY WILSON: Objection.
10 Misstates testimony.
11 THE WITNESS: No. That's not the
12 opinion that I'm offering here.
13 BY ATTORNEY SHENG:
14 Q. If a term in a patent claim does not
15 require specific construction, do you agree that
16 the term is to be interpreted according to how a
17 person of skill in the art would understand the
18 plain and ordinary meaning of that term?
19 A. For claims that are claim terms that
20 are not construed, that is the case.
21 Q. The virtual timeline does not
22 require a specific construction; correct?
23 A. That's not what I am saying in
24 paragraph 42.
25 Q. Doctor, I'm handing you what's

1 previously been marked as Exhibit 2006.
2 A. Thank you.
3 Q. Exhibit 2006 is the declaration you
4 submitted in support of Dish's patent owner
5 response, POR. I'll represent to you that this is
6 the declaration you submitted in connection with
7 the '138 patent.
8 Do you have any reason to disagree?
9 A. No.
10 Q. Let's go to paragraph 42 in this
11 declaration.
12 A. Okay.
13 Q. Paragraph 42 you also discuss the
14 virtual timeline term; correct?
15 A. Yes.
16 Q. The last sentence of paragraph 42 in
17 this declaration, you state that the term "virtual
18 timeline" does not require a specific construction;
19 correct?
20 A. Yes.
21 Q. It's your opinion then that a person
22 of skill in the art would understand the plain and
23 ordinary meaning of the term "virtual timeline";
24 correct?
25 A. Yes.

1 Q. In paragraph 43, you state that a
2 person with skill in the art would understand
3 virtual timeline would be broad enough to include a
4 playlist; correct?
5 A. Yes.
6 Q. And you state that the specification
7 of the '138 patent describes two exemplary
8 alternatives of a playlist.
9 Do you see that?
10 A. Yes, now I see that.
11 Q. And even though the '138 patent
12 discloses two alternatives of a playlist, you opine
13 that these are just non-limiting examples of a
14 playlist; correct?
15 A. Correct.
16 Q. According to you, the bases of your
17 opinions that these are nonlimiting examples of
18 playlists is the use of open-ended language like,
19 for example, it "may," to introduce these concepts;
20 correct?
21 A. The basis for my opinion -- part of
22 the basis for my opinion that these are nonlimiting
23 examples of playlists is because of that language,
24 the open-ended language.
25 Q. A person with skill in the art would

1 understand the use of open-ended language such as
2 "for example" and "may" to introduce concepts to
3 mean that the examples provided are nonlimiting.
4 Agree?
5 A. I think as a general matter, yes,
6 but you'd have to consider the specifics of the
7 statements at issue.
8 Q. In paragraph 43, in the second
9 sentence, you quote from the '138 patent. You
10 state, "For example, the specification states that
11 the virtual timeline, hereinafter VT 600, may
12 comprise a file that is configured to define a
13 playlist for a user to view."
14 Do you see that?
15 A. I do.
16 Q. Is it your opinion that the use of
17 the word "may" means that the virtual timeline does
18 not necessarily mean to define playlist for a user
19 to view?
20 A. Correct.
21 Q. Both options are available, it may
22 comprise something, it may not; correct?
23 A. It may comprise that, it may
24 comprise something else.
25 Q. That is because a person with skill

1 in the art would understand the use of the word
2 "may" to introduce what's next, means that what
3 comes next is not limiting. Agree?
4 ATTORNEY WILSON: Object to the
5 form.
6 THE WITNESS: A person of ordinary
7 skill in the art would understand that
8 "may" is not citing a hard and fast
9 requirement.
10 BY ATTORNEY SHENG:
11 Q. In paragraphs 41 to 44, you
12 discussed the term "streamlet and virtual
13 timeline"; agree?
14 A. 1 through 44, let me review. Yes.
15 Q. In paragraph 45, you state, "I have
16 not identified any other terms of the challenged
17 claims of the '138 patent that require construction
18 for purposes of rendering the opinions I express
19 here."
20 Do you see that?
21 A. I do.
22 Q. There are no other claim terms in
23 the challenged claims that require construction;
24 correct?
25 ATTORNEY WILSON: Objection.

1 Form.
2 THE WITNESS: For purposes of
3 rendering the opinions that I express in
4 this declaration, that is correct.
5 BY ATTORNEY SHENG:
6 Q. As you sit here today, are you aware
7 of any other claim terms in any of the patents that
8 requires -- strike that.
9 Sitting here today, are you aware of any
10 other claim terms related to any of the other ABR
11 patents that require claim construction?
12 ATTORNEY WILSON: Object to the
13 form.
14 THE WITNESS: For the opinions
15 that I've offered so far, no.
16 BY ATTORNEY SHENG:
17 Q. Can we agree that for any claim term
18 that you have not expressed an opinion regarding
19 claim construction, that term should be given its
20 plain and ordinary meaning to a person of skill in
21 the art at the time of the invention?
22 A. Sure. Read in light of the claims
23 and the specification, that's correct.
24 Q. When was the first time you became
25 aware of any of the ABR patents, including any

1 patents related to the ABR patents?
2 A. I became aware in -- I don't
3 remember exactly. Maybe 2017 or 2018.
4 Q. Which patent was that, do you
5 remember?
6 A. No. It was one in this family, but
7 I don't recall the number.
8 Q. Please turn to paragraph 46 of
9 Exhibit 2006.
10 A. I was going to say actually I think
11 I document the patent number in here.
12 Q. Okay.
13 A. So it's the one that I said in
14 paragraph 46, the '444 patent.
15 Q. Okay. Let's go through that.
16 About midway through paragraph 46, you
17 state "at the onset here." Let me know if you can
18 find that. It's about midway through.
19 A. Yes, I got it. Thank you.
20 Q. You state, "At the onset here, I
21 note as part of my service as an expert witness in
22 relation to patent litigation matters related to
23 video streaming, I had occasion to research the
24 state of the art in video streaming in the late
25 1990s and early 2000s."

1 Do you see that?
2 A. Yes.
3 Q. Can you describe for me generally
4 the research you conducted relating to the state of
5 the art in video streaming in the late 1990s and
6 early 2000s.
7 A. I had served as an expert witness on
8 quite a few cases relating to aspects of video
9 streaming and video on demand, and as a result of
10 that work, I've had occasion to review the academic
11 literature systems that were commercially available
12 and a significant number of patents related to, as
13 I say, video on demand and video streaming.
14 Q. Was this related to a specific case,
15 do you recall?
16 A. The reference here to the Brueck
17 patent is a reference to a specific case, but the
18 sentence that we were speaking of at the onset
19 here -- excuse me -- he's referring to a collection
20 of cases.
21 Q. Did you do that research yourself,
22 or did someone help you?
23 A. I did the research, as I recall,
24 because this is my practice on sort of the systems
25 and the academic literature, and someone else had

1 done searches of patents and provided me with
2 patents related to video on demand, video streaming
3 and related topics.
4 Q. In the next sentence of
5 paragraph 46, you state, "As part of this research
6 and prior to my engagement in these matters, I had
7 previously encountered patents in the family of the
8 ABR patents, specifically U.S. Patent Number
9 7,818,444, the Brueck and Hurst, around the 2016
10 and 2017 time period."
11 Do you see that?
12 A. I do.
13 Q. So earlier you stated you that first
14 encountered one of the ABR patents in 2017 to 2018.
15 Does this refresh your recollection that it was in
16 2016 to 2017 that you first encountered those
17 patents?
18 A. Yes.
19 Q. I'll refer to the Brueck patent as
20 the '444 patent as you do in your declaration,
21 okay?
22 A. Okay.
23 Q. The '444 patent is in the same
24 family as the ABR patents at issue here today;
25 correct?

1 A. I believe that is correct.
2 Q. The '444 patent has the same
3 specification as the ABR patents, do you know?
4 A. I believe that is correct.
5 Q. What was the context of you coming
6 across the '444 patent in the 2016 to 2017 time
7 frame?
8 A. It was being asserted as prior art
9 against another patent.
10 Q. Did someone provide the '444 patent
11 to you, or did you come across it yourself?
12 A. As best I recall, it was provided to
13 me.
14 Q. So prior to the 2016 to 2017 time
15 frame, you had never come across the '444 patent or
16 any of the ABR patents; correct?
17 A. I believe that is correct.
18 Q. Staying in the same paragraph 46, in
19 the next sentence you state, "Having done original
20 research in adaptive streaming in the 1990s, I
21 recall being impressed by the '444 patent, in
22 particular, its architecture for what it termed
23 multi-bid rate video and/or audio content
24 streaming."
25 Do you see that?

1 A. I do.
2 Q. And in the next sentence you state,
3 "The architecture included using a web server
4 hosting sets of content files where each set
5 represented segments, streamlets of a larger media
6 presentation encoded in the same format but at a
7 particular streaming bit rate."
8 Do you see that?
9 A. I do.
10 Q. Let's break that down. In the 2016
11 to 2017 time frame, you were particularly impressed
12 by the '444 patent's use of a web server to host
13 sets of content files; correct?
14 A. The use of the web servers, plural,
15 to host content as that content had been formulated
16 in the '444 patent.
17 Q. Why did that impress you?
18 A. Well, I remember I had a student in
19 2012, 2013-ish -- I don't remember exactly the time
20 period -- who wanted to do a project on DASH, on
21 MPEG-DASH. And I remember when I first encountered
22 DASH, I thought this is brilliant. It's a very
23 elegant, simple solution to the streaming problem.
24 I mean, it was -- I mean, I was genuinely
25 impressed. I mean, I read it and I immediately

1 thought wow, this is really great.
2 So fast forward five years or so, four
3 years, and I see the Brueck patents and I say, Wow,
4 these guys had the core ideas behind DASH. I
5 thought Wow, they invented DASH. So I was
6 impressed because it seemed to me that this was the
7 patent that was possibly the origin of a lot of the
8 technology that's used for streaming video today.
9 Q. In the 2016 to 2000 time frame, were
10 you particularly impressed by the '444 patent's
11 disclosure of segmenting a larger media
12 presentation into segments?
13 ATTORNEY WILSON: Object to the
14 form.
15 THE WITNESS: I was impressed by
16 all of Brueck. I mean, as I say, I knew
17 of the -- through having studied and
18 worked with DASH, I knew of the technique
19 of segmenting a video into discrete,
20 uniform sized pieces and encoding --
21 replicating those and encoding those at
22 multiple bit rates.
23 So I had seen that concept in
24 DASH. And what impressed me was here was
25 that idea in a patent, and that the

1 patent was, you know, prior to DASH.
2 BY ATTORNEY SHENG:
3 Q. I guess, Doctor, what I'm trying to
4 figure out is what in particular impressed you
5 about the '444 patent. So was it the using of web
6 servers, was that included?
7 A. Yes, that was part of it. But it's
8 really the whole package, as I say. It seemed to
9 me that these guys invented DASH. That was my
10 immediate take-away.
11 Q. So the use of web servers, ordinary
12 web servers, was one of the parts of Brueck that
13 impressed you.
14 Do you agree?
15 A. To the extent you're trying to dice
16 out what impressed me into small chunks, as I say,
17 my recollection is what impressed me was the
18 package, that it was all of it. It was all of --
19 all the major concepts that I knew of in DASH. Now
20 I'm learning oh, this predated DASH.
21 So it was the segmenting of video into
22 small discrete sized chunks. It's the multiple
23 encodings. It's the use of pure client-side
24 monitoring and adaptation. The use of vanilla web
25 servers. It was literally the whole package.

1 And that's -- in particular and that's
2 important, because it literally was the whole
3 package that impressed me. Because it wasn't, like
4 I said, oh, my God, here is something fundamental
5 that's missing from Brueck. It was like, Wow,
6 Brueck has it all.
7 Q. So what impressed you about the '444
8 patent you said was the package, and the package
9 you testified included segmenting a video into
10 small discrete sized chunks. It included multiple
11 encodings. It included the use of pure client side
12 monitoring and adaptation. It included the use of
13 vanilla web servers; correct?
14 ATTORNEY WILSON: Object to the
15 form.
16 THE WITNESS: All of that was
17 included in what impressed me.
18 BY ATTORNEY SHENG:
19 Q. Are there any other features
20 disclosed in the '444 patent that you would say are
21 included in that package that impressed you?
22 A. I remember I liked their coding
23 structure, the fact that they were using a parallel
24 set of -- they were parallelizing the encoding
25 scheme. Just from an architectural standpoint,

1 that was nice. Any others? I mean, those are the
2 things that coming to mind just sitting here today.
3 Q. In the last sentence of
4 paragraph 46, you state, "While this paradigm of
5 client adaptation in requesting of content is
6 common for streaming media today, in particular
7 requesting via HTTP, the '444 patent impressed me
8 as being the earliest patent I had seen with such
9 architecture."
10 Do you see that?
11 A. I do.
12 Q. Are you saying in this last sentence
13 of paragraph 46 that the '444 patent was the
14 earliest patent you had seen with such an
15 architecture when you reviewed it in the 2016 to
16 2017 time frame, or are you saying it is today the
17 earliest patent you had seen with such
18 architecture?
19 ATTORNEY WILSON: Object to the
20 form.
21 THE WITNESS: Well, this is a
22 statement as to my reaction when I first
23 saw -- when I first encountered the
24 patent in the teens.
25

1 BY ATTORNEY SHENG:
2 Q. Is it still the case today that the
3 '444 patent is the earliest patent you had seen
4 with such an architecture?
5 A. Yes. As I say, I haven't seen
6 anything earlier. I mean, as I say, having worked
7 in this field, I've always been curious just to
8 kind of understand how these things developed and
9 when things came into existence.
10 In terms of the paradigm of managing the
11 video and storing multiple copies at different bit
12 rates and requesting via simple HTTP, I haven't
13 seen anything earlier than the ABR patents in terms
14 of patent art. I haven't seen -- so far, I haven't
15 seen anything earlier.
16 Q. What about nonpatent art?
17 A. I haven't seen anything, any systems
18 either.
19 Q. Are you familiar with the reference
20 called "leaning"?
21 A. Called who?
22 Q. Leaning. Inventor Leaning,
23 L-e-a-n-i-n-g.
24 A. That's a British person?
25 Q. I believe so.

1 A. Yeah, I have seen -- I think I know
2 what you're talking about.
3 Q. In what context are you familiar
4 with the Leaning reference?
5 A. I was asked by attorneys for Dish to
6 look at the Leaning reference.
7 Q. When was this? When were you asked
8 to review Leaning?
9 A. I don't recall with much precision.
10 I think maybe during this last summer or spring.
11 Q. Doesn't Leaning disclose segmenting
12 video into small, discreet-sized chunks?
13 A. I don't recall with Leaning sitting
14 here today.
15 Q. Sitting here today, you have no
16 recollection whatsoever as to whether Leaning
17 discloses segmenting a video into small,
18 discreet-sized chunks?
19 A. I don't recall Leaning with
20 sufficient clarity to answer your questions sitting
21 here today.
22 Q. Can you mark this as Jaffay
23 Exhibit 1.
24 (Exhibit 1 was marked for
25 identification.)

1 Q. Doctor, you've been handed what's
2 been marked as Jaffay Exhibit 1. I'll represent to
3 you that this is the Leaning reference. Do you
4 have any reason to disagree?
5 ATTORNEY WILSON: Object to scope.
6 THE WITNESS: No.
7 BY ATTORNEY SHENG:
8 Q. Does this -- can you review, meaning
9 the claims of Leaning?
10 A. The claims?
11 Q. You claim -- give me one second.
12 Why don't we set that aside. We'll come back to
13 that.
14 Let's go to paragraph 48.
15 A. Okay.
16 Q. Of Exhibit 2006.
17 ATTORNEY WILSON: We've been going
18 for about an hour.
19 ATTORNEY SHENG: Do you want a
20 break, Doctor?
21 THE WITNESS: I'm fine.
22 ATTORNEY SHENG: We can take a
23 short break. Just remind you that you
24 are not permitted to speak to counsel
25 about your deposition, okay?

1 THE WITNESS: Sure.
2 THE VIDEOGRAPHER: Time is 10:07
3 a.m. We are now off the record.
4 (Recess taken from
5 10:07 a.m. to 10:16 a.m.)
6 THE VIDEOGRAPHER: It's 10:16 a.m.
7 We are now on the record.
8 BY ATTORNEY SHENG:
9 Q. Doctor, did you speak to anybody
10 about your deposition during the break?
11 A. No.
12 Q. If you could please turn to page 23
13 of your expert report marked 2006.
14 A. Okay.
15 Q. And I'd like to ask you about
16 footnote 1. Could you read footnote 1 to yourself
17 and let me know when you're done.
18 A. (Witness complies with request)
19 Q. "Throughout the 1990s, University of
20 North Carolina, Duke, North Carolina State
21 University and other schools maintained a set of
22 facilities for distance learning and remote
23 conferences"; correct?
24 A. Yes.
25 Q. These facilities supported live

1 two-way audio; correct?
2 A. Yes.
3 Q. These facilities offered live video
4 streaming; correct?
5 A. Yes.
6 Q. These facilities offered video
7 streaming while audio was acquired and managed
8 separately from videos; correct?
9 A. Yes.
10 Q. Are you familiar with something
11 called the multitask MBone?
12 A. Yes.
13 Q. What is the MBone?
14 A. The MBone was an overlay network
15 that was developed by academic networking
16 researchers in the mid-1990s to experiment with
17 multitask content delivery.
18 Q. Fair to say the MBone was used for
19 video streaming?
20 A. It was used for a form of video
21 streaming, yes.
22 ATTORNEY SHENG: Can you mark this
23 as Jaffay Exhibit 2.
24 (Exhibit 2 was marked for
25 identification.)

1 BY ATTORNEY SHENG:
2 Q. Do you recognize this document?
3 A. Not off the top of my head.
4 Q. This appears to be an expert
5 declaration you submitted in IPR of U.S. Patent
6 Number 8,050,652.
7 Does that look right?
8 A. I mean, that's what it says on the
9 cover.
10 Q. Do you recall being retained by
11 Samsung as an expert in an IPR before, Doctor?
12 A. Yes.
13 Q. I'll represent to you that this is
14 the expert declaration you submitted on behalf of
15 Samsung in an IPR of the '652 patent.
16 Do you agree with me?
17 ATTORNEY WILSON: Objection.
18 Foundation.
19 THE WITNESS: I mean, I don't
20 recognize this sitting here today, but I
21 see what it says on the cover, so I'll
22 accept your representation.
23 BY ATTORNEY SHENG:
24 Q. Can you turn to the very last page
25 of Jaffay Exhibit 2. It has your signature; right?

1 A. Yes.
2 Q. Okay. Can we agree that you were
3 retained by Samsung as an expert in this IPR?
4 A. Yes.
5 Q. Samsung was the petitioner in this
6 IPR; correct?
7 A. Yes, a variety of Samsung companies.
8 Q. Samsung retained you as an expert to
9 argue for invalidity of the '652 patent; correct?
10 A. I actually don't recall what they
11 retained me for, what the actual retention covered.
12 Q. Can you turn to paragraph 15 of
13 Jaffay Exhibit 2.
14 A. Sure.
15 (Witness complies with request.)
16 Q. In the mid to late 1990s, you were
17 part of a research group that participated in the
18 MBone research initiative; correct?
19 A. Yes.
20 Q. In the mid to late 1990s, your
21 research group regularly used the MBone to watch
22 and listen to live programming streamed over the
23 internet; correct?
24 A. Yes.
25 Q. Do you recall a Rolling Stones

1 concert being streamed through the MBone in 1994?
2 A. I do.
3 Q. What do you remember from that?
4 A. I remember that it happened. I
5 remember people were super excited about it, and I
6 remember that the quality was not great.
7 Q. Do you remember that it was,
8 streamed, the concert -- strike that.
9 Do you remember the concert was held at the
10 Cotton Bowl in Dallas?
11 A. No, I don't remember that.
12 Q. Do you recall any news that it was
13 streamed to 50,000 fans?
14 A. I recall that it was a newsworthy
15 event.
16 Q. Do you recall the MBone being used
17 in the mid-1990s to stream space shuttle launches?
18 A. Space shuttle launches. I don't
19 recall that.
20 Q. You can put Jaffay Exhibit 2 away
21 for a bit.
22 A. (Witness complies with request.)
23 Q. Now, prior to your work in these
24 IPRs, you were aware of a company called Real
25 Network. Is that correct?

1 A. Yes.
2 Q. And you are aware that Real Network
3 made one of the early commercial video streaming
4 players on the market; correct?
5 A. Players, yes.
6 Q. A commercial video streaming called
7 Real Video; is that right?
8 A. Yes.
9 Q. Real Network introduced its real
10 video streaming player in 1997; correct?
11 A. I don't recall that detail, but that
12 generally sounds about right.
13 Q. Let's go to page 40 of Exhibit 2006.
14 A. That's the --
15 Q. That's your declaration in support
16 of Dish's TOR?
17 A. TOR, okay. I'm sorry, I missed the
18 page number.
19 Q. Page 40.
20 A. Forty, thank you.
21 Q. Footnote 9. Does footnote 9 refresh
22 your recollection as to whether or not the real
23 video streaming player was released in 1997?
24 A. Yes, thank you.
25 Q. Real Network was a recognized early

1 pioneer in the development of multimedia players;
2 correct?
3 A. I believe that's a fair statement.
4 Q. It was a recognized leader in that
5 space; fair?
6 A. In 1997, yes.
7 Q. You would agree that in the late
8 1997s, Real Network's video streaming player was
9 well known to people in the video streaming
10 community; correct?
11 A. Yes.
12 Q. A person of skill in the art in 1997
13 would have been aware of the Real Video streaming
14 player; correct?
15 A. Yes.
16 Q. A person of skill in the art would
17 have considered Real Network's video streaming
18 player part of the state of the art with respect to
19 Dish's ABR patents; correct?
20 A. With respect to Dish's ABR patents?
21 Sorry, I don't understand the question.
22 Q. Is Real Network's video streaming
23 player in the state of the art?
24 A. In 1997, yes.
25 Q. In 1997 -- strike that.

1 In 1997, Real Network's video streaming
2 player was part of the state of the art; correct?
3 A. Yes.
4 Q. Could you go to paragraph 11 of
5 Exhibit 2006. Again, that's the declaration you
6 submitted in support of Dish's POR for the '138
7 patent?
8 A. Okay. I'm there.
9 Q. Can you read paragraph 11 to
10 yourself and let me know when you're done.
11 A. (Witness complies with request.)
12 Okay, I'm ready.
13 Q. What does real time mean in
14 paragraph 11 of your report?
15 A. As I'm using that term here, real
16 time meant that the streams were -- the media was
17 transmitted as it was acquired with minimal delay.
18 Q. Starting in the late 1980s, you
19 developed network and operation system technology
20 to enable the real time transfer of streams of
21 audio and video data across the internet; correct?
22 A. Correct.
23 Q. Starting in the late 1980s, you
24 developed media encoders, media players and network
25 communication protocols for adaptive transmission

1 of live audio and video data on the internet;
2 correct?
3 A. Work on media, the work as a whole
4 over time involved all of these things. In the
5 late 1980s, we weren't doing work in media
6 encoders.
7 Q. Paragraph 11 says you work on the
8 development of media encoders, doesn't it?
9 A. Yes, as I say, the broader project
10 over time considered all of the items that are
11 listed here in that sentence.
12 Q. So starting in the late 1980s, you
13 developed media encoders; correct?
14 A. The project started in the late
15 1980s. The development of media encoders came
16 later.
17 Q. When?
18 A. I think we did the first codec in
19 '92, '93, maybe. The first software codec in
20 '92 or '93.
21 Q. So beginning in around 1992 and
22 1993, media encoders for adaptive transmission of
23 live audio and video data on the internet were
24 known; true?
25 A. No.

1 Q. You testified that you were working
2 on a project starting in 1992, 1993 developing
3 media encoders; correct?
4 A. Correct.
5 Q. Okay. So when were media encoders
6 for adaptive transmission applied data on the
7 internet known?
8 A. The media encoders were not
9 adaptive. They were just static encoders. They
10 had nothing to do with adaptation. The adaptation
11 was done really through the development of these --
12 what's labeled here as the network communication
13 protocols. That was the adaptive part.
14 Q. So referring back to paragraph 11 of
15 your report, is it incorrect where you state "The
16 development of media encoders"?
17 A. No. The work did involve over time
18 the development of media encoders, media players,
19 and network communication protocols.
20 Q. When were media encoders for
21 adaptive transmission applied audio and video data
22 on the internet known?
23 ATTORNEY WILSON: Objection.
24 Form.
25 THE WITNESS: I don't know off the

1 top of my head. I'd have to go and
2 research that. I don't know the -- I
3 don't have a date I can give you sitting
4 here today.
5 BY ATTORNEY SHENG:
6 Q. Is it before 1995?
7 ATTORNEY WILSON: Objection.
8 Form.
9 ATTORNEY SHENG: What's the
10 objection, Counsel?
11 ATTORNEY WILSON: The witness had
12 just testified -- well, misstates
13 testimony. The witness just testified
14 that media encoders were not involved in
15 the adaptive transmission.
16 BY ATTORNEY SHENG:
17 Q. Go ahead, Doctor. Could you answer
18 the question?
19 A. Could you just restate it or read it
20 back.
21 Q. Sure. When media encoders for
22 adaptive transmission -- sorry.
23 When were media encoders for adaptive
24 transmission of live audio and video data on the
25 internet known? When did they become known?

1 A. So if you're asking about adaptive
2 media encoding, I haven't researched that recently,
3 so I don't have a date that I can give you, sitting
4 here today.
5 Q. Sitting here today, are you able to
6 tell me if it was before or after 1995?
7 A. No. Off the top of my head, I can't
8 think of any project that was doing adaptive media
9 encoding, in particular for video before 1995. It
10 may have existed, but I can't think of an example
11 sitting here today.
12 Q. But you yourself started working on
13 projects related to media encoders for adaptive
14 transmission of live and audio -- live audio and
15 video beginning in 1992 or 1993. Is that correct?
16 A. What I was working on was adaptive
17 transmission of live audio and video. That work
18 included the development of media encoders. The
19 encoders, as I say, were not adaptive. All the
20 adaptation was done in the network, through the
21 development of network protocols.
22 Q. Can we agree that in the late 1980s,
23 media players for adaptive transmission of live
24 audio and video data on the internet were known?
25 A. I can't think of any in the late

1980s.

Q. When was the earliest media player for adaptive transmission of live audio and video data on the internet, that you can recall?

A. Well, the one that I can recall was the one we developed, and we first demonstrated a player for adaptive live transmission in -- I think we first demonstrated it publicly in around '92.

Q. Would that media player you developed and demonstrated in 1992 require media encoders for adaptive transmission of live audio and video data?

A. Yeah, at that time it was using hardware -- using a hardware encoder.

Q. Okay. So by 1992, media encoders for adaptive transmission of live audio and video data on the internet were known; correct?

A. No, no. What was known was just vanilla media encoders. They had nothing to do with the adaptation. All of the adaptation worked on the stream that came out of the media encoder. The media encoder was in no way adaptive.

Q. Can we agree that in the late 1980s, network communication protocols for adaptive transmission of live audio and video data on the

1 internet were known?
2 A. Not in the late 1980s. It took some
3 time to develop those.
4 Q. But starting in the late 1980s, the
5 focus of your research was the development of
6 network and operating system technology to enable
7 the real time transfer of streams of audio and
8 video data across the internet; correct?
9 A. Correct.
10 Q. And your research involved, among
11 other things, the development of media encoders,
12 media players and network communication protocols
13 for adaptive transmission of live audio and video
14 data on the internet; correct?
15 ATTORNEY WILSON: Object to the
16 form.
17 THE WITNESS: Assuming you read
18 that correctly, yes.
19 BY ATTORNEY SHENG:
20 Q. And your work culminated in your
21 research group developing some of the first video
22 conferencing systems for the internet; correct?
23 A. Correct.
24 Q. And several of the papers that you
25 authorized -- that you authored -- strike that.

1 Several of the papers you authored by
2 yourself and members of your research group won
3 awards for their technical contributions; correct?
4 A. Correct.
5 Q. Okay. Can we turn to paragraph 12
6 of your report that's marked 2006.
7 A. Yes.
8 Q. Paragraph 12 you state that in 1991,
9 IBM supported aspects of your research at the
10 University of North Carolina.
11 Do you see that?
12 A. I do.
13 Q. Can you describe IBM's involvement
14 in that research.
15 A. Sure. IBM loaned a senior engineer
16 to my research group. So there was a member of IBM
17 who was essentially in residence at UNC, and IBM
18 donated a hardware, in particular, hardware codecs
19 and computers for use in the project.
20 Q. So IBM loaned you a senior engineer;
21 correct?
22 A. Yes.
23 Q. And he was a resident at UNC, you
24 said?
25 A. Yes. He was in residence at UNC.

1 Q. What does that mean, "in residence"?
2 A. He had an office in the building, in
3 the computer science department, and I think at
4 that time he was even teaching a class. So he was
5 like a visiting faculty member.
6 Q. Your work with IBM resulted in a
7 patent on adaptive media streaming being issued to
8 IBM at the University of North Carolina; correct?
9 A. Correct.
10 Q. That was U.S. Patent Number
11 5,892,754; correct?
12 A. That's my recollection.
13 Q. I'll represent to you that the '754
14 patent is titled "User Controlled Adaptive Flow
15 Control For Package Networks."
16 Does that sound right to you?
17 A. I haven't looked at that in quite
18 some time, but I'm assuming you read that
19 correctly.
20 Q. You have no reason to disagree with
21 me?
22 A. No.
23 Q. You would agree with me that it was
24 known as early as 1991 that you can adapt bit rates
25 from streaming; correct?

1 ATTORNEY WILSON: Object to the
2 form.
3 THE WITNESS: It was known -- as I
4 say, by the time we developed and
5 demonstrated our video conferencing
6 system in 1992, it was known that you
7 could -- how can I say it? You could
8 manipulate the stream coming out of --
9 the bit stream coming out of a codec to
10 attempt to adapt the transmission of that
11 stream to deal with network congestion.
12 BY ATTORNEY SHENG:
13 Q. That's what your patent with IBM was
14 related to; correct?
15 A. I don't really recall much about the
16 patent. I thought the patent was actually about
17 ways in which performance information could flow up
18 and down the network stack and how that information
19 could be used for adaptation, but I really don't
20 recall much about that patent.
21 Q. So in 1992, it was known that you
22 could manipulate the stream coming out of the bit
23 stream, coming out of the codec to attempt to adapt
24 the transmission of that stream to deal with
25 network congestion; correct?

1 A. For at least the codec that we were
2 using, that is correct.
3 Q. The answer is yes?
4 A. With the qualification that when you
5 say "codec," all the work we did was specific to a
6 singular codec.
7 Q. Was that codec publicly available?
8 A. It was a piece of hardware, and the
9 hardware was commercially available.
10 Q. In the course of your work with IBM,
11 did you come across an IBM video streaming system
12 called Bamba, B-a-m-b-a?
13 A. If I did, I don't believe -- I don't
14 recognize that name.
15 Q. You have no recollection of the
16 Bamba media streaming system?
17 A. As I said, I knew of work that IBM
18 was doing on what they called media streaming, but
19 that name is not -- I don't recognize that name,
20 sitting here today.
21 Q. Do you recall an article by an
22 author named Willebeek, W-i-l-l-e-b-e-e-k,
23 Willebeek?
24 A. I know of an individual called
25 Willebeek. I don't know what article you're

1 referring to.
2 Q. Who is Willebeek?
3 A. He was a -- the Willebeek that I
4 knew was a networking researcher.
5 Q. Can you mark this as Jaffay
6 Exhibit 3.
7 (Exhibit 3 was marked for
8 identification.)
9 ATTORNEY WILSON: Object to the
10 scope.
11 BY ATTORNEY SHENG:
12 Q. Do you recognize this document?
13 A. No.
14 Q. This appears to be an expert
15 declaration you submitted in an IPR of a U.S.
16 Patent Number 9,742,824; correct?
17 A. That's what it appears to be.
18 Q. And you were retained -- do you
19 recall being retained by Amazon as an expert in
20 this IPR?
21 ATTORNEY WILSON: Standing
22 objection as to the scope of this
23 document.
24 THE WITNESS: I recall being
25 retained by Amazon.

1 BY ATTORNEY SHENG:
2 Q. Amazon was a petitioner in this IPR;
3 correct?
4 A. Yes.
5 Q. Amazon retained you as an expert to
6 argue for invalidity of the '824 patent; is that
7 fair?
8 A. I don't recall the patent number,
9 but I recall that Amazon asked me to help with an
10 IPR.
11 Q. That's your signature on the very
12 last page of Jaffay Exhibit 3?
13 A. Yes.
14 Q. And I'll refer to this IPR as the
15 Amazon IPR; okay?
16 A. Sure.
17 Q. Paragraph 61, turn to paragraph 61,
18 please.
19 A. (Witness complies with request.)
20 Got it.
21 Q. Paragraph 61 references an article
22 titled "Bamba audio and video streaming over the
23 internet."
24 Do you see that?
25 A. I do.

1 Q. The author of this article is
2 Willebeek.
3 Do you see that?
4 A. I do.
5 Q. And this Willebeek article was
6 published in March 1998 in the IBM Journal of
7 Research and Development. Agree?
8 A. That's what I state here in this
9 declaration.
10 Q. Is this author, M.H. Willebeek, the
11 same Willebeek that you recalled a minute ago?
12 A. Yes.
13 Q. In the Amazon IPR, you relied on
14 this Willebeek article as a prior art reference to
15 invalidate the '824 patent; correct?
16 ATTORNEY WILSON: Objection.
17 Relevance, scope.
18 THE WITNESS: I don't recall this
19 reference sitting here today, and I don't
20 recall -- I don't recall the details of
21 this case. This is something I haven't
22 seen or thought about in over two years.
23 There's clearly a reference to
24 Bamba here. I don't recall how I was
25 using Bamba.

1 BY ATTORNEY SHENG:
2 Q. Sure. In paragraph 61, you state,
3 "Willebeek is relevant prior art at least because
4 it was listed in an information disclosure
5 statement during prosecution of the '824 patent."
6 Do you see that?
7 A. I do.
8 Q. What does this statement mean to
9 you?
10 A. Well, as part of the prosecution of
11 a patent, patent applicants submit what I
12 understand are called information disclosure
13 statements where they make the patent office aware
14 of, for example, prior art that they think is
15 relevant to their patent. At least that's my
16 understanding.
17 Q. Okay. And here you are
18 acknowledging that Willebeek was listed in an
19 information disclosure statement during prosecution
20 of the '824 patent; correct?
21 A. That's what it says. I don't really
22 recall many of the specifics here.
23 Q. In the very last sentence of
24 paragraph 61, you state, "The examiner did not
25 substantively consider Willebeek during

1 prosecution."
2 Do you see that?
3 A. I do.
4 Q. What do you mean by that statement?
5 A. I couldn't tell you, sitting here
6 today. As I said, I don't really recall the
7 details of the analysis that was done here.
8 Q. What does it mean when an examiner
9 did not substantively consider a reference during
10 prosecution? What does that mean?
11 ATTORNEY WILSON: Objection.
12 Relevance, scope.
13 THE WITNESS: Again, as I'm
14 stating it in this declaration, I don't
15 recall the point that I was making here.
16 BY ATTORNEY SHENG:
17 Q. You would agree that just because a
18 reference is made in an information disclosure
19 statement does not mean that the examiner
20 substantively considered the reference during
21 prosecution; correct?
22 ATTORNEY WILSON: Object to form.
23 THE WITNESS: I don't know what
24 the rules are with the PTO, if they're
25 required to consider references listed on

1 an information disclosure statement or
2 not. So I don't know that I can answer
3 one way or another.
4 BY ATTORNEY SHENG:
5 Q. What is your belief? Is a patent
6 that is listed in an information disclosure a
7 reference that was substantively considered by the
8 patent examiner during prosecution?
9 A. I don't have any general belief as
10 to that. If I'm trying to understand an issue like
11 that, I would typically consider the entirety of
12 the file history.
13 Q. Sitting here today, you have no
14 position whatsoever as to whether or not the
15 examiner substantively considered a reference that
16 is listed in an information disclosure statement?
17 ATTORNEY WILSON: Objection.
18 Scope. Asked and answered.
19 THE WITNESS: As it relates to the
20 '824 patent, as I say, I just don't
21 recall any of the details of what
22 transpired during the prosecution of the
23 '824 patent.
24 BY ATTORNEY SHENG:
25 Q. Was Willebeek cited on the face of

1 the patent, do you recall?
2 A. I don't recall.
3 ATTORNEY SHENG: Could you mark
4 this as Jaffay Exhibit 4.
5 (Exhibit 4 was marked for
6 identification.)
7 ATTORNEY WILSON: I'll have a
8 standing objection to the scope of this
9 document.
10 BY ATTORNEY SHENG:
11 Q. Agree with me that this is the '824
12 patent we've been talking about?
13 A. It appears to be.
14 Q. I'll show you my copy, but you can
15 go to yours. I flagged where I believe Willebeek
16 is, it's on page 7 of the '824 patent, on page 7.
17 A. Okay.
18 Q. The third-to-last reference. You
19 can find it yourself since I flagged it for you.
20 A. Thank you, I appreciate that.
21 Q. Let me know when you're on page 7.
22 If you flip seven pages or look at the top of
23 page 7, there's a -- let's see, the
24 third-to-the-last reference cited in the '824
25 patent is the Willebeek article.

1 Do you see that?
2 A. I do.
3 Q. You agree that the Willebeek article
4 is cited on the face of the '824 patent; right?
5 A. If these References Cited section is
6 considered the face of the patent, then yes. I
7 believe it's cited here in terms of references
8 cited. In the References Cited section.
9 Q. In the Amazon IPR, you argue that
10 the examiner did not substantively consider
11 Willebeek during prosecution; correct?
12 A. It seems that I made that statement,
13 but I don't recall what the basis of that statement
14 was.
15 Q. In the Amazon IPR, you argue that
16 the examiner did not substantively consider
17 Willebeek, even though Willebeek is cited on the
18 References Cited section of the patent; correct?
19 A. I mean, I said what I said in this
20 declaration. As I said, I don't recall the basis
21 for that statement, the statement about the
22 examiner substantively considering the reference.
23 Q. The answer is yes?
24 A. Could you just ask the question
25 again.

1 Q. In the Amazon IPR, you argued that
2 the examiner did not substantively consider
3 Willebeek, even though Willebeek is cited on the
4 References Cited section of the patent; correct?
5 A. I made a statement that, in my
6 opinion, the examiner didn't substantively consider
7 it. And as I say, I don't recall the basis for
8 that statement.
9 Q. I don't think you're answering my
10 request, Doctor. In the Amazon IPR, you argued the
11 examiner did not substantively consider Willebeek,
12 even though Willebeek is cited on the References
13 Cited section of the patent. Yes or no?
14 A. You are stating a statement
15 attributing to me that I did not state. I did not
16 have a statement about Willebeek being on the cover
17 page of the patent. I definitely made the
18 statement that, in my opinion, the examiner didn't
19 substantively assess it, but I said nothing about
20 the cover page of the patent.
21 Q. Knowing now that Willebeek is cited
22 on the '824 patent, does that change your opinion
23 as to whether or not the examiner would have
24 considered Willebeek during prosecution?
25 A. I can't answer that question without

1 going back and reviewing the analysis that I did in
2 the Amazon declaration.
3 Q. In these IPRs where you're
4 representing patent owner Dish, you argue in your
5 expert report that proving invalidity is especially
6 difficult if a reference is cited on the face of
7 the patent, because it is presumed that the
8 examiner considered the reference prior to allowing
9 the claims; correct?
10 A. I think we've gone over that.
11 That's a statement in the -- that was a statement
12 in the POPR, this declaration.
13 Q. The answer is yes?
14 A. That was a statement in the POPR
15 declaration.
16 Q. Yes or no?
17 A. What's the -- how is that not an
18 answer to your question? What's the question?
19 Q. Here in these IPRs where you're
20 representing the patent owner Dish, you argue in
21 your expert report that proving invalidity is
22 especially difficult if a reference is cited on the
23 face of the patent because it is presumed that the
24 examiner considered the reference prior to allowing
25 the claims. Yes or no?

1 ATTORNEY WILSON: Objection to the
2 form.
3 THE WITNESS: I made that
4 statement in my declaration for the POPR.
5 That's -- that is absolutely a statement
6 that I made.
7 BY ATTORNEY SHENG:
8 Q. Between the Amazon IPR and these
9 IPRs, taking different positions on the same issue;
10 fair?
11 A. No. I disagree.
12 Q. Why?
13 A. First of all, I have -- I'm not able
14 to opine today on what was being argued in the
15 Amazon IPR. I don't recall the analysis there, and
16 I don't recall the basis for the statement. So I
17 don't see -- on the face of it, I don't see any
18 contradiction.
19 Q. Doctor, this is your chance to
20 explain to the board the inconsistency. Do you
21 have anything else to explain why you took one
22 position in the Amazon IPR and a different position
23 in these IPRs?
24 ATTORNEY WILSON: Objection.
25 Argumentative, form.

1 THE WITNESS: I'm not seeing any
2 inconsistency here, and if you want me to
3 explain it to the board, I would be happy
4 to do so. I would go back and review the
5 analysis that was done in the Amazon
6 case, and I'm quite confident there would
7 be no inconsistency.
8 BY ATTORNEY SHENG:
9 Q. We'll flag that. If we have time at
10 the end of the day, I might have you do that.
11 Do you have the '824 patent still in front
12 of you?
13 A. Yes.
14 Q. Do you agree there are hundreds of
15 references cited in the References Cited section of
16 the '824 patent?
17 A. There seems to be quite a lot.
18 Q. Do you agree that it's unlikely that
19 an examiner would have substantively reviewed
20 hundreds of references cited on the face of the
21 patent?
22 A. I don't know.
23 Q. You have no opinion one way or the
24 other?
25 A. For this particular patent, no.

1 Q. For any patent, Doctor, a patent has
2 hundreds of references cited on the face of it.
3 Can we agree that it's unlikely that an examiner
4 would have substantively reviewed all hundreds of
5 those references?
6 ATTORNEY WILSON: Object to the
7 form.
8 THE WITNESS: In my experience,
9 often when patents have such a long list
10 of references cited, it's because it's
11 a -- there's been a long sequence of
12 continuations. So the prosecution has
13 occurred over many, many years.
14 So I mean, at the end of the day,
15 I'm not going to speculate on, for
16 example, for the '824 patent, what the
17 examiner did or didn't consider.
18 BY ATTORNEY SHENG:
19 Q. It's possible that one of the
20 references cited on the '824 patent was a smoking
21 gun, the examiner just missed it.
22 Do you agree?
23 ATTORNEY WILSON: Object to the
24 form.
25 THE WITNESS: I don't understand

1 your question.
2 BY ATTORNEY SHENG:
3 Q. It's possible that one of the
4 references cited on the '824 patent was
5 invalidating, an examiner dismissed it.
6 Do you agree?
7 A. I don't know if it's possible or
8 not. Sitting here today, I don't recall anything
9 about the prosecution of the '824 patent.
10 Q. You can put that away. I'm going to
11 turn to paragraph -- let's go back to Jaffay
12 Exhibit 3, which is the declaration you submitted
13 in the -- in the -- which one is this? Give me a
14 second. The Amazon IPR.
15 A. Okay.
16 ATTORNEY WILSON: I'm sorry, where
17 are we?
18 ATTORNEY SHENG: Paragraph 75 of
19 Jaffay Exhibit 3.
20 THE WITNESS: Okay.
21 BY ATTORNEY SHENG:
22 Q. Do you see the section titled
23 "Overview of Willebeek"?
24 A. I do.
25 Q. Can you read paragraph 75 to

1 yourself and let me know when you're done.
2 A. (Witness complies with request.)
3 Okay, I'm done.
4 Q. Bamba was a media streaming
5 system -- strike that. Let me start over.
6 Bamba was a media streaming system that
7 delivered audio and video over low bandwidth modem
8 connections with the use of standard compression
9 technologies; correct?
10 A. That seems to be a quote from Bamba.
11 Q. It's a quote from Bamba and a quote
12 from yourself too; right? You're quoting Bamba;
13 correct?
14 A. I believe -- I believe that is
15 correct.
16 Q. Bamba was a media streaming system
17 delivering audio and video over low bandwidth modem
18 connections with the use of standard compression
19 technologies. Agree?
20 A. That's what it says in the
21 declaration. As I say, I don't really recall
22 really any of the details of what Bamba was or how
23 it worked.
24 Q. Can you turn to the last page,
25 Doctor, of Exhibit 3.

1 A. Okay.
2 Q. You state, "I hereby declare that
3 all statements made here on my own knowledge are
4 true and that all statements made under information
5 and belief are believed to be true," and you go on
6 to state that if you make willful false statements
7 and the like, it will be punishable by fine,
8 imprisonment or both.
9 Do you see that?
10 A. I do.
11 Q. Bamba was a media streaming steam
12 that delivered audio and video over low bandwidth
13 modem connections for the use of standard
14 progression technologies. Do you agree?
15 A. That's what I said in August of
16 2022. I assumed that was a correct statement when
17 I signed this declaration.
18 Q. The Bamba media streaming system was
19 fully implemented and deployed both internally at
20 IBM and externally by 1998; correct?
21 A. I can't confirm that. All I can say
22 is that's what I stated, and I undoubtedly believed
23 that was true in August of 2022.
24 Q. It was conventional by 1998 to
25 stream audio and video from the web; correct?

1 A. Yes.
2 Q. It was conventional by 1998 to
3 stream audio and video from both stored and live
4 sources on the web; correct?
5 A. Yes.
6 Q. Can you turn to paragraph 76 of the
7 expert declaration in the Amazon IPR. Please read
8 paragraph 76 to yourself and let me know when
9 you're done.
10 A. (Witness complies with request.)
11 Okay.
12 Q. In 1998, the Bamba media streaming
13 system included a client equipped with appropriate
14 Bamba software that was able to communicate with a
15 server and receive the Bamba audio and video file;
16 correct?
17 A. I don't -- I don't have a
18 recollection of that sitting here today, but that
19 is what I stated, and I assume that that was
20 correct as of the time I am sure this work.
21 Q. In 1998, the server in the Bamba
22 media streaming system was a standard HTTP web
23 server; correct?
24 A. Again, I don't have any recollection
25 of that today, but that's what I stated in August

1 of '22, and I assumed that was correct then.
2 Q. Does this refresh your recollection
3 at all whether or not the Bamba media streaming
4 system included a client equipped with appropriate
5 Bamba software would be able to communicate --
6 sorry, strike that.
7 Your declaration in the Amazon IPR does not
8 reflect -- refresh your recollection at all whether
9 or not in 1998 the server in the Bamba media
10 streaming system was a standard HTTP web server?
11 A. Well, when you say your declaration
12 doesn't reflect -- it doesn't refresh, we've looked
13 at, what, four sentences in here. If you want to
14 refresh my memory, I would want to go back and read
15 this declaration.
16 To really refresh my memory, I'd have to
17 read this declaration again and read the Bamba
18 reference.
19 Q. Sitting here today, you don't
20 dispute that in 1998, the server in the Bamba media
21 streaming system was a standard HTTP web server;
22 correct?
23 A. No, I don't dispute any statements
24 that I made in here. I assume that I did a good
25 and correct analysis in August of '22.

1 Q. Good. You don't dispute that the
2 Bamba media streaming system used an ordinary
3 server in 1998; correct?
4 ATTORNEY WILSON: Objection.
5 Asked and answered.
6 THE WITNESS: No, I don't dispute
7 it. I mean, it sounds like I was doing a
8 traditional progressive download.
9 BY ATTORNEY SHENG:
10 Q. You would agree that the underlying
11 transfer protocol used by HTTP is TCP/IP; correct?
12 A. Yes.
13 Q. TCP/IP provided reliable end-to-end
14 network connections; correct?
15 A. Yes.
16 Q. And this was known in 1998; correct?
17 A. Yes.
18 Q. Dish didn't invent the idea of using
19 TCP/IP in a video streaming system; correct?
20 ATTORNEY WILSON: Object to the
21 form.
22 THE WITNESS: For their particular
23 formulation of video streaming they did,
24 but for using TCP/IP, HTTP over TCP/IP
25 for progressive download, no, they didn't

1 invent that.
2 BY ATTORNEY SHENG:
3 Q. You said "progressive download";
4 right?
5 A. Because that's what -- that's what
6 the last sentence is telling to me that says if a
7 banned Bamba clips, which is just doing video
8 clips, is selected, the server transforms the clip
9 to the client as fast as TCP/IP can move it, and
10 the clip begins decoding and displaying the Bamba
11 file as soon as the first few bytes arrive. That's
12 the progressive download.
13 Q. Can we agree that Dish did not
14 invent the idea of using the standard HTTP web
15 server on a video streaming system?
16 A. For streaming via progressive
17 download, we can agree.
18 Q. You keep caveating your answers by
19 saying "progressive download." I'm just trying to
20 understand, what is your bases for saying that
21 Bamba was limited to progressive downloads?
22 A. I didn't say Bamba was -- I didn't
23 say Bamba was limited to anything. I'm just simply
24 saying that what's described here is the use of
25 HTTP for what to me reads like progressive

1 downloading.
2 Q. Did Dish invent the idea of using a
3 standard HTTP web server in nonprogressive download
4 video streaming systems?
5 ATTORNEY WILSON: Object to the
6 form.
7 THE WITNESS: For Dish's
8 particular construction of multi-bit rate
9 streams, I don't think that had
10 existed -- delivering those over to HTTP,
11 I don't think had existed prior to the
12 ABR patents.
13 BY ATTORNEY SHENG:
14 Q. Okay. In the Bamba media streaming
15 system, the server transfers the video clips to the
16 client as fast as TCP/IP can move it; correct?
17 A. Yes.
18 Q. And the client begins to decode and
19 display the Bamba files as soon as the first few
20 bytes arrive; correct?
21 A. Correct.
22 Q. And in your opinion, this is
23 describing a progressive download system?
24 A. Yes.
25 Q. If a server transfers the video clip

1 to the client as fast as TCP/IP can move it and the
2 client begins to decode and display the Bamba files
3 as soon as the first few bytes arrive, this enables
4 the fast startup time for the video stream;
5 correct?
6 A. It may.
7 Q. Can you turn to paragraph 42. I'm
8 sorry, 142.
9 A. (Witness complies with request.)
10 Okay, I'm there.
11 Q. If you can read paragraph 142 to
12 yourself and let me know when you're done.
13 A. Okay. (Witness complies with
14 request)
15 Okay. I've read it.
16 Q. In 1998, a base requirement of the
17 Bamba streaming system is a function within the WWW
18 standard HTTP-based client server architecture;
19 correct?
20 A. And I can't confirm that. All I can
21 say is that that's what I said in 2022, and I
22 assumed that was correct then.
23 Q. Indeed, in 1998, the Bamba media
24 streaming system was designed to stream clips from
25 standard HTTP web servers; correct?

1 A. Again, I can't independently confirm
2 that, but that's what I said in 2022, and I assumed
3 that was correct then.
4 Q. And in 1998, the Bamba media
5 streaming system was designed to stream video clips
6 using communication mechanisms provided by the HTTP
7 protocol; correct?
8 A. I can't independently confirm that
9 today, but that's what I said in 2022, and I
10 assumed it was correct then.
11 Q. Just set that exhibit aside.
12 A. (Witness complies with request.)
13 Q. Have you heard of the term -- well,
14 Andrew, I expect this next line to go about a half
15 hour. So I defer to the doctor whether or not --
16 A. I'm fine.
17 Q. You're okay?
18 A. Yes.
19 Q. All right. Very good.
20 Doctor, have you heard of the term "media
21 scaling" in the context of video streaming?
22 A. Yes.
23 Q. What is media scaling in the context
24 of video streaming?
25 A. Media scaling typically referred to

1 changing the bit rate of a media stream as you were
2 streaming it.
3 Q. Have you heard of bit rate media
4 scaling?
5 A. That sounds more specific than my
6 recollection. So maybe. That's, you know...
7 Q. Fair to say that media scaling
8 involved changing the bit rate of a video stream
9 based on changes in bandwidth?
10 A. That was the purpose of it. My
11 recollection was it was a set of techniques that
12 you used to change the bit rate on the fly as you
13 were streaming media to deal with network
14 congestion.
15 Q. Have you heard of packet rate media
16 scaling?
17 A. Packet rate, sure.
18 Q. What is packet rate media scaling?
19 A. Well, none of these terms I think
20 are necessarily standard adopt terms, but packet
21 rate scaling, as I understand the term, which is
22 something that we worked on, was simply changing
23 how you partition a stream into network packets to
24 make smaller or bigger packets.
25 Q. When you say, "partition a stream

1 into smaller packets," is that similar to breaking
2 down a stream into smaller segments?
3 A. No.
4 Q. How is it different?
5 A. There's no -- you're not segmenting
6 the media. You're having a stream, a constant
7 stream of data, and you're just changing how much
8 of the data you put into a packet.
9 Q. So let's go back to Exhibit 2006.
10 A. Okay. That's the declaration --
11 Q. Yes.
12 A. -- in the POR?
13 Q. Yes.
14 A. Thank you.
15 Q. Let's go to paragraph 12?
16 A. Twelve, okay. I'm there.
17 Q. In paragraph 12, you state that your
18 work in video conferencing and adaptive streaming
19 research attracted the attention of industry
20 groups.
21 Do you see that?
22 A. Yes.
23 Q. And you agree that video
24 conferencing is a form of video streaming. Agree?
25 A. It's a particular form of video

1 streaming, yes.
2 Q. One of the industry groups that was
3 attracted by your work in video conference and
4 adaptive streaming research was Intel?
5 A. Yes.
6 Q. In paragraph 13, you discuss the
7 work controlled a video conferencing product called
8 ProShare.
9 Do you see that?
10 A. Yes.
11 Q. What was ProShare?
12 A. ProShare was a predecessor of things
13 like Zoom and Teams. It was a system that allowed
14 a form of what today I think we typically call
15 screening sharing. I don't actually remember what
16 we called it. That term didn't exist then.
17 So it was a collaboration tool. So it had
18 video conferencing, and it had a form of screen
19 sharing.
20 Q. ProShare was a commercially
21 available video conferencing system in the 1990s.
22 Agree?
23 A. Yes.
24 Q. And the ProShare system offered
25 video streaming; fair?

1 A. Within the context of video
2 conferencing, yes.
3 Q. In paragraph 13, you state that you
4 collaborated with researchers at the Intel
5 Architecture Labs to modify the ProShare system.
6 Do you see that?
7 A. Yes.
8 Q. Who was part of that research team,
9 do you remember?
10 A. The names of the people at Intel?
11 Q. Sure.
12 A. The only one that I remember is a
13 guy named Gunner -- I want to say it's like
14 Deniles, and don't ask me how to spell it. It's
15 kind of like Daniels, but it's not Daniels.
16 Q. Was anyone else from the University
17 of North Carolina on the team besides you?
18 A. Yes.
19 Q. Who?
20 A. The main student, as I recall, was a
21 fellow by the name of Peter Nee [phon.].
22 Q. So part of that research team that
23 worked to modify the Intel ProShare system included
24 a student from the University of North Carolina;
25 correct?

1 A. Yes.
2 Q. When you say "student," is that a
3 graduate student?
4 A. Correct.
5 Q. Do you remember what department he
6 was in?
7 A. He was using my department. He was
8 my graduate student. He was in the Department of
9 Computer Science.
10 Q. In paragraph 13, you state that you
11 used the technology developed in your research lab
12 at UNC for adaptive media transmission to modify
13 the ProShare system.
14 Do you see that?
15 A. You're paraphrasing, but I see what
16 you're reading from, and that's an accurate
17 statement.
18 Q. Can you describe for me how your
19 team was able to use the technology you developed
20 for adaptive media's transmission at UNC to modify
21 the ProShare system.
22 A. There had been another student who
23 had done a dissertation on particular types of
24 media adaptation, and we were essentially taking
25 the adaptive transmission techniques that that

1 student had worked on and put them into ProShare.
2 And the two techniques, I think, at the time were
3 called packet scaling, and I don't remember what to
4 call the second one. I think it might have been
5 something like bit rate scaling or bit scaling.
6 Q. In what ways did your research team
7 end up modifying Intel's ProShare system?
8 A. Well, ProShare was -- when we
9 started the project, ProShare was an ISDN product.
10 So it required a particular type of
11 telecommunication circuit to work. And through the
12 use of that circuit, it got dedicated bandwidth. I
13 mean, it was a point-to-point connection with
14 guaranteed bandwidth, as we would say today.
15 So they wanted to migrate -- they wanted to
16 see if ProShare would work over the unwashed
17 internet, and, of course, it didn't. So we worked
18 with them to put -- to adapt it, to have a TCP/IP
19 stack so it would work over the internet, and then
20 we developed with them an application layer
21 protocol that did the media adaptation.
22 Q. What do you mean by "media
23 adaptation"?
24 A. Well, there was a shim in there that
25 would try and estimate the available bandwidth

1 between -- so ProShare is a point-to-point, at
2 least when we started, it was a point-to-point
3 system.
4 So there was a shim that would attempt to
5 estimate the available bandwidth on the connection
6 to the remote peer and try and feed that
7 information back to the sender that would then
8 adapt the way they were transmitting media.
9 And so both of this happened in both
10 directions, because both end points were sender and
11 receiver because it was video conferencing. So it
12 was doing essentially sender-based adaptation based
13 on feedback from the recipient.
14 Q. What is shim?
15 A. Shim, it's just a piece of jargon
16 that says it was code that was inserted into the
17 network stack. It's code that you would not
18 normally find there.
19 Q. So you inserted code in the network
20 stack of the ProShare system to enable media
21 adaptation; is that fair?
22 A. Well, no. What I would say is that
23 there was a whole end-to-end solution for media
24 adaptation. Part of it was the shim. So this is a
25 point-to-point system. Each end point is adapting

1 the media that they transmit, and the adaptation
2 was based on information that was acquired by this
3 shim code and transmitted back to the sender.
4 Q. When you say "media adaptation," do
5 you mean adapting a bit rate for the media?
6 A. We did something that we called
7 adapting the bit rate, but it was not adapting the
8 bit rate as that term is understood today.
9 Q. You did something that you called
10 adaptive bit rate?
11 A. I think that's what we called it. I
12 don't remember the name that we used, but the point
13 is as bit rate adaptation is understood today, this
14 is not what we were doing.
15 Q. What's the difference?
16 A. The difference is bit rate
17 adaptation today means you change the codec. You
18 generate a stream of lower bits per second. Here,
19 again, this was a hardware codec, and it's -- for a
20 whole variety of reasons, it's very difficult. You
21 can't change it in real time.
22 So the adaptation that was done was
23 essentially to throw away data, to take part of the
24 bit stream generated by the codec and just not
25 transmit it. So the codec is generating a single

1 bit rate throughout, and we're just throwing data
2 away at one of the end points and not transmitting
3 them.
4 Q. What were the challenges, if any,
5 your team faced when attempting to modify Intel's
6 ProShare system to include the adaptive media
7 transmission technology you developed at UNC?
8 A. I mean, I don't recall much about
9 the development efforts. I mean, as I say, this
10 thing started nearly 30 years ago. The challenges
11 were, that I recall, was definitely working with
12 the codec because it was a hardware codec, and you
13 couldn't -- for all intents and purposes, you
14 couldn't change the rate at which the codec encoded
15 video. The video just came out as a set bit
16 stream. You couldn't change it.
17 And so you had to parse the bit stream to
18 try and understand what in the bit stream you could
19 get rid of and what you couldn't.
20 And then just the usual headaches of
21 building an application layer protocol and, you
22 know, all of the testing and trying to make this
23 thing work.
24 Q. Earlier you were describing the
25 differences between media, adapting media -- strike

1 that.

2 Earlier you were describing the differences

3 in adapting bit rates back then versus adapting bit

4 rates today. Can we agree that when you were

5 modifying the Intel ProShare system, the adapting

6 bit rate technique would result in the receiver

7 getting a lower bit rate than a congested

8 environment; fair?

9 ATTORNEY WILSON: Objection to

10 form.

11 THE WITNESS: It would certainly

12 receive less data, but I think the point

13 is that the bit rate at which the video

14 was being coded never changed.

15 BY ATTORNEY SHENG:

16 Q. But the receiver would receive media

17 at a lower bit rate in a congested environment;

18 fair?

19 A. I would say it would receive less

20 data.

21 Q. And receiving less data means it

22 would receive media at a lower bit rate. Agree?

23 A. No. I think that's misleading.

24 Q. How so?

25 A. Because as I say, the bit rate of

1 the video is at terms understood never changed.
2 Q. Were you successfully able to modify
3 the Intel ProShare system to implement adaptive
4 media streaming technology?
5 A. Yes.
6 Q. I think we're on Jaffay Exhibit 5.
7 (Exhibit 5 was marked for
8 identification.)
9 Q. I included highlighting in Jaffay
10 Exhibit 5. That's my own highlighting.
11 A. Okay.
12 Q. But can we agree that Jaffay
13 Exhibit 5 is an article you authored in 1997 titled
14 "The performance of two-dimensional media scaling
15 for internet video conferencing"?
16 A. That's what it appears to be.
17 Q. In this 1997 article, you discussed
18 your modification of the Intel ProShare system to
19 implement the adaptive media streaming technology
20 you developed at UNC; correct?
21 ATTORNEY WILSON: Objection.
22 Foundation.
23 THE WITNESS: This does have, as I
24 recall -- and I'm sure it describes what
25 the adaptations were. I think the point

1 of the paper was really demonstrating
2 that the -- that the adaptations were
3 successful.
4 BY ATTORNEY SHENG:
5 Q. Fair enough. Let's start on page 3.
6 There is a section in the left column titled
7 "System Description."
8 Do you see that?
9 A. Yes.
10 Q. In the first sentence under
11 Section 3, System Description, you disclose that
12 you were experimenting with the suitability of
13 adaptive scaling schemes.
14 Do you see that?
15 A. Yes, sorry. I was -- yes, I see
16 that.
17 Q. So the answer is yes, you were
18 experimenting with the suitability of adaptive
19 scaling schemes; correct?
20 A. Yes.
21 Q. And as part of your experiments, you
22 modified Intel's ProShare videoconferencing system,
23 support one- and two-dimensional media scaling;
24 correct?
25 A. Yes.

1 Q. On page 3 at the top of the column
2 on the right, you state that the ProShare system
3 had many attributes that were well suited for your
4 experiment; correct?
5 A. Yes.
6 Q. You state that the version of the
7 ProShare system that was commercially available in
8 1997 generated low bit rates, two-way audio and
9 video streams; correct?
10 A. I don't recall that, but that's what
11 the paper states.
12 Q. Does two-way audio and video streams
13 mean that the audio is streaming to the user
14 separately from the streaming from the video?
15 A. I'm sure that's described in the
16 paper here. I believe the -- I mean, the scaling
17 techniques that we worked on were originally
18 motivated by the desire to treat audio and video
19 separately. And I just don't recall if we ended
20 up -- if that was possible in ProShare or not.
21 Q. Separate from this article, do you
22 agree generally that two-way audio and video
23 streams means that the audio is streamed to the
24 user separately from the stream from the video?
25 A. No.

1 Q. What does two-way audio and video
2 streams mean?
3 A. It just means bidirectional, that
4 both end points are transmitting audio and video.
5 Q. Do you recall in the ProShare system
6 that there was two-way audio and video streams?
7 A. Yes, I mean, both participants in a
8 call had a ProShare system and both of them -- each
9 transmitted audio and video to the other. I mean,
10 it was video conferencing.
11 Q. And you recall the ProShare system
12 implemented audio -- strike that.
13 And you recall the ProShare system streamed
14 audio separately from video; is that correct?
15 A. That detail I don't recall off the
16 top of my head, but I assume if that was done, that
17 would have been described in this paper.
18 Q. You also state that the ProShare
19 system was designed to operate at three preset
20 fixed data rates.
21 Do you see that?
22 A. Yes.
23 Q. In 1997, the ProShare system was
24 designed to operate at one data rate for ISBN or
25 LAN operation, L-A-N operation, and two others for

1 LAN operation only. Agree?
2 A. I don't remember that detail, but
3 that's certainly what the paper says.
4 Q. In 1997, what was the data rate of
5 ISBN, do you recall?
6 A. As I recall, it was scalable,
7 depending on how many -- what were they called?
8 There was a BRI and a PRI or A channels and D
9 channels. I think it was scalable, the units of
10 like 64 kilobits per second.
11 Q. In 1997, what was the typical data
12 rate for LAN?
13 A. In 1997, probably typical loads for
14 an average LAN was probably 10 megabits.
15 Q. So the ProShare system was designed
16 to operate at three preset data rates, one for
17 ISDN, and the other two for LAN operations; is that
18 right?
19 A. Again, I don't remember that detail
20 sitting here today, but I don't have any reason to
21 dispute what the paper says.
22 Q. Assuming there were three preset
23 data rates, is it fair to say that one data rate is
24 a low data rate, another data rate was a medium
25 data rate and a third data rate was a high data

1 rate?
2 A. I really don't recall anything about
3 the data rates that ProShare generated.
4 Q. Well, I'm not asking -- let me ask
5 you not specific to the ProShare system. If you
6 got a system that operated at three preset data
7 rates, one for ISDN and the other two for LAN
8 operation, would you agree that one data rate is a
9 low data rate, another data rate is a medium data
10 rate, and a third data rate is a high data rate?
11 ATTORNEY WILSON: Objection to
12 form.
13 THE WITNESS: I don't think that
14 necessarily follows. I mean, ProShare
15 did whatever it did, and I don't recall
16 if it was low, medium, high or was a
17 change in the way it was doing coding at
18 a constant bit rate. I mean, I really
19 don't recall what these data rates were.
20 BY ATTORNEY SHENG:
21 Q. Separate and apart from the ProShare
22 system, what would you consider a low data rate?
23 A. That would be a function of what
24 point in time and history and what sort of network
25 you were trying to use.

1 Q. In 1997, what would you consider a
2 low data rate?
3 A. I don't recall for video what was
4 considered a low data rate in 1997.
5 Q. So at the time in 1997, you have no
6 opinion today what would be considered a low data
7 rate in 1997?
8 A. No, I would have to go off and
9 research that. And I just don't recall that detail
10 from 19 -- I don't recall the detail from nearly 30
11 years ago.
12 Q. Do you agree that it's hard to
13 remember details from 30 years ago?
14 A. It depends on what the details are.
15 Q. I'm asking you a detail about the
16 state of the art; right?
17 A. You're asking a question about a
18 subjective concept. What would people have
19 considered a low data rate or what would I have
20 considered a low data rate. It's one thing to say,
21 you know, what was ISDN or what was ProShare.
22 Those facts are easy to remember.
23 Subjective things like what was low,
24 medium, and high in 1997 is something that I would
25 have to go off and research because I don't have

1 any -- I don't have any firm recollection sitting
2 here today.
3 Q. What would a person of skill in the
4 art have considered a low bit rate in 1997?
5 A. Again, it depends on the network
6 they were trying to use and what their application
7 was. But generally, I don't recall the bit rates
8 that were coming out of low bit rate coders in
9 1997.
10 Q. What about in 2004? What would a
11 person of skill in the art consider a low bit rate
12 in 2004?
13 A. I can't give you a quantitative
14 figure.
15 Q. Is that because it's a subjective
16 concept?
17 A. Because it depends on the
18 application.
19 Q. Well, you testified earlier that
20 what is considered a low bit rate is a subjective
21 concept. What would people have considered a low
22 bit rate or what would I have considered a low bit
23 rate?
24 So my question to you is in 2004, you agree
25 that what is considered a low bit rate in 2004 is a

1 subjective concept?
2 A. It's subjective in the sense that
3 it's going to depend on the network. It's going to
4 depend on the application. It's going to depend on
5 what you're trying to do. It's not a
6 one-size-fits-all world. If you determine an
7 application in the environment, then I think you
8 can start to be able to assess an issue like that.
9 Q. What about in 2024? What would a
10 person of skill in the art consider in 2024 to be a
11 low bit rate?
12 A. Again, I think it depends on the
13 application.
14 Q. Do you agree that what is considered
15 a low bit rate between 1997, 2004, and 2024 changes
16 over time?
17 A. If you keep the application
18 constant, you know, the goal of what you're trying
19 to do, then sure, it would increase over time.
20 Q. What about a high bit rate? What
21 was considered a high bit rate in 1997? Same
22 answers?
23 A. Well, no. That one I can actually
24 answer, because for -- and I can answer just for
25 the application that we were working on. Because

1 there's typically a limit to high; right. For an
2 application like video conferencing, the issue is
3 there's a maximum that a codec can generate.
4 So the -- in the early nineties up to about
5 '97, the systems that we were working with, the
6 codec can generate a maximum of I think it was 2
7 megabits per second. And given the two megabits
8 LANs that were dominating at that time, 2 megabits
9 per second was considered a very high bit rate.
10 Q. You would agree with me, though,
11 that between 1997, 2004, and 2024, what a person
12 with skill in the art would consider a high bit
13 rate would change during those different time
14 periods; correct?
15 A. Keeping the application constant,
16 you know, the goal of what you're trying to do,
17 yes. It would -- what would be considered high is
18 a function of the networking technology.
19 Q. What do you mean when you say by
20 "keeping the application constant"?
21 A. Just that you're transmitting data
22 for some purpose. And that purpose has an impact
23 on how you assess issues of whether it's low bit
24 rate or high bit rate.
25 Q. So sitting here today, you would not

1 be able to describe for me what a person of skill
2 in the art with respect to the ABR patents would
3 consider a low bit rate, medium bit rate, or high
4 bit rate; correct?
5 A. For video streaming over the
6 internet today, so for that particular application,
7 we were trying to watch, for example, HD content.
8 I think you can ballpark what a person of skill
9 today would understand as low or high.
10 Q. What about in 2004? How would the
11 low bit rate and high bit rate change compared to
12 2004?
13 ATTORNEY WILSON: Objection.
14 Form.
15 THE WITNESS: Well, from what
16 would be considered high or low today, it
17 would obviously be less, but how much
18 less is not something that I've
19 researched.
20 BY ATTORNEY SHENG:
21 Q. You have no opinion; correct?
22 A. I haven't offered any opinions in my
23 declaration on that topic, as best I recall.
24 Q. Going back to the paragraph we were
25 looking at in Jaffay Exhibit 5 on page 3, top right

1 column, you state that your team took advantage of
2 an internal interface to the video codec to
3 implement on-the-fly adjustments to the video bit
4 rate and frame rate.
5 Do you see that?
6 A. I do.
7 Q. What does that mean, "on-the-fly
8 adjustments to the video bit rate and frame rate"?
9 A. I don't know. I don't recall. My
10 recollection, as I testified earlier, was that we
11 couldn't change the codec. So sitting here today,
12 I don't recall what is being referenced here as
13 on-the-fly adjustments.
14 Q. In paragraph 13 of your declaration
15 you stated that you collaborated with researchers
16 to modify the ProShare video conferencing system,
17 but you're not able to tell me today what you mean
18 in this article by "implementing on-the-fly
19 adjustments to the video bit rate and frame rate"?
20 ATTORNEY PAQUETTE: Objection.
21 Form.
22 THE WITNESS: Unless that's
23 described in this paper, I don't recall
24 specifically what is being referenced
25 here.

1 BY ATTORNEY SHENG:
2 Q. Does on-the-fly adjustments to the
3 video bit rate mean that you adjusted the --
4 adapted the bit rate of the media?
5 A. I don't -- as I say, I don't recall.
6 My recollection was that we couldn't change the
7 codec. So what I'm not recalling is this talking
8 about changing the rate that's coming into the
9 codec or changing the rate -- or changing the rate
10 of data after it's emitted by the codec. I just
11 don't recall the details of the implementation of
12 the system.
13 Q. So sitting here today, you can't
14 tell me the steps you took to take advantage of the
15 internal interface of the ProShare codec to
16 implement on-the-fly adjustments to the video bit
17 rate or stream rate?
18 A. Correct. I don't recall
19 specifically what was done here, unless, as I say,
20 unless it's described in the paper.
21 Q. Sitting here today, are you able to
22 tell me how long that process took you?
23 ATTORNEY WILSON: Objection.
24 Form.
25 THE WITNESS: I can tell you that

1 the -- this project lasted about two
2 years, to my recollection. But I'm not
3 going to be able to tell you with more
4 granularity how long did it take to do
5 one particular step versus another.
6 BY ATTORNEY SHENG:
7 Q. Do you recall how you came to know
8 that you could take advantage of the interface of
9 the ProShare codec?
10 A. Well, everything we learned about
11 the codec, we learned through our collaborators at
12 Intel. So I don't specifically remember how we
13 knew this, but my guess is that we learned this
14 through our contacts at Intel.
15 Q. Were these changes to the internal
16 interface of the ProShare codec software changes?
17 A. I don't think we ever said there was
18 any changes to the internal interface of the codec.
19 There were no -- as far as I know, there were no
20 changes to any internal interface to the codec.
21 Q. So sitting here today, what do you
22 remember -- what do you mean by you could take
23 advantage of the internal interface of the ProShare
24 codec?
25 A. You can take advantage of the

1 interface, which is not to say you're changing the
2 interface. My recollection is that we either
3 changed the video that we put into the -- my
4 recollection was the codec itself you couldn't
5 change. It was a hardware codec. It did what it
6 did.
7 With that said, you can change what you put
8 into the codec. And you can change -- you can
9 manipulate what came out of the codec. But the
10 codec was always -- my recollection today was the
11 codec was always generating the bit stream that the
12 codec generated.
13 Q. Just so I understand, you did not
14 need to make any hardware or software changes to
15 modify Intel's ProShare system to implement the
16 on-the-fly adjustments to video bit rate and frame
17 rate; right?
18 A. No, I mean, the system that we
19 started with made no adjustments. So all of our
20 modifications to the system were to implement
21 what's described here, and I just don't recall the
22 details of how what's described here was
23 implemented.
24 Q. I guess what I'm getting at, Doctor,
25 is did you have to make hardware changes or

1 software changes in the sense that you had to
2 rewrite code in order to change the ProShare
3 system?
4 A. Yes, we absolutely changed the
5 software. The hardware we couldn't change.
6 ProShare was basically a hardware product, and we
7 did not change the hardware, which is why, as I
8 say, my recollection is that you could not change
9 the codec.
10 Q. Okay. So to modify Intel's ProShare
11 system to implement on-the-fly adjustments to video
12 bit rate and frame rate, you did not need to make
13 changes to the hardware; correct?
14 A. That's a misleading statement. It's
15 not that we didn't need to. You could not. The
16 restraint of the prior project was you had to leave
17 the hardware alone. So the only thing we could do
18 was change the software. It wasn't that we didn't
19 need to.
20 If we could have changed the hardware, this
21 would have been a lot easier, but we couldn't
22 change it. So all we did was in software, but it
23 wasn't because we didn't need to change the
24 hardware. It was because we could not change the
25 hardware.

1 Q. Could you please turn to page 2 of
2 Jaffay Exhibit 5 and look at the second paragraph
3 under Section 2 titled "Background."
4 A. Sure (Witness complies with
5 request.)
6 Yes.
7 Q. Background is related work?
8 A. Yes, I see that.
9 Q. The paragraph I want you to focus on
10 begins with "video conferencing is an application,"
11 do you see that paragraph?
12 A. I do.
13 Q. I'm going to read that. Well, give
14 me one second. I'm going to read the second
15 sentence of that paragraph into the record.
16 "The goal of video conferencing is to
17 prevent elements of multimedia streams in a regular
18 periodic fashion with minimal latency to human
19 participants."
20 Do you see that?
21 A. I do.
22 Q. Do you agree with that sentence?
23 A. Let me read this paragraph.
24 Yeah. For the way in which video
25 conferencing was being practiced at that time, that

1 was true.
2 Q. Do you agree that video conferencing
3 involved the presentation of elements of multimedia
4 streams; correct?
5 A. Multimedia here just referred to
6 audio and video. And the goal of -- given the
7 constraints that we were operating under in the
8 mid-1990s, that was the case, that the goal was to
9 present elements of audio and video in regular
10 fashion, regular periodic fashion with minimal
11 latency.
12 Q. So in 1997 when you wrote this
13 article, you agree that video conferencing involves
14 the presentation of elements of multimedia streams;
15 correct?
16 A. Elements of audio and video streams.
17 There's -- multimedia there meant nothing than
18 audio and video, and elements really meant frames.
19 Frames of audio and video in a regular periodic
20 fashion with minimal latency.
21 Q. Please turn to the next paragraph
22 that begins with "Two primary methods."
23 Do you see that paragraph?
24 A. Okay.
25 Q. Can you please read from the first

1 half of that paragraph. Can you please read.
2 A. Yeah.
3 Q. Give me a second. Let me tell you
4 exactly what I want you to read here. Go ahead,
5 yeah, just read that paragraph, but I'm not going
6 to ask you anything about the non-highlighted
7 portions at the column to the right. But you're,
8 of course, free to read those if you'd like. I'm
9 going to ask you questions about the highlighted
10 portion.
11 A. Sure. That's fine. Let me just
12 read it.
13 So I get that you don't want to talk about
14 reservation schemes.
15 Q. I don't think so.
16 A. Okay. You can ask.
17 Q. When you wrote this article in 1997,
18 there were at least two primary methods of dealing
19 with congestion for real time multimedia
20 applications. Agree?
21 A. Yes. In 1997, this was our simple
22 view of how to carve up the world.
23 Q. One method was resource reservation,
24 and the other was adaptive media scaling; correct?
25 A. Correct.

1 Q. I'm going to read the third sentence
2 of that paragraph into the record.
3 "Adaptive schemes monitor end-to-end
4 performance and attempt to deal with congestion
5 through adjustments through the attributes of the
6 media stream."
7 Do you see that?
8 A. I do.
9 Q. So in 1997, it was known that
10 adaptive schemes could monitor end-to-end
11 performance and attempt to deal with congestion
12 through adjustments to the attributes of media
13 streams; correct?
14 A. Yes.
15 Q. And adjustments to the attributes of
16 media streams included adjustments to bit rate --
17 the bit rate; correct?
18 A. I think -- let me look at what these
19 references are here.
20 I guess the best answer to your question,
21 I'd want to go and consult the disclosures in one
22 of the references.
23 Q. Sitting here right now, you can't
24 tell me whether or not that adjustments to the
25 attributes and media streams in 1997 included

1 adjustments to bit rate?
2 ATTORNEY WILSON: Objection to
3 form.
4 THE WITNESS: Well, bit rate has a
5 particular understanding today that, as
6 I've already testified, bit rate
7 didn't -- had a different meaning in --
8 at the time a lot of this media scaling
9 work was being done. And so that's why I
10 say I'd want to consult one of the
11 references to see how that reference
12 described its media adaptation.
13 BY ATTORNEY SHENG:
14 Q. Okay. Let's go to the page 3 of
15 that document.
16 A. Okay.
17 Q. The first full paragraph of page 3
18 begins with "To date, most adaptation schemes."
19 Do you see that?
20 A. Yes.
21 Q. So read the first two sentences in
22 the record. It says, "To date, most adaptation
23 schemes have been one-dimensional. That is, in
24 times of congestion, they primarily adjust the bit
25 rate and media streams. Two-dimensional scaling is

1 a more sophisticated scheme that independently
2 adjusts the bit rates and the packet rates and
3 media streams."
4 Do you see that?
5 A. Yes.
6 Q. In the sentence that I just read,
7 does adjusting -- independently adjusting the bit
8 rate means that the bit rate of the media stream
9 was adjusted?
10 A. What it means is that you adjust
11 what you transmit. It did not mean that you
12 adjusted the bit rate of the codec.
13 Again, for what's being described here in
14 particular as it relates to video, the video was
15 always being coded the same way. You were changing
16 the rate at which you were transmitting -- that you
17 were changing the rate of data transmission. You
18 weren't changing the bit rate of the video. You
19 were changing the rate of video transmission by
20 throwing data away.
21 Q. What does adjusting the packet rate
22 of media streams mean?
23 A. Well, I think we've covered that.
24 And that refers to how you partition the stream of
25 data that you're going to transmit, how you

1 partition that stream into packets.
2 Q. In the third-to-last sentence of
3 that section that we're looking at, it says,
4 "Access constraints are alleviated only."
5 Do you see that?
6 A. Yes.
7 Q. "Access constraints are alleviated
8 only through a reduction in the packet rate of the
9 stream. In the latter case, this could be done by
10 changing the packaging of the stream by simple
11 techniques such as inter- or intrastream
12 aggregation of media units. In particular, one can
13 often change the packaging of the stream with no
14 reduction in throughput bit rates."
15 Did I read that correctly?
16 A. I think you did.
17 Q. In 1997, it was known that the
18 packet rate of a stream could be changed by
19 changing the packaging of a stream by a simple
20 technique.
21 Agree?
22 A. It was known -- you asked that
23 awfully fast. Just ask it again.
24 Q. In 1997, it was known that the
25 packet rate of a stream can be changed by changing

1 the packaging of a stream by simple techniques.
2 Agree?
3 A. Yes.
4 Q. And the simple techniques included
5 inter- or intrastream aggregation of media units.
6 Agree?
7 A. Yes.
8 Q. What is inter- or intrastream
9 aggregation of media units?
10 A. So the interstream is what I was
11 referring to earlier, which is just saying that you
12 decided on the data that you -- so there's a
13 pipeline here. Media comes out of the codec. You
14 do your data decimation. You decide what you're
15 going to throw away, and then the stream, the
16 transmit stream then has to be put into packets,
17 and you can decide how much of the transmission
18 stream goes in each packet. That's interstream
19 aggregation.
20 Intrastream -- so at this time, codecs were
21 not integrated. So audio -- the audio pipeline was
22 completely separate from the video pipeline. They
23 came from completely different devices.
24 And so what you could do was you could --
25 so the traditional way was you sent a sequence of

1 video packets, and separately you sent a sequence
2 of audio packets, and then you had to synchronize
3 them at the receiver.
4 What this is saying, which sounds kind of
5 silly, because this is what's done all the time
6 today, but it was a pseudo-novel idea then, was
7 that you could also combine audio and video data in
8 the same packet and transmit audio and video data
9 together.
10 Q. Okay. Still on page 3. If you
11 could look at the last full paragraph in the left
12 column, above the section titled "System
13 Description."
14 A. Sure.
15 Q. The paragraph begins with -- well,
16 I'll just read it. It begins with, "Some adaptive
17 schemes such as temporal video scaling, i.e.,
18 changing the video frame rate, adjust both packet
19 and rate and bit rate."
20 Do you see that?
21 A. I do.
22 Q. In 1997, adaptive schemes were
23 known, including temporal video scaling; correct?
24 A. Yes, we published a paper on this
25 particular type of video scaling that didn't scale

1 the bit rate of the video, but just threw data away
2 by essentially not transmitting video frames.
3 Q. Temporal video scaling is another
4 way of saying you can change the video frame rate.
5 Fair?
6 A. Changing the frame rate of what you
7 transmit, not what you generate.
8 Q. Changing the frame rate adjusts both
9 packet rate and bit rate; correct?
10 A. In the manner in which it was done
11 here, yes. It changes the rate at which packets
12 come, are received -- the way in which packets are
13 transmitted and the rate at which bits are
14 transmitted.
15 Q. Let's say the streaming system is
16 transmitting the video that's 30 frames per second.
17 Would changing the frame rate in the context of
18 your article result in half the frames being sent,
19 so I guess 15 frames per second, is that what
20 you're talking about?
21 A. You can do that, but note, again,
22 that the video still is being coded at the full 30
23 frames per second. So by discarding these frames,
24 you're going to get a pretty diminished play-out
25 experience.

1 Q. What do you mean by "diminished
2 play-out experience"?
3 A. That if you're going to -- the way
4 this would be done today is that if you're going to
5 code at a lower frame rate than the full frame
6 rate, you would -- sorry, if you want to generate a
7 lower frame rate, you would code for that so that
8 you could try and ameliorate the effects of reduced
9 motion in the frame rate.
10 We didn't do any of that here. All we
11 literally did was threw data away coming out of the
12 codec. So this resulted in sharp transitions
13 between frames.
14 Q. I see. So reducing the frame rate
15 of the video from 30 frames per second to 15 frames
16 per second would result in the video -- what the
17 user sees would result in the user -- let me strike
18 that.
19 Reducing the frame rate of the video from
20 30 frames per second to 15 frames per second would
21 result in the user seeing the video with reduced
22 motion; correct?
23 A. For the way in which it was -- for
24 the specific way in which it's being done here,
25 that is correct. We now have the capability today

1 to deal with those effects, so that you can get
2 lower frame rates with still reasonable motion. So
3 this is really an artifact of 1997 video.
4 Q. But using technology today, if you
5 reduce the frame rate of the video from 30 frames
6 per second to 15 frames per second, the user would
7 still see the resulting video as having reduced
8 motion; correct?
9 ATTORNEY WILSON: Objection to
10 form.
11 THE WITNESS: There will be --
12 depending on -- so all this depends on
13 what the contents of the scene are. But
14 as a general matter, they would will
15 perceive -- probably perceive less motion
16 than in -- at the full frame rate.
17 However, the experience they're going to
18 have today is going to be way better than
19 the experience they had in 1997.
20 BY ATTORNEY SHENG:
21 Q. The experience today would still be
22 reduced motion; correct?
23 A. It would be reduced motion, but it
24 will undoubtedly be far more tolerable.
25 Q. Assume I have a video at 30 frames

1 per second, and I reduce the frame rate to one
2 frame per second. How would that change what the
3 user sees?
4 ATTORNEY WILSON: Objection.
5 Incomplete hypothetical.
6 THE WITNESS: Yeah, I don't
7 understand your hypothetical.
8 BY ATTORNEY SHENG:
9 Q. So if I encode a video to be one
10 frame per second instead of 30 frames per second,
11 what will be the difference between a 30-frame per
12 second video versus a one-frame per second video?
13 ATTORNEY WILSON: Objection.
14 Form.
15 THE WITNESS: In terms of the user
16 experience?
17 BY ATTORNEY SHENG:
18 Q. Sure.
19 A. Okay. Well, it's going to depend on
20 the content. If you're showing, you know -- if the
21 video is of a PowerPoint slide, you know, it may
22 not make much of a difference. If the video is of
23 a car race, it's not going to be a good experience.
24 Q. Okay. So let's use the car race
25 experience. So let's say a user is watching a car

1 race at 30 frames per second and then suddenly for
2 whatever reason the frame rate drops to one frame
3 per second. Describe the user experience at that
4 point.
5 A. I don't think I can describe it in
6 any quantitative sense. I mean, it's going to be a
7 bad experience.
8 Q. So a 30 frame-per second video, each
9 frame would be displayed for one-thirtieth of a
10 second. Is that fair?
11 A. 33 milliseconds.
12 Q. The answer is yes?
13 A. Yes.
14 Q. And a video at one frame per second
15 would essentially be one frame per second; correct?
16 A. One frame would be displayed for
17 one -- each frame would be displayed for one
18 second. That would probably be the most obvious
19 way to implement that.
20 Q. Have you ever heard of anyone refer
21 to a video encoded at an extremely low frame per
22 second as a video with no motion?
23 A. I don't -- I don't know.
24 Q. You've never heard that?
25 A. I mean, it's such a general phrase.

1 I've heard of -- you know, I'm familiar with people
2 describing and trying to quantify motion when
3 they're trying to assess the effect of a motion
4 compensator in a codec. People will speak of video
5 as having a lot of motion or limited motion and
6 things like that.
7 Q. Can we agree that it would be fair
8 to refer to a video encoded at extremely low frames
9 per second as a video with no motion?
10 ATTORNEY WILSON: Objection to
11 form.
12 Q. Fair statement?
13 A. Well, hang on. It's going to depend
14 on what's the content, and it's going to depend on
15 the codec. But I'm sure you can find content and a
16 codec for which you could say that there was no
17 motion at a very low frame rate.
18 Q. Going back to my example where a
19 user is watching a -- I think we were saying car
20 race. Was that what we were talking about?
21 A. Yeah.
22 Q. Okay. Going back to my example of
23 the car race, a user watching a car race at 30
24 frames per second and the frame rate drops to one
25 frame per second, would you agree that the user is

1 still watching the same car race?
2 ATTORNEY WILSON: Objection.
3 Form.
4 THE WITNESS: Well, they're
5 certainly watching the same race. They
6 are essentially seeing like a slide show
7 of the race.
8 ATTORNEY WILSON: I think we've
9 been going for quite a while.
10 ATTORNEY SHENG: I've got about
11 five more questions. Can we get -- is
12 that okay, Doctor?
13 THE WITNESS: Sure.
14 BY ATTORNEY SHENG:
15 Q. Go to page 4 of Exhibit, I believe,
16 5 or whatever the document that we've been looking
17 at.
18 A. Okay.
19 Q. The last paragraph in the column to
20 the left beginning with "All adaptive schemes."
21 Sorry, page 4.
22 A. I'm with you.
23 Q. All adaptive schemes. I'll read it
24 into the record. "All adaptive schemes use
25 feedback from the receiver to detect congestion and

1 adjust the stream appropriately. The adaptation
2 process in one-dimensional schemes is
3 straightforward, as there is only one variable that
4 is manipulated; i.e., bit rate."
5 Do you see that?
6 A. I do.
7 Q. And the receiver mentioned here is
8 the client, can we agree?
9 A. Well, so this is not a client server
10 system. As I say, it's a peer-to-peer system, two
11 end points. And so each end point has a sender and
12 a receiver. So each end point here has a receiver
13 that's detecting congestion and feeding that
14 information back to the sender.
15 Q. Understood. In 1997, it was known
16 that adaptive schemes use feedback from the
17 receiver to detect congestion and adjust the
18 streams appropriately; correct?
19 A. To understand the statement fully,
20 what I would say is in 1997, it was known that all
21 adaptive schemes use feedback at the receiver to
22 detect congestion that is sent to the sender for
23 the sender to adjust the streams appropriately.
24 That was true of just about all adaptive schemes
25 that I was aware of at that time.

1 Q. In 1997, one-dimensional adaptation
2 processes such as manipulating bit rate was
3 straightforward. Agree?
4 A. It's straightforward in the context
5 that follows, which again describes simply throwing
6 away video frames.
7 Q. Last few questions here. Can you
8 turn to page 12 of that exhibit.
9 A. Sure. (Witness complies with
10 request.)
11 Q. And in page 12 there's a section
12 titled "Summary and Conclusions."
13 Do you see that?
14 A. Now I'm with you.
15 Q. The second sentence of that section
16 states, "These experiments showed that an adaptive
17 system using inexpensive components can, with a
18 significant rate of success, provide usable video
19 conferences between widely separated points on the
20 internet."
21 Do you see that?
22 A. I do.
23 Q. In 1997, you modified the ProShare
24 disclosure system to provide bit rate and packet
25 rate media scaling using inexpensive components;

1 correct?

2 A. I'm kind of smiling when I see

3 "inexpensive," because I thought ProShare was

4 actually kind of expensive. That's what they said.

5 I think maybe what this means is that, you

6 know, you don't have to buy any new hardware, that

7 there are ways you can deal with a hardware codec

8 without changing the codec. Yeah.

9 Just means -- I read this to mean that

10 saying just adding software you can -- you can add

11 software to the system.

12 Q. In 1997, you showed that an adaptive

13 system using these inexpensive components can

14 provide usable video conferences between widely

15 separated points on the internet; correct?

16 A. Yes. For the ProShare system with

17 the adaptation at the sender, that's what we

18 showed.

19 Q. And in 1997, you showed that an

20 adaptive system using inexpensive components can

21 provide usable video conferences between widely

22 separated points on the internet with a significant

23 rate of success; right?

24 A. Yes. I'll just put an asterisk here

25 that it's important to understand that the measures

1 of success in 1997 by today's standards were
2 incredibly low.
3 Q. With that in mind, in 1997, the
4 expected rate of success was significant; correct?
5 A. Yes, for our definition of success
6 and the way the ProShare system worked, we declared
7 success.
8 Q. Very good. Good time for a break.
9 THE VIDEOGRAPHER: Going off the
10 record. It's 11:56 a.m. Off the record.
11 (Discussion held off the
12 record.)
13 (Recess taken from
14 11:56 a.m. to 12:19 p.m.)
15 THE VIDEOGRAPHER: Time is
16 12:19 p.m. We are now on the record.
17 BY ATTORNEY SHENG:
18 Q. Doctor, did you discuss your
19 deposition with anybody at the break?
20 A. I did not.
21 ATTORNEY SHENG: Can you mark this
22 as Jaffay Exhibit 6.
23 (Exhibit 6 was marked for
24 identification.)
25 Q. Jaffay Exhibit 6 is a declaration

1 that I pulled online that appears to be something
2 you submitted in an IPR brought by Facebook against
3 a patent owner called Boxer, B-o-x-e-r.
4 ATTORNEY WILSON: Standing
5 objection to this document as to the
6 scope.
7 THE WITNESS: I think what you
8 said seems correct.
9 BY ATTORNEY SHENG:
10 Q. You were retained by Facebook as an
11 expert. Do you recall that?
12 A. I do.
13 Q. Facebook was a petitioner in this
14 IPR; correct?
15 A. They were.
16 Q. Facebook retained you as an expert
17 to argue for invalidity of the '557 patent;
18 correct?
19 A. Yes.
20 Q. The '557 patent, do you recall, was
21 it related to video streaming?
22 A. I think that was actually a bone of
23 contention in the case. It was certainly being
24 read on a video streaming system. That I
25 distinctly remember.

1 Q. Please turn to paragraph 40 of
2 Jaffay Exhibit 6.
3 A. Okay. (Witness complies with
4 request.)
5 Got it.
6 Q. Paragraph 40, you see that you say
7 the earliest priority date for the '557 patent was
8 June 2007.
9 Do you see that?
10 A. Yes, I see that.
11 Q. Can you turn to Paragraph 50.
12 A. (Witness complies with request.)
13 Q. Okay. Read paragraph 50 to
14 yourself. Let me know when you're done.
15 A. (Witness complies with request.)
16 Okay.
17 Q. The processes and principles of
18 transmitting audio and video data in real time over
19 best effort networks were well established long
20 before the '557 patent. Agree?
21 A. For things like video conferencing,
22 yes.
23 Q. What about not limited to video
24 conferencing?
25 ATTORNEY WILSON: Objection.

1 Form.
2 THE WITNESS: As -- as of 2007 --
3 I understand there were lots of
4 approaches that were -- yeah, I think by
5 2007, I think there was known there was a
6 variety of approaches that you could use
7 to transmit audio and video in real time
8 over best effort networks.
9 Real time, though, is really what
10 the key was. And real time to me was for
11 things like voice-over-IP or video
12 conferencing.
13 BY ATTORNEY SHENG:
14 Q. So I think we have an error in the
15 transcription. Let me read you the question again
16 so we can fix that.
17 A. Sure.
18 Q. Well, let me start earlier than
19 that. The processes and principles of transmitting
20 audio and video data in real time over best effort
21 networks were well established long before the '557
22 patent. Agree?
23 A. Yes.
24 Q. Indeed, just as one example, your
25 research group at UNC is publishing on the topic of

1 transmitting audio and video data in real time over
2 best effort networks nearly 15 years before the
3 priority date for the '557 patent; right?
4 A. That's correct.
5 Q. And your research group at UNC was
6 demonstrating systems for adapting real time
7 transmission of audio and video data nearly 15
8 years before the priority date of the '557 patent;
9 right?
10 A. We have demonstrated the system more
11 than 15 years before 2007, that's correct.
12 Q. Fifteen years before the priority
13 date of the '557 patent was around 1992; correct?
14 A. Correct.
15 Q. By 1992, you had constructed a video
16 messaging system that detected whether or not data
17 was being received in real time by estimating the
18 bandwidth available along the delivery path to
19 recipient; right?
20 A. Correct.
21 Q. And in this video messaging system,
22 when the current data rate being transmitted was
23 not sustainable, the system determined an amount by
24 which to reduce the video bit rate and adaptively
25 modify the current video generation and codec

1 parameters to reduce the video bit rate; right?
2 A. Correct.
3 Q. You conclude paragraph 50 by stating
4 that your research group was only one of several to
5 work on these problems.
6 Do you see that?
7 A. I do.
8 Q. In 1992, other research groups were
9 investigating systems for adaptive real time
10 transmission of audio and video data; correct?
11 A. I think that is correct.
12 Q. You can put that exhibit away.
13 Do you remember earlier you discussed how
14 you were impressed by Dish's ABR patents when we
15 reviewed the '444 patent in the 2016-2017
16 timeframe?
17 A. Yes.
18 Q. Do you recall that discussion
19 generally?
20 A. Yes.
21 Q. One of the reasons you were so
22 impressed by Dish's ABR patents is that they
23 disclosed encoding a video stream at various bit
24 rates and selecting an appropriate stream for
25 delivery to the end user based on current bandwidth

1 availability on the network; right?
2 A. Yeah. I mean, the initial reason to
3 be impressed was, as I say, its similarity to DASH,
4 and that's certainly a big part of it.
5 Q. Okay. Let's stay on this exhibit
6 for a minute. Can you turn to paragraph 42.
7 A. Okay. (Witness complies with
8 request.)
9 Okay.
10 Q. About midway through paragraph 42,
11 you have a sentence that begins, "Video is a
12 sequence of video images."
13 Do you see that?
14 A. Yes.
15 Q. Video is a sequence of video images.
16 Agree?
17 A. Yes.
18 Q. Video is a sequence of video images
19 where each image is acquired and displayed for a
20 certain duration, and then the next image in the
21 sequence is acquired and displayed. Agree?
22 A. Yes.
23 Q. The time between one video image is
24 acquired and displayed, and when the next video
25 image is acquired and displayed is typically fixed;

1 right?
2 A. Yes.
3 Q. You would agree that video has a
4 temporal dimension that could be measured by the
5 number of video images displayed per unit time;
6 correct?
7 A. Yes, that's the way typically people
8 understand the temporal aspect of video.
9 Q. That is commonly referred to as the
10 video's frame rate?
11 A. That is correct.
12 Q. In paragraph 41, you don't mention
13 anything about audio, do you?
14 A. 41?
15 Q. I'm sorry. 42.
16 A. Oh.
17 Q. Let me just reask the question.
18 In paragraph 42, you don't mention anything
19 about audio; correct?
20 A. That is correct.
21 Q. In paragraph 42 of the declaration
22 you submitted in the Facebook IPR, you don't
23 mention anything about video requiring an audio
24 component. Agree?
25 A. In paragraph 42? That is correct.

1 Q. Can you turn to paragraph 47.
2 A. (Witness complies with request.)
3 Okay.
4 Q. The first sentence of
5 paragraph 47 -- hold on one second, sorry.
6 Sorry. Let's go now to Exhibit 2006, which
7 is the -- your expert declaration in support of
8 Dish's POR of the '138 patent. I want to go to
9 paragraph 47 of Exhibit 206.
10 A. Okay.
11 Q. In the first sentence of
12 paragraph 47, you state, "In addition, while HTTP
13 is today the dominant transport means for streaming
14 media, I was impressed by the use of HTTP in the
15 ABR patents."
16 Do you see that?
17 A. I do.
18 Q. In the 2016 to 2017 time frame, you
19 were impressed by the use of HTTP in the ABR
20 patents; correct?
21 A. Yes.
22 Q. In the next sentence you state, "As
23 discussed above, I have worked on a variety of
24 streaming media projects during the 1990s and
25 recall that during this time, I was skeptical an

1 effective streaming system could be developed using
2 HTTP."
3 Do you see that?
4 A. I do.
5 Q. And you list several reasons why you
6 were skeptical, including its overhead and its
7 reliance on TCP.
8 Do you see that?
9 A. I do.
10 Q. Are you aware of any other streaming
11 systems that predate Dish's ABR patents that use
12 HTTP as a delivery mechanism?
13 A. Sure. I think there were several
14 that used HTTP, but as I recall, none of them --
15 none of them worked as well as streaming systems
16 today that use HTTP do.
17 Q. Let's go back to Jaffay Exhibit 6,
18 which is your declaration in the Facebook IPR.
19 Let's go to paragraph 60.
20 A. Sorry. I was reading something
21 else. Sixty.
22 Q. Six-zero, yes.
23 A. Okay.
24 Q. I'll read the first sentence into
25 the record. "Even HTTP has been used as a real

1 time streaming" --
2 A. I'm sorry. I'm on paragraph 61,
3 sorry.
4 Q. 60.
5 A. My fault. Okay.
6 Q. This is the Facebook --
7 A. Yes, paragraph or page?
8 Q. Paragraph 60.
9 A. Okay. Got it, thank you.
10 Q. The first sentence of paragraph 60
11 states -- first sentence of Paragraph 60 states,
12 "Even HTTP has been used as a real time streaming
13 protocol."
14 Do you see that?
15 A. I do.
16 Q. And in the next sentence you
17 identify the Carmel patent, which was filed in
18 March 1999, as an example of HTTP being used as a
19 real time streaming protocol; correct?
20 A. Yes.
21 Q. Looking at paragraph 60 still, you
22 agree that Carmel disclosed that the clients
23 download the data stream from the server,
24 preferably using an internet protocol, as well most
25 preferably the hypertech transfer protocol, HTTP.

1 A. I believe that is what Carmel says.
2 Q. Can you turn to paragraph 20.
3 A. (Witness complies with request.)
4 Q. In paragraph 20, you list number of
5 documents --
6 A. Hold on, hold on.
7 Q. Sure.
8 A. I was going to say where does it
9 start. Got it.
10 Q. In paragraph 20, you list a number
11 of documents you reviewed in connection with the
12 analysis you performed in the Facebook IPR; right?
13 A. That appears to be the case.
14 Q. Can you look at item number --
15 letter S as in Sam.
16 A. Yes, I see that.
17 Q. The Carmel reference is U.S. Patent
18 Number 6,389,473; correct?
19 A. Yes.
20 Q. You testified about this same Carmel
21 reference in the ITC investigation. Do you recall?
22 A. I do.
23 Q. Your testimony concerning the Carmel
24 reference in the ITC investigation was truthful and
25 accurate as far as you know; correct?

1 A. Yes.
2 Q. So if I asked you the same question
3 that you were asked at the ITC hearing, your answer
4 would not materially change. Is that fair?
5 A. They shouldn't. I mean, to the
6 extent that the context is the same, they shouldn't
7 change.
8 Q. Let's go to the next paragraph, 61.
9 A. Sixty-one?
10 Q. Yes.
11 A. Okay.
12 Q. Let me know when you're there.
13 A. Okay.
14 Q. Do you agree that by 2007 HTTP was
15 in widespread use as a real time streaming
16 protocol; agree?
17 A. Yes.
18 Q. And I'm looking at the
19 second-to-last sentence now of paragraph 61. You
20 agree that HTTP was particularly well suited for
21 video streaming since by the early 2000s, network
22 security was a widespread concern and firewalls
23 were widely deployed to limit the types of network
24 traffic entering a network; correct?
25 A. Yes.

1 Q. By the early 2000s here, would you
2 agree you that mean between 2000 and 2004?
3 A. I don't recall what time frame I'm
4 describing here. I would probably say it's
5 probably, you know, the aughts, as people say.
6 Q. What does that mean?
7 A. 2000 to 2010.
8 Q. Early 2000s would include 2010?
9 A. Well, it's up to 2010. I mean, I
10 don't think this is a super definite, precise
11 statement. If I said early 2000s, that's probably
12 what I meant.
13 Q. It was known by the early 2000s that
14 HTTP was particularly well suited for video
15 streaming; correct?
16 A. For this aspect of HTTP, yes.
17 Q. That was because network security
18 was a widespread concern and firewalls were widely
19 deployed to limit the types of network traffic
20 entering a network; correct?
21 A. Yes.
22 Q. Given the dominance of the web, HTTP
23 traffic was almost universally allowed to transmit
24 firewalls, hence streaming video over HTTP greatly
25 simplified the problems of video distribution;

1 correct?
2 A. Correct.
3 Q. That was known in the early 2000s;
4 correct?
5 A. Correct.
6 Q. Can you turn to paragraph 102.
7 A. (Witness complies with request.)
8 Okay.
9 Q. Do you see paragraph 102 is under a
10 section titled "Overview of the prior art
11 references"?
12 A. I see that.
13 Q. In paragraph 102, you identified the
14 Brueck patent; correct?
15 A. Correct.
16 Q. The Brueck patent at issue is the
17 '444 patent; right?
18 A. I think that's the patent that's in
19 here.
20 Q. The '444 patent was one of the
21 references you were using as prior art against the
22 '557 patent in the Facebook IPR; right?
23 ATTORNEY WILSON: Objection.
24 Foundation.
25 THE WITNESS: Yes, the '444

1 patent.
2 BY ATTORNEY SHENG:
3 Q. You would agree with me that Dish's
4 '444 patent is in the same field of art as the '557
5 patent you were trying to invalidate; right?
6 A. I don't actually remember the '557
7 patent with much detail. I assume it was, but I
8 don't really recall.
9 Q. You can set aside Jaffay Exhibit 6.
10 Let's go back to Exhibit 2006, which is
11 your declaration in support of Dish's IPR for the
12 '138 patent.
13 A. Okay.
14 Q. Look at paragraph 53. You can read
15 paragraph 53 to yourself and let me know when
16 you're done.
17 A. (Witness complies with request.)
18 Okay, I've read it.
19 Q. You're making an argument here in
20 paragraph 53 that Ogden does not disclose video
21 streaming because Ogden's video was a media treated
22 and managed separately from any corresponding
23 audio. Agree?
24 A. No. I think what I'm saying here is
25 that Ogden doesn't disclose video streaming. And

1 then -- that's the take-on message from
2 paragraph 53. And part of what's used to support
3 that are several things, and one of them is that
4 audio and video were managed separately in a
5 particular way in Ogden.
6 Q. I thought that's what I asked you.
7 So I'm going to go ahead and ask you it again.
8 In paragraph 53, you're making an argument
9 that Ogden does not disclose video streaming
10 because Ogden -- because Ogden does not disclose
11 video streaming -- let me strike that.
12 In paragraph 53, you're making an argument
13 that Ogden does not disclose video streaming
14 because Ogden's "Video was immediately treated and
15 managed separately from any corresponding audio."
16 Correct?
17 A. That's part of the argument.
18 Q. Okay. That's at least part of the
19 argument?
20 A. Yes.
21 Q. Can we agree?
22 Another part of your argument or perhaps
23 it's the same argument is video in "Ogden was pure
24 video and did not include audio." Correct?
25 A. Well, that's just -- that's a true

1 statement, and that's in support of the previous
2 statement about how video was treated separately
3 from audio.
4 Q. Okay. So you seem to be fighting me
5 on paragraph 53, and I'm just trying to understand
6 what your argument is. So why don't you tell me,
7 Doctor, what is your argument in paragraph 53.
8 A. I think it's pretty straightforward
9 is that Ogden doesn't teach or suggest video
10 streaming, as claimed in Claim 1 in the claims of
11 the '138 patent and that it teaches away from it.
12 Q. Okay. And your argument is that
13 Ogden does not disclose video streaming because
14 Ogden's video was immediately treated and managed
15 separately from any corresponding audio; correct?
16 A. That's part of it. The starting
17 point is that Ogden is teaching away from it
18 because Ogden is saying that video is going to
19 require specialized video conferencing equipment
20 that comes at substantial expense. So Ogden
21 doesn't want to be streaming video because of the
22 expense factor. So that's the first part.
23 And then the second part is that Ogden is
24 really focused on the delivery of audio, and audio
25 is separate from video.

1 Q. You distinguish Ogden from the ABR
2 patents because video in the context of the ABR
3 patents is understood to be a single integrated
4 stream of moving images in the corresponding audio.
5 Is that correct?
6 A. Correct.
7 Q. Is it your opinion that video as
8 used in the ABR patents requires an integrated
9 stream of moving images and corresponding audio?
10 A. I don't know if it requires it, but
11 I think that's the common understand -- that's what
12 Ogden -- it's Ogden. That's what the ABR patents
13 are teaching in terms of all their disclosures of
14 the video. Whether or not the claims require it
15 is -- I don't think I've opined on that topic.
16 Q. You have no opinion, sitting here
17 today, whether or not the claims of the ABR patent
18 require an integrated stream of video and audio;
19 correct?
20 A. Well, we'd have to look at some
21 specific claims, and the claims are different
22 across the patents. But as I recall, I don't think
23 the claims recite a specific requirement for that.
24 Q. You have no opinion?
25 A. No, I said if you want opinion about

1 a claim, let's pick a claim and we can talk about
2 that.
3 Q. You state in paragraph 56 -- let's
4 turn to paragraph 56.
5 A. Okay, I'm there.
6 Q. You state that in the first
7 sentence, "By contrast, The '138 patent and the ABR
8 patent is directed to a more contemporaneous
9 conception of video and is directed to video
10 streaming; i.e., distributing a continuous live
11 video feed for a large pre-recorded video
12 conference for consumption over a network where
13 video in this context is understood to be a single
14 integrated stream of moving images in the
15 corresponding audio."
16 Do you see that?
17 A. I do.
18 Q. So if I understand you correctly a
19 minute ago, you have no opinion, though, whether or
20 not the ABR patents require video to be a single
21 integrated stream of moving images and the
22 corresponding audio; correct?
23 A. You're asking about the claims, and
24 I said, you know, I can't characterize all of the
25 claims at once. So if you want to talk about a

1 specific claim and what it requires, I'm happy to
2 do that.
3 Q. Can you agree that if the claim did
4 not reinvite that video requires a single
5 integrated stream of moving images in the
6 corresponding audio, that that's not required?
7 A. I think we'd have to look at the
8 individual claims. I mean, what this statement
9 here in paragraph 56 is talking about is what the
10 patents themselves are directed to.
11 ATTORNEY SHENG: Can you mark this
12 as Jaffay Exhibit 7. Actually, yeah,
13 let's go ahead and mark it.
14 (Exhibit 7 was marked for
15 identification.)
16 Q. Jaffay Exhibit 7 has been previously
17 marked as Exhibit 1001, but just because all the
18 patents, we have multiple patents that are
19 designated 1001, I've marked it as Jaffay
20 Exhibit 7. Jaffay Exhibit 7 is the '138 patent.
21 Agree?
22 A. No, I don't think that's right.
23 Q. Okay. Apologies. Let's mark this
24 as Jaffay Exhibit 8.
25 (Exhibit 8 was marked for

1 identification.)
2 Q. Jaffay Exhibit 8 is the '138 patent.
3 Agree?
4 A. Yes.
5 Q. If we turn to Column 3, lines 55 to
6 60.
7 A. (Witness complies with request.)
8 Q. Can you read Column 8, lines 55 to
9 60, and let me know when you're done.
10 A. (Witness complies with request.)
11 Okay, I read it.
12 Q. Do you agree that in the context of
13 the ABR patents, the content file can be an encoded
14 streamlet?
15 A. I agree that each streamlet could be
16 encoded as a separate file.
17 Q. As a separate content file?
18 A. As a separate content file.
19 Q. Could you turn to Column 7, lines 17
20 to 19. I'm looking at the sentence saying "The
21 content file 200 may comprise."
22 A. I see that.
23 Q. I'll read it into the record. "The
24 content file 200 may comprise uncompressed video
25 and audio or alternatively, video or audio."

1 Do you see that?
2 A. I do.
3 Q. Do you agree that the ABR patents
4 distinguish between video and audio?
5 A. They certainly distinguish them as
6 between different media types, yes.
7 Q. The ABR patents disclose that a
8 content file may comprise both video and audio or
9 alternatively just video or just audio; correct?
10 A. For the embodiment that they're
11 discussing here, that's the case.
12 Q. I'm handing you what's been
13 previously marked as Exhibit 1004. Exhibit 1004 is
14 the Ogden reference. Agree?
15 A. That's what it appears to be.
16 Q. Can you turn to Column 2, lines 1 to
17 6.
18 A. (Witness complies with request.)
19 Okay.
20 Q. Column 2, lines 1 to 6, state, "For
21 example, the present invention may communicate the
22 video portion of a presentation to a user site via
23 the internet. More generally, via any TCP/IP
24 network while the corresponding audio portion may
25 be communicated to the user site via a conventional

1 telephony network and a conventional telephone at
2 the user site."
3 Do you see that disclosure in Ogden?
4 A. I do.
5 Q. Is this what you rely on for your
6 opinion that Ogden discloses treating the video
7 separately from corresponding audio?
8 A. I'm relying on all of Ogden, and
9 this is certainly one passage that supports my
10 opinion.
11 Q. You would agree that open-ended
12 language like "for example" and "may" to introduce
13 concepts mean that the examples provided are not
14 limiting?
15 A. Generally, yes.
16 Q. Column 2, lines 1 to 6 begins with
17 the words "for example"; right?
18 A. Yes.
19 Q. And the very first sentence uses the
20 word "may"; right?
21 A. Yes.
22 Q. And may, the use of the word "may"
23 is not citing a hard and fast requirement; correct?
24 A. Generally, that's correct.
25 Q. So communicating the video portion

1 of a presentation to a user via the internet and
2 the audio portion to the user via a conventional
3 telephony network are nonlimiting examples. Agree?
4 A. It's an example, but this is -- this
5 is really the focus of Ogden.
6 Q. Let's read the next two sentences,
7 Column 2, lines 7 to 12. I'll read it into the
8 record. "However, other embodiments are also
9 within the scope of the present invention. For
10 example, both the video and audio portions of the
11 presentation may be provided solely by a TCP/IP
12 network such as the internet, assuming that there
13 is sufficient communication bandwidth to
14 synchronize presentation transmissions to the
15 presentation members."
16 Did I read that right?
17 A. I think you did.
18 Q. Ogden discloses that both the video
19 and audio portions of the presentation can be
20 communicated to the users together solely by a
21 TCP/IP network; correct?
22 A. It certainly says that. It doesn't
23 really provide any examples of that.
24 Q. Do you agree that Ogden says that
25 both the video and audio portions of the

1 presentation can be communicated to the user
2 together solely by a TCP/IP network? Agree?
3 A. It says that, and a person with
4 ordinary skill in the art in 1997 would understand
5 that this is no small feat.
6 Q. Ogden discloses that the video and
7 audio portions of the communication could be
8 communicated to the user together solely by a
9 TCP/IP network, assuming there is sufficient
10 communication bandwidth to synchronize the video
11 and audio transmission to the users; correct?
12 A. You're paraphrasing, but that's
13 generally what it says.
14 Q. Can we agree that Ogden discloses
15 synchronizing the audio with the video?
16 A. No.
17 Q. Can we agree that assuming that
18 there is sufficient communication bandwidth, that
19 Ogden teaches synchronizing presentation
20 transmissions to the presentation members?
21 A. That's what it says.
22 Q. We can go back to your declaration,
23 Exhibit 206.
24 That's the declaration in support of Dish's
25 POR for the '138 patent.

1 A. Okay.
2 Q. Please turn to paragraph 74.
3 A. Okay.
4 Q. In paragraph 74 you provide a block
5 quote, and underneath the block quote you state,
6 "Here, Ogden discloses creating multiple
7 presentation versions that each includes segments,
8 subcollections of a content."
9 Do you see that sentence?
10 A. I see that sentence.
11 Q. Let's start there. You agree that
12 Ogden discloses creating multiple versions of a
13 presentation that each includes segments or
14 subcollections of contents." Correct?
15 A. Well, let me read this.
16 (Pause)
17 A. Okay. Could you just ask your
18 question again.
19 Q. Do you agree that Ogden discloses
20 creating multiple versions of a presentation that
21 each includes segments or subcollections of
22 content; correct?
23 A. Yes.
24 Q. Do you agree that Ogden discloses
25 creating multiple versions of the same

1 presentation?
2 A. Yes.
3 Q. In the next sentence of
4 paragraph 74, you say that Ogden gives two examples
5 of segments.
6 Do you see that?
7 A. I do.
8 Q. The first example is Ogden discloses
9 a configuration where the segments of one version
10 contain real time or animated video; correct?
11 A. That's what's written.
12 Q. So you agree that at least one of
13 the presentation versions disclosed in Ogden is
14 segments of video; correct?
15 A. Segments of what Ogden refers to as
16 real time or animated video, not video more
17 generally.
18 Q. But you agree that at least one of
19 the presentations versions disclosed in Ogden is
20 segments of real time or animated video; correct?
21 A. Yes, that's what Ogden discloses.
22 Q. And you say the segments of the
23 second presentation version contain graphic slides;
24 correct?
25 A. Yes.

1 Q. And your argument there is that
2 slides are an alternative presentation format that
3 would appear to include different content. Is that
4 right?
5 A. Yes.
6 Q. Why did you use the word "appear" in
7 that sentence? "Slides are an alternative
8 presentation format that would appear to include
9 different content." Are you not certain whether
10 slides would include different content?
11 A. Ogden has no disclosures of the
12 content of its slides. But I'm saying they appear
13 to have different content because generally a
14 slide -- information on a slide would be different
15 content than information on a video.
16 Q. Can we agree that it's possible for
17 slides to include the same content as the video?
18 A. I don't know. I don't think -- I
19 can't necessarily agree. I think a slide as that's
20 understood in Ogden is one form of content. Video
21 is understood in Ogden as a different form of
22 content. So in all likelihood, these are two media
23 that would have -- that would be different forms of
24 content.
25 Q. Graphic slides could be frames from

1 the same video; correct?
2 A. Graphic slides could be frames --
3 there's no disclosure of that. There's no
4 suggestion of that, and, in fact, I can't see how
5 that would work. So as a hypothetical, maybe. But
6 I don't think any of that is in Ogden.
7 Q. So separate and apart from what's
8 disclosed in Ogden, can we agree that a person of
9 ordinary skill would understand that in 1997
10 graphic slides could be made up of frames from a
11 video?
12 ATTORNEY WILSON: Objection.
13 Form.
14 THE WITNESS: You could take a
15 video, extract individual frames and put
16 those frames on a slide. A person of
17 skill in the art could do that.
18 BY ATTORNEY SHENG:
19 Q. So let's take a step back. Do you
20 agree that Ogden discloses that at least one of the
21 presentation versions can be real time video;
22 correct?
23 A. Yes.
24 Q. Or animated video as well; correct?
25 A. Correct.

1 Q. Can we just say that Ogden discloses
2 that at least one of the presentation versions can
3 be video?
4 A. Can be -- not just any old video,
5 but Ogden seems to have a particular conception of
6 video; in particular, this motion of animated
7 video. So it's saying it's not just any old video,
8 but real time or animated video.
9 Q. Does Ogden disclose that both
10 presentation versions can be the real time video?
11 ATTORNEY WILSON: Objection.
12 Form.
13 THE WITNESS: Both
14 presentations --
15 BY ATTORNEY SHENG:
16 Q. Let me take a step back. I'll
17 strike that question.
18 So we agree that at least one of the
19 presentation versions could be an animated video;
20 correct?
21 A. Yes.
22 Q. And we discussed earlier your
23 opinion that the second presentation version of
24 Ogden is graphic slides. Do you follow that?
25 A. Yes.

1 Q. Does Ogden disclose an embodiment
2 where both presentation versions are both video?
3 A. I don't recall such a disclosure.
4 Q. So is it your opinion that Ogden
5 only discloses video for one presentation version
6 and graphic slides for another presentation
7 version?
8 A. Ogden discloses what it discloses.
9 It's just sitting here today, I don't recall a
10 disclosure where the alternative version to real
11 time or animated video is also real time or
12 animated video.
13 Q. In paragraph 74 where you discuss
14 the two versions, presentation versions of Ogden,
15 can we agree that you don't cite any portion of the
16 Ogden specification to support that opinion?
17 A. There's no "cite" in this paragraph.
18 I believe though, that I do have cites in here for
19 these disclosures in Ogden.
20 Q. Let's go to Ogden. You should have
21 a copy of that.
22 A. Yes.
23 Q. Go to Column 2, lines 61 to 66.
24 A. Okay.
25 Q. Do you see the words "graphic

1 slides" in line 66?
2 A. Let me just read this. I see that.
3 Q. I'll represent to you that this is
4 the only place in Ogden that uses the phrase
5 "graphic slides." Your attorney can check with me
6 on a break or redirect. So I'll represent that to
7 you today.
8 A. Okay.
9 Q. Is Column 2, lines 61 to 66, the
10 portion of Ogden you are relying on to support
11 paragraph 74 of your expert report?
12 A. Well, I'm relying on all of Ogden.
13 But this is certainly -- this is certainly evidence
14 in support of my opinion.
15 Q. Okay. So let's start a little bit
16 earlier from Column 2. Let's look at lines 45 to
17 49.
18 A. Okay. 45 through 49, okay.
19 Q. Starting with the words "Moreover,
20 substantially every segment." Let me when you're
21 there.
22 A. I'm there.
23 Q. Column 2, lines 45 to 49, state,
24 "Moreover, substantially every segment or
25 subcollections thereof in one version corresponds

1 with the segment or subcollections thereof having
2 the same presentation order in each of the other
3 versions."
4 Do you see that?
5 A. I do.
6 Q. Do you agree that Ogden discloses an
7 embodiment where every segment in one version
8 corresponds with the segment that has the same
9 presentation order in each of the other versions;
10 agree?
11 A. I think he's saying that the
12 majority of segments in the version have that
13 correspondence.
14 Q. Do you agree that there could be
15 multiple other versions of a presentation? Well,
16 it says "in each of the other versions," plural.
17 Can we agree that there could be multiple other
18 versions?
19 A. There's certainly -- Ogden certainly
20 uses plural here. I don't recall if -- I'm not
21 recalling any disclosures in Ogden of there
22 being -- other alternative versions, yes. I think
23 there can be multiple alternative versions.
24 Q. If we were to assume that you are
25 correct that Ogden's first presentation video --

first presentation version is video and a second version are graphic slides, how could substantially each segment of video correspond with a segment of graphic slides? Can you explain how that would work.

A. I'm sorry. I just -- I couldn't parse your question. Just say it again maybe a little slower.

Q. Sure. Let me ask -- let me ask it this way: You would agree that Ogden, the Ogden system, discloses a first presentation version of this video; correct?

A. It's not a first presentation version of this video. It's that a presentation version can be video.

Q. And the second presentation version is graphic slides; correct?

A. In the example we were looking at at the bottom of Column 2, yes.

Q. And the idea is that Ogden will switch between the video and the graphic slides; correct?

A. Correct.

Q. So I guess my question is a user -- tell me about the user experience using the Ogden

1 system. What would the user experience be like
2 seeing the video switched to graphic slides?
3 ATTORNEY WILSON: Objection.
4 Form.
5 THE WITNESS: Well, as I say in my
6 report and having used systems that are
7 substantially similar to Ogden, I mean,
8 we had a system like this. The video in
9 our system was often -- it was the video
10 going to the monitor that the presenter
11 was presenting slides at. So you're
12 capturing the output going of VGA
13 display. So it's video of whatever the
14 presentation is. And Ogden is rife with
15 disclosures that the video is the video
16 of the presentation.
17 And so instead of seeing the video
18 that the leader is seeing on their
19 monitor, you would be seeing static
20 slides. So you might not -- so if there
21 was like a PowerPoint animation, you're
22 not going to see the animations, you'll
23 just see, you know, static slides.
24 BY ATTORNEY SHENG:
25 Q. So the user on the Ogden system

1 watching the video, let's say the bandwidth drops.
2 Do you agree that the user or what the user sees
3 would then switch to the graphic slide?
4 A. That is -- that is certainly a
5 scenario that can happen. That's not contemplated
6 in Ogden.
7 Q. And then if the network bandwidth
8 increases, the user could switch back to the video;
9 is that correct?
10 A. I don't recall any disclosure of
11 that in Ogden.
12 Q. But your understanding of Ogden is
13 that it could start with the video, switch down to
14 the graphic slides, and the user is stuck with the
15 graphic slides for the remainder of the
16 presentation. Is that right?
17 A. I don't recall Ogden dealing with
18 the situation where more bandwidth becomes
19 available.
20 Q. So if the user is watching the
21 graphic slides and network conditions improve, your
22 understanding is that Ogden does not disclose
23 switching back to the video version?
24 A. I'm just saying I don't recall a
25 disclosure of that. If I'm wrong, perhaps you can

1 point me to a disclosure of that in Ogden.
2 Q. Let's go to the next couple
3 sentences there in Column 2, lines 49 to 55. So
4 lines 49 to 55 start with "Thus, assuming
5 corresponding segments."
6 Do you see that?
7 A. Yes.
8 Q. I'll read it into the record. It
9 says, "Thus, assuming corresponding sections or
10 subcollections thereof, different versions have
11 approximately the same presentation duration. Any
12 of the corresponding alternative segments or
13 subcollections thereof from different versions can
14 be presented as a replacement for another such
15 corresponding segment or subcollections during the
16 presentation."
17 Do you see that?
18 A. I do.
19 Q. So do you agree that Ogden discloses
20 that every segment in the different versions have
21 approximately the same duration such that a segment
22 from one version can be a replacement for a
23 corresponding segment in a different version?
24 A. No. That's not what this says.
25 Q. Okay. Correct my statement then.

1 A. This says if you make the assumption
2 that the corresponding segments in different
3 versions have approximately the same presentation
4 duration, and so because it's an assumption and not
5 a statement of fact, I think a person of skill
6 would understand that Ogden is saying that that may
7 not be true.
8 So if you make that -- under that
9 assumption that they have approximately the same
10 duration, not the same duration, then under that
11 assumption you can substitute corresponding
12 segments for one another as replacements.
13 Q. Do you agree that assuming
14 corresponding segments or subcollections thereof in
15 different versions have approximately the same
16 presentation duration that a system of Ogden or
17 that Ogden discloses that every segment in a
18 different version have -- strike that.
19 Do you agree that assuming corresponding
20 segments or subcollections thereof in different
21 versions have approximately the same presentation
22 duration, each segment from one version can be a
23 replacement for a corresponding segment in a
24 different version?
25 A. Under that assumption, I think

1 that's what Ogden is saying.
2 Q. Okay. So let's go on to
3 Column 2, lines 55 to 61.
4 A. Okay.
5 Q. It says, "Thus, it is an aspect of
6 the present invention to provide corresponding
7 alternative segments or subcollections thereof,
8 having substantially different network transmission
9 requirements so that such corresponding alternative
10 segments or subcollections thereof can be
11 substituted for one another, depending on the
12 performance of the communications network."
13 Do you see that?
14 A. I do.
15 Q. Do you understand this disclosure to
16 mean that the system can switch up or down,
17 depending on the network transmission requirements
18 and the performance of those communications
19 networks?
20 ATTORNEY WILSON: Objection to
21 form.
22 THE WITNESS: I just don't
23 understand it based on what it says, and
24 all of the -- as I say, I don't recall a
25 disclosure in Ogden of being able to

1 switch to more bandwidth-intensive
2 segments.
3 BY ATTORNEY SHENG:
4 Q. What does the phrase "different
5 network transmission requirements" mean here?
6 A. Where are you?
7 Q. Column 2, lines 55 to 61.
8 A. Yeah, I know, but I'm trying to find
9 the exact words which you're asking. I see. I
10 see. I think what that would mean is
11 substantially -- it would take substantially
12 different amounts of time to transmit the segment.
13 Q. Do you agree that one version of the
14 presentation will be displayed when the network
15 bandwidth is at one rate, and a different version
16 of the presentation will be displayed if the
17 network bandwidth drops to a different rate? Is
18 that fair?
19 A. Maybe. I mean, it's all going to
20 depend on the requirements and the bandwidth.
21 Q. What was the last -- you said maybe
22 it's all going to depend on what?
23 A. I think I said the --
24 Q. There it is. Sorry. It's all going
25 to depend on the requirements and the bandwidth.

1 Is that what you said?
2 A. Yes, yeah. The requirements were
3 these network transmission requirements. So the
4 time it takes to deliver a segment.
5 Q. You would agree that in Ogden, one
6 version of the presentation will be displayed on
7 the network product network -- strike that.
8 You would agree that under -- strike that.
9 You would agree that in Ogden, one version
10 of the presentation will be displayed when the
11 network bandwidth is at one rate, and a different
12 version of the presentation could be displayed if
13 the network bandwidth drops to a different rate;
14 fair?
15 A. That can happen, yes.
16 Q. Okay. Now we're finally to
17 Column 2, lines 61 to 66, which you testified
18 earlier is at least part of Ogden that supports
19 your opinion in paragraph 74 of your report. I'm
20 at line 61 starting with "For example."
21 Do you see that?
22 A. I'm there.
23 Q. So the first sentence in line 61
24 starts with the words, "for example"; correct?
25 A. Yes.

1 Q. And the next line Ogden uses the
2 word "may."
3 Do you see that?
4 A. Yes.
5 Q. And the use of open-ended language
6 such as, for example, "and may introduce concepts
7 confirms that the examples that follow are
8 nonlimiting." Agree?
9 ATTORNEY PAQUETTE: Objection.
10 Form.
11 A. Depending on the context, that
12 certainly can be true.
13 Q. Ogden's disclosure of one version
14 being real time or animated video and another
15 version being graphic slides are just examples.
16 Agree?
17 A. Examples of a first version and
18 another version, that's correct.
19 Q. Ogden is not limited to one version
20 being real time or animated video and another
21 version being graphic slides. Can we agree on
22 that?
23 A. Yes.
24 Q. Let's read from Column 2, line 66 to
25 Column 3, line 10.

1 A. Okay.
2 Q. Line 66 begins with "Thus, of a set
3 of corresponding segments."
4 A. Okay.
5 Q. Column 2, line 66 to Column 3, line
6 10, "Disclose that the segments of a presentation
7 version can be any combination of audio, images,
8 animation or video"; correct?
9 A. Audio images, animation or video,
10 yes, that's correct.
11 Q. Can you please turn to claim 9 of
12 Ogden.
13 A. (Witness complies with request.)
14 Okay.
15 Q. Can you read claim 9 to yourself and
16 let me know when you're done.
17 A. (Witness complies with request.)
18 Okay.
19 Q. Let's go through claim 9 together.
20 Claim 9 starts, "The network presentation
21 distribution system has claimed in claim 1,
22 wherein, said first subcollection includes a first
23 video portion."
24 Do you see that?
25 A. I do.

1 Q. The claim 9 discloses a first
2 subcollection of segments that includes video.
3 Agree?
4 A. Yes, it includes -- yes, includes a
5 first video portion.
6 Q. Next, claim 9 says, "In said second
7 subcollection includes a different second video
8 portion that corresponds in content with said first
9 video portion."
10 Do you see that?
11 A. I do.
12 Q. So claim 9 discloses a second
13 subcollection of segments that also includes video,
14 and the first video and second video corresponding
15 content. Do you agree?
16 A. Yes.
17 Q. Claim 9 goes on to say, "What makes
18 the first and second video portions different is
19 that they have substantially different expected
20 data transmission rates."
21 Do you see that?
22 A. I do.
23 Q. Do you agree that claim 9 is
24 disclosing an embodiment where the first
25 presentation version and the second presentation

1 version are both video?
2 A. I think what it's disclosing is a
3 collection. The first collection has a video
4 portion in it. And the second collection also has
5 corresponding video portions in it. So part of
6 this collection includes a video portion.
7 Q. The answer is yes?
8 A. My answer was what my answer was.
9 Q. Do you agree that claim 9 is
10 disclosing an embodiment where the first
11 presentation version and the second presentation
12 version are both video?
13 A. No.
14 Q. What is the first presentation
15 version in claim 9?
16 A. It is a collection or what they call
17 a subcollection that includes a video portion. And
18 the second subcollection or collection includes a
19 video portion. So the collection is something that
20 just includes -- a portion of the collection is a
21 video portion.
22 Q. Do you agree that claim 9 is
23 disclosing an embodiment where the first
24 presentation version includes a subcollection that
25 includes a video portion, and the second

1 presentation version includes a second
2 subcollection that includes a video portion?
3 A. Yes.
4 Q. And it's your understanding that the
5 first subcollection -- strike that.
6 And it's your understanding that the first
7 subcollection of video and the second subcollection
8 of video correspond in content. Agree?
9 A. No. There's no collection of video
10 here. There's no subcollection of video. It's a
11 subcollection that includes a video portion. So
12 you're misrepresenting what Ogden is describing.
13 Q. What do you mean by "It's a
14 subcollection that includes a video portion"?
15 A. That's what Ogden says, a first
16 subcollection includes a first video portion. I'm
17 just focusing on just literally what Ogden says.
18 Q. So let's look at what Ogden
19 literally says. Let's go back to claim 9, okay?
20 A. I haven't left.
21 Q. Okay. Claim 9 discloses a network
22 presentation distribution system as in claim
23 1 wherein said first subcollection includes a first
24 video portion. Do you agree?
25 A. Yes.

1 Q. Next claim 9 says, "In said second
2 subcollection includes a different second video
3 portion that corresponds in content with said first
4 portion." Correct?
5 A. Said first video portion, yes.
6 Q. Okay. So do you agree that Ogden
7 claim 9 is disclosing an embodiment where the first
8 presentation -- strike that.
9 Do you agree that claim 9 is disclosing an
10 embodiment where the first subcollection includes a
11 video portion and the second subcollection includes
12 a video portion that corresponds in content to the
13 first subcollection of video?
14 ATTORNEY WILSON: Object to the
15 form.
16 THE WITNESS: Yeah. To make it
17 clear, since you didn't include the first
18 and second portions, claim 9 certainly
19 says that the first subcollection
20 includes a first video portion, and a
21 second subcollection includes a different
22 second video portion that corresponds in
23 content to the first video portion.
24 That, I agree.
25

1 BY ATTORNEY SHENG:
2 Q. So you would agree that claim
3 9 certainly says that the first subcollection
4 includes a first video portion, and the second
5 subcollection includes a different second video
6 portion that corresponds in content to the first
7 video portion; correct?
8 A. Agreed.
9 Q. And what makes the first and second
10 video portion different is because they have
11 substantially different data transmission rates.
12 Agree?
13 A. That's -- no. I mean, that is a
14 difference. That is a difference that Ogden is
15 calling out, but he's not saying -- he or she -- is
16 not saying that's what makes them different. But
17 they are -- Ogden is pointing out that that is a
18 difference.
19 Q. What other differences are there
20 between the first video portion and the second
21 video portion?
22 A. Well, I think what's within the
23 scope of claim 9 is where they don't have the
24 same -- the first video portion and the second
25 video portion do not have the same content.

1 Q. So it's your testimony today that,
2 even though claim 9 says that the first and second
3 portions correspond in content, that they are
4 different content?
5 A. No, I'm saying it's within the scope
6 of claim 9 that they can have different content so
7 long as that content of the second video portion
8 corresponds with the content in the first video
9 portion.
10 Q. Got it. So it's your testimony
11 today that claim 9 -- it's your testimony today
12 that the scope of claim 9 includes where the first
13 video portion and the second video portion are the
14 same content?
15 ATTORNEY WILSON: Objection.
16 Form.
17 THE WITNESS: That's not disclosed
18 here. Yeah, all this discloses is that
19 the content just has to correspond --
20 sorry, between the second video portion
21 and the first video portion.
22 BY ATTORNEY SHENG:
23 Q. You would agree that the first video
24 portion and the second video portion could be the
25 same content; right?

1 A. Well, I don't know that it could be
2 the same content, because there has to be -- there
3 has to be differences between them, because it says
4 that the first and second video portions are
5 substantially different respective data
6 transmission rates. So they can't be exactly the
7 same.
8 Q. It would be the same content, but at
9 different bit rates; right?
10 A. That's not what this says.
11 Q. What does it say then?
12 A. It just says that the different
13 portions have substantially different expected data
14 transmission rates. So it's talking about the
15 transmission, not something relating to, for
16 example, to the coding.
17 Q. Does the scope of claim 9 include an
18 embodiment where the first presentation -- strike
19 that.
20 Does the scope of claim 9 include an
21 embodiment where the first video portion and the
22 second video portion are the same content?
23 A. Just sitting here today, I don't see
24 how that could be the case and you would satisfy
25 the rest of these -- the rest of the requirements

1 of claim 9.
2 Q. If they correspond in content,
3 doesn't that -- doesn't that mean they are the same
4 content?
5 A. I think a person with skill in the
6 art understands that "corresponds" and "same" are
7 different words.
8 Q. Would you agree that if I had a
9 first video portion and a second video portion that
10 corresponds in content, that includes them being
11 the same content?
12 A. Ask that question in isolation from
13 the rest of the claim, maybe, but as I say, because
14 the rest of the claim says that they have different
15 expected transmission rates, a person of skill
16 would understand that -- I don't see how they can
17 have the same content and have different
18 transmission rates.
19 Q. Let's go to the abstract of Ogden.
20 A. Okay. (Witness complies with
21 request.)
22 Q. Do you see about midway down where
23 the abstract says, "Thus, if a low transmission
24 data rate is detected."
25 Do you see that?

1 A. Not yet. Okay, got it.
2 Q. It says, "Thus, if a low
3 transmission data rate is detected at a first high
4 note, presentation elements of reduced size can be
5 retrieved. Alternatively, if a higher transmission
6 rate is detected at a second high note,
7 presentation elements of greater size and
8 corresponding enhanced quality of presentation
9 could be achieved."
10 Do you see that?
11 A. I see that.
12 Q. Why would presentation elements of a
13 greater size result in a corresponding enhanced
14 quality of presentation?
15 ATTORNEY WILSON: Objection.
16 Form.
17 THE WITNESS: Because what Ogden
18 seems to be contemplating here is that
19 for -- for the content that's being
20 retrieved by the second client, quality
21 is proportional to size.
22 ATTORNEY WILSON: I think we've
23 been going for a little over an hour.
24 ATTORNEY SHENG: We can take five
25 minutes.

1 ATTORNEY WILSON: Is that okay?
2 THE WITNESS: Sure.
3 THE VIDEOGRAPHER: The time is
4 1:26 p.m. We're now off the record.
5 (Recess taken from 1:24 p.m.
6 to 1:34 p.m.)
7 THE VIDEOGRAPHER: The time is
8 1:34 p.m. We're now on the record.
9 BY ATTORNEY SHENG:
10 Q. Doctor, did you speak with anybody
11 about your deposition at the break?
12 A. I didn't speak with anybody.
13 Q. Before the break, we were talking
14 about the abstract of Ogden.
15 Do you recall that?
16 A. Yes.
17 Q. Do you agree that different bit
18 rates of the same video will have different data
19 transmission rates?
20 A. Undoubtedly, yes.
21 Q. And before the break I asked you why
22 would presentation elements of a greater size
23 result in a corresponding enhanced quality of
24 presentation. Do you follow that?
25 A. I do.

1 Q. Do you agree that a picture would be
2 clear with a higher resolution because there are
3 more bits?
4 A. I don't understand your question.
5 Q. Would you agree that an enhanced
6 quality of presentation could be the result of
7 there being more bits?
8 A. I need some context here.
9 Q. So let's say the media has encoded a
10 higher bit rate that would result in enhanced -- in
11 enhanced quality; correct?
12 A. If -- if you had some media and you
13 encoded it at a higher bit rate, it should have
14 some impact on quality, yes.
15 Q. In the context of claim 9 in Ogden,
16 do you agree that the expected data transmission
17 rates of one of the claimed video portions will
18 depend on the size of the file?
19 A. I'm sorry, just ask the last part
20 again. Do I agree that the transmission rate would
21 depend on the size of the file?
22 Q. Do you agree that the expected data
23 transmission rate of one of the claimed video
24 portions could be affected by the size of the file?
25 A. Could be affected by the size of the

1 file?
2 Q. Sure.
3 A. Yes, it could be affected by the
4 size of the file.
5 Q. If a file is 100 kilobits and you
6 have a 100-kilobit per second connection, all other
7 things being equal, you would expect to download
8 this file in one second; correct?
9 A. Things are never that simple. You
10 know, if you're talking about to your next-door
11 neighbor, you're not a technologist, sure, you can
12 say that.
13 Q. And if the file was 200 kilobits and
14 you had a 100-kilobit per second connection, all
15 other things being equal, your neighbor might
16 expect the download to take two seconds. Is that
17 fair?
18 A. All other things being equal, you
19 would expect it to take twice as long, not two
20 seconds.
21 Q. Do you agree that a higher expected
22 transmission rate means that the Ogden system would
23 select the larger size presentation element?
24 ATTORNEY WILSON: Objection.
25 Form.

1 THE WITNESS: Just ask the
2 question again.
3 BY ATTORNEY SHENG:
4 Q. The Ogden system would select a
5 larger size presentation element if the expected
6 transmission rate is higher; correct?
7 ATTORNEY WILSON: Objection to
8 form.
9 THE WITNESS: I don't recall, as I
10 say, a disclosure in Ogden of the end
11 users selecting larger content as a
12 function of network conditions.
13 ATTORNEY SHENG: Could you mark
14 this as Jaffay Exhibit 8.
15 (Exhibit 9 was marked for
16 identification.)
17 BY ATTORNEY SHENG:
18 Q. Could you turn to page 4 of Jaffay
19 Exhibit 9.
20 A. (Witness complies with request.)
21 Okay.
22 Q. Are you familiar with the images on
23 pages 4 and 5 of Dish's -- of this document -- let
24 me back up.
25 Do you agree that Jaffay Exhibit 9 is

1 Dish's POR in support of the '138 patent?
2 A. That's what it appears to be.
3 Q. Okay. Let's go to page 4 of Dish's
4 POR. Are you familiar with the images on pages 4
5 and 5 of Dish's POR?
6 A. Yes.
7 Q. Did you help create these images?
8 A. No.
9 Q. Do you know what the images are
10 attempting to show?
11 A. Yes. They are attempting to show
12 how in PowerPoint '97, you could embed a link to a
13 video in a slide, or you could have stills from the
14 video on a slide with text content, and you can
15 have -- or you can just have the text that was
16 being spoken.
17 So you can either have a video of some --
18 to make some point, you could have images that make
19 that same point, or you could just have the text
20 that makes the same point.
21 Q. Do you agree that version 2 on
22 page 4 can include stills from the video from
23 version 1?
24 ATTORNEY WILSON: Object to the
25 form.

1 THE WITNESS: Yes. It's not from
2 version 1. It's from the video that's
3 linked to in the slide on version 1.
4 BY ATTORNEY SHENG:
5 Q. If a user clicked on the video link
6 in version 1, do you agree that the video would
7 begin to play?
8 A. If you had access -- if the machine
9 was connected to the internet and there's no access
10 issues, the video would buffer and then it would
11 play.
12 Q. It would be streamed to the user;
13 correct?
14 A. Streamed only in a progressive
15 download sense.
16 Q. So previously we talked about claim
17 9, and I believe you testified that the first
18 presentation version in claim 9 was a video
19 portion, and the second subcollection was a second
20 video but in -- but they were different content.
21 Is that a fair characterization of your
22 testimony?
23 ATTORNEY WILSON: Objection.
24 Misstates testimony.
25 THE WITNESS: All that was

1 required was that the content
2 corresponds. The content in the second
3 video portion of the collection
4 corresponds to the first video portion in
5 the first collection.
6 BY ATTORNEY SHENG:
7 Q. And the video in the first video
8 portion, the video in the second video portion are
9 not the same content. Is that what you testified
10 earlier?
11 A. That's not stated in claim 9. All
12 that's stated in claim 9 is that the content
13 corresponds.
14 Q. So the content could be the same in
15 claim 9. Agree?
16 A. Well, you've asked that several
17 times, and what I said is just sitting here today,
18 I don't see how it could be the same content, given
19 that the remainder of the claim talks about that
20 the distinction is that the video portions have
21 substantially different expected data transmission
22 rates.
23 Q. Do you agree that on page 4 of
24 Dish's POR, version 1 and version 2 correspond in
25 content?

1 A. They could.
2 Q. They could not?
3 A. I think this video is a training
4 video for Blockbuster employees, and the big
5 take-home from the video is as a new employee, you
6 know, you're supposed to listen, think and act.
7 That was the big take home.
8 So at that level, the second version would
9 correspond -- the message of the second video --
10 sorry, the second version corresponds to the
11 message in the first version.
12 Q. Did you have any involvement in the
13 creation of these images?
14 A. No.
15 Q. How do you know that the first video
16 was a Blockbuster training video?
17 A. I've watched the video. I didn't
18 physically make these, but I know what the content
19 in here is.
20 Q. Did you provide counsel with the
21 Blockbuster University image there, the Blockbuster
22 video training video?
23 A. No.
24 Q. If you had to recreate these images
25 to reflect claim 9's disclosure of a first

1 presentation version being a video and the second
2 presentation version also being a video but not
3 corresponding in content, what would version 2 of
4 page 4 look like?
5 ATTORNEY WILSON: Objection.
6 Form.
7 THE WITNESS: I don't know. I
8 don't think I can do that off the top of
9 my head. I'd have to go off and think
10 about that.
11 BY ATTORNEY SHENG:
12 Q. So sitting here today, you don't
13 know how you would be able to modify version 2 on
14 page 4 to reflect the video that corresponds in
15 content to version 1 but is not the same content as
16 version 1. Fair?
17 ATTORNEY WILSON: Same objection.
18 THE WITNESS: Sitting here in a
19 deposition, you're asking me to do
20 something that I haven't done, that I
21 haven't considered, and all I'm saying is
22 that I just -- in the context of a
23 deposition, I can't do that on the fly.
24 BY ATTORNEY SHENG:
25 Q. The image of version 1 is a frame

1 that says "Blockbuster University." Is that right?
2 A. It's -- I mean, I don't know if I'd
3 call it a frame-- yeah. I can accept that.
4 Q. So if you had to recreate these
5 images to reflect claim 9's disclosure of a first
6 presentation being a video and the second
7 presentation version also being a video, what would
8 the two images look like?
9 ATTORNEY WILSON: Objection.
10 Form.
11 THE WITNESS: Again, you're asking
12 me to do something I haven't done. This
13 is like a 16-minute video, as I recall.
14 I haven't watched it recently. I'd have
15 to go back and watch the video and think
16 about how to make a second corresponding
17 video portion of it.
18 BY ATTORNEY SHENG:
19 Q. So you would take the video in
20 version 1 on page 4 and create a different video
21 that corresponds in content; correct?
22 A. No. I'm saying in order to answer
23 your question, I'd have to go back and watch the
24 video to remind myself of exactly the contents of
25 the video.

1 Q. It's your testimony today that even
2 though version 1 and version 2 would both be
3 videos, they would comprise different content?
4 A. I haven't testified at all about any
5 version 2 being video. Version 2 here is not
6 video. Version 2 on page 4, whatever exhibit this
7 is, Exhibit 9, is not video.
8 Q. It's a link to the video?
9 A. No. It's images and text.
10 Q. Version 1 is a video. Can we agree
11 on that?
12 A. Version 1 is a link to the video.
13 Q. Person with skill in the art
14 implementing Ogden's invention who wanted to create
15 two versions of video -- strike that.
16 So if we wanted to recreate these images to
17 reflect claim 9, it's your testimony that version
18 1 and version 2 is the different videos
19 corresponding in content, but they wouldn't be the
20 same content. Agree?
21 A. If I was able to do that, that, I
22 think, would satisfy claim 9.
23 Q. So a person of skill in the art
24 trying to implement Ogden's invention would create
25 two completely different videos. Is that your

1 testimony?
2 A. That's certainly -- if you ask me to
3 create a second version of the video in version
4 1 that corresponds in content and has a
5 substantially different expected data transmission
6 rate, I would create a shorter video that has the
7 same message as the video in version 1.
8 Q. But a shorter video wouldn't have
9 substantially the same duration; correct?
10 A. No, it would be shorter.
11 Q. Okay. So if I wanted to create --
12 or if a person with skill in the art wanted to
13 recreate claim 9, two videos of substantially
14 similar duration, is it your testimony that they
15 would create two different videos?
16 ATTORNEY WILSON: Objection.
17 Form.
18 THE WITNESS: Well, there's no
19 requirement in claim 9 that I see for
20 having the same duration. So you're
21 adding requirements that I don't believe
22 were present in claim 9.
23 BY ATTORNEY SHENG:
24 Q. Why wouldn't a person with skill in
25 the art use the same video for version 1 and for

1 version 2 use the same versions, but at a lower bit
2 rate?
3 ATTORNEY WILSON: Objection.
4 Form.
5 THE WITNESS: They may not have
6 that capability. I mean, it's important
7 to understand that there's nothing in the
8 '137 patent at all about coding or
9 encoding or compression or any of that.
10 So it's just using stock video.
11 So there's no teaching or
12 suggestion of taking content and making
13 lower bit rate versions of it. Taking
14 the exact same content. What Ogden is
15 all about is having alternate or
16 replacement content.
17 BY ATTORNEY SHENG:
18 Q. If you were to recreate version
19 1 and version 2, two videos, you would have actors
20 acting out version 1, acting out a scene and
21 different actors acting out the second version?
22 ATTORNEY WILSON: Objection.
23 Form.
24 THE WITNESS: Or I would splice
25 them out of version 1. That was it.

1 BY ATTORNEY SHENG:
2 Q. Let's go back to the Ogden exhibit,
3 which is Exhibit 1004.
4 A. Okay.
5 Q. Give me a second.
6 A. Sure.
7 Q. You don't happen to remember what
8 number it was, anybody?
9 A. Ten is the next number. No, the
10 Ogden. It's unmarked.
11 Q. Here it is.
12 Please turn to figure C of Ogden.
13 A. C. (Witness complies with request.)
14 Q. Figure 2C.
15 A. Okay. I'm there.
16 Q. Are you familiar with figure 2C of
17 Ogden?
18 A. Yes.
19 Q. I'm going to ask you questions
20 starting at step 508 in figure 2C. Why don't you
21 review figure 2C, the figure before or after.
22 A. Sure.
23 Q. Let me know.
24 A. Okay, I'm ready.
25 Q. At step 508 at figure 2C in Ogden,

1 the host sends a command to the client presentation
2 software on the fly; correct?
3 A. Yes.
4 Q. And that command indicates one or
5 more video segments from one or more presentation
6 versions to present to the user; correct?
7 A. From -- for one or more of the
8 presentation versions, yes.
9 Q. The command also indicates a list of
10 network addresses from a content web server from
11 which the segments could be retrieved; correct?
12 A. Yes.
13 Q. The next step is 516.
14 Do you see that?
15 A. I do.
16 Q. And step 516, the client
17 presentation software checks whether they requested
18 one or more video segments is cached at the client;
19 correct?
20 A. Yes.
21 Q. If the answer is yes, the system
22 will go down to step 548; correct?
23 A. 548. Yes. That looks right.
24 Q. At step 548, the system will check
25 if a host interrupt is detected; correct?

1 A. Yes.
2 Q. So let's go to Column 25, lines 24
3 to 27.
4 I'll read those lines into the record.
5 "Assuming that no host interrupts in steps 548,
6 then steps 552 through 560 are interrably [phon.]
7 performed until all segments of the current
8 collection of segments are presented to the
9 client."
10 Do you see that?
11 A. Yes.
12 Q. Is that your understanding of how
13 the Ogden system works?
14 A. I think this is all one embodiment
15 of Ogden, but for that embodiment, this is part of
16 how it works.
17 Q. Let's go back to figure 2C, step
18 516.
19 A. I'm sorry, which one, 516?
20 Q. Yes.
21 A. 516, hang on. Yes, got it.
22 Q. So we've established earlier that
23 step 516, the client presentation software checks
24 whether the requested one or more video segments is
25 cached to the client; correct?

1 A. Yes.
2 Q. So if the answer at step 516 is no,
3 meaning that the requested video segment is not
4 cached locally. Instead of going step 548, the
5 system will go down to step 524; correct?
6 A. Yes.
7 Q. And at step 524, the client
8 presentation software on the client will select a
9 content web server; correct?
10 A. Let me read this.
11 Okay. Could you just ask your question
12 again.
13 Q. At step 524, the client presentation
14 software on the client will select a content web
15 server; correct?
16 A. Yes.
17 Q. The client presentation software on
18 the client will also select which segments to be
19 requested from the content web server; correct?
20 A. Specifically, it's going to request
21 a -- what Ogden refers to as a collection, which is
22 a set of -- specific set of segments.
23 Q. At step 528, the client will request
24 the segments from the content web server; correct?
25 A. Yes. In 528, the client browser is

1 going to make a request to the selected content web
2 server for the collection of segments.
3 Q. The system will then go to step 532
4 and store the segments it receives from the content
5 web server into the cache on the client; correct?
6 A. That's not disclosed, but that seems
7 to be implied.
8 Q. If the segments are cached within
9 the desired time, the system will make its way to
10 step 548, which we discussed earlier; correct?
11 A. Yes.
12 Q. And assuming that no host interrupt
13 is detected in step 548, then steps 552 to 560 are
14 interrably performed until all segments of the
15 current collections of segments are presented to
16 the client; correct?
17 A. Yes.
18 Q. Okay. So let's go back to Exhibit 1
19 1001, which I also marked previously as Exhibit 8,
20 Jaffay Exhibit 8. It's the '138 patent.
21 A. Okay.
22 Q. If you can turn to video 9 of the
23 '138 patent.
24 A. I'm there.
25 Q. Actually, let's briefly turn --

1 well, are you familiar with figure 9 of the '138
2 patent?
3 A. I've certainly seen it before.
4 Q. Let's go to Column 16, lines 33 to
5 35.
6 A. 16, 33 to 35. Okay.
7 Q. I'll read that into the record.
8 "Figure 9 is a schematic flow chart diagram
9 illustrating one embodiment of a method 900
10 reviewing a plurality of streamlets in accordance
11 with the present invention."
12 Do you see that?
13 A. I do.
14 Q. The word "method" for viewing
15 streamlets, fair to say it is a method for
16 streaming streamlets to the user?
17 A. Where are you seeing method -- you
18 said method for reviewing a plurality of
19 streamlets, is that what you're referring to?
20 Q. No. I'm referring to the language
21 that says method-- yes, you're right. Method for
22 viewing a plurality of streamlets. Can we agree
23 that that means streaming streamlets to the user?
24 A. Let me look at the figure.
25 Q. Let me strike that question.

1 Terrible question.
2 Figure 9 shows a method for how streamlets
3 are streamed to a user in accordance with the
4 invention. Fair?
5 A. This is not the description in the
6 figure. For whatever reason, '138 keeps on
7 describing it as an embodiment of a method for
8 viewing a plurality of streamlets.
9 Q. That's sort of what I'm getting at.
10 Is that just another way of saying it's a method
11 for streaming streamlets to the user?
12 A. Well, it's part of a method. I
13 mean, it's just a single -- because this is only
14 describing the -- because there's no looping in
15 here. This seems to just be describing, requesting
16 and delivering a single streamlet.
17 Q. Why don't we just talk about the
18 figure.
19 A. Okay.
20 Q. At step 904, an agent controller
21 module is provided. Agreed? I'm reading straight
22 from the figure.
23 A. I understand.
24 Q. Okay.
25 A. So an agent control -- agent

1 controller module is provided and associated with
2 the viewer for this client.
3 Q. So the answer is yes, at step 904 an
4 agent controller module is provided; correct?
5 A. Yes.
6 Q. At step 906 -- strike that.
7 Am I correct that the agent controller
8 module is located at the client?
9 ATTORNEY WILSON: Objection.
10 Form. It's not clear whether you're
11 reading from a figure or what you're
12 asking Dr. Jaffay to render an opinion.
13 THE WITNESS: What was the
14 question?
15 BY ATTORNEY SHENG:
16 Q. Is the agent controller module
17 located at the client?
18 A. Yes.
19 Q. At step 906, the agent controller
20 module requests a streamlet; correct?
21 A. Correct.
22 Q. At step 908, the agent controller
23 module checks whether the requested streamlet is
24 stored locally; correct?
25 A. I don't know that the '138 patent

1 uniquely discloses which module performs step 908.
2 Q. If you take a look at Column 16,
3 lines 42 to 45, let me know if that refreshes your
4 recollection.
5 A. That's what I was reading.
6 Q. Well, why don't I read that into the
7 record. "If the streamlet is stored 908 locally in
8 the streamlet cache 710, the streamlet cache module
9 704 retrieves 910, to streamlet 304 and sends the
10 streamlet to the agent controller module 702."
11 Do you see that?
12 A. I do.
13 Q. So I guess my question is at step
14 908, the agent controller module checks whether the
15 requested streamlet is stored locally; correct?
16 A. It's not saying in here which entity
17 performs step 908.
18 Q. What is your understanding of which
19 entity performs step 908?
20 A. It was certainly done on the client.
21 It's just not a function that's disclosed as being
22 part of the agent controller module.
23 Q. Locally means in a cache on a
24 client; agree?
25 A. So that's a different topic, and

1 yes. Locally here means a cache on the client.
2 Q. Except 908, does the agent
3 controller module on the client check whether the
4 requested streamlet is cached at the client?
5 A. It doesn't say. We would certainly
6 know that at the client you make a check to see if
7 the streamlet is stored in the streamlet cache, but
8 as I say, it just doesn't, doesn't specifically say
9 which entity performs that step.
10 Q. You would agree that at step 908,
11 some entity, part of the system, checks whether the
12 requested streamlet is cached by the client;
13 correct?
14 A. Yes.
15 Q. If the answer is yes, the system
16 will go down to step 910; correct?
17 A. Yes.
18 Q. At step 910, the system will
19 retrieve the streamlet from the cache on the
20 client; correct?
21 A. Yes.
22 Q. After the streamlet is retrieved
23 this step 910, the system will perform the
24 remaining steps until the streamlet is delivered
25 and presented to the client in step 914; correct?

1 A. Sorry. After it's retrieved, you're
2 saying steps 9 through 14 are performed. Sorry, 11
3 through 14 are performed?
4 Q. Let me rephrase the question so it's
5 clear.
6 After the streamlet is retrieved in step
7 910, the system will perform the remaining steps
8 until the streamlet is delivered and presented to
9 the client in step 914; correct?
10 A. Yes, I think that is correct.
11 Q. If the answer at step 908 is no,
12 meaning that the requested streamlet is not cached
13 locally, instead of going to step 910, the system
14 will go down to step 916; correct?
15 A. Yes.
16 Q. At step 916, the client will request
17 the streamlet from a streamlet server; correct?
18 A. That's what the figure appears to
19 indicate.
20 Q. At step 916, the client will request
21 the streamlet from a streamlet server; correct?
22 Sorry, I asked you that question already. Strike
23 that.
24 The system will then go to step 918 and
25 store the streamlets it received from the streamlet

1 server on the cache of a client; correct?
2 A. That's what the figure indicates.
3 Q. And then after the streamlet is
4 archived, the system will then go to step 910,
5 which is to retrieve the streamlet from the cache
6 on the fly; right?
7 A. Yes.
8 Q. And after the streamlet is retrieved
9 in step 910, the system will perform the remaining
10 steps until the streamlet is delivered to the
11 client in step 914; correct?
12 ATTORNEY PAQUETTE: Objection.
13 Form.
14 THE WITNESS: Well, the streamlet
15 is on the client. The streamlet has
16 already been delivered to the client at
17 this point.
18 BY ATTORNEY SHENG:
19 Q. Right. So after the streamlet is
20 retrieved, the system will perform the remaining
21 steps until the -- oh, I see what you're saying.
22 A. So my comment would apply to your
23 earlier questions about steps, when you said 9, 11
24 through 914 would be performed. The delivered part
25 I think is wrong.

1 Q. Let me reask.
2 After the streamlet is retrieved in step
3 910, the system will perform the remaining steps
4 until the streamlet is delivered to the client for
5 display in step 914. Fair?
6 ATTORNEY WILSON: Objection.
7 Form.
8 THE WITNESS: No. That's not
9 what's happening.
10 BY ATTORNEY SHENG:
11 Q. What's happening?
12 A. Deliver is not to the client. It's
13 already at the client. The deliver for 914 means
14 that it goes to the viewer. The viewer on the
15 client.
16 Q. So after the streamlet is retrieved
17 in step 910, the system will perform the remaining
18 steps until the streamlet is delivered to the
19 viewer on the client. Fair?
20 A. Fair.
21 Q. And that would apply to your
22 previous question and answer that you corrected a
23 minute ago. Is that correct?
24 A. Correct.
25 Q. And the system will repeat this

1 process for each of the successive streamlets; is
2 that correct?
3 ATTORNEY WILSON: Objection.
4 Form.
5 THE WITNESS: No. I mean, there's
6 more to it than just figure 9. So figure
7 9 is just describing a single one, and
8 all of this is happening in combination
9 with at least figure 10.
10 Q. But you would agree that this
11 process is repeated for each subsequent streamlet.
12 Agree?
13 ATTORNEY WILSON: Object to form.
14 THE WITNESS: Well, I don't know
15 how to answer your question. I mean,
16 this and additional steps are repeated.
17 BY ATTORNEY SHENG:
18 Q. You would agree that the steps in
19 figure 9, in addition to other steps, would be
20 repeated for each subsequent streamlet. Agree?
21 A. Yes.
22 Q. Let's go to paragraph -- let's pull
23 up Exhibit 2006, which is your declaration in
24 support of Dish's POR. It's paragraph 124.
25 A. 124. Okay, I'm there.

1 Q. Paragraph 124, you argue that the
2 language a streamlet request found in claims 14,
3 23, and 28 of the '138 patent requires the client
4 to place a single request to a server for a single
5 streamlet. Is that correct?
6 A. That is what I write.
7 Q. And you don't cite any portion of
8 Dish's ABR patents for that opinion; right?
9 A. Well, I'm quoting the claim
10 language. I guess I don't have -- I mean, I say
11 that it's -- that the phrase a streamlet request
12 appears in claims 14, 23, and 28.
13 So I am -- I'm not citing it, but I'm
14 quoting it, and I'm quoting it, and I'm saying
15 where the quotes come from, I'm effectively citing.
16 Q. If the prior art disclosed a single
17 request for two streamlets, would that meet this
18 claim element?
19 ATTORNEY WILSON: Objection.
20 Form.
21 THE WITNESS: If the prior art
22 disclosed a request for two streamlets, a
23 single request for two streamlets, that's
24 not what the ABR patents are claiming.
25

1 BY ATTORNEY SHENG:
2 Q. If the prior art disclosed a single
3 request for one or more streamlets, would that meet
4 the claim elements?
5 ATTORNEY WILSON: Objection.
6 Form.
7 THE WITNESS: If the prior art had
8 streamlets like the ABR patents but
9 disclosed requesting one or more in a
10 single request, the -- if it actually
11 placed "or more," more than one in a
12 single request, that would not satisfy
13 this claim language.
14 BY ATTORNEY SHENG:
15 Q. But one or more includes just one;
16 correct?
17 A. One or more includes just one, but a
18 disclosure of one or more I don't think is a
19 disclosure of one and only one.
20 Q. Is it your opinion that the '138
21 patent requires one and only one request for one
22 and only one streamlet?
23 ATTORNEY WILSON: Objection.
24 Form.
25 THE WITNESS: No, you ultimately

1 request multiple streamlets, but each
2 request -- a single request -- you have
3 to make a single request for a single
4 streamlet, for each single streamlet.
5 BY ATTORNEY SHENG:
6 Q. Do you have Ogden in front of you
7 still?
8 A. It hasn't gone away. Yes.
9 Q. Go to Column 22, lines 30 to 33.
10 A. 22, 30, 22.
11 Q. I'm looking at the sentence --
12 A. Give me the line numbers again.
13 Q. 30 to 33.
14 A. Okay, thank you. Thirty-three, got
15 it.
16 Q. And the sentence beginning "The time
17 for each network."
18 Do you see that?
19 A. I'm with you.
20 Q. Could you read that to yourself and
21 let me know when you're done, lines 30 to 33.
22 A. (Witness complies with request.)
23 I'm there.
24 Q. Ogden discloses that a collection of
25 segments can be one or more presentation elements.

1 Agree?
2 A. Yes. It gives that as an example.
3 Q. And each presentation element can
4 have one or more segments. Agree?
5 A. Yes.
6 Q. So Ogden discloses that a collection
7 of segments can be just one presentation element.
8 Agree?
9 ATTORNEY WILSON: Objection.
10 Form.
11 ATTORNEY SHENG: What's the
12 objection, Counsel.
13 ATTORNEY WILSON: That's not what
14 Ogden says. Misstates testimony.
15 ATTORNEY SHENG: Whose testimony?
16 ATTORNEY WILSON: I'm sorry,
17 misstates evidence.
18 BY ATTORNEY SHENG:
19 Q. You can answer, Doctor.
20 THE WITNESS: Well, I view this as
21 really a statement, not about what is in
22 a collection but really the time to
23 transfer -- the time to transfer one or
24 more presentation elements, each element
25 potentially having one or more segments.

1 BY ATTORNEY SHENG:
2 Q. Does Ogden disclose that a
3 collection of segments can be just one presentation
4 element?
5 ATTORNEY WILSON: Objection.
6 Form.
7 ATTORNEY SHENG: Counsel, what's
8 the objection?
9 ATTORNEY WILSON: The same
10 objection.
11 THE WITNESS: I think, as I say,
12 this is a statement about the time to
13 transfer a collection of segments. I
14 don't think this is defining what
15 constitutes a collection of segments. It
16 says the time to transfer a collection of
17 segments can be, for example, the time to
18 transfer one or more presentation
19 elements.
20 BY ATTORNEY SHENG:
21 Q. Do you agree that Ogden discloses
22 that there could be a transfer of a collection of
23 segments that includes just one presentation
24 element?
25 A. I agree that what Ogden is saying is

1 that the time to transfer a collection of segments
2 can be the time to transfer one or more of the
3 presentation elements in a collection.
4 Q. Okay. So we agree that Ogden
5 discloses that there could be a transfer of a
6 collection of segments that includes just one
7 presentation element?
8 A. No. I'm not agreeing with that.
9 Q. So it's your opinion that the '138
10 patent, the language "a streamlet request requires
11 a single streamlet," a single request for a single
12 streamlet. Agree?
13 A. Yes.
14 Q. Do you have Exhibit 7 still, which
15 is what I handed to you?
16 A. Nothing has gone away, so I just got
17 to find it. Could you just tell me what it is.
18 Q. It's the '555 patent. Dish's '555
19 patent.
20 A. Yes, I have that, yes, got it.
21 Q. So Jaffay Exhibit 7 is Dish's '555
22 patent. Agree?
23 A. Yes, that's what it appears to be.
24 Q. The 555 patent is one of the ABR
25 patents. Agree?

1 A. Yes, that is correct.
2 Q. And the '555 patent shares the same
3 specification as the earlier ABR patents. Can we
4 agree on that?
5 A. Yes, that's my recollection.
6 Q. Could you please turn to claim 10 of
7 the '555 patent.
8 A. Okay. I'm there.
9 Q. Review it itself and let me know
10 when you're done.
11 A. All right. Give me a minute.
12 Q. I want to focus on the third-to-last
13 limitation of claim 10, but why don't you go ahead.
14 A. Sure. (Witness complies with
15 request.)
16 Okay, I've read it.
17 Q. So I want to focus again on the
18 third-to-last limitation of claim 10, and I'll read
19 it into the record. "Place a streamlet request to
20 the server over the one or more network connections
21 for the selected stream."
22 Do you see that?
23 A. I do.
24 Q. And this limitation has the same
25 language, a streamlet request, as does claims 14,

1 23, and 28, the '138 patent. Agree?
2 A. Yes.
3 Q. So one of the steps of claim 10 of
4 the '555 patent is to place a streamlet request;
5 correct?
6 A. Yes.
7 Q. That is a streamlet request, a
8 single request. Agree?
9 A. Correct.
10 Q. Go to the very next limitation, I'll
11 read that limitation into the record.
12 "Receive the requested streamlets from the
13 server via the one or more network connections."
14 Do you see that?
15 A. I do.
16 Q. Do you agree in response to a single
17 streamlet request the device of claim 10 will
18 receive multiple requested streamlets?
19 A. No.
20 Q. Why not?
21 A. I think a person of ordinary skill
22 in the art would just read this as saying that
23 what's being described here is the use of a
24 persistent connection, a persistent HTTP
25 connection. So place a streamlet request to a

1 server is very clear and unambiguous to a person of
2 skill in the art, and the next limitation, I think,
3 tells a person with skill in the art that the
4 subsequent requests are going to be made over the
5 same network connection.
6 So what it's really communicating is the
7 use of a persistent connection. It's not saying
8 that you get multiple streamlets per request. So
9 because, for example, when it says "Receive the
10 requested streamlets," that tells a person of
11 ordinary skill in the art you're talking about
12 multiple requests. So it's not talking about the
13 single request above.
14 And as I say -- and this makes perfect
15 sense -- this is just a requirement that you use
16 persistent connections to the server. That the
17 client uses persistent connections to the servers
18 to get all streamlets.
19 And this makes sense because, as we teach
20 in networking classes, then you don't have the
21 overhead of tearing down and reestablishing the
22 connection for every request, and this is going to
23 be important when, as when Brueck describes, you
24 have on this one, Brueck, if you're going to have
25 these streamlets be of small duration, then, you

1 know, amortizing the connection establishment time
2 across multiple requests is going to be important.
3 Q. Do claims 14, 23, and 28 of the '138
4 patent require a persistent connection?
5 A. 14, 23 and 28.
6 Q. Let's start with claim 14. Does
7 claim 14 require the client use persistent
8 connections to the servers to get all streamlets?
9 A. Well, claim 14 depends from claim
10 10, and it doesn't overwrite that requirement. So
11 claim 14 would also require persistent connections.
12 Q. So it's your opinion that claims 14,
13 23, and 28 in the '138 patent where it states "a
14 streamlet request" can only request a single
15 streamlet. Agree?
16 A. Well, I haven't looked at the other
17 claims.
18 Q. Claim 14. Let's focus on claim 14?
19 A. Claim 14. Yes, claim 14 says you
20 get a -- you place a streamlet -- a streamlet
21 request, so a single request, and the next
22 limitation, again, is saying is that for the
23 subsequent requests you use the same -- you reuse
24 the same connection.
25 Q. Doctor, how are you doing? Keep

1 going or do you want a break?
2 A. I'm fine, just getting a little
3 tongue twisted.
4 Q. Handing you what's previously been
5 marked as Exhibit 1005.
6 A. Thank you.
7 Q. Actually, I got one more question
8 for you related to the previous claim 14 of the
9 '138 patent.
10 A. Let me just get back there. Are we
11 at '555?
12 Q. No, we're back at the '138 patent.
13 Dish's '138 patent, and we were talking about claim
14 14. I think I had asked you whether or not claim
15 14 requires a persistent connection.
16 A. Hold on.
17 Q. Sure.
18 A. I don't have the '138 out. I
19 thought we were on the '555.
20 Q. We were going between the two.
21 A. Claim 14 you're asking about is of
22 the '555.
23 Q. No. I was asking about claim 14 of
24 the '138 patent.
25 A. Oh, my God.

1 Q. Okay. Let's back up. Let's clarify
2 the record.
3 A. Okay. Let me go back and find the
4 '138. I know I didn't have that out. Where is it?
5 I keep saying -- oh, here it is. Here it is. Yes.
6 Sorry. I was on the completely wrong
7 patent.
8 Q. No problem. Why don't we back up a
9 little bit.
10 So we were looking at claim 10 of the '555
11 patent. And just to summarize, just to orient
12 ourselves, I think we established that claim 10 of
13 the '555 patent recites a streamlet request.
14 A. Yes.
15 Q. But also recites that the system
16 receives the requested streamlet --
17 A. Yes.
18 Q. -- to the server is that right?
19 A. Yes, exactly.
20 Q. Your opinion -- and please correct
21 me if I'm wrong -- your opinion was that the system
22 here of claim 10 still requires that -- a streamlet
23 request requires -- a streamlet request is a single
24 request for a single streamlet. Is that fair?
25 A. Correct.

1 Q. And I believe your explanation
2 generally was that a person of skill in the art
3 reading claim 10 of the '555 patent would
4 understand there to be, I think you said persistent
5 connections. Is that --
6 A. The next limitation that you then
7 pointed me to about receiving the requested
8 streamlets via the one or more network connections
9 that that was a requirement, that when you place
10 these individual streamlet requests, you reuse the
11 previous connection. And that's what's called
12 persistent connections. The use of persistent HTTP
13 connections. Persistent connections.
14 Q. Does the persistent connection mean
15 only one TCP connection is required?
16 A. Yes, that's why you do it. As I
17 say, in particular, when you're requesting small
18 content, you want to amortize the overhead of
19 establishing a connection over multiple requests,
20 so you're using a single connection multiple times.
21 Q. Let's move on. Let's go on to --
22 let's put the '555 patent away.
23 A. Away?
24 Q. Yes. And I believe did we have --
25 did we mark an exhibit?

1 A. Allen.
2 Q. Are we up do that? Are we up to
3 Exhibit 1 --
4 A. I think you said it was already
5 marked.
6 Q. You're right, Exhibit 1005, you're
7 right. So Exhibit 1005 is the Allen reference,
8 agree?
9 A. Yes. That's what it appears to be.
10 Q. How many times have you read the
11 Allen reference cover to cover?
12 A. I don't know. Several.
13 Q. The Allen reference is over 120
14 pages, not including figures.
15 A. Yes, it is.
16 Q. And you reviewed the Allen reference
17 several times cover to cover; is that correct?
18 A. Yes.
19 Q. Can you turn to page 24 of Allen.
20 A. (Witness complies with request.)
21 Q. And there's a paragraph starting at
22 line 19 that I'd like to ask you about.
23 A. I'm there.
24 Q. The paragraph starts with another
25 aspect of the present invention.

1 Do you see that?
2 A. I do.
3 Q. Do you agree that one of the aspects
4 of Allen's invention is a distribution system and
5 method that allows video producers to supply an
6 improved live streaming experience to multiple
7 simultaneous users?
8 A. I believe that is Allen's belief.
9 Q. And Allen aims to supply such an
10 improved live streaming experience to multiple
11 simultaneous users independent of the user's
12 individual viewing device, network connectivity,
13 bit rates and supported streaming formats; correct?
14 A. That is what Allen states.
15 Q. Allen systems implies an improved
16 live streaming experience by generating and
17 distributing a single live internet stream to
18 multiple EDGE encoders. Do you agree?
19 A. That's part of what Allen does, yes.
20 Q. And each of the multiple EDGE
21 encoders of Allen converts the live internet stream
22 into format and bit rates matched to each viewer;
23 correct?
24 A. Correct.
25 Q. Assuming the characteristics of each

1 viewer's device are not identical, the multiple
2 EDGE encoders in Allen will convert the live
3 internet stream into different formats and
4 different bit rates. Agree?
5 A. As I recall, each encoder is only
6 going to do -- is only going to do one encoding,
7 but the encoders that are distributed across the
8 network, between them they can do different
9 encodings.
10 Q. So assuming the characteristics of
11 each viewer's device are not identical, the
12 multiple EDGE encoders in Allen will convert the
13 internet stream into different formats and
14 different bit rates. Agree?
15 A. As a collection that's true, but,
16 again, each encoder is only generating one format
17 and bit rate.
18 Q. What do you mean, "as a collection"?
19 A. As a selection of the encoders.
20 Take all the encoders that Allen will put at the
21 last mile pop, that collection of encoders.
22 Q. So assuming the characteristics of
23 each viewer's device are not identical, you would
24 end up with streams that are in different formats
25 and different bit rates. Agree?

1 A. At different parts of the network,
2 yes.
3 Q. In other words, the multiple EDGE
4 encoders in Allen will not convert the live
5 internet stream all into just one bit rate;
6 correct?
7 A. They certainly may, but given the
8 way you're -- if you wanted to add your assumption
9 back in, then the answer would be they wouldn't.
10 Q. The only way the multiple EDGE
11 encoders in Allen would convert the live internet
12 stream into just one bit rate is if every viewer
13 device is identical; correct?
14 ATTORNEY WILSON: Objection.
15 Form.
16 THE WITNESS: No, I think there's
17 other scenarios where it could generate
18 the same format.
19 BY ATTORNEY SHENG:
20 Q. Can you provide me one example of
21 one of those scenarios?
22 A. Where they have comparable,
23 compatible viewers, and they have the same network
24 connectivity at the different -- on the different
25 last mile segments of the network.

1 Q. How likely is that?
2 ATTORNEY WILSON: Object to the
3 form.
4 THE WITNESS: Depends on your
5 environment. If you're doing this at
6 UNC, it would be incredibly likely.
7 BY ATTORNEY SHENG:
8 Q. What if we're dong it at my house at
9 Palo Alto?
10 A. Well, your house -- your house is
11 just one viewer.
12 Q. Let's assume viewers are spread out
13 across the country. Let's say 100 viewers spread
14 across the country, what are the chances that all
15 100 viewers will have identical formats and bit
16 rates?
17 ATTORNEY WILSON: Objection.
18 Form.
19 THE WITNESS: Don't know. I mean,
20 these things more often it's the tail
21 wags the dog, where something becomes
22 popular and people make sure they have
23 the same players. I mean, this is what
24 happened with the MBone. MBone initially
25 thought they were going to have to

1 transfer and empty out the different
2 formats, and in the end they were pretty
3 much able to use a different format to
4 reach virtually all of the users.
5 BY ATTORNEY SHENG:
6 Q. Well, so a user on an iPhone, for
7 example -- let's assume there's a user on an
8 iPhone, user on an Android, user on a computer,
9 user on a Smart TV, what are the chances that all
10 four of those users would receive the media in the
11 exact same format and bit rate?
12 A. Allen is before smarts TVs and the
13 iPhone. So your question -- I don't know how to
14 answer your question. Those things didn't exist at
15 the time of Allen.
16 Q. Allen places the responsibility for
17 encoding the video and audio stream at the edge of
18 the network where the encoder knows the viewers'
19 viewing device, format, bit rate network and
20 connectivity; correct?
21 A. Allen does put its intelligence at
22 the edge of the network, and then I couldn't follow
23 the second half of your question.
24 Q. Allen discloses an improvement over
25 other systems that place the burden of encoding at

1 the source; correct?
2 A. Yes.
3 Q. And that's because servers at the
4 source know little about the end user and must,
5 therefore, generate a few formats that are
6 perceived to be the lowest common denominator.
7 Agree?
8 A. That was Allen's contention.
9 Q. Let's go back to Exhibit 2006, which
10 was your expert report.
11 A. 2006.
12 Q. POR.
13 A. Okay.
14 Q. I'm looking at paragraph 138.
15 A. 138. Got it.
16 Q. In paragraph 138, you appear to
17 quote claim 6 of the '138 patent.
18 Do you see that?
19 A. I see that.
20 Q. You state that claim 6 recites a
21 plurality of web servers located at different
22 locations across the internet that are each
23 configured to retrieve streamlets from the storage
24 device in response to client requests.
25 Do you see that?

1 A. Yes.
2 Q. In paragraph 138, you have the words
3 "the storage device" in quotes, but you also have
4 brackets in the quotes between the words "in
5 storage."
6 Do you see that?
7 A. I do.
8 Q. Those brackets indicate that you
9 omitted some words?
10 A. I think that is correct.
11 Q. What are the words that you replaced
12 with those brackets, do you know?
13 A. We're just going to have to look at
14 claim 6. I don't recall.
15 Q. Sure. Ogden Exhibit 1004.
16 A. I think this is a statement about
17 the patent, not Ogden.
18 Q. I'm sorry. You're right. Claim
19 6 of the '138 patent.
20 A. Right.
21 Q. '138 patent is --
22 A. I got it. Exhibit 8.
23 Q. Yes.
24 A. Claim 6. It looks like the brackets
25 clip out at least one.

1 Q. So you left out the words "at least
2 one"; correct?
3 A. I think that is correct.
4 Q. Claim 6 of the '138 patent actually
5 says, "Be at least one storage device." Agree?
6 A. Retrieved, yes, retrieved from at
7 least the one storage device, yes, I agree.
8 Q. At least one storage device means
9 there could be one storage device. Agree?
10 A. Correct.
11 Q. There could be two storage devices;
12 correct?
13 A. Correct.
14 Q. There could be three storage
15 devices; correct?
16 A. Sure.
17 Q. Let's go back to paragraph 138.
18 A. Okay.
19 Q. In the second sentence of
20 paragraph 138, you state, "Thus, these claims
21 require different web servers that in response to
22 client requests each retrieve content from the same
23 central storage device."
24 Do you see that?
25 A. Yes, I see that.

1 Q. And you don't cite any portion of
2 the '138 patent specification to support this
3 opinion; correct?
4 A. That's correct.
5 Q. We just established that claim
6 6 recites at least one storage device that allows
7 multiple storage devices; correct?
8 A. Well, let me read the whole thing
9 then and make sure I'm getting this right.
10 Okay. Could you just ask your question
11 again.
12 Q. We established that claim 6 recites
13 the -- at least one storage device that allows for
14 multiple storage devices; correct?
15 A. Yes.
16 Q. How can claim 6 require that
17 different web servers retrieve content from the
18 same central storage device if the claim allows for
19 multiple storage devices?
20 A. I think maybe this is just worded
21 inartfully here, but I think the idea is that the
22 storage devices -- the at least one storage device,
23 is shared between all of the servers. And so
24 that's -- that's this notion of the central storage
25 device.

1 So the device itself you can think of as
2 logic as having multiple disks, but it's a
3 centralized repository that all of the different
4 web servers pull from.
5 I think that's the point that I'm trying to
6 convey here.
7 ATTORNEY SHENG: We've been going
8 for a little over an hour.
9 Doctor, do you want to take five
10 minutes?
11 THE WITNESS: If we have to.
12 THE VIDEOGRAPHER: The time is
13 2:45. We're off the record.
14 (Recess from 2:43 p.m. to
15 2:57 p.m.).
16 THE VIDEOGRAPHER: Time is
17 2:57 p.m. We're now on the record.
18 BY ATTORNEY SHENG:
19 Q. Could you turn to paragraph 141.
20 Doctor, did you talk to anyone during the
21 deposition?
22 A. No.
23 Q. Could you turn to paragraph 141 of
24 Exhibit 2006.
25 A. Okay.

1 Q. Paragraph 141 of your expert report,
2 you argue that Ogden's scripts cannot be a virtual
3 timeline because the claims at issue require that
4 the client sends a request for the virtual timeline
5 for the server, and the server responds by sending
6 the virtual timeline to the client. Is that
7 accurate?
8 A. Right. The client has to request it
9 from the content, from the web server. The content
10 server.
11 Q. So in your opinion, the claims
12 require that the client sends a request to a
13 server, and the server sends the virtual timeline
14 back to the client. Fair?
15 A. Yes. And, as I say, as I recall
16 from the claim language, it's the content server,
17 it's not just sending the request to any old
18 server.
19 Q. It's your opinion in paragraph 141
20 that Ogden has a host that requests scripts from a
21 server, and the host then sends the scripts to the
22 client; correct?
23 A. The host gets the script from the
24 content manager. The host -- then there's language
25 in Ogden about how the host then can modify and

1 customize the script. And then the host sends the
2 script to the client.
3 Q. Is the host in Ogden a server?
4 A. It's a funny sort of server, because
5 it's -- it's something that's pushing content to
6 the client. So it tells the client what segments
7 to request, and it -- yeah, by sending the virtual
8 timeline.
9 (Exhibit 10 was marked for
10 identification.)
11 Q. Let's go to the '138 patent, which
12 is marked as Jaffay Exhibit 10.
13 A. Okay.
14 Q. Let's turn to figure 6A.
15 A. 6A. All right. I'm there.
16 Q. Are you familiar with figure 6A?
17 A. Yes.
18 Q. What is figure 6A showing?
19 A. I don't remember.
20 Q. We'll talk about this. Sitting here
21 looking at figure 6A, are you able to tell me what
22 figure 6A shows?
23 A. This is its notion of, recalls the
24 virtual timeline, and I am just trying to remind
25 myself of their acronyms.

1 Q. Can I turn to -- I think what you're
2 looking for is Column 12, lines 31 to 43.
3 A. Thank you for that.
4 Q. Can you read Column 12, line 31 to
5 43 yourself and let me know when you're done.
6 A. Okay (Witness complies with
7 request.)
8 Okay, I've read it.
9 Q. I'll represent to you that
10 Column 12, line 31 to 43, are the only places in
11 the '138 specification other than the claims that
12 mention the words "virtual timeline." Your
13 attorney can verify it at the break, but for now do
14 you have any reason to disagree with it?
15 A. No.
16 Q. So Column 6A, lines 31 to 43,
17 describes the virtual timeline in accordance with
18 the present invention of the '138 patent. Agree?
19 A. Yes.
20 Q. Do figure 6A or Column 12, line 31
21 to 43, describe anything about a virtual timeline
22 being requested by a client?
23 A. In this passage, no. This is just
24 illustrating a schematic for the timeline, the
25 virtual timeline.

1 Q. Do those portions of the patent
2 describe anything about a virtual timeline being
3 stored on a server?
4 A. No. Again, this is just describing
5 the structure of a virtual -- of a sample virtual
6 timeline.
7 Q. Do those portions of the patent
8 describe anything about a virtual timeline being
9 sent to the client from a server?
10 A. Not in this passage.
11 Q. Do you have any understanding as to
12 what the enablement requirement is in patent law?
13 A. Yes.
14 Q. What is your understanding?
15 ATTORNEY WILSON: Objection.
16 Calls for a legal conclusion.
17 THE WITNESS: Yeah, I don't know
18 that I'm going to knock this one out of
19 the park here, but generally that's
20 the -- a specification has to disclose
21 the invention in sufficient detail to
22 enable the person of ordinary skill in
23 the art to make an invention without
24 undue experimentation.
25

1 BY ATTORNEY SHENG:
2 Q. Can you turn to claim 9 of the '138
3 patent.
4 A. Okay.
5 Q. Read claim 9 to yourself and let me
6 know when you're done.
7 A. Okay. (Witness complies with
8 request.)
9 Okay.
10 Q. Do you agree that claim 9 claims a
11 web server configured to receive a virtual timeline
12 from the user station?
13 A. No.
14 Q. How would you describe claim 9?
15 A. It's a web server configured to
16 receive a virtual timeline request over an internet
17 connection from one or more user and user station.
18 Q. Does figure 6A in Column 12, line 31
19 to 43 describe what's happening in claim 9?
20 A. No. But I think what's happening in
21 claim 9 is incredibly straightforward for a person
22 of ordinary skill in the art. I don't think they
23 need any more explanation than the text in claim 9.
24 Q. You would agree that designing a
25 streaming system where a playlist is sent between a

1 client and a server was well within the knowledge
2 of a person with ordinary skill in the art at the
3 time of filing. Do you agree?
4 ATTORNEY WILSON: Object to the
5 form.
6 THE WITNESS: I don't understand.
7 Your question isn't making sense to me,
8 and it's not that what claim 9 is
9 describing.
10 BY ATTORNEY SHENG:
11 Q. You would agree that claim 9 is
12 incredibly straightforward for a person of ordinary
13 skill in the art; correct?
14 A. Yes.
15 Q. You would agree that claim 9 doesn't
16 need any more explanation from the text in claim 9.
17 Agree?
18 A. In terms of being able to practice
19 what's in claim 9, yes.
20 Q. My point is being able to practice
21 what's in claim 9 is well within the knowledge of a
22 person of ordinary skill in the art at the time of
23 filing; correct?
24 ATTORNEY WILSON: Objection.
25 Form.

1 THE WITNESS: Given the
2 description here, a person of ordinary
3 skill in the art would be able to
4 practice claim 9 without undue
5 experimentation.
6 BY ATTORNEY SHENG:
7 Q. A person of skill in the art would
8 also know that you can design a streaming system
9 where a client -- strike that.
10 A person of skill in the art would know
11 that you can design a streaming system where a
12 server requests a playlist; true?
13 ATTORNEY WILSON: Objection.
14 Scope, form.
15 THE WITNESS: I don't understand
16 what you're referring to.
17 BY ATTORNEY SHENG:
18 Q. Claim 9 recites a request for a
19 playlist from a client to a server. Agree?
20 A. Agreed.
21 Q. And you testified that that design,
22 where a streaming system has a client request a
23 playlist from a server, was within the knowledge of
24 a person of ordinary skill in the art; correct?
25 A. It's not that this was within the

1 content of this was within the knowledge. It's
2 just that given the description here, a person of
3 ordinary skill in the art, given their background,
4 would be able to practice claim 9 without undue
5 experimentation.
6 Q. Would a person of ordinary skill in
7 the art, given their background, be able to
8 practice a claim that was similar to claim 9 except
9 where the request was sent from a server, the
10 request for a playlist was sent from a server to
11 the client?
12 ATTORNEY WILSON: Objection.
13 Scope, form.
14 THE WITNESS: I don't understand
15 that, the claim that you're reciting. I
16 don't understand what streaming system
17 that is.
18 BY ATTORNEY SHENG:
19 Q. A person of ordinary skill in the
20 art would know how to design a streaming system
21 where a client requests a playlist from a server.
22 Can we agree on that?
23 ATTORNEY WILSON: Objection.
24 Form, scope.
25 THE WITNESS: A person with

1 ordinary skill in the art would be able
2 to, in particular, yes, practice the
3 request that's described here in claim 9
4 without undue experimentation where a
5 client requests a virtual timeline from a
6 server.
7 BY ATTORNEY SHENG:
8 Q. And is the reverse also true, a
9 person of skill in the art would know that you
10 could design a streaming system where a server
11 requests a playlist from the client?
12 ATTORNEY WILSON: Objection.
13 Scope.
14 THE WITNESS: I don't recognize --
15 I can't conjure up a streaming system
16 where a server is going to request a
17 playlist from a client.
18 BY ATTORNEY SHENG:
19 Q. What about where a server requests a
20 playlist from another server and sends it to the
21 client.
22 ATTORNEY WILSON: Same objection.
23 THE WITNESS: Where a person of
24 ordinary skill in the art would be able
25 to practice a claim where the client

1 makes a request to a server. The server
2 gets the -- the client makes a request
3 for a virtual timeline of the web server.
4 The web server retrieves the virtual
5 timeline from another server and responds
6 with that virtual timeline to the client.
7 A person of ordinary skill in the art
8 would be able to practice that.
9 BY ATTORNEY SHENG:
10 Q. Would you agree that a client
11 requesting a playlist from a server or vice versa,
12 a server requesting a playlist from a client or
13 from another server, these are just design choices;
14 fair?
15 ATTORNEY WILSON: Same objection.
16 THE WITNESS: No.
17 BY ATTORNEY SHENG:
18 Q. Handing you what's previously been
19 marked as Exhibit 2011.
20 A. Okay.
21 Q. Do you recognize this document?
22 A. Yes.
23 Q. This is an internal Move document
24 entitled "Overview of Move network streaming media
25 technology." Agree?

1 A. That's what it's titled in. My
2 understanding was it was an internal document.
3 Q. When was the last time you reviewed
4 this document?
5 A. I believe I reviewed this document
6 over the weekend.
7 Q. How many times did you review it
8 cover-to-cover?
9 A. Over the weekend, just once.
10 Q. Do you see at the footer of page 1
11 that the document is dated April 7, 2004?
12 A. Yes.
13 Q. And the author of this document is
14 Mark Hurst.
15 Do you see that?
16 A. I do.
17 Q. Who is Mark Hurst?
18 A. I believe he is also -- wasn't he --
19 Q. He's the inventor of the ABR patent.
20 A. I was going to say -- yeah, I was
21 going to say I thought he was one of the inventors.
22 Q. On the very first page, the very
23 first sentence under the introduction, it states,
24 "The new streaming media technology invented by
25 Move Networks is comprised of several innovative

1 techniques."
2 Do you see that?
3 A. I do.
4 Q. The last sentence of that paragraph
5 states, "The technology we have invented is named
6 Quantum Streaming."
7 Do you see that?
8 A. I do.
9 Q. Do you understand that the streaming
10 media technology invented by Move Networks was once
11 referred to as quantum streaming?
12 A. Generally, yes.
13 Q. The first sentence of the next
14 paragraph states, "This document attempts to
15 present in basic terms the innovations in quantum
16 streaming."
17 Do you see that?
18 A. Yes. That's a fragmented sentence,
19 but I see that.
20 Q. Do you understand that Exhibit 2011
21 is a Move document that explains the innovations of
22 Move Network's streaming media technology? Do we
23 agree on that?
24 A. I would agree that's what it's
25 attempting to do.

1 Q. And you understand that Move Network
2 implemented its streaming media technology into
3 what it called the Move player; is that correct?
4 A. That is my understanding.
5 Q. When was the Move player publicly
6 available, do you know?
7 A. Publicly available, I don't recall
8 exactly. I think 2005, maybe, or I think it had
9 been demonstrated to the public, I think, around
10 2005, but I don't recall the exact date.
11 Q. If you look at the last paragraph of
12 page 2.
13 A. Okay.
14 Q. Look at the first sentence, I'll
15 read that sentence into the record.
16 "Splitting files, data objects,
17 merchandise, or information into pieces of various
18 sizes for transport over networks is a fundamental
19 and well-known concept in all areas of life."
20 Do you see that?
21 A. I see that.
22 Q. Do you agree with Mr. Hurst that in
23 2004, splitting files, data objects, and
24 merchandise or information into pieces of various
25 sizes for transport over networks is a fundamental

1 and well-known concept in all areas of life?
2 A. Well, I honestly don't know what
3 he's referring to when he says "merchandise." But
4 when I read this, if I understand him, for example,
5 to be talking about the fact that when you transfer
6 files or other data objects over network, they have
7 to be segmented into network packets, which are
8 fairly small pieces of information. Then with that
9 understanding, I get what he's saying and I agree
10 with it.
11 Q. Please turn to page 6. There's a
12 heading there titled "Quantum Streaming Transport
13 Solutions."
14 Do you see that?
15 A. I see that.
16 Q. Can you read the first paragraph
17 under that heading to yourself and let me know when
18 you're done.
19 A. Okay.
20 Q. Begins with "With a single
21 innovation."
22 A. Thank you. (Witness complies with
23 request.)
24 Okay. I've read it.
25 Q. Focusing on the second sentence, do

1 you agree with Mr. Hurst that the secret of Move
2 media streaming technology relies on its use of
3 multiple TCP connections between the client and the
4 origin web server or web cache?
5 A. I believe that was his opinion. I
6 don't know that I would say that was a secret.
7 Q. What do you mean?
8 A. What he's describing here is the use
9 of what are called parallel connections to a web
10 server and that's a -- that was a known technique.
11 Q. So you're disagreeing with what the
12 inventor thought was the secret of his invention?
13 A. No. I think -- so he's not
14 describing the invention here per se. He's
15 describing their quantum streaming service. And I
16 think what he's saying is that here is something we
17 do that, you know -- I guess they hadn't told
18 anybody. So this was their secret, and his belief
19 is that the use of parallel connections, you know,
20 improves performance, and they derive benefit from
21 that.
22 Q. So you disagree with Mr. Hurst that
23 the use of multiple TCP connections between the
24 client and the origin web server was a secret back
25 in 2004?

1 A. As a generic technique, it's not a
2 secret. I think what he's saying is that the
3 secret to their performance is this use of the
4 technique.
5 Q. Let me ask a better question.
6 Do you agree that it was known in 2004 or
7 at least by 2004 that you could use multiple TCP
8 connections between the client and the origin web
9 server in a streaming system?
10 A. I don't know about in a streaming, I
11 don't know of any example of that in a streaming --
12 in a streaming context.
13 Q. Then why do you disagree with
14 Mr. Hurst that the secret lies in Move's use in
15 multiple TCP connections between the client and the
16 origin web server?
17 A. This is his opinion; right. So he's
18 free to say this is what his view of the secret is.
19 I mean, when I read this as I guess someone who is
20 more -- someone who has more than ordinary skill in
21 the art, I think, you know, sure.
22 It's not -- doesn't seem -- to me, it
23 doesn't seem like a big point, but for him, I mean,
24 this was -- this was what he considered the secret
25 or a secret.

1 Q. We can agree that the inventor
2 thought that this was a secret, that the secret of
3 their technology lies in the use of multiple TCP
4 connections between the client and the origin web
5 server?
6 ATTORNEY PAQUETTE: Object to the
7 form, scope.
8 THE WITNESS: As I say, I don't
9 know. I don't believe I've ever seen
10 this in a streaming context, and it's
11 because you can't do it in a traditional
12 streaming context. But this is one of
13 the many desirable properties that
14 derives from the fact that they have
15 streamlets is they can take advantage of
16 parallel TCP connections. So with
17 traditional streaming, you couldn't do
18 something like this.
19 BY ATTORNEY SHENG:
20 Q. Do you agree that there are portions
21 of Exhibit 2011 that you disagree with?
22 A. No, I don't disagree with anything
23 that's in here. I'm just -- I was just bemused by
24 their characterization.
25 Q. Can we agree that their

1 characterizations in Exhibit 2011 that you don't
2 agree with?
3 A. No. I don't disagree with anything
4 in here, characterizations or not. I just thought
5 it was curious that that's what he was saying their
6 secret was.
7 Q. You don't believe it's a secret;
8 correct?
9 ATTORNEY WILSON: Object to the
10 form.
11 THE WITNESS: There's difference
12 between something that's novel and
13 something that's secret. I think their
14 use of multiple TCP connections was
15 novel, in particular in a streaming
16 context. Because the way streaming had
17 been done up to this point, it was not
18 possible to use multiple TCP connections.
19 So something that follows from
20 their design is the advantage that they
21 can use these multiple TCP connections,
22 and it's going to be a huge win for them.
23 I just -- as I say, I was just bemused
24 that he referred to this as a secret.
25

1 BY ATTORNEY SHENG:
2 Q. Can you explain to me in layman's
3 terms why using multiple TCP connections would be
4 beneficial to a streaming system.
5 A. So it won't work with any old
6 streaming system. You can't do it with streaming
7 systems as I know it -- I'm not aware of anybody
8 doing this prior to what Move Networks did.
9 But because of the fact that Move segments,
10 they have multiple copies of the video, the videos
11 are segmented, there's multiple encodings, they can
12 distribute the multiple encodings across multiple
13 web servers. They can pull multiple streamlets in
14 parallel from multiple servers. So therefore, they
15 can effectively then get more bandwidth out of the
16 CDM than you can get with a single connection.
17 So they can get more content faster, which
18 then presumably means that they can also get higher
19 quality content. And they can only do this because
20 of the fact that they have -- that they partition
21 streams in the streamlets and have multiple
22 encodings and distribute them among servers in the
23 CDM.
24 Q. And in your view, you wouldn't
25 consider this a secret to Move streaming

1 technology. Agree?
2 A. I would -- the only thing that I was
3 expressing bemusement about was just the mere fact
4 that they were using multiple TCP connections,
5 nothing more. Everything else that I said that
6 they did is all pretty amazing.
7 Q. Would you agree that the use of
8 multiple TCP connections was an important aspect of
9 Move's streaming technology?
10 A. I don't know if it was important or
11 not. It certainly is a great thing for them to do.
12 I mean, the system will work without the use of
13 multiple TCP connections. It's going to work a
14 whole lot better by using multiple TCP connections.
15 Q. Would the Move player have been as
16 successful as it was in -- strike that.
17 Would the Move player have been as
18 successful as it was without the use of multiple
19 TCP connections?
20 ATTORNEY WILSON: Objection.
21 Form.
22 THE WITNESS: I don't know. I
23 haven't considered that.
24 BY ATTORNEY SHENG:
25 Q. Can you go to page 7 of

1 Exhibit 2011.
2 A. Okay.
3 Q. Do you see where it says in the
4 first full paragraph, "By making individual
5 requests"?
6 A. I see that.
7 Q. Can you read that paragraph to
8 yourself and let me know when you're done.
9 A. Sure. (Witness complies with
10 request.)
11 I've read that.
12 Q. Virtue pipelining is the technique
13 of making multiple requests on the same TCP
14 connection; correct?
15 A. No.
16 Q. How would you correct that
17 statement?
18 A. The virtual pipelining is occurring
19 because you are using multiple parallel
20 connections.
21 Q. So virtual pipelining is the
22 technique of making multiple requests over multiple
23 parallel TCP connections; correct?
24 A. Let me just read this again.
25 Yeah. What he's calling virtual pipelining

1 is what results from their use of parallel
2 connections to request streamlets.
3 Q. The idea being if one connection
4 fails, then the other connections remain open and
5 don't lose everything?
6 A. No.
7 ATTORNEY WILSON: Object to the
8 form.
9 THE WITNESS: No.
10 BY ATTORNEY SHENG:
11 Q. How would you correct that?
12 A. That's not what virtual pipelining
13 is. That's a true statement and that's called
14 tolerance, but that's not pipelining.
15 Q. Could you explain to me in layman's
16 terms what virtual pipelining is?
17 A. Pipelining is a form of realizing
18 parallelism where you can have two operations going
19 on in parallel. So, for example, when one
20 streamlet with data for one streamlet is transiting
21 from server to the player, a request can be
22 transiting from the player to the same or a
23 different server.
24 And by doing that, the latency for the
25 request is masked by the latency for the return.

1 So you get the request for free in terms of time.
2 So pipelining means you got multiple things
3 in stages, one going after another. So you've got
4 requests and responses being transmitted at the
5 same time.
6 Q. Let's stay on page 7 and look at the
7 first paragraph under "client side streaming
8 control logic."
9 Do you see that?
10 A. Sure.
11 Q. I'll read the first sentence into
12 the record.
13 "A key and far-reaching conceptual and
14 practical innovation of quantum streaming is the
15 elimination of the need for specialized media
16 services."
17 Do you see that?
18 A. I do.
19 Q. Do you agree with Mr. Hurst that a
20 key and far-reaching innovation of Move's media
21 streaming technology, is the elimination of the
22 need for specialized media services?
23 A. Yes.
24 ATTORNEY WILSON: Object to the
25 form.

1 Q. Instead of using specialized media
2 servers, Move streaming technology used ordinary
3 servers; is that correct?
4 A. Yes -- and this is part of what
5 impressed me initially when I saw DASH and when I
6 later saw that the Dish patents, the ABR patents
7 were effectively, had invented what was done in
8 DASH.
9 Q. Do you agree with me that the
10 elimination of the need for specialized media
11 servers was an important aspect of Move's streaming
12 technology?
13 ATTORNEY WILSON: Object to the
14 form.
15 THE WITNESS: In terms of -- what
16 this does for you is it makes it cheaper
17 to use and it gives you inexpensive
18 scalability. So for, you know, an
19 individual player, you know, you would
20 never know that this is -- that this is
21 happening, but in terms of having this
22 thing be successful in the marketplace,
23 yes, I would say yes, this is an
24 important aspect.
25

1 BY ATTORNEY SHENG:
2 Q. Would you consider it a critical
3 aspect?
4 ATTORNEY WILSON: Objection.
5 Form.
6 ATTORNEY SHENG: What's the
7 objection, Counsel?
8 ATTORNEY WILSON: The term
9 "critical."
10 ATTORNEY SHENG: I'm asking him a
11 question, was it a critical aspect.
12 BY ATTORNEY SHENG:
13 Q. Doctor, you can go ahead and answer.
14 A. If you're asking me is this a
15 critical aspect, I don't know how to really assess
16 critical. What I would say is -- you know, what
17 you're asking me is if they didn't use vanilla web
18 servers and instead they used specialized media
19 servers, would the invention have been successful.
20 And that's incredibly difficult to answer
21 because now I have to go and contemplate, well,
22 what would their solution look like had they used
23 specialized media servers that they, in fact,
24 didn't use.
25 So it's difficult to speculate on how

1 critical or not this is, because we don't really
2 know what the alternative was.
3 Q. If you go to -- let's go back to
4 Exhibit 2006.
5 A. Okay.
6 Q. 185.
7 A. 185. I'm there.
8 Q. Paragraph 185, the very last
9 sentence you quote an exhibit where it appears
10 someone expressed shock at how crisp and clear he
11 was able to stream the show Lost using Move's
12 technology. Is that fair?
13 A. Yes.
14 Q. This person expressed that the full
15 screening HD quality was shockingly good; correct?
16 A. Yes.
17 Q. "It was crisp, clear glory."
18 Do you see that?
19 A. I see that.
20 Q. Do you have the Dish POR in front of
21 you? I don't think I marked it.
22 A. No, I have Exhibit 9.
23 Q. You have Exhibit 9?
24 A. It says "Patent owner's response."
25 Q. Very good. Exhibit 9, if you go to

1 page 2 of Dish's POR.
2 A. Page 2.
3 Q. There's three images on page 2.
4 A. Yes, I see that.
5 Q. The user watched a show that looked
6 like the low quality image during the entirety of
7 the show. Fair to say the user would not be
8 impressed by the show's crisp, clear glory?
9 ATTORNEY WILSON: Objection to
10 form.
11 THE WITNESS: Sorry, I'm not sure
12 what you're asking me. These are
13 individual still images.
14 BY ATTORNEY SHENG:
15 Q. Sure. If a user watched a show that
16 looked the low quality image shown on page 2, you
17 would agree with me that the user would not express
18 satisfaction with the viewing experience. Agree?
19 ATTORNEY WILSON: Same objection.
20 THE WITNESS: So let me make sure
21 I understand the question. You're saying
22 the user was watching a video program and
23 that video program for that user was only
24 sustainable using a quality encoding
25 that's equivalent to what's shown here as

1 low quality and that's how they were --
2 they can only sustain that quality for
3 the duration of the program, would the
4 user -- would that user say that that was
5 shockingly good? Is that more or less --
6 no, they probably wouldn't.
7 BY ATTORNEY SHENG:
8 Q. They would be dissatisfied; correct?
9 A. I don't think they would be
10 dissatisfied. I mean, this is kind of the way a
11 lot of streaming worked at the time.
12 Q. They certainly wouldn't be impressed
13 by the show's full screen HD quality; correct?
14 A. They would not say this is HD
15 quality, and it's probably because, you know, given
16 where they were in their network setup, according
17 to the premise of the question, they're just not
18 able to sustain HD quality. But they would still
19 be able to watch it, and they would be able to hear
20 the audio and see the motion. They just wouldn't
21 have the greatest picture.
22 Q. And if the user watched a show that
23 quality started at the low-quality version and
24 switched up to the high-quality version, let's say
25 a couple minutes, and then switched back to the

1 low-quality version for the remainder of the show,
2 you would agree the user would not be impressed by
3 the show's full screen HD quality?
4 ATTORNEY WILSON: Objection.
5 Form.
6 THE WITNESS: What I would say is
7 in the time frame which this comment was
8 made, first and foremost, the user would
9 be amazed that they can still watch the
10 full show. That the system was able to
11 adapt without the system freezing or
12 rebufferring. The quality would
13 fluctuate and the quality would be poor,
14 but that's only because of the network
15 connectivity.
16 So I think to put ourselves back
17 in the time frame that we're talking
18 about here, they would be impressed that
19 they could see the whole show. They --
20 for the portions where they didn't have
21 sufficient connectivity for the high
22 quality, they probably would say that
23 part wasn't -- wasn't shockingly good.
24 But for the portions where they can see
25 in high quality they can say that was

1 great, and in general I think they would
2 be happy that they can see the entire
3 show, because that's something that they
4 couldn't do with other technology that
5 existed at the time.
6 BY ATTORNEY SHENG:
7 Q. You would agree with me that if a
8 show consistently switched between the low-quality
9 version and the high-quality version, the user
10 would not be impressed by the show's full screen HD
11 quality; correct?
12 ATTORNEY WILSON: Objection.
13 Form.
14 THE WITNESS: I think at the time
15 frame that we're talking about here, they
16 would be impressed that they could watch
17 the entire show. That's first and
18 foremost and I think that would truly be
19 impressive. They would not say the
20 quality was shockingly good throughout,
21 but I think they would be impressed that
22 the show never stopped, they could watch
23 the full episode and that there were full
24 periods that were of high quality.
25

1 BY ATTORNEY SHENG:
2 Q. Would you agree with me that if the
3 user switched -- strike that.
4 Would you agree with me that, if the video
5 switched between the medium quality and a
6 low-quality version skillful without the video that
7 the user would not be impressed by the show's full
8 screen HD quality?
9 ATTORNEY WILSON: Objection to
10 form.
11 THE WITNESS: Who knows. They
12 could be because no one else was really
13 doing HD at this time, in particular, for
14 feature length programming. So the fact
15 that you can see anything in HD for the
16 entire length of the program is pretty
17 cool.
18 BY ATTORNEY SHENG:
19 Q. Is the medium quality image on
20 page 2 reflecting HD quality?
21 A. I don't know.
22 Q. You can see it, though; right?
23 A. I can see the image. You know, I
24 don't know what was the function of the printer
25 here. I mean, it's not as good as the high

1 quality. But remember, people during this time
2 frame, they had nothing to compare it to in terms
3 of streaming. So this was far better than anything
4 else you could do streaming, and medium quality is
5 not that bad.
6 Q. Handing you an exhibit, a document
7 previously marked as Exhibit 2059. And this is a
8 Move document titled "The next generating video
9 publishing system"; correct?
10 A. Yes.
11 Q. When was the last time you reviewed
12 this document?
13 A. Over the weekend.
14 Q. How many times did you review it
15 cover-to-cover?
16 A. I've looked at this one several
17 times in the last several days, but I think over
18 the weekend I just -- cover-to-cover I think just
19 once.
20 Q. If you look at the footer on page 2,
21 do you see that the document is dated April 11,
22 2007?
23 A. Yes.
24 Q. The document appears to be some sort
25 of internal white paper. Do you know what this

1 document was used for?
2 A. I don't know that this is -- it's
3 certainly a document that's marked Confidential. I
4 didn't get the sense reading this that this was an
5 internal document. I got the sense this is
6 something they would share with their customers.
7 Q. Can we agree that this is a document
8 that describes Move's streaming technology?
9 A. Yes. It provides an overview of it.
10 Q. Can you go to page 10 of
11 Exhibit 2059.
12 A. Sure.
13 Q. There is a --
14 ATTORNEY WILSON: Hold on.
15 THE WITNESS: 10, got it.
16 BY ATTORNEY SHENG:
17 Q. There's a section titled
18 "Transmission Advantages."
19 Do you see that?
20 A. Yes.
21 Q. Please go ahead and skim the first
22 paragraph. My question is simply going to be
23 whether paragraph 1 is describing general problems
24 related to internet network congestion. Go ahead
25 and read it, and then when you're done I'll ask

1 that question.
2 A. Great. Thank you for that.
3 (Witness complies with request.)
4 Okay. I've read it.
5 Q. The first paragraph under the
6 section titled "Transmission Advantages" describes
7 general problems related to internet network
8 congestion; correct?
9 A. Yes. And describes two problems
10 specifically.
11 Q. And then if you can skim
12 paragraph 2, my question is simply going to be
13 whether paragraph 2 is describing general
14 background related to the TCP protocol.
15 Go ahead and read it, and then I'll ask the
16 question.
17 A. (Witness complies with request.)
18 Yes. I've read it.
19 Q. Let's go to the next paragraph,
20 which is the first paragraph on page 11. And this
21 is the paragraph that I want to focus on.
22 A. Okay.
23 Q. The first sentence says, "TCP-based
24 media servers typically rely on RTP/RTSP to control
25 video flow."

1 Do you see that?
2 A. I do.
3 Q. The document is discussing
4 or -- strike that.
5 This paragraph is discussing TCP-based
6 media servers that relied on RTP/RTSP to control
7 video flow; correct?
8 A. Yes.
9 Q. RTP/RTSP have a protocol used by
10 Real Network's video streaming player; correct?
11 A. Among others. And these are two
12 separate protocols that get used together.
13 Q. Very good. In your career, you've
14 worked on TCP-based media servers that relied on
15 both RTP and RTSP to control video flow; correct?
16 A. The RTP work that I did was RTP over
17 UDP, as best I recall. And I don't recall for RTSP
18 whether we were using the word TCP or UDP.
19 Q. But you've worked on TCP-based media
20 servers -- strike that.
21 Sitting here today, you don't recall
22 working on TCP-based media servers that relied on
23 RTP/RTSP?
24 A. If you're talking about the work in
25 my research for the systems we were building, all

1 of our work was -- we did use RTP, and I think we
2 had one RTSP implementation, but the work we were
3 doing at UNC, it was all based on UDP, primarily
4 because of the issues that this document is laying
5 out that you have with TCP.
6 Q. The second sentence of that
7 paragraph we're looking at states, "The streams
8 served get stuck because the protocol is not
9 responsive enough to keep interface with common
10 internet communication issues discussed above;
11 i.e., packet locks, latency, and congestion."
12 Do you see that?
13 A. Yes.
14 Q. Is this a problem that was known
15 prior to the Dish's ABR patents?
16 A. Yes, and this is part of the reason
17 why I said when I first encountered this stuff,
18 first in the form of DASH and then in ABR patents I
19 was so impressed that they were making it work over
20 HTTP and TCP.
21 Q. And the next few sentences read,
22 "During video streaming the client is constantly
23 communicating the status and health of the
24 communication link. The client will forward
25 specifics on such things and packet locks and

1 latency."
2 Do you see that?
3 A. I do.
4 Q. Is Move's description here
5 consistent with your understanding of how streaming
6 systems operated prior to Dish's ABR patents?
7 A. Every system was unique. I mean,
8 they all operated differently. So I would say -- I
9 understand what they're describing here, but I
10 can't represent that this is what all systems were
11 doing.
12 Q. So the next sentence says, "With
13 this information, the media server makes decisions
14 concerning whether to throttle the bit rate up,
15 down or drop into emergency slide show mode."
16 Do you see that?
17 A. Yes.
18 Q. Prior to Move's streaming
19 technology, it was known in the art that TCP-based
20 media servers relying on RTP/RTSP to go into
21 emergency slide show mode; correct?
22 ATTORNEY WILSON: Objection.
23 Form.
24 THE WITNESS: I got lost from --
25 let me just read this whole paragraph. I

1 got lost in the middle.
2 Okay. Sorry. Can you ask your
3 question again.
4 BY ATTORNEY SHENG:
5 Q. Prior to Move's streaming
6 technology, it was known in the art that TCP-based
7 media servers relying on RTP/RTSP to go into an
8 emergency slide show mode; correct?
9 ATTORNEY WILSON: Same objection.
10 THE WITNESS: I don't know that as
11 a factual matter. I'm not aware of -- I
12 can't think of a -- I don't know if I've
13 ever seen an RTP/RTSP server drop into
14 emergency slide show mode. Maybe they
15 did it. I'm just not aware one way or
16 another.
17 BY ATTORNEY SHENG:
18 Q. Can you turn to page 17 of
19 Exhibit 2059.
20 A. Okay.
21 Q. Do you recall reviewing page 17
22 which says "Appendix A" when you reviewed this
23 document in preparation for this deposition?
24 A. Yes.
25 Q. What is your understanding of what

1 Exhibit A is showing?
2 A. It's just trying to find some data
3 on their -- they've done some experiments with
4 different protocols, different combinations of
5 protocols, and the levels of performance that they
6 get when they simulate network congestion.
7 Q. Do you see where page 17 lists
8 Vividas, V-i-v-i-d-a-s, Apple QuickTime trailers,
9 CBS News? Do you see those?
10 A. I do.
11 Q. Are those videos that were streamed
12 as part of Move's tests?
13 A. As I understood this, this is
14 either -- it's a combination of -- it's the content
15 that they're using and where it came from and some
16 facts about the bit rate. So this is the context
17 that they were experimenting with.
18 Q. Okay. So Vividas, Apple QuickTime
19 trailer, CBS News, these were contents that they
20 were using for their tests; correct?
21 A. Yes.
22 Q. And on page 17, there's a table.
23 Do you see that?
24 A. Yes.
25 Q. And what is this table showing?

1 A. Well, so this is their sort of
2 experimental results, the effective bit rate that
3 they got as a function of the maximum -- the
4 maximum streaming rate that they could have
5 sustained.
6 Q. Let me go back up for a second. Do
7 you see where under -- it says for RTP or RTSP
8 delivery, video.MSN.com at 220 kilobits --
9 A. I'm not following. Okay. I see it.
10 Sorry.
11 Q. So you agree that video.MSN.com is
12 content that they used as part of these tests.
13 Agree?
14 A. That's part of the content that they
15 seem to say they used.
16 Q. And next to the video.MSN.com it
17 says, "220-kilobit per second encodes."
18 What does that mean?
19 A. I think that is the rate at which
20 data was coming out of the codec.
21 Q. The video was encoded at 220
22 kilobits per second; is that right?
23 A. I think that's the way to interpret
24 it.
25 Q. Okay. And going back to the table,

1 there's an asterisk at the bottom of the table that
2 says, "On several of the test runs, the protocol
3 went to 80 kilobits for second slide show mode."
4 Do you see that?
5 A. I do.
6 Q. What's your understanding of that?
7 A. I don't really know what exactly
8 they mean from here. What I take away from this is
9 that essentially the stream or the player was no
10 longer showing video and was just showing still
11 images.
12 Q. You would agree that when the system
13 went into slide show mode, it was still showing the
14 video from video.MSN.com; correct?
15 ATTORNEY WILSON: Objection.
16 Form.
17 THE WITNESS: I don't know that.
18 BY ATTORNEY SHENG:
19 Q. Is it your testimony today that when
20 Move performed these tests, that when the system
21 went into slide show mode, it showed totally
22 different video?
23 ATTORNEY WILSON: Objection.
24 Form.
25 THE WITNESS: They're not

1 explaining exactly what they saw. So I
2 do not know as a factual matter what was
3 actually being displayed when they ran
4 these tests and found that they went into
5 slide show mode.
6 BY ATTORNEY SHENG:
7 Q. Is it your understanding -- strike
8 that.
9 For RTP and RTSP delivery, Appendix A only
10 lists video MSM.com; correct?
11 A. I don't understand the question.
12 Q. What are the sources of content
13 provided -- strike that.
14 Video.MSN.com is the only source of content
15 listed in Appendix A for RTP and RTSP delivery; is
16 that correct?
17 A. Oh, I see where you're reading. I'm
18 sorry, I wasn't following you.
19 For RTP or RTSP, yes, it's just that one
20 source.
21 Q. And it's your testimony today that
22 when the system conducting the RTP or RTSP delivery
23 test, when the system went into slide show mode,
24 you can't tell me, sitting here today, that it's
25 still showing the video from video.MSM.com?

1 ATTORNEY WILSON: Objection.
2 Form.
3 THE WITNESS: I think the
4 implication is it's still showing images
5 from the video.MSN.com. But that's just
6 an inference I'm making. The document
7 doesn't describe their tests in any more
8 detail than what's here.
9 BY ATTORNEY SHENG:
10 Q. Do you agree that the -- strike
11 that.
12 You testified that the implication is that
13 it's still showing -- that it's showing image
14 stills from the video in video.msn.com; is that
15 correct?
16 A. That's how -- that's just how slide
17 show mode connotes to me.
18 Q. Did the Move player include an
19 emergency mode, do you know?
20 A. I can't remember if it's in this
21 document or one of their other documents. I think
22 it's a different -- there is a Move document where
23 I think they reference an emergency mode.
24 Q. What's your understanding of the
25 emergency mode in the Move player?

1 A. I think it's essentially that it
2 just shows a still image or possibly what they call
3 a slide show.
4 Q. Handing you what's previously been
5 marked as Exhibit 2012. And Exhibit 2012 is a Move
6 document entitled "Technical overview of Move
7 network implementation"; correct?
8 A. Yes.
9 Q. Is this the document you were
10 referring to that possibly discussed the Move
11 player's emergency mode?
12 A. Yes.
13 Q. Is it your understanding that when
14 the Move player went into emergency mode, that the
15 still images -- strike that.
16 Previously I asked you what's your
17 understanding of the emergency mode in the Move
18 player, and you answered, "I think it's essentially
19 that it just shows a still image or possibly what
20 they call a slide show."
21 Do you remember that?
22 A. Yes.
23 Q. So just to make sure I understand, a
24 user is watching a video, let's say a car race on
25 the Move player and the Move player enters

1 emergency mode. The user would be shown still
2 images or a slide show of the same car race.
3 Agree?
4 A. No. I think looking at this now is
5 refreshing my memory. I think their notion of
6 emergency, their so-called emergency profile is
7 much more generous. So it's just really low bit
8 rates, low resolution video at a path -- depending
9 on whether you're talking about, you know, NTSC or
10 16-by-9 or four-by-three, it's degraded, degraded
11 video, but it's still video.
12 Q. Okay. So in the Move player, let's
13 say a user is watching a car race, and the Move
14 player enters emergency mode. Strike that. I lost
15 the real time. Okay. I got it back.
16 So in the Move player, let's say a user is
17 watching a car race and the Move player entered
18 emergency mode. You would agree that the user
19 would be presented a really low bit rate, low
20 resolution video of the car race?
21 A. It depends on which version we're
22 talking about. I mean, it defines it differently
23 for the different aspect ratios, but compared to
24 their, you know, their high bandwidth in encoding,
25 what the emergency mode is is a very low, low

1 resolution, low bit rate, lower motion stream.
2 Q. So the answer is yes?
3 A. What was the original question?
4 Q. In the Move player, let's say a user
5 is watching a car race and the Move player entered
6 emergency mode, you would agree that the user would
7 be presented a really low bit rate or a lower bit
8 rate motion version of the car race?
9 A. Well, so the reason I gave the
10 answer I did is I don't want that answer taken out
11 of context. It's low compared to their high bit
12 rates. But it's still a -- it's still crunching a
13 substantial amount of data. It's significantly
14 lower, lower resolution, lower frame size and frame
15 rate than their highest.
16 Q. Let's turn to page 19 of Exhibit
17 2012.
18 A. Okay, I'm there.
19 Q. There's a heading titled Encoding
20 Media Profiles Move SimulCode.
21 Do you see that?
22 A. I do.
23 Q. The first sentence under the heading
24 states "Move networks and codes to either high
25 definition 16-by-9 or standard definition 3-by-4

1 aspect ratios using one of the following best
2 practice profile sets based on aspect ratio 16-by-9
3 in frames per second."
4 Do you see that?
5 A. I do.
6 Q. And then it says, "Profiles up to
7 2.4 megabits per second when using video streams
8 intended for distribution over high bandwidth
9 network."
10 Do you see that?
11 A. I do.
12 Q. 2.4 megabits per second is 2.4
13 megabits per second. Do you agree?
14 A. Roughly.
15 Q. At the time of this document, Move
16 considered a network capable of streaming at
17 roughly 2400 kilobits per second for a high
18 bandwidth network; correct?
19 A. They considered a -- I don't think
20 it says anything about high bandwidth networks. I
21 mean, I think what it's saying is if you are on a
22 network that is high bandwidth, you can get codings
23 and codings up to 2.4 megabits, or if you want to
24 do it in kilobits, what you're calling 2400
25 kilobits.

1 Q. In the next paragraph of Exhibit
2 2012, it discusses low-end profiles.
3 Do you see that?
4 A. I do.
5 Q. Low-end profiles included thumbnail
6 profiles.
7 Do you see that?
8 A. I do.
9 Q. What is your understanding of Move
10 player's thumbnail profile?
11 A. I just understand it by how it's
12 described in the tables corresponding to the
13 16-by-9 of the 4.3 -- 4-by-3.
14 Q. Do you see in the second paragraph
15 thumbnail profile is referred to as stream type
16 equals T as in Tom?
17 A. Yes.
18 Q. And if you look at the table on
19 page 19, do you see that stream type T has a total
20 rate of 32 kilobits per second and 12 frames per
21 second; correct?
22 A. Yes.
23 Q. Stream type T is at the top of the
24 table?
25 A. Yes.

1 Q. And it has the lowest total rate and
2 the lowest frame per second of those profiles;
3 correct?
4 A. Correct.
5 Q. At the bottom of the table, there's
6 a profile having a total rate of 2400 kilobits per
7 second or 30 frames per second.
8 Do you see that?
9 A. I do.
10 Q. And that's a high bandwidth or
11 higher bandwidth profile. Agree?
12 A. I agree.
13 Q. Do you agree that the low-end
14 thumbnail profile is a lower quality version of the
15 same video as the high bandwidth profile?
16 A. Yes.
17 Q. It's the same video, but encoded at
18 a lower total rate, lower frames per second.
19 Agree?
20 A. And lower resolution.
21 Q. And so let's go back to the second
22 paragraph under the section we've been looking at,
23 focusing still on the first sentence of that
24 paragraph. Do you see that the Move player had
25 another low-end profile called the emergency

1 profile?
2 A. Yes.
3 Q. Do you see the emergency profile
4 mode is stream type equals E?
5 A. Yes.
6 Q. And if you go to the table at the
7 bottom of page 19, stream type E has a total rate
8 of 150 kilobits per second at 15 frames per second.
9 Do you see that?
10 A. I do.
11 Q. Do you agree that the low-end
12 emergency profile is a lower quality version of the
13 same video as the high bandwidth profile?
14 ATTORNEY WILSON: Objection.
15 Form.
16 THE WITNESS: It's a lower quality
17 and coding of, for all the -- it's a
18 lower in quality encoding than the
19 higher, than say the 2.4 megabits
20 encoding.
21 ATTORNEY SHENG: Let's go off the
22 record for a minute.
23 THE VIDEOGRAPHER: The time is
24 3:56 p.m. We're going off the record.
25 (Discussion held off the

1 record.)
2 (Recess taken from 3:54 p.m.
3 to 4:09 p.m.)
4 THE VIDEOGRAPHER: Time is
5 4:12 p.m. We're now on the record.
6 BY ATTORNEY SHENG:
7 Q. Doctor, did you speak to anybody
8 during the last break about your deposition?
9 A. Not about the deposition.
10 ATTORNEY SHENG: Pass the witness.
11 ATTORNEY WILSON: Ask for -- sorry
12 to do this, but another five-minute
13 break.
14 ATTORNEY SHENG: Just remind you,
15 Doctor, you're not allowed to speak to
16 your attorneys, okay.
17 THE WITNESS: Okay.
18 ATTORNEY WILLIAMS: I don't think
19 that's true. We'll talk to the Court
20 about that.
21 ATTORNEY SHENG: Speak to the
22 attorneys about the substance of your
23 deposition. Happy to have you call.Who
24 is speaking?
25 ATTORNEY WILLIAMS: Sorry, this is

1 Elliot Williams.
2 (Discussion held off the
3 record.)
4 THE VIDEOGRAPHER: It's almost
5 4:13 p.m. We're now off the record.
6 (Recess taken from 4:13 p.m.
7 to 4:27 p.m.)
8 THE VIDEOGRAPHER: Time is
9 4:29 p.m. We are now on the record.
10 EXAMINATION BY
11 ATTORNEY WILSON:
12 Q. Dr. Jaffay, do you recall earlier
13 today you were asked about the standard of
14 unpatentability that you applied in your patent in
15 the response declaration which was marked
16 Exhibit 2006?
17 A. Yes.
18 Q. And what standard did you apply for
19 purposes of your patent declaration?
20 A. That validity has to be shown by a
21 preponderance of the evidence.
22 Q. Do you recall you were also asked
23 about the standard you applied in your preliminary
24 response declaration which was marked Exhibit 2001?
25 A. I think I was asked about the

1 standard that was stated in the preliminary
2 response, and that is the declaration in support of
3 the preliminary response.
4 Q. Correct. Do you recall that?
5 A. Yes.
6 Q. Would any of your opinions
7 change -- strike that.
8 Would any of your opinions in the
9 preliminary response declaration, Exhibit 2001,
10 change under the preponderance of the evidence
11 standard that you applied in the POR?
12 ATTORNEY SHENG: Objection.
13 Leading.
14 THE WITNESS: I don't think so.
15 ATTORNEY WILSON: Pass the
16 witness. I've got nothing.
17 THE VIDEOGRAPHER: Counsel, does
18 this conclude today's deposition?
19 ATTORNEY WILSON: Yes.
20 ATTORNEY SHENG: Yes.
21 THE VIDEOGRAPHER: This concludes
22 today's deposition, the date being
23 October 1, 2024. The time is 4:31 p.m.
24 We're now off the record.
25 THE COURT REPORTER: Would you

1 like to state your transcript order on
2 the record now.
3 ATTORNEY SHENG: Like what's the
4 fastest we can get it?
5 THE COURT REPORTER: Two days.
6 (Discussion held off the
7 record.)
8 ATTORNEY PAQUETTE: Standard
9 delivery.
10 ATTORNEY SHENG: If we can get the
11 rough version as soon as possible. And
12 then the final as fast as you can do it,
13 that would be perfect.
14 ATTORNEY WILSON: We do want a
15 rough. No rush.
16 ATTORNEY LYNN: He'll review and
17 sign for us.
18 (Proceedings adjourned at 4:31
19 p.m.)_
20
21
22
23
24
25

1 DISTRICT OF COLUMBIA: SS

2 I, Barbara Moore, a Registered Court Reporter
3 of the District of Columbia, do hereby certify that
4 these proceedings took place before me at the time
5 and place herein set out, and the proceedings were
6 recorded stenographically by me and this transcript
7 is a true record of the proceedings.
8
9 I further certify that I am not of counsel to
10 any of the parties, nor an employee of counsel nor
11 related to any of the parties, nor in any way
12 interested in the outcome of this action.
13
14
15
16 _____
17 BARBARA MOORE, CRR, RMR
18
19 _____
20 My Commission Expires:
21 September 30, 2028
22
23
24
25

1 ERRATA SHEET

2 I wish to make the following changes, for the

3 following reasons:

4 Page Line

5 ____ ____ CHANGE _____

6 REASON _____

7 ____ ____ CHANGE _____

8 REASON _____

9 ____ ____ CHANGE _____

10 REASON _____

11 ____ ____ CHANGE _____

12 REASON _____

13 ____ ____ CHANGE _____

14 REASON _____

15 ____ ____ CHANGE _____

16 REASON _____

17 ____ ____ CHANGE _____

18 REASON _____

19 ____ ____ CHANGE _____

20 REASON _____

21

_____

22 DR. KEVIN JAFFAY

23 Sworn to before me

this ____ day of _____, 2024.

24

_____

25 Notary Public

A

**a.m** 1:22 4:3 59:3,5,5,6 145:10,14
**abiding** 31:5
**able** 21:23 70:5 87:13 93:14 94:5 104:19 110:2 118:8 120:1 121:17 122:21 123:3 184:25 206:13 208:21 243:3 250:21 254:18,20 255:3 256:4,7 257:1,24 258:8 274:11 276:18,19 276:19 277:10
**above-en...** 1:18
**ABR** 9:3,8,10 9:13,20 17:14,17 18:1 21:11 27:5,14 46:10,25 47:1 49:8 49:14,24 50:3,16 56:13 65:19,20 97:12 120:2 150:14,22 153:15,19 154:11 163:1,2,8 163:12,17 164:7,20 166:13 167:3,7 225:8,24 226:8 230:24 231:3 259:19 272:6 284:15,18 285:6
**absolutely** 29:1 87:5 125:4
**abstract** 36:7,8,15 36:19 37:3 196:19,23 198:14
**academic** 35:15 48:10,25 60:15
**accept** 61:22 207:3
**accepted** 7:15
**access** 35:16 132:4,7 203:8,9
**accurate** 7:6 104:16 156:25 249:7
**accurately** 23:10
**achieved** 197:9
**acknowle...** 80:18
**acquired** 60:7 66:17 107:2 151:19,21 151:24,25
**acronyms** 250:25
**act** 205:6
**acting** 210:20,20 210:21
**action** 4:7 11:4,6 14:9,13,21 14:23,24 15:2 303:12
**actors** 210:19,21
**actual** 62:11
**adapt** 74:24 75:10,23 105:18 106:8 277:11
**adaptation** 53:24 54:12 55:5 68:10,10 70:20 71:20,20 75:19 104:24 105:21,23 106:12,21 106:24 107:1,4,13 107:17,22 130:12,18 130:22 142:1 143:1 144:17
**adaptations** 110:25 111:2
**adapted** 122:4
**adapting** 106:25 107:5,7,7 108:25 109:3,3,5 149:6
**adaptive** 50:20 66:25 67:22 68:6 68:9,13,21 69:15,22 69:23 70:1 70:8,13,16 70:19,23 71:3,7,11 71:16,22 71:24 72:13 74:7 74:14 101:18 102:4 104:12,20 104:25 107:10 108:6 110:3,19 111:13,18 128:24 129:3,10 134:16,22 141:20,23 141:24 142:16,21 142:24 143:16 144:12,20 150:9
**adaptively** 149:24
**add** 144:10 241:8
**adding** 144:10 209:21
**addition** 153:12 224:19
**additional** 224:16
**addresses** 212:10
**adjourned** 302:18
**adjust** 130:24 131:10 134:18 142:1,17 142:23
**adjusted** 122:3 131:9,12
**adjusting** 131:7,7,21
**adjustments** 121:3,8,13 121:19 122:2,16 124:16,19 125:11 129:5,12 129:15,16 129:24 130:1
**adjusts** 131:2 135:8
**administ...** 4:19
**adopt** 100:20
**advantage** 121:1 122:14 123:8,23 123:25 265:15 266:20
**Advantages** 281:18 282:6
**agent** 217:20 217:25,25 218:4,7,16 218:19,22 219:10,14 219:22 220:2
**aggregation** 132:12 133:5,9,19
**ago** 22:2 79:11 108:10 116:11,13 164:19 223:23
**agree** 6:9,25 7:18 8:13 9:11,14,17 9:23 18:1 23:9 25:7

28:16
39:20
41:15 44:4
45:3,13
46:17
53:14
61:16 62:2
65:7 70:22
71:23
74:23 79:7
81:17
83:11 84:3
88:14,18
89:3,22
90:6 91:19
92:14
95:10
96:13,17
101:23,24
102:22
109:4,22
110:12
112:22
114:1
115:8
116:12
117:24
118:14
119:10
126:22
127:2,13
128:20
132:21
133:2,6
140:7,25
142:8
143:3
147:20
148:22
151:16,21
152:3,24
155:22
157:14,16
157:20
158:2
160:3,23
161:21
165:3,21
166:3,12
166:15
167:3,14
168:11
169:3,24
170:2,14
170:17
171:11,19
171:24
172:12,18
173:16,19
174:8,20
175:18
176:15
178:6,10
178:14,17
179:10
181:2
182:19
183:13,19
185:13
186:5,8,9
187:8,16
187:21
189:3,15
189:23
190:9,22
191:8,24
192:6,9,24
193:2,12
194:23
196:8
198:17
199:1,5,16
199:20,22
200:21
201:25
202:21
203:6
204:15,23
208:10,20
216:22
219:24
220:10
224:10,12
224:18,20
228:1,4,8
229:21,25
230:4,12
230:22,25
231:4
232:1,8,16
234:15
238:8
239:3,18
240:4,14
240:25
244:7
246:5,7,9
251:18
253:10,24
254:3,11
254:15,17
255:19
256:22
258:10,25
260:23,24
261:22
262:9
263:1
264:6
265:1,20
265:25
266:2
268:1,7
271:19
272:9
275:17,18
277:2
278:7
279:2,4
281:7
288:11,13
289:12
291:10
293:3,18
294:6
295:13
297:11,12
297:13,19
298:11
**Agreed** 193:8
217:21
255:20
**agreeing**
230:8
**ahead** 69:17
128:4
161:7
165:13
231:13
273:13
281:21,24
282:15
**aims** 239:9
**Allen** 238:1
238:7,11
238:13,16
238:19
239:9,14
239:15,19
239:21
240:2,12
240:20
241:4,11
243:12,15
243:16,21
243:24
**Allen's**
239:4,8
244:8
**alleviated**
132:4,7
**allowed**
102:13
158:23
299:15
**allowing**
33:7 86:8
86:24
**allows** 239:5
247:6,13
247:18
**alternate**
210:15
**alternative**
173:2,7
176:10
178:22,23
182:12
184:7,9
274:2
**alternat...**
166:25
167:9
197:5
**alternat...**
43:8,12
**Alto** 2:13
242:9
**amazed** 277:9
**amazing**
268:6
**Amazon** 77:19
77:25 78:2
78:5,9,15
79:13 84:9
84:15 85:1
85:10 86:2
87:8,15,22
88:5 90:14
93:7 94:7
**ambiguous**
40:1
**ameliorate**
136:8
**amortize**
237:18
**amortizing**
234:1
**amount** 14:6
149:23
294:13
**amounts**
185:12
**analysis**
37:15 81:7
86:1 87:15
88:5 94:25
156:12
**and/or** 50:23
**Andrew** 2:11
5:1 99:14
**andrew.w...**
2:14
**Android**
243:8
**animated**
172:10,16
172:20
174:24
175:6,8,19
176:11,12
187:14,20
**animation**
180:21
188:8,9
**animations**
180:22
**answer** 26:9
27:10 37:1
57:20

69:17 76:3 82:2 84:23 85:25 86:13,18 111:17 118:24,24 129:20 139:12 157:3 190:7,8,8 207:22 212:21 214:2 218:3 220:15 221:11 223:22 224:15 228:19 241:9 243:14 273:13,20 294:2,10 294:10
**answered** 34:25 82:18 95:5 292:18
**answering** 85:9
**answers** 96:18 118:22
**anybody** 59:9 145:19 198:10,12 211:8 263:18 267:7 299:7
**apart** 115:21 174:7
**Apologies** 165:23
**APPEAL** 1:1
**appear** 173:3 173:6,8,12 244:16
**APPEARANCES** 2:1
**Appearing** 2:5,9,15 2:19,20
**appears** 8:14 24:5 31:1 61:4 77:14 77:17 83:13 110:16 146:1 156:13 167:15 202:2 221:18 225:12 230:23 238:9 274:9 280:24
**Appendix** 286:22 290:9,15
**Apple** 287:8 287:18
**applicant** 25:6,25
**applicants** 80:11
**application** 24:19 25:9 25:17,22 26:3,4,5 26:11,21 26:23 27:7 27:9,15 32:2 33:2 105:20 108:21 117:6,18 118:4,7,13 118:17,25 119:2,15 119:20 120:6 126:10
**applicat...** 27:1 128:20
**applied** 24:1 28:10,16 29:4,11 68:6,21 300:14,23 301:11
**apply** 9:19 24:2 28:19 29:16 222:22 223:21 300:18
**applying** 38:4,7
**appreciate** 83:20
**approach** 35:11,22
**approached** 10:20
**approaches** 148:4,6
**appropriate** 93:13 94:4 150:24
**appropri...** 142:1,18 142:23
**approxim...** 5:16,19,23 6:19 17:9 182:11,21 183:3,9,15 183:21
**approxim...** 21:24
**April** 259:11 280:21
**architec...** 54:25
**architec...** 50:22 51:3 55:9,15,18 56:4 98:18 103:5
**archived** 222:4
**areas** 261:19 262:1
**argue** 62:9 78:6 84:9 84:15 86:4 86:20 146:17 225:1 249:2
**argued** 85:1 85:10 87:14
**argument** 40:20 160:19 161:8,12 161:17,19 161:22,23 162:6,7,12 173:1
**Argument...** 87:25
**arrive** 96:11 97:20 98:3
**arriving** 28:12
**art** 15:13 28:19,21 28:25 29:3 29:5 35:7 35:12,19 36:18,18 36:22 38:19 41:7 41:17 42:22 43:2 43:25 45:1 45:7 46:21 47:24 48:5 50:8 56:14 56:16 65:12,16 65:18,23 66:2 79:14 80:3,14 116:16 117:4,11 118:10 119:12 120:2 159:10,21 160:4 170:4 174:17 196:6 208:13,23 209:12,25 225:16,21 226:2,7 232:22 233:2,3,11 237:2 252:23 253:22 254:2,13 254:22 255:3,7,10 255:24 256:3,7,20 257:1,9,24 258:7 264:21 285:19 286:6
**article** 3:12 76:21,25 78:21 79:1 79:5,14 83:25 84:3 110:13,17 112:21 121:18 127:13 128:17 135:18
**artifact** 137:3
**aside** 58:12 99:11 160:9
**asked** 7:9 11:9,21 12:9 13:20 19:17 20:4 20:22 27:4 27:12,12 31:17 35:13 57:5 57:7 78:9 82:18 95:5 132:22 157:2,3 161:6 198:21 204:16

221:22
235:14
292:16
300:13,22
300:25
**asking** 12:22
70:1 115:4
116:15,17
164:23
185:9
206:19
207:11
218:12
235:21,23
273:10,14
273:17
275:12
**aspect** 152:8
158:16
184:5
238:25
268:8
272:11,24
273:3,11
273:15
293:23
295:1,2
**aspects** 48:8
73:9 239:3
**asserted**
50:8
**assess** 85:19
118:8
119:23
140:3
273:15
**associated**
218:1
**assume** 26:1
27:8 34:9
93:19
94:24
113:16
137:25
160:7
178:24
242:12
243:7
**assumed**
32:19
92:16 94:1
98:22 99:2
99:10
**assuming**
72:17
74:18
114:22
169:12
170:9,17
182:4,9
183:13,19
213:5
215:12
239:25
240:10,22
**assumption**
27:2,16
183:1,4,9
183:11,25
241:8
**asterisk**
144:24
289:1
**attempt**
23:12,17
75:10,23
106:4
129:4,11
**attempting**
108:5
202:10,11
260:25
**attempts**
260:14
**attention**
101:19
**attorney** 3:4
3:7 4:21
5:1,12 7:3
7:7 12:24
13:6,7,11
13:14,15
13:17
14:14,19
25:10,14
25:19 26:8
26:14,17
28:22 29:2
33:18,24
34:19,23
35:2,6
36:23 37:5
39:1,6
40:15,22
41:9,13
45:4,10,25
46:5,12,16
52:13 53:2
54:14,18
55:19 56:1
58:5,7,17
58:19,22
59:8 60:22
61:1,17,23
68:23 69:5
69:7,9,11
69:16
72:15,19
75:1,12
77:9,11,21
78:1 79:16
80:1 81:11
81:16,22
82:4,17,24
83:3,7,10
87:1,7,24
88:8 89:6
89:18,23
90:2,16,18
90:21 95:4
95:9,20
96:2 97:5
97:13
109:9,15
110:21
111:4
115:11,20
120:13,20
121:20
122:1,23
123:6
130:2,13
137:9,20
138:4,8,13
138:17
140:10
141:2,8,10
141:14
145:17,21
146:4,9
147:25
148:13
159:23
160:2
165:11
174:12,18
175:11,15
177:5
180:3,24
184:20
185:3
187:9
192:14
193:1
194:15,22
197:15,22
197:24
198:1,9
200:24
201:3,7,13
201:17
202:24
203:4,23
204:6
206:5,11
206:17,24
207:9,18
209:16,23
210:3,17
210:22
211:1
218:9,15
222:12,18
223:6,10
224:3,13
224:17
225:19
226:1,5,14
226:23
227:5
228:9,11
228:13,15
228:16,18
229:1,5,7
229:9,20
241:14,19
242:2,7,17
243:5
248:7,18
251:13
252:15
253:1
254:4,10
254:24
255:6,13
255:17
256:12,18
256:23
257:7,12
257:18,22
258:9,15
258:17
265:6,19
266:9
267:1
268:20,24
270:7,10
271:24
272:13
273:1,4,6
273:8,10
273:12
275:9,14
275:19
276:7
277:4
278:6,12
279:1,9,18
281:14,16
285:22
286:4,9,17
289:15,18
289:23
290:6
291:1,9
298:14,21
299:6,10
299:11,14
299:18,21
299:25
300:11
301:12,15
301:19,20
302:3,8,10
302:14,16
**attorneys**
12:25 13:2
57:5
299:16,22
**attracted**

101:19
102:3
**attributes**
112:3
129:5,12
129:15,25
**attributing**
85:15
**audio** 50:23
60:1,7
66:21 67:1
67:23
68:21
69:24
70:14,14
70:17,24
71:3,11,16
71:25 72:7
72:13
78:22 91:7
91:17
92:12,25
93:3,15
112:8,12
112:13,18
112:22,23
113:1,4,6
113:9,12
113:14
127:6,9,16
127:18,19
133:21,21
134:2,7,8
147:18
148:7,20
149:1,7
150:10
152:13,19
152:23
160:23
161:4,15
161:24
162:3,15
162:24,24
163:4,9,18
164:15,22
165:6
166:25,25
167:4,8,9
167:24
168:7
169:2,10
169:19,25
170:7,11
170:15
188:7,9
243:17
276:20
**aughts** 158:5
**August** 92:15
92:23
93:25
94:25
**author** 76:22
79:1,10
259:13
**authored**
72:25 73:1
110:13
**authorized**
72:25
**availabi...**
151:1
**available**
44:21
48:11 76:7
76:9
102:21
105:25
106:5
112:7
149:18
181:19
261:6,7
**average**
114:14
**awards** 73:3
**aware** 9:24
10:12 12:5
18:22
19:18
22:21
23:13,18
34:15 46:6
46:9,25
47:2 63:24
64:2 65:13
80:13
142:25
154:10
267:7
286:11,15
**awfully**
132:23
**Aylo** 1:3 4:7
4:25 8:2
9:25 10:13
10:16 12:5
30:19,23
**Aylo's** 18:7

**B**

**B** 23:4 29:8
29:12
**B-a-m-b-a**
76:12
**B-o-x-e-r**
146:3
**B2** 1:9,10,11
1:12
**B2)2** 1:13
**back** 21:5
37:6 58:12
68:14
69:20 86:1
88:4 90:11
94:14
101:9
106:7
107:3
109:3
120:24
140:18,22
142:14
154:17
160:10
170:22
174:19
175:16
181:8,23
191:19
201:24
207:15,23
211:2
213:17
215:18
235:10,12
236:1,3,8
241:9
244:9
246:17
249:14
263:24
274:3
276:25
277:16
288:6,25
293:15
297:21
**back-and...**
25:6
**background**
23:5,10,14
23:19
126:3,7
256:3,7
282:14
**bad** 139:7
280:5
**Baker** 1:21
2:11 4:14
5:2,4,5
12:20,21
**ballpark**
17:9 120:8
**Bamba** 76:12
76:16
78:22
79:24,25
91:4,6,10
91:11,12
91:16,22
92:11,18
93:12,14
93:15,21
94:3,5,9
94:17,20
95:2 96:7
96:10,21
96:22,23
97:14,19
98:2,17,23
99:4
**bandwidth**
91:7,17
92:12
100:9
105:12,14
105:25
106:5
149:18
150:25
169:13
170:10,18
181:1,7,18
185:15,17
185:20,25
186:11,13
267:15
293:24
295:8,18
295:20,22
297:10,11
297:15
298:13
**bandwidt...**
185:1
**banned** 96:7
**Barbara** 1:19
1:24 4:11
303:2,17
**base** 98:16
**based** 31:23
32:11,24
37:18
100:9
106:12
107:2
150:25
184:23
284:3
295:2
**bases** 43:16
96:20
**basic** 260:15
**basically**
125:6
**basis** 7:23
43:21,22
84:13,20
85:7 87:16
**bear** 29:19
30:14
38:11
**bears** 30:23
**beginning**
67:21
70:15
141:20
227:16

97:18 98:2 126:10 127:22 130:18 134:15,16 151:11 168:16 188:2 262:20
**behalf** 2:5,9 2:15 5:8 11:13 24:3 35:8 61:14
**belief** 82:5 82:9 92:5 239:8 263:18
**believe** 7:1 8:22 10:22 11:11,21 12:15 15:3 15:5 16:15 16:23 19:5 20:9,25 22:5 23:25 29:7 50:1 50:4,17 56:25 65:3 76:13 83:15 84:7 91:14,14 112:16 141:15 156:1 176:18 203:17 209:21 237:1,24 239:8 259:5,18 263:5 265:9 266:7
**believed** 92:5,22
**believing** 7:23
**bemused** 265:23 266:23
**bemusement** 268:3
**Ben** 24:12
**beneficial** 267:4
**benefit** 263:20
**best** 6:23 22:19 50:12 120:23 129:20 147:19 148:8,20 149:2 283:17 295:1
**better** 137:18 264:5 268:14 280:3
**beyond** 38:2 38:4
**bidirect...** 113:3
**big** 151:4 205:4,7 264:23
**bigger** 100:24
**bit** 51:7 52:22 56:11 63:21 74:24 75:9 75:22 100:1,3,8 100:12 105:5,5 107:5,7,8 107:10,13 107:16,24 108:1,15 108:17,18 109:3,3,6 109:7,13 109:17,22 109:25 112:8 115:18 117:4,7,8 117:11,20 117:22,22 117:25 118:11,15 118:20,21 119:9,12 119:23,24 120:3,3,4 120:11,11 121:3,8,19 122:3,4,16 124:11,16 125:12 129:16,17 130:1,4,6 130:24 131:2,7,8 131:12,18 132:14 134:19 135:1,9 142:4 143:2,24 149:24 150:1,23 177:15 195:9 198:17 199:10,13 210:1,13 236:9 239:13,22 240:4,14 240:17,25 241:5,12 242:15 243:11,19 285:14 287:16 288:2 293:7,19 294:1,7,7 294:11
**bits** 107:18 135:13 199:3,7
**block** 171:4 171:5
**Blockbuster** 205:4,16 205:21,21 207:1
**board** 1:1 87:20 88:3
**bone** 146:22
**bottom** 179:19 289:1 297:5 298:7
**Botts** 1:21 2:11 4:15 5:2,4,5 12:20,21
**Bowl** 63:10
**Boxer** 146:3
**brackets** 245:4,8,12 245:24
**break** 51:10 58:20,23 59:10 145:8,19 177:6 198:11,13 198:21 235:1 251:13 299:8,13
**breaking** 101:1
**BRI** 114:8
**briefly** 215:25
**brilliant** 51:22
**British** 56:24
**broad** 43:3
**broader** 67:9
**brought** 146:2
**browser** 214:25
**Brueck** 48:16 49:9,19 52:3,16 53:12 54:5 54:6 159:14,16 233:23,24
**buffer** 203:10
**building** 2:13 74:2 108:21 283:25
**burden** 29:19 30:14,23 31:14,22 32:10,22 37:22 38:10 243:25
**buy** 144:6
**bytes** 96:11 97:20 98:3

C

**C** 4:1 211:12 211:13
**cache** 215:5 219:8,8,23 220:1,7,19 222:1,5 263:4
**cached** 212:18 213:25 214:4 215:8 220:4,12 221:12
**California** 2:7,8,13 11:15
**call** 13:4 102:14 105:4 113:8 190:16 207:3 292:2,20
**call.Who** 299:23
**called** 5:8 56:20,21 60:11

63:24 64:6
76:12,18
76:24
80:12
102:7,16
105:3
107:6,9,11
114:7
146:3
237:11
261:3
263:9
270:13
297:25
**calling**
193:15
269:25
295:24
**calls** 15:24
25:11
34:20
252:16
**capability**
136:25
210:6
**capable**
295:16
**capturing**
180:12
**car** 138:23
138:24,25
140:19,23
140:23
141:1
292:24
293:2,13
293:17,20
294:5,8
**career**
283:13
**Carmel**
155:17,22
156:1,17
156:20,23
**Carolina**
59:20,20
73:10 74:8
103:17,24
**carve** 128:22
**case** 6:10
11:2,8,11
11:14,16
11:18,20
11:24 12:2
22:20
41:20
48:14,17
56:2 79:21
88:6 127:8
132:9
146:23
156:13
167:11
195:24
**cases** 6:25
7:8,17,23
48:8,20
**caveating**
96:18
**CBS** 287:9,19
**CDM** 267:16
267:23
**central**
246:23
247:18,24
**centralized**
248:3
**certain**
151:20
173:9
**certainly**
23:12
26:25
109:11
114:3
141:5
146:23
151:4
167:5
168:9
169:22
177:13,13
178:19,19
181:4
187:12
192:18
193:3
209:2
216:3
219:20
220:5
241:7
268:11
276:12
281:3
**certify**
303:3,9
**challenged**
45:16,23
**challenger**
6:18
**challenges**
8:4 108:4
108:10
**challenging**
7:2 13:21
35:9
**chance** 87:19
**chances** 6:11
242:14
243:9
**change** 29:15
85:22
100:12
107:17,21
108:14,16
115:17
119:13
120:11
121:11
122:6
124:5,7,8
125:2,5,7
125:8,18
125:22,23
125:24
132:13
135:4
138:2
157:4,7
301:7,10
304:5,7,9
304:11,13
304:15,17
304:19
**changed** 9:25
10:13
109:14
110:1
124:3
125:4,20
132:18,25
**changes**
100:9
118:15
123:15,16
123:18,20
124:14,25
125:1,13
135:11
304:2
**changing**
100:1,8,22
101:7
122:8,9,9
124:1
131:15,17
131:18,19
132:10,19
132:25
134:18
135:6,8,17
144:8
**channels**
114:8,9
**characte...**
239:25
240:10,22
**characte...**
203:21
265:24
**characte...**
266:1,4
**characte...**
164:24
**charge** 14:11
14:12 15:4
**charged** 15:2
35:20
**charging**
15:1,3,4
**chart** 216:8
**cheaper**
272:16
**check** 177:5
212:24
220:3,6
**checks**
212:17
213:23
218:23
219:14
220:11
**choices**
258:13
**chunks** 53:16
53:22
54:10
57:12,18
**circuit**
105:11,12
**cite** 176:15
176:17
225:7
247:1
**cited** 15:12
33:14,20
34:1 82:25
83:24 84:4
84:5,7,8,8
84:17,18
85:3,4,12
85:13,21
86:6,22
88:15,15
88:20 89:2
89:10,20
90:4
**cites** 176:18
**citing** 45:8
168:23
225:13,15
**claim** 41:14
41:19
45:22 46:7
46:10,11
46:17,19
58:11
162:10
164:1,1
165:1,3
188:11,15
188:19,20
188:21
189:1,6,12
189:17,23
190:9,15
190:22
191:19,21
191:22

192:1,7,9
192:18
193:2,23
194:2,6,11
194:12
195:17,20
196:1,13
196:14
199:15
203:16,18
204:11,12
204:15,19
205:25
207:5
208:17,22
209:13,19
209:22
225:9,18
226:4,13
231:6,13
231:18
232:3,17
234:6,7,9
234:9,11
234:18,18
234:19,19
235:8,13
235:14,21
235:23
236:10,12
236:22
237:3
244:17,20
245:14,18
245:24
246:4
247:5,12
247:16,18
249:16
253:2,5,10
253:14,19
253:21,23
254:8,11
254:15,16
254:19,21
255:4,18
256:4,8,8
256:15
257:3,25
**claimed**
162:10
188:21
199:17,23
**claiming**
225:24
**claims** 33:7
36:10,11
36:14,15
38:17
41:19
45:17,23
46:22 58:9
58:10 86:9
86:25
162:10
163:14,17
163:21,21
163:23
164:23,25
165:8
225:2,12
231:25
234:3,12
234:17
246:20
249:3,11
251:11
253:10
**clarify**
236:1
**clarity**
57:20
**class** 74:4
**classes**
233:20
**clear** 29:20
30:9,15,24
31:4,23
32:23
37:12,23
38:7
192:17
199:2
218:10
221:5
233:1
274:10,17
275:8
**clearly**
79:23
**clicked**
203:5
**client** 54:11
55:5 93:13
94:4 96:9
97:16,18
98:1,2,18
142:8,9
197:20
212:1,16
212:18
213:9,23
213:25
214:7,8,13
214:14,17
214:18,23
214:25
215:5,16
218:2,8,17
219:20,24
220:1,3,4
220:6,12
220:20,25
221:9,16
221:20
222:1,11
222:15,16
223:4,12
223:13,15
223:19
225:3
233:17
234:7
244:24
246:22
249:4,6,8
249:12,14
249:22
250:2,6,6
251:22
252:9
254:1
255:9,19
255:22
256:11,21
257:5,11
257:17,21
257:25
258:2,6,10
258:12
263:3,24
264:8,15
265:4
271:7
284:22,24
**client-side**
53:23
**clients**
155:22
**clip** 96:8,10
97:25
245:25
**clips** 96:7,8
97:15
98:24 99:5
**code** 106:16
106:17,19
107:3
125:2
136:5,7
**codec** 67:18
67:19 75:9
75:23 76:1
76:5,6,7
107:17,19
107:24,25
108:12,12
108:14
119:3,6
121:2,11
122:7,9,10
122:15
123:9,11
123:16,18
123:20,24
124:4,5,8
124:9,10
124:11,12
125:9
131:12
133:13
136:12
140:4,15
140:16
144:7,8
149:25
288:20
**codecs** 73:18
133:20
**coded** 109:14
131:15
135:22
**coders** 117:8
**codes** 294:24
**coding** 54:22
115:17
195:16
210:8
298:17
**codings**
295:22,23
**collabor...**
103:4
121:15
**collabor...**
102:17
**collabor...**
123:11
**colleague**
4:23
**collection**
48:19
190:3,3,4
190:6,16
190:18,19
190:20
191:9
204:3,5
213:8
214:21
215:2
227:24
228:6,22
229:3,13
229:15,16
229:22
230:1,3,6
240:15,18
240:21
**collections**
215:15
**collecti...**
9:8
**Columbia**
1:20 303:1
303:3
**column** 111:6
112:1
121:1
128:7

134:12
141:19
166:5,8,19
167:16,20
168:16
169:7
176:23
177:9,16
177:23
179:19
182:3
184:3
185:7
186:17
187:24,25
188:5,5
213:2
216:4
219:2
227:9
251:2,4,10
251:16,20
253:18
**combination**
31:24
32:12,24
188:7
224:8
287:14
**combinat...**
287:4
**combine**
134:7
**come** 50:11
50:15
58:12
76:11
135:12
225:15
**comes** 45:3
133:13
162:20
**coming** 50:5
55:2 75:8
75:9,22,23
117:8
122:8
136:11
288:20
**command**
212:1,4,9
**commencing**
1:22
**comment**
222:22
277:7
**commercial**
64:3,6
**commerci...**
48:11 76:9
102:20
112:7
**Commission**
11:5,7
303:20
**common** 55:6
163:11
244:6
284:9
**commonly**
152:9
**communicate**
93:14 94:5
167:21
**communic...**
167:25
169:20
170:1,8
**communic...**
168:25
233:6
284:23
**communic...**
66:25
68:12,19
71:24
72:12 99:6
169:13
170:7,10
170:18
284:10,24
**communic...**
184:12,18
**community**
65:10
**companies**
62:7
**company**
10:12
63:24
**comparable**
241:22
**compare**
280:2
**compared**
120:11
293:23
294:11
**compatible**
241:23
**compensated**
13:23
**compensator**
140:4
**completely**
133:22,23
208:25
236:6
**complies**
8:20 23:2
27:20
38:14
59:18
62:15
63:22
66:11
78:19 91:2
93:10 98:9
98:13
99:12
126:4
143:9
147:3,12
147:15
151:7
153:2
156:3
159:7
160:17
166:7,10
167:18
188:13,17
196:20
201:20
211:13
227:22
231:14
238:20
251:6
253:7
262:22
269:9
282:3,17
**component**
152:24
**components**
143:17,25
144:13,20
**compression**
91:8,18
210:9
**comprise**
44:12,22
44:23,24
166:21,24
167:8
208:3
**comprised**
259:25
**computer**
74:3 104:9
243:8
**computers**
73:19
**concept**
52:23
116:18
117:16,21
118:1
261:19
262:1
**conception**
164:9
175:5
**concepts**
43:19 44:2
53:19
168:13
187:6
**conceptual**
271:13
**concern**
157:22
158:18
**concerning**
156:23
285:14
**concert** 63:1
63:8,9
**conclude**
39:13
150:3
301:18
**concludes**
301:21
**conclusion**
25:11
252:16
**Conclusions**
143:12
**conditions**
181:21
201:12
**conducted**
48:4
**conducting**
35:12
290:22
**conference**
102:3
164:12
**conferences**
59:23
143:19
144:14,21
**conferen...**
72:22 75:5
101:18,24
102:7,18
102:21
103:2
106:11
110:15
113:10
119:2
121:16
126:10,16
126:25
127:2,13
147:21,24
148:12
162:19
**confident**
88:6
**Confiden...**
281:3
**configur...**
172:9
**configured**
44:12

244:23
253:11,15
**confirm**
92:21
98:20 99:1
99:8
**confirmed**
22:12,17
**confirms**
187:7
**congested**
109:7,17
**congestion**
75:11,25
100:14
128:19
129:4,11
130:24
141:25
142:13,17
142:22
281:24
282:8
284:11
287:6
**conjure**
257:15
**connected**
203:9
**connection**
42:6
105:13
106:5
156:11
200:6,14
232:24,25
233:5,7,22
234:1,4,24
235:15
237:11,14
237:15,19
237:20
253:17
267:16
269:14
270:3
**connections**
91:8,18
92:13
95:14
231:20
232:13
233:16,17
234:8,11
237:5,8,12
237:13,13
263:3,9,19
263:23
264:8,15
265:4,16
266:14,18
266:21
267:3
268:4,8,13
268:14,19
269:20,23
270:2,4
**connecti...**
239:12
241:24
243:20
277:15,21
**connotes**
291:17
**consider**
37:16 44:6
80:25 81:9
81:25
82:11
84:10,16
85:2,6,11
89:17
115:22
116:1
117:11
118:10
119:12
120:3
267:25
273:2
**considered**
25:17
26:12,23
32:20 33:6
37:17
39:10
65:17
67:10
81:20 82:7
82:15 84:6
85:24 86:8
86:24
116:4,6,19
116:20
117:4,20
117:21,22
117:25
118:14,21
119:9,17
120:16
206:21
264:24
268:23
295:16,19
**considering**
84:22
**consistent**
285:5
**consiste...**
28:18 29:5
29:12
278:8
**consists**
25:24
**constant**
101:6
115:18
118:18
119:15,20
**constantly**
284:22
**constitutes**
229:15
**constraints**
127:7
132:4,7
**constructed**
149:15
**construc...**
39:14,20
40:9,14,21
41:4,15,22
42:18
45:17,23
46:11,19
97:8
**construed**
38:23
41:20
**consult**
129:21
130:10
**consumption**
164:12
**contacted**
12:16,17
13:3
**contacts**
123:14
**contain**
172:10,23
**contemplate**
273:21
**contempl...**
181:5
**contempl...**
197:18
**contempo...**
164:8
**content** 36:6
50:23 51:4
51:13,15
51:15 55:5
60:17
120:7
138:20
140:14,15
166:13,17
166:18,21
166:24
167:8
171:8,22
173:3,9,10
173:12,13
173:15,17
173:20,22
173:24
189:8,15
191:8
192:3,12
192:23
193:6,25
194:3,4,6
194:7,8,14
194:19,25
195:2,8,22
196:2,4,10
196:11,17
197:19
201:11
202:14
203:20
204:1,2,9
204:12,14
204:18,25
205:18
206:3,15
206:15
207:21
208:3,19
208:20
209:4
210:12,14
210:16
212:10
214:9,14
214:19,24
215:1,4
237:18
246:22
247:17
249:9,9,16
249:24
250:5
256:1
267:17,19
287:14
288:12,14
290:12,14
**contention**
146:23
244:8
**contents** 3:1
137:13
171:14
207:24
287:19
**context** 25:3
50:5 57:3
99:21,23
103:1
135:17
143:4
157:6
163:2
164:13
166:12
187:11
199:8,15
206:22

264:12
265:10,12
266:16
287:16
294:11
**continua...**
89:12
**continuous**
164:10
**contradi...**
87:18
**contrast**
164:7
**contribu...**
73:3
**control**
74:15
217:25
271:8
282:24
283:6,15
**controlled**
74:14
102:7
**controller**
217:20
218:1,4,7
218:16,19
218:22
219:10,14
219:22
220:3
**convention**
31:6
**conventi...**
92:24 93:2
167:25
168:1
169:2
**convert**
240:2,12
241:4,11
**converts**
239:21
**convey** 248:6
**conviction**
31:5
**convincing**
29:21 30:9
30:15,24
31:4,23
32:23
37:12,23
38:8
**cool** 279:17
**copies** 56:11
267:10
**copy** 83:14
176:21
**core** 52:4
**correct** 6:21
7:11 8:5
10:14 12:3
12:4,11,12
12:14,15
13:24,25
14:21
16:18
17:15,16
18:3,19
19:7 21:2
22:6,15,18
25:9,18
26:13 28:8
28:13
29:13,17
29:25
30:10,25
31:7 33:3
38:20
39:22
40:24 41:4
41:5,8,22
42:14,19
42:24 43:4
43:14,15
43:20
44:20,22
45:24 46:4
46:23
49:25 50:1
50:4,16,17
51:13
54:13
59:23 60:1
60:4,8
62:6,9,18
62:23
63:25 64:4
64:10 65:2
65:10,14
65:19 66:2
66:21,22
67:2,13
68:3,4
70:15
71:17 72:8
72:9,14,22
72:23 73:3
73:4,21
74:8,9,11
74:25
75:14,25
76:2 77:16
78:3 79:15
80:20
81:21
84:11,18
85:4 86:9
91:9,13,15
92:16,20
92:25 93:4
93:16,20
93:23 94:1
94:22,25
95:3,11,14
95:16,19
97:16,20
97:21 98:5
98:19,22
98:25 99:3
99:7,10
103:25
104:4
110:20
111:19,24
112:4,9
113:14
119:14
120:4,21
122:18
125:13
127:4,15
128:24,25
129:13,17
134:23
135:9
136:22,25
137:8,22
139:15
142:18
144:1,15
145:4
146:8,14
146:18
149:4,11
149:13,14
149:20
150:2,10
150:11
152:6,11
152:19,20
152:25
153:20
155:19
156:18,25
157:24
158:15,20
159:1,2,4
159:5,14
159:15
161:16,24
162:15
163:5,6,19
164:22
167:9
168:23,24
169:21
170:11
171:14,22
172:10,14
172:20,24
174:1,22
174:24,25
175:20
178:25
179:12,17
179:22,23
181:9
182:25
186:24
187:18
188:8,10
192:4
193:7
199:11
200:8
201:6
203:13
207:21
209:9
212:2,6,11
212:19,22
212:25
213:25
214:5,9,15
214:19,24
215:5,10
215:16
218:4,7,20
218:21,24
219:15
220:13,16
220:20,25
221:9,10
221:14,17
221:21
222:1,11
223:23,24
224:2
225:5
226:16
231:1
232:5,9
236:20,25
238:17
239:13,23
239:24
241:6,13
243:20
244:1
245:10
246:2,3,10
246:12,13
246:15
247:3,4,7
247:14
249:22
254:13,23
255:24
261:3
266:8
269:14,16
269:23
270:11
272:3
274:15
276:8,13
278:11
280:9

282:8
283:7,10
283:15
285:21
286:8
287:20
289:14
290:10,16
291:15
292:7
295:18
296:21
297:3,4
301:4
**corrected**
22:23
23:15
223:22
**correctly**
72:18
74:19
132:15
164:18
**correspond**
179:3
191:8
194:3,19
196:2
204:24
205:9
**correspo...**
178:13
**correspo...**
160:22
161:15
162:15
163:4,9
164:15,22
165:6
167:24
168:7
182:5,9,12
182:15,23
183:2,11
183:14,19
183:23
184:6,9
188:3
189:14
190:5
197:8,13
198:23
206:3
207:16
208:19
296:12
**corresponds**
177:25
178:8
189:8
192:3,12
192:22
193:6
194:8
196:6,10
204:2,4,13
205:10
206:14
207:21
209:4
**Cotton** 63:10
**counsel** 2:18
3:19 4:17
15:14,15
22:7 28:8
58:24
69:10
205:20
228:12
229:7
273:7
301:17
303:9,10
**count** 5:17
**counting**
5:18
**country**
242:13,14
**couple** 182:2
276:25
**course** 20:1
76:10
105:17
128:8
**court** 2:25
4:12,13,19
12:7
299:19
301:25
302:5
303:2
**courts** 10:17
**cover** 16:25
16:25 17:2
17:3,21,21
17:24,24
22:9,9
33:21 61:9
61:21
85:16,20
238:11,11
238:17,17
**cover-to...**
259:8
280:15,18
**covered**
62:11
131:23
**create** 202:7
207:20
208:14,24
209:3,6,11
209:15
**creating**
171:6,12
171:20,25
**creation**
205:13
**crisp** 274:10
274:17
275:8
**critical**
273:2,9,11
273:15,16
274:1
**CRR** 1:24
303:17
**crunching**
294:12
**culminated**
72:20
**curious** 56:7
266:5
**current**
149:22,25
150:25
213:7
215:15
**customary**
14:3
**customers**
281:6
**customize**
250:1

D

**D** 2:12 4:1
114:8
**D.C** 1:15,22
4:16
**Dallas** 63:10
**Daniels**
103:15,15
**DASH** 51:20
51:22 52:4
52:5,18,24
53:1,9,19
53:20
151:3
272:5,8
284:18
**data** 66:21
67:1,23
68:6,21
69:24
70:24 71:4
71:12,17
71:25 72:8
72:14
101:7,8
107:23
108:1
109:12,20
109:21
113:20,24
114:4,11
114:16,23
114:23,24
114:24,25
114:25,25
115:3,6,8
115:9,9,9
115:10,10
115:19,22
116:2,4,6
116:19,20
119:21
122:10
131:17,20
131:25
133:12,14
134:7,8
135:1
136:11
147:18
148:20
149:1,7,16
149:22
150:10
155:23
189:20
193:11
195:5,13
196:24
197:3
198:18
199:16,22
204:21
209:5
261:16,23
262:6
270:20
287:2
288:20
294:13
**date** 69:3
70:3
130:18,22
147:7
149:3,8,13
261:10
301:22
**dated** 259:11
280:21
**David** 20:3,4
20:7
**day** 88:10
89:14
304:23
**days** 280:17
302:5
**deal** 75:11
75:24
100:13
129:4,11
137:1
144:7
**dealing**
128:18
181:17

**decide** 133:14,17
**decided** 133:12
**decimation** 133:14
**decisions** 285:13
**declaration** 3:9,10,13 11:22,25 15:11,12 16:14,21 16:25 17:4 17:5 18:6 19:19,21 20:24 21:2 21:4,19,21 29:24 31:2 38:9 39:21 39:24 42:3 42:6,11,17 46:4 49:20 61:5,14 64:15 66:5 77:15 79:9 81:14 84:20 86:2 86:12,15 87:4 90:12 91:21 92:17 93:7 94:7,11,15 94:17 101:10 120:23 121:14 145:25 152:21 153:7 154:18 160:11 170:22,24 224:23 300:15,19 300:24 301:2,9
**declarat...** 15:9 16:13 16:17,20 20:2 29:6 40:13,19
**declare** 92:2
**declared** 145:6
**decode** 97:18 98:2
**decoding** 96:10
**dedicated** 105:12
**defendants** 29:19 30:13 38:11
**defer** 99:15
**define** 44:12 44:18
**defines** 293:22
**defining** 229:14
**definite** 158:10
**definitely** 12:21 36:8 85:17 108:11
**definition** 28:19,20 33:22 145:5 294:25,25
**degraded** 293:10,10
**delay** 66:17
**deliver** 186:4 223:12,13
**delivered** 91:7 92:12 220:24 221:8 222:10,16 222:24 223:4,18
**delivering** 91:17 97:10 217:16
**delivery** 60:17 149:18 150:25 154:12 162:24 288:8 290:9,15 290:22 302:9
**demand** 48:9 48:13 49:2
**demonstr...** 71:6,8,10 75:5 149:10 261:9
**demonstr...** 111:1 149:6
**Deniles** 103:14
**denominator** 244:6
**department** 74:3 104:5 104:7,8
**depend** 37:2 39:19 40:13 118:3,4,4 138:19 140:13,14 185:20,22 185:25 199:18,21
**depended** 40:17
**depending** 114:7 137:12 184:11,17 187:11 293:8
**depends** 6:6 116:14 117:5,17 118:12 137:12 234:9 242:4 293:21
**deployed** 92:19 157:23 158:19
**deposed** 5:14 19:10
**deposition** 1:17 4:6 4:14 8:1 12:10 15:8 17:11,14 17:22 18:10,12 18:18 19:12,15 19:24 20:15,17 20:20 58:25 59:10 145:19 198:11 206:19,23 248:21 286:23 299:8,9,23 301:18,22
**derive** 263:20
**derives** 265:14
**describe** 30:8 48:3 73:13 104:18 120:1 139:3,5 251:21 252:2,8 253:14,19 291:7
**described** 96:24 112:15 113:17 121:23 122:20 124:21,22 130:12 131:13 232:23 257:3 296:12
**describes** 43:7 110:24 143:5 233:23 251:17 281:8 282:6,9
**describing** 97:23 108:24 109:2 140:2 158:4 191:12 217:7,14 217:15 224:7 252:4 254:9 263:8,14 263:15 281:23 282:13 285:9
**description** 3:6 111:7 111:11 134:13 217:5 255:2 256:2 285:4
**Deshawn** 2:17 4:10
**design** 255:8 255:11,21 256:20 257:10 258:13 266:20
**designated** 165:19
**designed** 98:24 99:5

113:19,24
114:15
**designing**
253:24
**desirable**
265:13
**desire**
112:18
**desired**
215:9
**detail** 64:11
113:15
114:2,19
116:9,10
116:15
160:7
252:21
291:8
**details**
25:22
79:20 81:7
82:21
91:22
116:13,14
122:11
124:22
**detect**
141:25
142:17,22
**detected**
149:16
196:24
197:3,6
212:25
215:13
**detecting**
142:13
**determin...**
6:11
**determine**
118:6
**determined**
149:23
**develop** 72:3
**developed**
56:8 60:15
66:19,24
67:13 71:6
71:10 75:4
104:11,19
105:20
108:7
110:20
154:1
**developing**
68:2 72:21
**development**
65:1 67:8
67:15
68:11,16
68:18
70:18,21
72:5,11
79:7 108:9
**device**
232:17
239:12
240:1,11
240:23
241:13
243:19
244:24
245:3
246:5,7,8
246:9,23
247:6,13
247:18,22
247:25
248:1
**devices**
133:23
246:11,15
247:7,14
247:19,22
**diagram**
216:8
**dice** 53:15
**difference**
107:15,16
138:11,22
193:14,14
193:18
266:11
**differences**
108:25
109:2
193:19
195:3
**different**
8:4 28:20
29:16
56:11 87:9
87:22
101:4
119:13
130:7
133:23
163:21
167:6
173:3,9,10
173:13,14
173:21,23
182:10,13
182:20,23
183:2,15
183:18,20
183:24
184:8
185:4,12
185:15,17
186:11,13
189:7,18
189:19
192:2,21
193:5,10
193:11,16
194:4,6
195:5,9,12
195:13
196:7,14
196:17
198:17,18
203:20
204:21
207:20
208:3,18
208:25
209:5,15
210:21
219:25
240:3,4,8
240:13,14
240:24,25
241:1,24
241:24
243:1,3
244:21
246:21
247:17
248:3
270:23
287:4,4
289:22
291:22
293:23
**differently**
285:8
293:22
**difficult**
31:25
32:12,25
37:10,11
37:14,21
86:6,22
107:20
273:20,25
**digital**
35:16
**dimension**
152:4
**diminished**
135:24
136:1
**directed**
164:8,9
165:10
**direction**
1:25
**directions**
106:10
**disagree**
21:13 34:6
42:8 58:4
74:20
87:11
251:14
263:22
264:13
265:21,22
266:3
**disagreeing**
263:11
**discarding**
135:23
**disclose**
57:11
111:11
160:20,25
161:9,10
161:13
162:13
167:7
175:9
176:1
181:22
188:6
229:2
252:20
**disclosed**
54:20
150:23
155:22
172:13,19
174:8
194:17
215:6
219:21
225:16,22
226:2,9
**discloses**
43:12
57:17
168:6
169:18
170:6,14
171:6,12
171:19,24
172:8,21
174:20
175:1
176:5,8,8
178:6
179:11
182:19
183:17
189:1,12
191:21
194:18
219:1
227:24
228:6
229:21
230:5
243:24
**disclosing**
189:24
190:2,10
190:23
192:7,9
**disclosure**

9:18,19
52:11 80:4
80:12,19
81:18 82:1
82:6,16
143:24
168:3
174:3
176:3,10
181:10,25
182:1
184:15,25
187:13
201:10
205:25
207:5
226:18,19
**disclosures**
129:21
163:13
173:11
176:19
178:21
180:15
**discounts**
14:5
**discreet**
17:2,2
**discreet...**
57:12,18
**discrete**
52:19
53:22
54:10
**discuss** 9:18
13:6,14
28:6 40:24
42:13
102:6
145:18
176:13
**discussed**
33:15
45:12
110:17
150:13
153:23
175:22
215:10
284:10
292:10
**discusses**
296:2
**discussing**
167:11
283:3,5
**discussion**
145:11
150:18
298:25
300:2
302:6
**discussions**
9:19 15:14
**Dish** 1:6
2:18 4:8
5:3 8:4,23
10:16,21
10:21 11:9
11:13 12:5
12:9,16
13:23 14:5
14:13 15:1
15:4 57:5
86:4,20
95:18
96:13 97:2
272:6
274:20
**Dish's** 8:11
9:2 15:14
16:17,22
21:7,10
22:7 27:5
27:14 28:8
34:1,9,18
35:21 42:4
64:16
65:19,20
66:6 97:7
150:14,22
153:8
154:11
160:3,11
170:24
201:23
202:1,3,5
204:24
224:24
225:8
230:18,21
235:13
275:1
284:15
285:6
**disks** 248:2
**dismissed**
90:5
**display**
97:19 98:2
180:13
223:5
**displayed**
139:9,16
139:17
151:19,21
151:24,25
152:5
185:14,16
186:6,10
186:12
290:3
**displaying**
96:10
**dispute**
30:20
94:20,23
95:1,6
114:21
**dissatis...**
276:8,10
**disserta...**
24:7
104:23
**distance**
59:22
**distinction**
204:20
**distinct...**
24:21
**distinctly**
146:25
**distinguish**
163:1
167:4,5
**distribute**
267:12,22
**distributed**
240:7
**distribu...**
164:10
239:17
**distribu...**
158:25
188:21
191:22
239:4
295:8
**District**
1:20 11:15
11:18,21
12:1,2
303:1,3
**doctor** 5:13
41:25 53:3
58:1,20
59:9 61:11
69:17
85:10
87:19 89:1
91:25
99:15,20
124:24
141:12
145:18
162:7
198:10
228:19
234:25
248:9,20
273:13
299:7,15
**document**
40:1 47:11
61:2 77:12
77:23 83:9
130:15
141:16
146:5
201:23
258:21,23
259:2,4,5
259:11,13
260:14,21
280:6,8,12
280:21,24
281:1,3,5
281:7
283:3
284:4
286:23
291:6,21
291:22
292:6,9
295:15
**documents**
40:4,6,13
156:5,11
291:21
**dog** 242:21
**doing** 67:5
70:8 76:18
95:7 96:7
106:12
107:14
115:17
234:25
242:5
267:8
270:24
279:13
284:3
285:11
**dominance**
158:22
**dominant**
153:13
**dominating**
119:8
**donated**
73:18
**dong** 242:8
**doubt** 10:7
38:2,5
**download**
95:8,25
96:3,12,17
96:19 97:3
97:23
155:23
200:7,16
203:15
**downloading**
97:1
**downloads**
96:21
**Dr** 1:17 4:6
15:11,13
18:6,11,18
218:12

304:22
**draft** 22:4,6 22:9
**drafting** 21:15,25
**Drew** 18:24
**drop** 285:15 286:13
**drops** 139:2 140:24 181:1 185:17 186:13
**Duke** 59:20
**duly** 1:19 5:9
**duration** 151:20 182:11,21 183:4,10 183:10,16 183:22 209:9,14 209:20 233:25 276:3

**E**

**E** 4:1,1 298:4,7
**earlier** 18:12 49:13 56:6 56:13,15 108:24 109:2 117:19 121:10 133:11 148:18 150:13 175:22 177:16 186:18 204:10 213:22 215:10 222:23 231:3 300:12
**earliest** 55:8,14,17 56:3 71:2 147:7
**early** 10:23 47:25 48:6 64:3,25 74:24 119:4 157:21 158:1,8,11 158:13 159:3
**easier** 125:21
**Eastern** 4:3
**easy** 116:22
**EchoStar** 20:12
**Edell** 2:19
**edge** 239:18 239:20 240:2,12 241:3,10 243:17,22
**effect** 140:3
**effective** 154:1 288:2
**effectively** 37:19 225:15 267:15 272:7
**effects** 136:8 137:1
**effort** 147:19 148:8,20 149:2
**efforts** 108:9
**either** 10:22 56:18 124:2 202:17 287:14 294:24
**elegant** 51:23
**element** 200:23 201:5 225:18 228:3,7,24 229:4,24 230:7
**elements** 126:17 127:3,9,14 127:16,18 197:4,7,12 198:22 226:4 227:25 228:24 229:19 230:3
**elimination** 271:15,21 272:10
**Eliot** 2:12
**Elliot** 5:5 300:1
**embed** 202:12
**embodiment** 167:10 176:1 178:7 189:24 190:10,23 192:7,10 195:18,21 213:14,15 216:9 217:7
**embodiments** 169:8
**emergency** 285:15,21 286:8,14 291:19,23 291:25 292:11,14 292:17 293:1,6,6 293:14,18 293:25 294:6 297:25 298:3,12
**emitted** 122:10
**employee** 20:12 205:5 303:10
**employees** 205:4
**empty** 243:1
**enable** 66:20 72:6 106:20 252:22
**enablement** 252:12
**enables** 98:3
**encode** 138:9
**encoded** 51:6 108:14 139:21 140:8 166:13,16 199:9,13 288:21 297:17
**encoder** 71:14,21 71:22 240:5,16 243:18
**encoders** 66:24 67:6 67:8,13,15 67:22 68:3 68:5,8,9 68:16,18 68:20 69:14,21 69:23 70:13,18 70:19 71:11,15 71:19 72:11 239:18,21 240:2,7,12 240:19,20 240:21 241:4,11
**encodes** 288:17
**encoding** 52:20,21 54:24 70:2 70:9 150:23 210:9 240:6 243:17,25 275:24 293:24 294:19 298:18,20
**encodings** 53:23 54:11 240:9 267:11,12 267:22
**encountered** 10:11 49:7 49:14,16 51:21 55:23 284:17
**end-to-end** 95:13 106:23 129:3,10
**ended** 112:19
**engagement** 49:6
**engineer** 73:15,20
**enhanced** 197:8,13 198:23 199:5,10 199:11
**entered** 293:17 294:5
**entering** 157:24 158:20
**enters** 292:25 293:14

**entire** 23:8
27:5,13
278:2,17
279:16
**entirety**
82:11
275:6
**entitled**
258:24
292:6
**entity**
219:16,19
220:9,11
**environment**
109:8,17
118:7
242:5
**episode**
278:23
**equal** 200:7
200:15,18
**equals**
296:16
298:4
**equipment**
162:19
**equipped**
93:13 94:4
**equivalent**
275:25
**Ericson** 20:3
20:5,7,11
20:14
**Ericson's**
20:23 21:2
21:4
**ERRATA** 304:1
**error** 148:14
**errors** 23:18
**especially**
31:24
32:12,25
37:10,11
37:14 86:5
86:22
**Esq** 2:2,7,11
2:12,18
**essentially**
17:25 18:2
73:17
104:24
106:12
107:23
135:2
139:15
141:6
289:9
292:1,18
**established**
147:19
148:21
213:22
236:12
247:5,12
**establis...**
237:19
**establis...**
234:1
**estimate**
105:25
106:5
**estimating**
149:17
**event** 63:15
**everybody**
15:4
**evidence**
29:21,23
30:9,15,24
31:4,5,23
32:23
37:12,24
38:8
177:13
228:17
300:21
301:10
**exact** 185:9
210:14
243:11
261:10
**exactly** 37:2
37:3 47:3
51:19
128:4
195:6
207:24
236:19
261:8
289:7
290:1
**EXAMINATION**
5:11
300:10
**examined**
5:10
**examiner**
32:1,14,18
32:19 33:1
33:6,11,17
33:23
34:13,14
34:16
37:13,16
37:19,20
80:24 81:8
81:19 82:8
82:15
84:10,16
84:22 85:2
85:6,11,18
85:23 86:8
86:24
88:19 89:3
89:17,21
90:5
**example** 29:4
43:19 44:2
44:10
70:10
80:14
89:16
120:7
140:18,22
148:24
155:18
167:21
168:12,17
169:4,10
172:8
179:18
186:20,24
187:6
195:16
228:2
229:17
233:9
241:20
243:7
262:4
264:11
270:19
**examples**
43:13,17
43:23 44:3
168:13
169:3,23
172:4
187:7,15
187:17
**excited** 63:5
**excuse** 48:19
**exemplary**
43:7
**exhibit** 3:6
3:8,9,10
3:11,12,13
3:14,15,16
3:17,19
8:8,10,23
21:5,17
22:4,13,16
22:22 23:1
27:19 28:7
37:7 39:16
40:23 42:1
42:3 47:9
57:23,24
58:2,16
60:23,24
61:25
62:13
63:20
64:13 66:5
77:6,7
78:12 83:4
83:5 90:12
90:19
91:25
99:11
101:9
110:6,7,10
110:13
120:25
126:2
141:15
143:8
145:22,23
145:25
147:2
150:12
151:5
153:6,9
154:17
160:9,10
165:12,14
165:16,17
165:20,20
165:24,25
166:2
167:13,13
170:23
201:14,15
201:19,25
208:6,7
211:2,3
215:18,19
215:20
224:23
230:14,21
235:5
237:25
238:3,6,7
244:9
245:15,22
248:24
250:9,12
258:19
260:20
265:21
266:1
269:1
274:4,9,22
274:23,25
280:6,7
281:11
286:19
287:1
292:5,5
294:16
296:1
300:16,24
301:9
**exhibits** 3:5
15:11
**exist** 102:16
243:14
**existed**
70:10
97:10,11

278:5
**existence** 56:9
**expect** 99:14 200:7,16 200:19
**expected** 145:4 189:19 195:13 196:15 199:16,22 200:21 201:5 204:21 209:5
**expense** 162:20,22
**expensive** 144:4
**experience** 6:24 36:4 89:8 135:25 136:2 137:17,19 137:21 138:16,23 138:25 139:3,7 179:25 180:1 239:6,10 239:16 275:18
**experiment** 60:16 112:4
**experime...** 288:2
**experime...** 252:24 255:5 256:5 257:4
**experime...** 111:12,18 287:17
**experiments** 111:21 143:16 287:3
**expert** 5:20 8:10 10:9 10:21 11:9 11:14 12:10,17 13:5,13 21:6,10,16 21:25 22:9 27:22 28:3 28:7,11,17 28:20,21 30:7 38:13 47:21 48:7 59:13 61:4 61:11,14 62:3,8 77:14,19 78:5 86:5 86:21 93:7 146:11,16 153:7 177:11 244:10 249:1
**Expires** 303:20
**explain** 87:20,21 88:3 179:4 267:2 270:15
**explained** 24:20
**explaining** 290:1
**explains** 260:21
**explanation** 237:1 253:23 254:16
**express** 39:16 45:18 46:3 275:17
**expressed** 40:13 46:18 274:10,14
**expressing** 268:3
**extent** 53:15 157:6
**externally** 92:20
**extract** 174:15
**extremely** 139:21 140:8

**F**

**face** 33:14 34:1,5,10 34:12,18 35:21 36:16 82:25 84:4 84:6 86:6 86:23 87:17 88:20 89:2
**Facebook** 146:2,10 146:13,16 152:22 154:18 155:6 156:12 159:22
**faced** 108:5
**facilities** 59:22,25 60:3,6
**fact** 37:16 54:23 174:4 183:5 262:5 265:14 267:9,20 268:3 273:23 279:14
**factor** 162:22
**facts** 29:20 30:14 116:22 287:16
**factual** 25:13,16 26:6,10,15 26:22 31:6 34:21 35:4 35:5 286:11 290:2
**faculty** 74:5
**fails** 270:4
**fair** 9:24 35:24 60:18 65:3 65:5 78:7 87:10 100:7 102:25 106:21 109:8,18 111:5 114:23 135:5 139:10 140:7,12 157:4 185:18 186:14 200:17 203:21 206:16 216:15 217:4 223:5,19 223:20 236:24 249:14 258:14 274:12 275:7
**fairly** 262:8
**false** 92:6
**familiar** 24:14,24 56:19 57:3 60:10 140:1 201:22 202:4 211:16 216:1 250:16
**familiarity** 24:16
**family** 47:6 49:7,24
**fans** 63:13
**far** 46:15 56:14 123:19 137:24 156:25 280:3
**far-reac...** 271:13,20
**fashion** 126:18 127:10,10 127:20
**fast** 14:17 45:8 52:2 96:9 97:16 98:1,4 132:23 168:23 302:12
**faster** 267:17
**fastest** 302:4
**fault** 155:5
**feat** 170:5
**feature** 279:14
**features** 54:19
**feed** 106:6 164:11
**feedback** 106:13 141:25 142:16,21
**feeding** 142:13
**fellow** 24:12 103:21
**field** 56:7 160:4
**Fifteen**

149:12
**fifteen-ish** 17:12
**fighting** 162:4
**figure** 53:4 117:14 211:12,14 211:16,20 211:21,21 211:25 213:17 216:1,8,24 217:2,6,18 217:22 218:11 221:18 222:2 224:6,6,9 224:19 250:14,16 250:18,21 250:22 251:20 253:18
**figures** 9:22 238:14
**file** 24:9,13 25:23 27:1 27:2,9 44:12 82:12 93:15 96:11 166:13,16 166:17,18 166:21,24 167:8 199:18,21 199:24 200:1,4,5 200:8,13
**filed** 8:1 13:20 24:13 155:17
**files** 51:4 51:13 97:19 98:2 261:16,23 262:6
**filing** 254:3 254:23
**filings** 12:13
**final** 302:12
**finally** 186:16
**find** 47:18 83:19 106:18 140:15 185:8 230:17 236:3 287:2
**fine** 9:9 58:21 92:7 99:16 128:11 235:2
**firewalls** 157:22 158:18,24
**firm** 4:22 117:1
**first** 5:9 10:20 12:16 15:22 22:6 35:25 46:24 49:13,16 51:21 55:22,23 67:18,19 71:6,8 72:21 87:13 96:11 97:19 98:3 111:10 127:25 130:17,21 153:4,11 154:24 155:10,11 162:22 164:6 168:19 172:8 178:25 179:1,11 179:13 186:23 187:17 188:22,22 189:1,5,8 189:14,18 189:24 190:3,10 190:14,23 191:5,6,15 191:16,23 191:23 192:3,5,7 192:10,13 192:17,19 192:20,23 193:3,4,6 193:9,20 193:24 194:2,8,12 194:21,23 195:4,18 195:21 196:9 197:3 203:17 204:4,5,7 205:11,15 205:25 207:5 259:22,23 260:13 261:14 262:16 269:4 271:7,11 277:8 278:17 281:21 282:5,20 282:23 284:17,18 294:23 297:23
**five** 8:1,25 9:1 52:2 141:11 197:24 248:9
**five-minute** 299:12
**fix** 148:16
**fixed** 113:20 151:25
**flag** 88:9
**flagged** 83:15,19
**flip** 83:22
**flow** 74:14 75:17 216:8 282:25 283:7,15
**fluctuate** 277:13
**fly** 100:12 206:23 212:2 222:6
**focus** 72:5 126:9 169:5 231:12,17 234:18 282:21
**focused** 162:24
**focusing** 29:3 191:17 262:25 297:23
**follow** 175:24 187:7 198:24 243:22
**followed** 4:18
**following** 11:6 288:9 290:18 295:1 304:2,3
**follows** 5:10 115:14 143:5 266:19
**footer** 259:10 280:20
**footnote** 59:16,16 64:21,21
**foremost** 277:8 278:18
**form** 7:4 14:15 28:23 33:19 36:24 40:16 45:5 46:1,13 52:14 54:15 55:20 60:20 68:24 69:8 72:16 75:2 81:22 87:2 87:25 89:7 89:24 95:21 97:6 101:24,25 102:14,18 109:10 115:12 120:14 121:21 122:24 130:3 137:10 138:14 140:11 141:3 148:1 173:20,21 174:13 175:12 180:4 184:21 187:10 192:15 194:16 197:16 200:25

202:25
206:6
207:10
209:17
210:4,23
218:10
222:13
223:7
224:4,13
225:20
226:6,24
228:10
229:6
241:15
242:3,18
254:5,25
255:14
256:13,24
265:7
266:10
268:21
270:8,17
271:25
272:14
273:5
275:10
277:5
278:13
279:10
284:18
285:23
289:16,24
291:2
298:15
**format** 51:6
173:2,8
239:22
240:16
241:18
243:3,11
243:19
**formats**
239:13
240:3,13
240:24
242:15
243:2
244:5
**forming**
29:13
**forms** 173:23
**formulated**
51:15
**formulation**
95:23
**forth** 28:12
**Forty** 64:20
**forward** 52:2
284:24
**found** 225:2
290:4
**Foundation**
61:18
110:22
159:24
**four** 23:25
52:2 94:13
243:10
**four-by-...**
293:10
**fragmented**
260:18
**frame** 50:7
50:15
51:11 52:9
55:16
121:4,8,19
124:16
125:12
134:18
135:4,6,8
135:17
136:5,5,7
136:9,14
136:19
137:2,5,16
138:1,2,10
139:2,2,9
139:14,15
139:16,17
139:21
140:17,24
140:25
152:10
153:18
158:3
206:25
277:7,17
278:15
280:2
294:14,14
297:2
**frame--**
207:3
**frame-per**
139:8
**frames**
127:18,19
135:2,16
135:18,19
135:23,23
136:13,15
136:15,20
136:20
137:5,6,25
138:10
139:1
140:8,24
143:6
173:25
174:2,10
174:15,16
295:3
296:20
297:7,18
298:8
**Francisco**
2:8
**free** 128:8
264:18
271:1
**Freesite**
10:6
**Freesites**
1:3 4:7,25
8:2 9:25
9:25 10:3
10:9
**freezing**
277:11
**front** 88:11
227:6
274:20
**Fubo** 4:8
**fuboTV** 1:3
**full** 130:17
134:11
135:22
136:5
137:16
269:4
274:14
276:13
277:3,10
278:10,23
278:23
279:7
**fully** 32:19
92:19
142:19
**function**
98:17
115:23
119:18
201:12
219:21
279:24
288:3
**fundamental**
54:4
261:18,25
**funny** 250:4
**further**
30:13
303:9

**G**

**G** 4:1
**general** 44:5
82:9
137:14
139:25
278:1
281:23
282:7,13
**generally**
23:9 24:14
35:11 48:3
64:12
112:22
117:7
150:19
167:23
168:15,24
170:13
172:17
173:13
237:2
252:19
260:12
**generate**
107:18
119:3,6
135:7
136:6
241:17
244:5
**generated**
22:6
107:24
112:8
115:3
124:12
**generating**
107:25
124:11
239:16
240:16
280:8
**generation**
149:25
**generic**
264:1
**generous**
293:7
**genuinely**
51:24
**Germany** 12:7
**getting**
109:7
124:24
217:9
235:2
247:9
**give** 21:23
58:11 69:3
70:3 90:13
117:13
126:13
128:3
211:5
227:12
231:11
**given** 14:6
31:9 32:4
32:6,8
38:17
46:19
119:7
127:6

158:22
204:18
241:7
255:1
256:2,3,7
276:15
**gives** 172:4
228:2
272:17
**giving** 14:5
**glory** 274:17
275:8
**go** 21:5 37:6
42:10
47:15
58:14
64:13 66:4
69:1,17
83:15 88:4
90:11 92:5
94:14
99:14
101:9,15
116:8,25
128:4
129:21
130:14
141:15
153:6,8
154:17,19
157:8
160:10
161:7
165:13
170:22
176:20,23
182:2
184:2
188:19
191:19
196:19
202:3
206:9
207:15,23
211:2
212:22
213:2,17
214:5
215:3,18
216:4
220:16
221:14,24
222:4
224:22
227:9
231:13
232:10
236:3
237:21
244:9
246:17
250:11
268:25
273:13,21
274:3,3,25
281:10,21
281:24
282:15,19
285:20
286:7
288:6
297:21
298:6,21
**goal** 9:16
118:18
119:16
126:16
127:6,8
**God** 54:4
235:25
**goes** 133:18
189:17
223:14
**going** 9:6
14:17
47:10
58:17 86:1
89:15
90:10
118:3,3,4
120:24
123:3
126:13,14
128:5,9
129:1
131:25
133:15
135:24
136:3,4
137:17,18
138:19,23
139:6
140:13,14
140:18,22
141:9
145:9
156:8
161:7
162:18
180:10,12
180:22
185:19,22
185:24
197:23
211:19
214:4,20
215:1
221:13
233:4,22
233:24
234:2
235:1,20
240:6,6
242:25
245:13
248:7
252:18
257:16
259:20,21
266:22
268:13
270:18
271:3
281:22
282:12
288:25
298:24
**good** 5:13
31:18
94:24 95:1
99:19
138:23
145:8,8
274:15,25
276:5
277:23
278:20
279:25
283:13
**graduate**
24:6,8,10
104:3,8
**granularity**
123:4
**graphic**
172:23
173:25
174:2,10
175:24
176:6,25
177:5
179:2,4,17
179:21
180:2
181:3,14
181:15,21
187:15,21
**great** 52:1
63:6
268:11
278:1
282:2
**greater**
197:7,13
198:22
**greatest**
276:21
**greatly**
158:24
**group** 62:17
62:21
72:21 73:2
73:16
148:25
149:5
150:4
**groups**
101:20
102:2
150:8
**guaranteed**
105:14
**guess** 6:22
6:23 7:22
7:22 20:13
53:3
123:13
124:24
129:20
135:19
179:24
219:13
225:10
263:17
264:19
**gun** 89:21
**Gunner**
103:13
**guy** 103:13
**guys** 15:23
16:3 39:3
52:4 53:9

**H**

**half** 15:25
99:14
128:1
135:18
243:23
**handed** 58:1
230:15
**handing** 8:7
41:25
167:12
235:4
258:18
280:6
292:4
**handle** 7:9
**Hanft** 2:20
**hang** 140:13
213:21
**happen** 181:5
186:15
211:7
**happened**
63:4 106:9
242:24
**happening**
223:9,11
224:8
253:19,20
272:21
**happy** 6:15
6:17 88:3
165:1
278:2
299:23
**hard** 45:8
116:12

168:23
**hardware** 71:14,14 73:18,18 76:8,9 107:19 108:12 124:5,14 124:25 125:5,6,7 125:13,17 125:20,24 125:25 144:6,7
**HD** 120:7 274:15 276:13,14 276:18 277:3 278:10 279:8,13 279:15,20
**He'll** 302:16
**head** 61:3 69:1 70:7 113:16 206:9
**headaches** 108:20
**heading** 262:12,17 294:19,23
**health** 284:23
**hear** 276:19
**heard** 10:2 38:1 99:13 99:20 100:3,15 139:20,24 140:1
**hearing** 157:3
**held** 4:14 63:9 145:11 298:25 300:2 302:6
**help** 13:20 48:22 78:9 202:7
**hereinafter** 44:11
**high** 114:25 115:10,16 116:24 118:20,21 119:1,9,12 119:17,24 120:3,9,11 120:16 197:3,6 277:21,25 278:24 279:25 293:24 294:11,24 295:8,17 295:20,22 297:10,15 298:13
**high-qua...** 276:24 278:9
**higher** 37:23 197:5 199:2,10 199:13 200:21 201:6 267:18 297:11 298:19
**highest** 294:15
**highlighted** 128:9
**highligh...** 110:9,10
**highly** 31:6
**history** 24:25 25:3 25:8,18,23 26:13,24 27:1,2,5,9 27:13 33:16 82:12 115:24
**hold** 153:5 156:6,6 235:16 281:14
**home** 205:7
**honestly** 262:2
**host** 51:12 51:15 212:1,25 213:5 215:12 249:20,21 249:23,24 249:25 250:1,3
**hosting** 51:4
**Houh** 15:13 18:6
**Houh's** 15:11 18:11,18
**hour** 14:2 15:25 58:18 99:15 197:23 248:8
**hourly** 14:1
**hours** 15:25 16:11 17:10 21:24
**house** 242:8 242:10,10
**HTTP** 55:7 56:12 93:22 94:10,21 95:11,24 96:14,25 97:3,10 98:25 99:6 153:12,14 153:19 154:2,12 154:14,16 154:25 155:12,18 155:25 157:14,20 158:14,16 158:22,24 232:24 237:12 284:20
**HTTP-based** 98:18
**Hudson** 2:25 4:12
**huge** 266:22
**human** 126:18
**hundreds** 88:14,20 89:2,4
**Hurst** 49:9 259:14,17 261:22 263:1,22 264:14 271:19
**hypertech** 155:25
**hypothet...** 36:24 138:5,7 174:5

**I**

**i.e** 134:17 142:4 164:10 284:11
**Ian** 2:2 4:23
**IBM** 73:9,15 73:16,17 73:20 74:6 74:8 75:13 76:10,11 76:17 79:6 92:20
**IBM's** 73:13
**idea** 52:25 95:18 96:14 97:2 134:6 179:20 247:21 270:3
**ideas** 52:4
**identical** 21:12 240:1,11 240:23 241:13 242:15
**identifi...** 57:25 60:25 77:8 83:6 110:8 145:24 165:15 166:1 201:16 250:10
**identified** 45:16 159:13
**identify** 155:17
**igpaquet...** 2:4
**illustra...** 216:9 251:24
**image** 151:19 151:20,23 151:25 205:21 206:25 275:6,16 279:19,23 291:13 292:2,19
**images** 151:12,15 151:18 152:5 163:4,9 164:14,21 165:5 188:7,9 201:22 202:4,7,9 202:18 205:13,24 207:5,8 208:9,16 275:3,13 289:11 291:4

292:15
293:2
**immediate**
53:10
**immediately**
51:25
161:14
162:14
**impact**
119:22
199:14
**implement**
110:3,19
121:3
122:16
124:15,20
125:11
139:19
208:24
**implemen...**
122:11
284:2
292:7
**implemented**
92:19
113:12
124:23
261:2
**implemen...**
121:18
208:14
**implication**
291:4,12
**implied**
215:7
**implies**
239:15
**important**
54:2
144:25
210:6
233:23
234:2
268:8,10
272:11,24
**impress**
51:17
**impressed**
50:21
51:11,25
52:6,10,15
52:24 53:4
53:13,16
53:17 54:3
54:7,17,21
55:7
150:14,22
151:3
153:14,19
272:5
275:8
276:12
277:2,18
278:10,16
278:21
279:7
284:19
**impressive**
278:19
**imprison...**
92:8
**improve**
181:21
**improved**
239:6,10
239:15
**improvement**
243:24
**improves**
263:20
**In-House**
2:18
**inartfully**
247:21
**include** 26:2
27:6,15
43:3 108:6
158:8
161:24
173:3,8,10
173:17
192:17
195:17,20
202:22
291:18
**included**
51:3 53:6
54:9,10,11
54:12,17
54:21
70:18
93:13 94:4
103:23
110:9
129:16,25
133:4
296:5
**includes**
25:8 171:7
171:13,21
188:22
189:2,4,4
189:7,13
190:6,17
190:18,20
190:24,25
191:1,2,11
191:14,16
191:23
192:2,10
192:11,20
192:21
193:4,5
194:12
196:10
226:15,17
229:23
230:6
**including**
46:25
134:23
154:6
238:14
**incomplete**
36:24
138:5
**inconsis...**
87:20 88:2
88:7
**incorrect**
68:15
**increase**
14:8,12,23
118:19
**increased**
14:13,21
14:22 15:2
**increases**
181:8
**incredibly**
145:2
242:6
253:21
254:12
273:20
**independent**
239:11
**independ...**
99:1,8
131:1,7
**indicate**
221:19
245:8
**indicates**
212:4,9
222:2
**individual**
15:16
76:24
165:8
174:15
237:10
239:12
269:4
272:19
275:13
**industry**
101:19
102:2
**inexpensive**
143:17,25
144:3,13
144:20
272:17
**inference**
291:6
**information**
75:17,18
80:4,12,19
81:18 82:1
82:6,16
92:4 106:7
107:2
142:14
173:14,15
261:17,24
262:8
285:13
**informative**
36:5
**initial** 13:4
151:2
**initially**
19:25
242:24
272:5
**initiative**
62:18
**innovation**
262:21
271:14,20
**innovations**
260:15,21
**innovative**
259:25
**inserted**
106:16,19
**integrated**
133:21
163:3,8,18
164:14,21
165:5
**Intel** 102:4
103:4,10
103:23
109:5
110:3,18
123:12,14
**Intel's**
105:7
108:5
111:22
124:15
125:10
**intellig...**
243:21
**intended**
295:8
**intent** 23:17
**intents**
108:13
**inter-**
132:11
133:5,8
**interested**
37:9
303:12
**interface**
121:2
122:15

123:8,16
123:18,20
123:23
124:1,2
284:9
**internal**
121:2
122:15
123:15,18
123:20,23
258:23
259:2
280:25
281:5
**internally**
92:19
**Internat...**
11:5,7
**internet**
62:23
66:21 67:1
67:23 68:7
68:22
69:25
70:24 71:4
71:17 72:1
72:8,14,22
78:23
105:17,19
110:15
120:6
143:20
144:15,22
155:24
167:23
169:1,12
203:9
239:17,21
240:3,13
241:5,11
244:22
253:16
281:24
282:7
284:10
**interpret**
288:23
**interpreted**
41:16
**interrably**
213:6
215:14
**interrupt**
31:15
212:25
215:12
**interrupts**
213:5
**interstream**
133:10,18
**intrastream**
132:11
133:5,8,20
**introduce**
4:17 43:19
44:2 45:2
168:12
187:6
**introduced**
64:9
**introduc...**
259:23
**invalid** 6:12
6:17,17
7:2,20,24
**invalidate**
36:20
37:18
79:15
160:5
**invalida...**
90:5
**invalidity**
29:20
30:14,24
31:14,22
32:11,23
37:11 62:9
78:6 86:5
86:21
146:17
**invent** 95:18
96:1,14
97:2
**invented**
52:5 53:9
259:24
260:5,10
272:7
**invention**
38:19
46:21
167:21
169:9
184:6
208:14,24
216:11
217:4
238:25
239:4
251:18
252:21,23
263:12,14
273:19
**inventor**
23:20,24
56:22
259:19
263:12
265:1
**inventors**
19:2
259:21
**investig...**
150:9
**investig...**
156:21,24
**involve**
68:17
**involved**
5:20,23
10:16 12:6
67:4 69:14
72:10
100:8
127:3
**involvement**
11:23 12:2
73:13
205:12
**involves**
7:19,21
127:13
**IP42024-...**
1:12
**iPhone** 243:6
243:8,13
**IPR** 8:1,4
9:11,20
18:7 29:22
61:5,11,15
62:3,6
77:15,20
78:2,10,14
78:15
79:13 84:9
84:15 85:1
85:10 87:8
87:15,22
90:14 93:7
94:7 146:2
146:14
152:22
154:18
156:12
159:22
160:11
**IPR2024-...**
1:9
**IPR2024-...**
1:10
**IPR2024-...**
1:11
**IPR2024-...**
1:13
**IPRs** 5:18,19
5:22,24
8:24,25
9:8 10:16
11:12
12:17
13:13,20
15:1 18:19
18:20
19:10,19
20:15,24
28:12,18
29:12,16
31:14,22
32:9,22
37:23 38:5
63:24 86:3
86:19 87:9
87:23
**irrelevant**
36:19
**ISBN** 113:24
114:5
**ISDN** 105:9
114:17
115:7
116:21
**isolation**
196:12
**issue** 5:18
8:24 9:7
9:10,20
13:22 44:7
49:24
82:10 87:9
118:8
119:2
159:16
249:3
**issued** 74:7
**issues**
119:23
203:10
284:4,10
**ITC** 13:1,22
14:9,13,21
14:22,24
15:2 38:23
39:9,14
156:21,24
157:3
**ITC's** 39:20
40:8,14
**item** 156:14
**items** 67:10
**iterated**
22:7

**J**

**J** 1:19
**JAFFA** 5:7
**Jaffay** 1:17
3:3 4:6
57:22 58:2
60:23
61:25
62:13
63:20 77:5
78:12 83:4
90:11,19
110:6,9,12
120:25
126:2
145:22,25
147:2

154:17
160:9
165:12,16
165:19,20
165:24
166:2
201:14,18
201:25
215:20
218:12
230:21
250:12
300:12
304:22
**James** 2:19
2:20
**Jamie** 2:18
5:3
**jargon**
106:15
**joined** 4:23
5:3
**Journal** 79:6
**June** 147:8

**K**

**K** 1:21 4:15
**keep** 96:18
118:17
234:25
236:5
284:9
**keeping**
119:15,20
**keeps** 217:6
**KEVIN** 1:17
3:3 5:7
304:22
**key** 148:10
271:13,20
**kilobits**
114:10
200:5,13
288:8,22
289:3
295:17,24
295:25
296:20
297:6
298:8
**kind** 39:3
56:8
103:15
134:4
144:2,4
276:10
**Kingdom** 12:7
**knew** 52:16
52:18
53:19
76:17 77:4
123:13
**knock** 252:18
**know** 11:20
15:21 17:1
17:23
18:24 20:3
20:4 23:24
25:12,23
26:7,16,18
27:3,3
28:3 30:5
31:11
33:25
34:16,24
35:1,23
36:25
39:25
47:17 50:3
53:1 57:1
59:17
66:10
68:25 69:2
76:24,25
81:23 82:2
83:21
88:22 90:7
91:1 93:8
98:12
100:6
108:22
116:21
118:18
119:16
121:9
123:7,19
138:20,21
139:23
140:1
144:6
147:14
156:25
157:12
158:5
160:15
163:10
164:24
166:9
173:18
180:23
185:8
188:16
195:1
200:10
202:9
205:6,15
205:18
206:7,13
207:2
211:23
218:25
219:3
220:6
224:14
227:21
231:9
234:1
236:4
238:12
242:19
243:13
244:4
245:12
251:5
252:17
253:6
255:8,10
256:20
257:9
261:6
262:2,17
263:6,17
263:19
264:10,11
264:21
265:9
267:7
268:10,22
269:8
272:18,19
272:20
273:15,16
274:2
276:15
279:21,23
279:24
280:25
281:2
286:10,12
289:7,17
290:2
291:19
293:9,24
**Knowing**
85:21
**knowledge**
22:19 92:3
254:1,21
255:23
256:1
**known** 10:13
65:9 67:24
68:7,22
69:25,25
70:24
71:17,18
72:1 74:24
75:3,6,21
95:16
129:9
132:17,22
132:24
134:23
142:15,20
148:5
158:13
159:3
263:10
264:6
284:14
285:19
286:6
**knows** 243:18
279:11

**L**

**L-A-N** 113:25
**L-e-a-n-...**
56:23
**L.L.C** 1:6
**lab** 104:11
**labeled**
68:12
**Labs** 103:5
**LAN** 113:25
114:1,12
114:14,17
115:7
**language**
43:18,23
43:24 44:1
168:12
187:5
216:20
225:2,10
226:13
230:10
231:25
249:16,24
**LANs** 119:8
**large** 164:11
**larger** 51:5
52:11
200:23
201:5,11
**lasted** 123:1
**late** 10:23
47:24 48:5
62:16,20
65:7 66:18
66:23 67:5
67:12,14
70:22,25
71:23 72:2
72:4
**latency**
126:18
127:11,20
270:24,25
284:11
285:1
**launches**
63:17,18
**law** 4:22
252:12
**layer** 105:20
108:21
**laying** 284:4
**layman's**
267:2

270:15
**leader** 65:4
180:18
**Leading**
301:13
**leaning**
56:20,22
56:22 57:4
57:6,8,11
57:13,16
57:19 58:3
58:9
**learned**
123:10,11
123:13
**learning**
53:20
59:22
**leave** 125:16
**left** 111:6
134:11
141:20
191:20
246:1
**legal** 25:11
26:18 27:3
27:23 28:6
28:10,16
29:4,11,15
252:16
**length**
279:14,16
**let's** 34:9
35:18,19
37:6 42:10
47:15
51:10
58:14
64:13
83:23
90:11
101:9,15
111:5
130:14
135:15
138:24,25
151:5
153:6
154:17,19
157:8
160:10
164:1,3
165:13,23
169:6
171:11
174:19
176:20
177:15,16
181:1
182:2
184:2
187:24
188:19
191:18,19
196:19
199:9
202:3
211:2
213:2,17
215:18,25
216:4
224:22,22
234:6,18
236:1,1
237:21,21
237:22
242:12,13
243:7
244:9
246:17
250:11,14
271:6
274:3
276:24
282:19
292:24
293:12,16
294:4,16
297:21
298:21
**letter**
156:15
**level** 205:8
**levels** 287:5
**libraries**
35:16
**lies** 264:14
265:3
**life** 261:19
262:1
**light** 46:22
**liked** 54:22
**likelihood**
173:22
**limit** 119:1
157:23
158:19
**limitation**
231:13,18
231:24
232:10,11
233:2
234:22
237:6
**limited**
96:21,23
140:5
147:23
187:19
**limiting**
45:3
168:14
**line** 99:14
177:1
186:20,23
187:1,24
187:25
188:2,5,5
227:12
238:22
251:4,10
251:20
253:18
304:4
**lines** 166:5
166:8,19
167:16,20
168:16
169:7
176:23
177:9,16
177:23
182:3,4
184:3
185:7
186:17
213:2,4
216:4
219:3
227:9,21
251:2,16
**link** 202:12
203:5
208:8,12
284:24
**linked** 203:3
**list** 9:1
89:9 154:5
156:4,10
212:9
**listed** 8:23
34:5,10,12
34:17
36:16
67:11 80:4
80:18
81:25 82:6
82:16
290:15
**listen** 62:22
205:6
**lists** 287:7
290:10
**literally**
53:25 54:2
136:11
191:17,19
**literature**
35:15
48:11,25
**litigation**
10:17,24
12:6,14
47:22
**little** 14:17
177:15
179:8
197:23
235:2
236:9
244:4
248:8
**live** 59:25
60:3 62:22
67:1,23
69:24
70:14,14
70:17,23
71:3,7,11
71:16,25
72:13 93:3
164:10
239:6,10
239:16,17
239:21
240:2
241:4,11
**LLP** 1:21 2:2
2:11 4:15
4:22 5:2
**loads** 114:13
**loaned** 73:15
73:20
**locally**
214:4
218:24
219:7,15
219:23
220:1
221:13
**located**
218:8,17
244:21
**locations**
244:22
**locks** 284:11
284:25
**logic** 248:2
271:8
**long** 15:23
16:10 22:2
22:2 89:9
89:11
122:22
123:4
147:19
148:21
194:7
200:19
**longer**
289:10
**look** 36:1,8
36:14 40:5
57:6 61:7
83:22
126:2
129:18
134:11
156:14
160:14

163:20
165:7
177:16
191:18
206:4
207:8
216:24
219:2
245:13
261:11,14
271:6
273:22
280:20
296:18
**looked** 74:17
94:12
234:16
275:5,16
280:16
**looking**
29:18 37:3
120:25
132:3
141:16
155:21
157:18
166:20
179:18
227:11
236:10
244:14
250:21
251:2
284:7
293:4
297:22
**looks** 8:25
212:23
245:24
**looping**
217:14
**lose** 270:5
**lost** 5:17
274:11
285:24
286:1
293:14
**lot** 52:7
88:17
125:21
130:8
140:5
268:14
276:11
**lots** 148:3
**low** 91:7,17
92:12
112:8
114:24
115:9,16
115:22
116:2,4,6
116:19,20
116:23
117:4,8,11
117:20,21
117:22,25
118:11,15
119:23
120:3,9,11
120:16
139:21
140:8,17
145:2
196:23
197:2
275:6,16
276:1
293:7,8,19
293:19,25
293:25
294:1,7,11
**low-end**
296:2,5
297:13,25
298:11
**low-quality**
276:23
277:1
278:8
279:6
**lower** 107:18
109:7,17
109:22
136:5,7
137:2
210:1,13
294:1,7,14
294:14,14
297:14,18
297:18,20
298:12,16
298:18
**lowest** 244:6
297:1,2
**Lynn** 2:18
5:3 15:20
302:16

**M**

**M.H** 79:10
**machine**
203:8
**main** 103:20
**maintained**
59:21
**major** 18:24
19:6,9,18
53:19
**majority**
178:12
**making** 81:15
160:19
161:8,12
210:12
254:7
269:4,13
269:22
284:19
291:6
**managed** 60:7
160:22
161:4,15
162:14
**manager**
249:24
**managing**
56:10
**manipulate**
75:8,22
124:9
**manipulated**
142:4
**manipula...**
143:2
**manner**
135:10
**March** 79:6
155:18
**mark** 57:22
60:22 77:5
83:3
145:21
165:11,13
165:23
201:13
237:25
259:14,17
**marked** 8:8
21:16 28:7
39:16 42:1
57:24 58:2
59:13
60:24 73:6
77:7 83:5
110:7
145:23
165:14,17
165:19,25
167:13
201:15
215:19
235:5
238:5
250:9,12
258:19
274:21
280:7
281:3
292:5
300:15,24
**market** 64:4
**marketplace**
272:22
**masked**
270:25
**matched**
239:22
**materially**
157:4
**matter** 1:18
6:13 10:10
16:13
25:13,16
26:6,10,15
26:18,22
27:3 34:21
35:4,5
44:5
137:14
286:11
290:2
**matters**
47:22 49:6
**maximum**
119:3,6
288:3,4
**MBone** 60:11
60:13,14
60:18
62:18,21
63:1,16
242:24,24
**mean** 6:8
22:1 26:6
29:24
31:15 37:1
37:13
39:23 40:1
44:3,18
51:24,24
51:25
52:16 55:1
56:6 61:8
61:19
66:13 74:1
80:8 81:4
81:8,10,19
84:19
89:14 95:7
105:13,22
107:5
108:8,9
112:13,16
113:2,7,9
115:14,18
119:19
121:7,17
122:3
123:22
124:18
131:11,22
136:1
139:6,25
144:9
151:2
157:5
158:2,6,9
165:8
168:13

180:7
184:16
185:5,10
185:19
191:13
193:13
196:3
207:2
210:6
217:13
224:5,15
225:10
237:14
240:18
242:19,23
263:7
264:19,23
268:12
276:10
279:25
285:7
288:18
289:8
293:22
295:21
**meaning**
31:16
38:18 41:8
41:18
42:23
46:20 58:8
130:7
214:3
221:12
**means** 25:3
31:4 44:17
45:2
107:17
109:21
112:23
113:3
131:8,10
144:5,9
153:13
200:22
216:23
219:23
220:1
223:13
246:8
267:18
271:2
**meant** 23:17
66:16
127:17,18
158:12
**measured**
152:4
**measures**
144:25
**mechanism**
154:12
**mechanisms**
99:6
**media** 1:3
4:8 51:5
52:11 55:6
66:16,24
66:24 67:3
67:5,8,13
67:15,22
68:3,5,8
68:16,18
68:18,20
69:14,21
69:23 70:2
70:8,13,18
70:23 71:2
71:9,10,15
71:19,21
71:22
72:11,12
74:7 76:16
76:18 91:4
91:6,16
92:11,18
93:12,22
94:3,9,20
95:2 97:14
98:23 99:4
99:20,23
99:25
100:1,3,7
100:13,15
100:18
101:6
104:12,24
105:21,22
106:8,20
106:23
107:1,4,5
108:6,25
108:25
109:16,22
110:4,14
110:19
111:23
122:4
128:24
129:6,12
129:16,25
130:8,12
130:25
131:3,8,22
132:12
133:5,9,13
143:25
153:14,24
160:21
167:6
173:22
199:9,12
243:10
258:24
259:24
260:10,22
261:2
263:2
271:15,20
271:22
272:1,10
273:18,23
282:24
283:6,14
283:19,22
285:13,20
286:7
294:20
**media's**
104:20
**medium**
114:24
115:9,16
116:24
120:3
279:5,19
280:4
**meet** 15:23
16:1
225:17
226:3
**meeting**
16:10
**megabits**
114:14
119:7,7,8
295:7,12
295:13,23
298:19
**member** 73:16
74:5
**members** 73:2
169:15
170:20
**memory** 94:14
94:16
293:5
**mention**
38:22 39:9
152:12,18
152:23
251:12
**mentioned**
142:7
**merchandise**
261:17,24
262:3
**mere** 268:3
**message**
161:1
205:9,11
209:7
**messaging**
149:16,21
**met** 16:4,6,8
**method**
128:23
216:9,14
216:15,17
216:18,21
217:2,7,10
217:12
239:5
**method--**
216:21
**methods**
127:22
128:18
**MG** 9:24 10:2
10:5,8,13
29:19
30:13,18
**mid** 62:16,20
**mid-1990s**
60:16
63:17
127:8
**middle** 286:1
**midway** 29:16
47:16,18
151:10
196:22
**migrate**
105:15
**mile** 240:21
241:25
**Mill** 2:12
**millisec...**
139:11
**mind** 55:2
145:3
**minimal**
66:17
126:18
127:10,20
**minute** 79:11
151:6
164:19
223:23
231:11
298:22
**minutes**
197:25
248:10
276:25
**misleading**
109:23
125:14
**misrepre...**
191:12
**missed** 64:17
89:21
**missing** 54:5
**misspoke**
23:16
**misstates**
39:2 40:16
41:10
69:12
203:24

228:14,17
**mistake** 37:20 39:7
**mode** 285:15 285:21 286:8,14 289:3,13 289:21 290:5,23 291:17,19 291:23,25 292:11,14 292:17 293:1,14 293:18,25 294:6 298:4
**modem** 91:7 91:17 92:13
**modifica...** 110:18
**modifica...** 124:20
**modified** 111:22 143:23
**modify** 103:5 103:23 104:12,20 108:5 110:2 121:16 124:15 125:10 149:25 206:13 249:25
**modifying** 105:7 109:5
**module** 217:21 218:1,4,8 218:16,20 218:23 219:1,8,10 219:14,22 220:3
**monitor** 129:3,10 180:10,19
**monitoring** 53:24 54:12
**Moore** 1:19 1:24 4:11 303:2,17
**morning** 5:13
**motion** 136:9 136:22 137:2,8,15 137:22,23 139:22 140:2,3,5 140:5,9,17 175:6 276:20 294:1,8
**motivated** 112:18
**move** 36:21 96:9 97:16 98:1 237:21 258:23,24 259:25 260:10,21 260:22 261:1,3,5 263:1 267:8,9,25 268:15,17 272:2 280:8 289:20 291:18,22 291:25 292:5,6,10 292:14,17 292:25,25 293:12,13 293:16,17 294:4,5,20 294:24 295:15 296:9 297:24
**Move's** 264:14 268:9 271:20 272:11 274:11 281:8 285:4,18 286:5 287:12
**moving** 163:4 163:9 164:14,21 165:5
**MPEG-DASH** 51:21
**MSM.com** 290:10
**multi-bid** 50:23
**multi-bit** 97:8
**multimedia** 65:1 126:17 127:3,5,14 127:17 128:19
**multiple** 52:22 53:22 54:10 56:11 165:18 171:6,12 171:20,25 178:15,17 178:23 227:1 232:18 233:8,12 234:2 237:19,20 239:6,10 239:18,20 240:1,12 241:3,10 247:7,14 247:19 248:2 263:3,23 264:7,15 265:3 266:14,18 266:21 267:3,10 267:11,12 267:12,13 267:14,21 268:4,8,13 268:14,18 269:13,19 269:22,22 271:2
**multitask** 60:11,17

**N**

**N** 4:1
**name** 4:10,21 9:25 10:13 12:23 15:22,22 24:5 30:19 76:14,19 76:19 103:21 107:12
**named** 19:2 23:20,23 24:12 76:22 103:13 260:5
**names** 15:17 103:10
**Nationwide** 4:13
**nearly** 108:10 116:10 149:2,7
**necessarily** 44:18 100:20 115:14 173:19
**Nee** 103:21
**need** 124:14 125:12,15 125:19,23 199:8 253:23 254:16 271:15,22 272:10
**needs** 22:22 23:14
**neighbor** 200:11,15
**network** 60:14 63:25 64:2 64:9,25 66:19,24 68:12,19 70:20,21 71:24 72:6 72:12 75:11,18 75:25 95:14 100:13,23 106:17,19 115:24 117:5 118:3 151:1 157:21,23 157:24 158:17,19 158:20 164:12 167:24 168:1 169:3,12 169:21 170:2,9 181:7,21 184:8,12 184:17 185:5,14 185:17 186:3,7,7 186:11,13 188:20 191:21 201:12 212:10 227:17 231:20 232:13

233:5
237:8
239:12
240:8
241:1,23
241:25
243:18,19
243:22
258:24
261:1
262:6,7
276:16
277:14
281:24
282:7
287:6
292:7
295:9,16
295:18,22
**Network's**
65:8,17,22
66:1
260:22
283:10
**networking**
60:15 77:4
119:18
233:20
**networks**
74:15
147:19
148:8,21
149:2
184:19
259:25
260:10
261:18,25
267:8
294:24
295:20
**never** 10:8
12:13 19:6
21:1 50:15
109:14
110:1
139:24
200:9
272:20
278:22
**new** 2:3,3
144:6
205:5
259:24
**news** 63:12
287:9,19
**newsworthy**
63:14
**Newton** 24:12
**next-door**
200:10
**nice** 55:1
**nineties**
119:4
**Nolan** 15:22
**non-high...**
128:6
**non-limi...**
43:13
**non-prov...**
24:19,22
25:8,16,22
26:5,11
**nonlimiting**
43:17,22
44:3 169:3
187:8
**nonpatent**
56:16
**nonprogr...**
97:3
**normally**
106:18
**North** 59:20
59:20
73:10 74:8
103:17,24
**Northern**
11:14
**Notary** 1:20
304:25
**note** 47:21
135:21
197:4,6
**notice** 1:18
**notion**
247:24
250:23
293:5
**novel** 266:12
266:15
**NTSC** 293:9
**number** 47:7
47:11
48:12 49:8
61:6 64:18
74:10
77:16 78:8
152:5
156:4,10
156:14,18
211:8,9
**numbers**
227:12
**NW** 1:22 4:15

**O**

**O** 4:1
**oath** 4:20
**Object** 14:14
28:22
40:15 45:4
46:12
52:13
54:14
55:19 58:5
72:15 75:1
77:9 81:22
89:6,23
95:20 97:5
192:14
202:24
224:13
242:2
254:4
265:6
266:9
270:7
271:24
272:13
**objection**
7:3 13:7
13:15
25:10,19
26:14
33:18
34:19 35:2
36:23 39:1
41:9 45:25
61:17
68:23 69:7
69:10
77:22
79:16
81:11
82:17 83:8
87:1,24
95:4 109:9
110:21
115:11
120:13
121:20
122:23
130:2
137:9
138:4,13
140:10
141:2
146:5
147:25
159:23
174:12
175:11
180:3
184:20
187:9
194:15
197:15
200:24
201:7
203:23
206:5,17
207:9
209:16
210:3,22
218:9
222:12
223:6
224:3
225:19
226:5,23
228:9,12
229:5,8,10
241:14
242:17
252:15
254:24
255:13
256:12,23
257:12,22
258:15
268:20
273:4,7
275:9,19
277:4
278:12
279:9
285:22
286:9
289:15,23
291:1
298:14
301:12
**objects**
261:16,23
262:6
**obvious**
139:18
**obviously**
120:17
**occasion**
47:23
48:10
**occurred**
89:13
**occurring**
269:18
**October** 1:16
4:4 301:23
**offered**
46:15 60:3
60:6
102:24
120:22
**offering**
41:12
**office** 1:1
26:1 74:2
80:13
**offices** 1:21
**Ogden** 160:20
160:25
161:5,9,10
161:10,13
161:23
162:9,13
162:17,18
162:20,23
163:1,12
163:12
167:14

168:3,6,8
169:5,18
169:24
170:6,14
170:19
171:6,12
171:19,24
172:4,8,13
172:15,19
172:21
173:11,20
173:21
174:6,8,20
175:1,5,9
175:24
176:1,4,8
176:14,16
176:19,20
177:4,10
177:12
178:6,19
178:21
179:10,10
179:20,25
180:7,14
180:25
181:6,11
181:12,17
181:22
182:1,19
183:6,16
183:17
184:1,25
186:5,9,18
187:1,19
188:12
191:12,15
191:17,18
192:6
193:14,17
196:19
197:17
198:14
199:15
200:22
201:4,10
210:14
211:2,10
211:12,17
211:25
213:13,15
214:21
227:6,24
228:6,14
229:2,21
229:25
230:4
245:15,17
249:20,25
250:3
**Ogden's**
160:21
161:14
162:14
178:25
187:13
208:14,24
249:2
**oh** 53:20
54:4
152:16
222:21
235:25
236:5
290:17
**okay** 7:17
8:20 9:8
21:23 23:3
27:21 30:2
31:19
38:15
42:12
47:12,15
49:21,22
58:15,25
59:14 62:2
64:17 66:8
66:12 68:5
71:15 73:5
78:15
80:17
83:17
90:15,20
91:3 92:1
93:11
97:14
98:10,13
98:15
99:17
101:10,16
110:11
125:10
127:24
128:16
130:14,16
134:10
138:19,24
140:22
141:12,18
147:3,13
147:16
151:5,7,9
153:3,10
154:23
155:5,9
157:11,13
159:8
160:13,18
161:18
162:4,12
164:5
165:23
166:11
167:19
171:1,3,17
176:24
177:8,15
177:18,18
182:25
184:2,4
186:16
188:1,4,14
188:18
191:19,21
192:6
196:20
197:1
198:1
201:21
202:3
209:11
211:4,15
211:24
214:11
215:18,21
216:6
217:19,24
224:25
227:14
230:4
231:8,16
236:1,3
244:13
246:18
247:10
248:25
250:13
251:6,8
253:4,7,9
258:20
261:13
262:19,24
269:2
274:5
282:4,22
286:2,20
287:18
288:9,25
293:12,15
294:18
299:16,17
**old** 175:4,7
249:17
267:5
**omitted**
245:9
**on-the-fly**
121:3,7,13
121:18
122:2,16
124:16
125:11
**once** 10:13
164:25
259:9
260:10
280:19
**one-** 111:23
**one-dime...**
130:23
142:2
143:1
**one-frame**
138:12
**one-size...**
118:6
**one-thir...**
139:9
**ones** 13:3
**online** 146:1
**onset** 47:17
47:20
48:18
**open** 270:4
**open-ended**
43:18,24
44:1
168:11
187:5
**operate**
113:19,24
114:16
**operated**
115:6
285:6,8
**operating**
72:6 127:7
**operation**
66:19
113:25,25
114:1
115:8
**operations**
114:17
270:18
**opine** 43:12
87:14
**opined**
163:15
**opinion**
34:11 41:6
41:12
42:21
43:21,22
44:16
46:18 85:6
85:18,22
88:23
97:22
116:6
120:21
163:7,16
163:24,25
164:19
168:6,10
175:23
176:4,16
177:14
186:19
218:12

225:8
226:20
230:9
234:12
236:20,21
247:3
249:11,19
263:5
264:17
**opinions**
22:13
28:12
29:13
39:15,19
40:12
43:17
45:18 46:3
46:14
120:22
301:6,8
**opposed** 5:24
6:4
**options**
44:21
**order** 125:2
178:2,9
207:22
302:1
**ordinary**
38:18 41:8
41:18
42:23 45:6
46:20
53:11 95:2
170:4
174:9
232:21
233:11
252:22
253:22
254:2,12
254:22
255:2,24
256:3,6,19
257:1,24
258:7
264:20
272:2
**orient**
236:11
**origin** 52:7
263:4,24
264:8,16
265:4
**original**
50:19
294:3
**originally**
112:17
**outcome**
303:12
**output**
180:12
**outside**
10:15
**overhead**
154:6
233:21
237:18
**overlay**
60:14
**overseas**
12:6,10,14
**overview**
90:23
159:10
258:24
281:9
292:6
**overwrite**
234:10
**owner** 1:7
2:15 5:2,9
5:24 6:1,4
6:14,16
8:11,15
16:17 42:4
86:4,20
146:3
**owner's**
274:24
**owners** 6:20
7:10

**P**

**P** 4:1
**p.m** 145:14
145:16
198:4,5,6
198:8
248:14,15
248:17
298:24
299:2,3,5
300:5,6,7
300:9
301:23
302:19
**package** 53:8
53:18,25
54:3,8,8
54:21
74:15
**packaging**
132:10,13
132:19
133:1
**packet**
100:15,17
100:18,20
101:8
105:3
131:2,21
132:8,18
132:25
133:18
134:8,18
135:9
143:24
284:11,25
**packets**
100:23,24
101:1
132:1
133:16
134:1,2
135:11,12
262:7
**page** 2:12
3:2,6
22:25
27:18,22
33:21
59:12
61:24
64:13,18
64:19
78:12
83:16,16
83:21,23
85:17,20
91:24
111:5
112:1
120:25
126:1
130:14,17
134:10
141:15,21
143:8,11
155:7
201:18
202:3,22
204:23
206:4,14
207:20
208:6
238:19
259:10,22
261:12
262:11
268:25
271:6
275:1,2,3
275:16
279:20
280:20
281:10
282:20
286:18,21
287:7,22
294:16
296:19
298:7
304:4
**pages** 83:22
201:23
202:4
238:14
**Palo** 2:13
242:9
**paper** 111:1
112:11,16
113:17
114:3,21
121:23
122:20
134:24
280:25
**papers** 72:24
73:1
**Paquette** 2:2
4:24
121:20
187:9
222:12
265:6
302:8
**paradigm**
55:4 56:10
**paragraph**
8:19,23
9:2 28:2
29:18 30:3
30:4,7,12
31:10
33:10 37:6
38:12,16
38:22 39:9
39:13
40:23 41:1
41:2,24
42:10,13
42:16 43:1
44:8 45:15
47:8,14,16
49:5 50:18
55:4,13
58:14
62:12 66:4
66:9,14
67:7 68:14
73:5,8
78:17,17
78:21 80:2
80:24
90:11,18
90:25 93:6
93:8 98:7
98:11
101:15,17
102:6
103:3
104:10
120:24
121:14
126:2,9,11
126:15,23
127:21,23
128:1,5

129:2
130:17
134:11,15
141:19
147:1,6,11
147:13
150:3
151:6,10
152:12,18
152:21,25
153:1,5,9
153:12
154:19
155:2,7,8
155:10,11
155:21
156:2,4,10
157:8,19
159:6,9,13
160:14,15
160:20
161:2,8,12
162:5,7
164:3,4
165:9
171:2,4
172:4
176:13,17
177:11
186:19
224:22,24
225:1
238:21,24
244:14,16
245:2
246:17,20
248:19,23
249:1,19
260:4,14
261:11
262:16
269:4,7
271:7
274:8
281:22,23
282:5,12
282:13,19
282:20,21
283:5
284:7
285:25
296:1,14
297:22,24
**paragraphs** 45:11
**parallel** 54:23
263:9,19
265:16
267:14
269:19,23
270:1,19
**parallelism** 270:18
**parallel...** 54:24
**parameters** 150:1
**paraphra...** 104:15
170:12
**park** 252:19
**parse** 108:17
179:7
**part** 25:17
26:12,23
27:2,9
35:19
36:17
43:21
47:21 49:5
53:7 62:17
65:18 66:2
68:13
80:10
103:8,22
106:24
107:23
111:21
151:4
161:2,17
161:18,22
162:16,22
162:23
186:18
190:5
199:19
213:15
217:12
219:22
220:11
222:24
239:19
272:4
277:23
284:16
287:12
288:12,14
**particip...** 113:7
126:19
**particip...** 62:17
**particular** 40:21
50:22 51:7
53:4 54:1
55:6 70:9
73:18
88:25
95:22 97:8
101:25
104:23
105:10
120:6
123:5
130:5
131:14
132:12
134:25
161:5
175:5,6
237:17
257:2
266:15
279:13
**particul...** 37:9 51:11
52:10
157:20
158:14
**parties** 35:8
303:10,11
**partition** 100:23,25
131:24
132:1
267:20
**parts** 53:12
241:1
**Pass** 299:10
301:15
**passage** 168:9
251:23
252:10
**patent** 1:1,1
1:7,9,10
1:11,12,13
2:15 3:8
3:11,14,15
3:16,17
5:2,9,24
6:1,4,7,12
6:14,15,16
6:16,20
7:2,10,24
8:5,11,15
9:23 12:7
16:17 17:5
17:6,21
24:2,2,4,9
24:10,19
25:8,9,17
26:1,11,20
26:23 32:2
33:2,15
34:2,6,9
34:11,12
34:18 35:9
35:21,25
36:4,6,16
36:17,18
36:19,20
36:22
37:16
41:14 42:4
42:7 43:7
43:11 44:9
45:17 47:4
47:11,14
47:22
48:17 49:8
49:19,20
49:23 50:2
50:6,9,10
50:15,21
51:16 52:7
52:25 53:1
53:5 54:8
54:20 55:7
55:8,13,14
55:17,24
56:3,3,14
61:5,15
62:9 66:7
74:7,10,14
75:13,16
75:16,20
77:16 78:6
78:8 79:15
80:5,11,11
80:13,15
80:20 82:5
82:8,20,23
83:1,12,16
83:25 84:4
84:6,18
85:4,13,17
85:20,22
86:4,7,20
86:23
88:11,16
88:21,25
89:1,1,16
89:20 90:4
90:9 146:3
146:17,20
147:7,20
148:22
149:3,8,13
150:15
153:8
155:17
156:17
159:14,16
159:17,18
159:20,22
160:1,4,5
160:7,12
162:11
163:17
164:7,8
165:20
166:2
170:25
202:1
210:8
215:20,23
216:2

218:25
225:3
226:21
230:10,18
230:19,22
230:24
231:2,7
232:1,4
234:4,13
235:9,12
235:13,24
236:7,11
236:13
237:3,22
244:17
245:17,19
245:21
246:4
247:2
250:11
251:18
252:1,7,12
253:3
259:19
274:24
300:14,19
**patent's**
9:18,19
25:17
26:12,23
27:6,15
51:12
52:10
**patenting**
24:15
**patents** 6:10
7:19 8:22
8:24 9:1,3
9:3,7,8,10
9:13,20
13:21,21
15:10
17:15,18
18:2 19:3
21:11
23:21,23
24:5,6
25:4 27:5
27:14
36:21 46:7
46:11,25
47:1,1
48:12 49:1
49:2,7,8
49:14,17
49:24 50:3
50:16 52:3
56:13
65:19,20
89:9 97:12
120:2
150:14,22
153:15,20
154:11
163:2,3,8
163:12,22
164:20
165:10,18
165:18
166:13
167:3,7
225:8,24
226:8
230:25
231:3
272:6,6
284:15,18
285:6
**path** 149:18
293:8
**Pause** 171:16
**peer** 106:6
**peer-to-...**
142:10
**people** 63:5
65:9
103:10
116:18
117:21
140:1,4
152:7
158:5
242:22
280:1
**perceive**
137:15,15
**perceived**
244:6
**percent** 6:20
6:21,25
7:10,10,19
**perfect**
233:14
302:13
**perform**
220:23
221:7
222:9,20
223:3,17
**performance**
75:17
110:14
129:4,11
184:12,18
263:20
264:3
287:5
**performed**
156:12
213:7
215:14
221:2,3
222:24
289:20
**performs**
219:1,17
219:19
220:9
**period** 49:10
51:20
**periodic**
126:18
127:10,19
**periods**
119:14
278:24
**permitted**
58:24
**persistent**
232:24,24
233:7,16
233:17
234:4,7,11
235:15
237:4,12
237:12,13
237:14
**person** 12:22
15:21 16:1
38:18 41:6
41:17
42:21 43:2
43:25
44:25 45:6
46:20
56:24
65:12,16
117:3,11
118:10
119:11
120:1,8
170:3
174:8,16
183:5
196:5,15
208:13,23
209:12,24
232:21
233:1,3,10
237:2
252:22
253:21
254:2,12
254:22
255:2,7,10
255:24
256:2,6,19
256:25
257:9,23
258:7
274:14
**personal** 6:3
**personally**
36:2
**Peter** 103:21
**petitioner**
1:4 2:5,9
4:25 5:25
6:2,5,14
7:1 8:2
30:23 62:5
78:2
146:13
**Petition...**
37:22
**petitioners**
6:21 7:11
**petitions**
8:1 18:7
**Philip** 2:7
4:21
**phon** 103:21
213:6
**phrase** 33:11
37:10
139:25
177:4
185:4
225:11
**physically**
205:18
**pick** 164:1
**picture**
199:1
276:21
**piece** 76:8
106:15
**pieces** 52:20
261:17,24
262:8
**pioneer** 65:1
**pipeline**
133:13,21
133:22
**pipelining**
269:12,18
269:21,25
270:12,14
270:16,17
271:2
**place** 177:4
225:4
231:19
232:4,25
234:20
237:9
243:25
303:4,5
**placed**
226:11
**places**
243:16
251:10
**plain** 38:18
41:7,18
42:22
46:20
**play** 203:7
203:11
**play-out**

135:24
136:2
**player** 64:10
64:23 65:8
65:14,18
65:23 66:2
71:2,7,9
261:3,5
268:15,17
270:21,22
272:19
283:10
289:9
291:18,25
292:14,18
292:25,25
293:12,14
293:16,17
294:4,5
297:24
**player's**
292:11
296:10
**players** 64:4
64:5 65:1
66:24
68:18
70:23
72:12
242:23
**playlist**
43:4,8,12
43:14
44:13,18
253:25
255:12,19
255:23
256:10,21
257:11,17
257:20
258:11,12
**playlists**
43:18,23
**please** 4:17
21:5 22:25
27:18 30:2
30:4 31:10
47:8 59:12
78:18 93:7
126:1
127:21,25
128:1
147:1
171:2
188:11
211:12
231:6
236:20
262:11
281:21
**plural** 51:14
178:16,20
**plurality**
216:10,18
216:22
217:8
244:21
**point** 36:13
81:15
106:25
107:12
109:12
110:25
115:24
139:4
142:11,12
162:17
182:1
202:18,19
202:20
222:17
248:5
254:20
264:23
266:17
**point-to...**
105:13
106:1,2,25
**pointed**
237:7
**pointing**
193:17
**points**
106:10
108:2
113:4
142:11
143:19
144:15,22
**poor** 277:13
**pop** 240:21
**POPR** 8:16
16:14,22
17:7 21:7
21:19,21
86:12,14
87:4
**POPRs** 21:11
**popular**
242:22
**POR** 16:18,20
17:8 42:5
66:6
101:12
153:8
170:25
202:1,4,5
204:24
224:24
244:12
274:20
275:1
301:11
**portion**
128:10
167:22,24
168:25
169:2
176:15
177:10
188:23
189:5,8,9
190:4,6,17
190:19,20
190:21,25
191:2,11
191:14,16
191:24
192:3,4,5
192:11,12
192:20,22
192:23
193:4,6,7
193:10,20
193:21,24
193:25
194:7,9,13
194:13,20
194:21,24
194:24
195:21,22
196:9,9
203:19
204:3,4,8
204:8
207:17
225:7
247:1
**portions**
128:7
169:10,19
169:25
170:7
189:18
190:5
192:18
194:3
195:4,13
199:17,24
204:20
252:1,7
265:20
277:20,24
**position**
82:14
87:22,22
**positions**
87:9
**possible**
9:17 89:19
90:3,7
112:20
173:16
266:18
302:11
**possibly**
52:7 292:2
292:10,19
**potentially**
228:25
**PowerPoint**
138:21
180:21
202:12
**practical**
271:14
**practice**
48:24
254:18,20
255:4
256:4,8
257:2,25
258:8
295:2
**practiced**
126:25
**pre-reco...**
164:11
**precise**
158:10
**precision**
57:9
**predate**
154:11
**predated**
53:20
**predecessor**
102:12
**preferably**
155:24,25
**preference**
6:3
**preliminary**
8:12,16
300:23
301:1,3,9
**premise**
276:17
**preparation**
17:14,21
18:10
19:23
286:23
**prepare** 15:7
**preparing**
17:10
**preponde...**
29:22
300:21
301:10
**present** 2:16
127:9
167:21
169:9
184:6
209:22
212:6
216:11
238:25
251:18

**presenta...**
51:6 52:12
127:3,14
167:22
169:1,11
169:14,15
169:19
170:1,19
170:20
171:7,13
171:20
172:1,13
172:23
173:2,8
174:21
175:2,10
175:19,23
176:2,5,6
176:14
178:2,9,15
178:25
179:1,11
179:13,14
179:16
180:14,16
181:16
182:11,16
183:3,16
183:21
185:14,16
186:6,10
186:12
188:6,20
189:25,25
190:11,11
190:14,24
191:1,22
192:8
195:18
197:4,7,8
197:12,14
198:22,24
199:6
200:23
201:5
203:18
206:1,2
207:6,7
212:1,5,8
212:17
213:23
214:8,13
214:17
227:25
228:3,7,24
229:3,18
229:23
230:3,7
**presenta...**
172:19
175:14
**presented**
182:14
213:8
215:15
220:25
221:8
293:19
294:7
**presenter**
180:10
**presenting**
180:11
**preset**
113:19
114:16,22
115:6
**presumably**
267:18
**presumed**
33:6 86:7
86:23
**Presumption**
29:9
**pretty**
135:24
162:8
243:2
268:6
279:16
**prevent**
126:17
**previous**
162:1
223:22
235:8
237:11
**previously**
8:8 38:23
39:10 42:1
49:7
165:16
167:13
203:16
215:19
235:4
258:18
280:7
292:4,16
**PRI** 114:8
**primarily**
16:19 24:8
130:24
284:3
**primary**
127:22
128:18
**principles**
27:24 28:6
28:11,17
29:4
147:17
148:19
**printer**
279:24
**prior** 15:13
22:9 28:19
28:21,25
29:3,5
32:9 33:7
35:7,12,19
36:16,18
36:18,22
49:6 50:8
50:14 53:1
63:23
79:14 80:3
80:14 86:8
86:24
97:11
125:16
159:10,21
225:16,21
226:2,7
267:8
284:15
285:6,18
286:5
**priority**
147:7
149:3,8,12
**Privileged**
13:8
**probable**
31:6
**probably**
5:21 6:1,2
6:23 18:8
36:2,14
114:13,14
137:15
139:18
158:4,5,11
276:6,15
277:22
**problem**
51:23
236:8
284:14
**problems**
150:5
158:25
281:23
282:7,9
**proceed**
31:20
**proceedings**
1:23 9:11
9:21 25:25
302:18
303:4,5,7
**process**
24:15
122:22
142:2
224:1,11
**processes**
143:2
147:17
148:19
**producers**
239:5
**product**
102:7
105:9
125:6
186:7
**profile**
293:6
295:2
296:10,15
297:6,11
297:14,15
297:25
298:1,3,12
298:13
**profiles**
294:20
295:6
296:2,5,6
297:2
**program**
275:22,23
276:3
279:16
**programming**
62:22
279:14
**progression**
92:14
**progressive**
95:8,25
96:3,12,16
96:19,21
96:25
97:23
203:14
**project**
51:20 67:9
67:14 68:2
70:8 73:19
105:9
123:1
125:16
**projects**
24:7 70:13
153:24
**proof** 37:22
**properties**
265:13
**proporti...**
197:21
**proposed** 7:1
**prosecution**
24:25 25:3
25:7,18
26:12,24
27:5,13
32:1 33:2
33:16 80:5

80:10,19
81:1,10,21
82:8,22
84:11
85:24
89:12 90:9
**ProShare**
102:8,11
102:12,20
102:24
103:5,23
104:13,21
105:1,7,8
105:9,16
106:1,20
108:6
109:5
110:3,18
111:22
112:2,7,20
113:5,8,11
113:13,18
113:23
114:15
115:3,5,14
115:21
116:21
121:16
122:15
123:9,16
123:23
124:15
125:2,6,10
143:23
144:3,16
145:6
**protocol**
95:11 99:7
105:21
108:21
155:13,19
155:24,25
157:16
282:14
283:9
284:8
289:2
**protocols**
66:25
68:13,19
70:21
71:24
72:12
283:12
287:4,5
**prove** 37:11
**provide**
50:10
143:18,24
144:14,21
169:23
171:4
184:6
205:20
241:20
**provided**
28:8 30:1
44:3 49:1
50:12
95:13 99:6
168:13
169:11
217:21
218:1,4
290:13
**provides**
281:9
**proving**
29:20
30:14,23
31:14,22
32:11,23
86:5,21
**provisional**
24:22 26:4
26:20,22
26:25 27:7
27:8,15
**pseudo-n...**
134:6
**PTO** 25:6
32:18
81:24
**ptsheng@...**
2:9
**public** 1:20
261:9
304:25
**publicly**
71:8 76:7
261:5,7
**published**
79:6
134:24
**publishing**
148:25
280:9
**pull** 224:22
248:4
267:13
**pulled** 146:1
**punishable**
92:7
**pure** 53:23
54:11
161:23
**purpose**
100:10
119:22,22
**purposes**
39:15
45:18 46:2
108:13
300:19
**pursuant**
1:18
**pushing**
250:5
**put** 63:20
90:10
101:8
105:1,18
124:3,7
133:16
144:24
150:12
174:15
237:22
240:20
243:21
277:16


**Q**


**qualific...**
76:4
**qualific...**
23:5,11,14
**quality** 63:6
197:8,14
197:20
198:23
199:6,11
199:14
267:19
274:15
275:6,16
275:24
276:1,2,13
276:15,18
276:23
277:3,12
277:13,22
277:25
278:11,20
278:24
279:5,8,19
279:20
280:1,4
297:14
298:12,16
298:18
**quantify**
140:2
**quantita...**
117:13
139:6
**quantum**
260:6,11
260:15
262:12
263:15
271:14
**question**
13:10 26:9
27:11
34:25 39:5
65:21
69:18
84:24
85:25
86:18,18
90:1
116:17
117:24
129:20
148:15
152:17
157:2
171:18
175:17
179:7,24
196:12
199:4
201:2
207:23
214:11
216:25
217:1
218:14
219:13
221:4,22
223:22
224:15
235:7
243:13,14
243:23
247:10
254:7
264:5
273:11
275:21
276:17
281:22
282:1,12
282:16
286:3
290:11
294:3
**questions**
57:20
128:9
141:11
143:7
211:19
222:23
**quickly** 9:17
**QuickTime**
287:8,18
**quite** 48:8
74:17 88:6
88:17
141:9
**quote** 44:9
91:10,11
91:11
171:5,5
244:17
274:9
**quotes**
225:15

245:3,4
**quoting**
91:12
225:9,14
225:14

**R**

**R** 2:18 4:1
**race** 138:23
138:24
139:1
140:20,23
140:23
141:1,5,7
292:24
293:2,13
293:17,20
294:5,8
**ran** 290:3
**rate** 14:1,3
14:21,22
14:23 15:1
15:2,4,5
50:23 51:7
97:8 100:1
100:3,8,12
100:15,17
100:18,21
105:5
107:5,7,8
107:10,13
107:16
108:1,14
109:6,7,13
109:17,22
109:25
113:24
114:4,12
114:23,24
114:24,25
114:25
115:1,8,9
115:9,10
115:10,10
115:18,22
116:2,4,7
116:19,20
117:4,8,11
117:20,22
117:23,25
118:11,15
118:20,21
119:9,13
119:24,24
120:3,3,4
120:11,11
121:4,4,8
121:8,19
121:19
122:3,4,8
122:9,9,17
122:17
124:16,17
125:12,12
129:16,17
130:1,4,6
130:25
131:8,8,12
131:16,17
131:18,19
131:21
132:8,18
132:25
134:18,19
134:19
135:1,4,6
135:8,9,9
135:11,13
135:17
136:5,6,7
136:9,14
136:19
137:5,16
138:1
139:2
140:17,24
142:4
143:2,18
143:24,25
144:23
145:4
149:22,24
150:1
152:10
185:15,17
186:11,13
196:24
197:3,6
199:10,13
199:20,23
200:22
201:6
209:6
210:2,13
240:17
241:5,12
243:11,19
285:14
287:16
288:2,4,19
293:19
294:1,7,8
294:15
296:20
297:1,6,18
298:7
**rates** 14:8
14:12
52:22
56:12
74:24
109:3,4
112:8
113:20
114:16,23
115:3,7,19
117:7
131:2,2
132:14
137:2
150:24
189:20
193:11
195:6,9,14
196:15,18
198:18,19
199:17
204:22
239:13,22
240:4,14
240:25
242:16
293:8
294:12
**ratio** 295:2
**ratios**
293:23
295:1
**reach** 243:4
**reaction**
55:22
**read** 17:21
17:23 23:8
30:16
34:17
46:22
51:25
59:16 66:9
69:19
72:17
74:18
90:25 93:7
94:14,17
94:17
98:11,15
126:13,14
126:23
127:25
128:1,4,5
128:8,12
129:1
130:21
131:6
132:15
134:16
141:23
144:9
146:24
147:13
148:15
154:24
160:14,18
166:8,11
166:23
169:6,7,16
171:15
177:2
182:8
187:24
188:15
213:4
214:10
216:7
219:6
227:20
231:16,18
232:11,22
238:10
247:8
251:4,8
253:5
261:15
262:4,16
262:24
264:19
269:7,11
269:24
271:11
281:25
282:4,15
282:18
284:21
285:25
**reading** 17:2
104:16
154:20
217:21
218:11
219:5
237:3
281:4
290:17
**reads** 96:25
**ready** 66:12
211:24
**real** 63:24
64:2,7,9,9
64:22,25
65:8,13,17
65:22 66:1
66:13,15
66:20 72:7
107:21
128:19
147:18
148:7,9,10
148:20
149:1,6,17
150:9
154:25
155:12,19
157:15
172:10,16
172:20
174:21
175:8,10
176:10,11
187:14,20
283:10
293:15

**realizing** 270:17
**really** 6:6 6:13 21:14 21:19 22:2 52:1 53:8 68:11 75:15,19 80:21 81:6 91:21,22 94:16 111:1 115:2,18 127:18 137:3 148:9 160:8 162:24 169:5,23 228:21,22 233:6 273:15 274:1 279:12 289:7 293:7,19 294:7
**reask** 39:5 152:17 223:1
**reason** 21:13 30:19 33:5 34:6 42:8 58:4 74:20 114:20 139:2 151:2 217:6 251:14 284:16 294:9 304:6,8,10 304:12,14 304:16,18 304:20
**reasonable** 38:2,5 137:2
**reasons** 107:20 150:21 154:5 304:3
**rebranded** 30:19
**rebuffer...** 277:12
**recall** 10:25 11:15,19 12:23 13:2 13:6,14,16 18:15,17 18:21 21:19 22:2 22:11 24:21 25:21 40:20 47:7 48:15,23 50:12,21 57:9,13,19 61:10 62:10,25 63:12,14 63:16,19 64:11 71:4 71:5 75:15 75:20 76:21 77:19,24 78:8,9 79:18,20 79:20,24 80:22 81:6 81:15 82:21 83:1 83:2 84:13 84:20 85:7 87:15,16 90:8 91:21 103:20 108:8,11 110:24 112:10,19 113:5,11 113:13,15 114:5,6 115:2,15 115:19 116:3,9,10 117:7 120:23 121:9,12 121:23 122:5,11 122:18 123:7 124:21 146:11,20 150:18 153:25 154:14 156:21 158:3 160:8 163:22 176:3,9 178:20 181:10,17 181:24 184:24 198:15 201:9 207:13 240:5 245:14 249:15 261:7,10 283:17,17 283:21 286:21 300:12,22 301:4
**recalled** 79:11
**recalling** 122:7 178:21
**recalls** 250:23
**receive** 93:15 109:12,16 109:19,22 232:12,18 233:9 243:10 253:11,16
**received** 135:12 149:17 221:25
**receiver** 106:11 109:6,16 134:3 141:25 142:7,12 142:12,17 142:21
**receives** 215:4 236:16
**receiving** 109:21 237:7
**Recess** 59:4 145:13 198:5 248:14 299:2 300:6
**recipient** 106:13 149:19
**recite** 163:23
**recites** 236:13,15 244:20 247:6,12 255:18
**reciting** 256:15
**recognize** 11:16 61:2 61:20 76:14,19 77:12 257:14 258:21
**recognized** 64:25 65:4
**recollec...** 13:18,19 19:8 21:3 22:5 49:15 53:17 57:16 64:22 74:12 76:15 93:18,24 94:2,8 100:6,11 117:1 121:10 122:6 123:2 124:2,4,10 125:8 219:4 231:5
**record** 4:3 4:18 25:5 59:3,7 126:15 129:2 130:22 141:24 145:10,10 145:12,16 154:25 166:23 169:8 182:8 198:4,8 213:4 216:7 219:7 231:19 232:11 236:2 248:13,17 261:15 271:12 298:22,24 299:1,5 300:3,5,9 301:24 302:2,7 303:7
**recorded** 4:5 303:6
**records** 21:18,20 21:22
**recreate** 205:24 207:4

208:16
209:13
210:18
**redirect**
177:6
**reduce** 137:5
138:1
149:24
150:1
**reduced**
136:8,21
137:7,22
137:23
197:4
**reduces** 31:5
**reducing**
136:14,19
**reduction**
132:8,14
**reestabl...**
233:21
**refer** 8:15
9:2,7
49:19
78:14
139:20
140:8
**reference**
31:23
32:11,18
32:20,24
33:14,16
33:22
37:12,17
37:18
48:16,17
56:19 57:4
57:6 58:3
79:14,19
79:23 81:9
81:18,20
82:7,15
83:18,24
84:22 86:6
86:8,22,24
94:18
130:11
156:17,21
156:24
167:14
238:7,11
238:13,16
291:23
**referenced**
121:12,24
**references**
15:13
31:24,25
32:12,13
32:24 33:1
33:7 34:1
34:5,10,12
34:15,17
35:21
78:21
81:25 84:5
84:7,8,18
85:4,12
88:15,15
88:20 89:2
89:5,10,20
90:4
129:19,22
130:11
159:11,21
**referred**
99:25
127:5
152:9
260:11
266:24
296:15
**referring**
8:17 9:22
16:19
48:19
68:14 77:1
133:11
216:19,20
255:16
262:3
292:10
**refers**
131:24
172:15
214:21
**reflect** 94:8
94:12
205:25
206:14
207:5
208:17
**reflecting**
279:20
**refresh**
49:15
64:21 94:2
94:8,12,14
94:16
**refreshes**
219:3
**refreshing**
293:5
**regarding**
46:18
**Registered**
303:2
**regular**
126:17
127:9,10
127:19
**regularly**
62:21
**reinvite**
165:4
**related** 9:11
11:11
46:10 47:1
47:22
48:12,14
49:2,3
70:13
75:14
126:7
146:21
235:8
281:24
282:7,14
303:11
**relates** 8:1
82:19
131:14
**relating**
48:4,8
195:15
**relation**
47:22
**released**
64:23
**Relevance**
79:17
81:12
**relevant**
32:2 33:2
40:9 80:3
80:15
**reliable**
95:13
**reliance**
154:7
**relied** 79:13
283:6,14
283:22
**relies** 263:2
**rely** 168:5
282:24
**relying**
15:13
168:8
177:10,12
285:20
286:7
**remain** 270:4
**remainder**
181:15
204:19
277:1
**remaining**
220:24
221:7
222:9,20
223:3,17
**remember**
11:2,10
12:19
15:21
24:11 47:3
47:5 51:18
51:19,21
54:22 63:3
63:4,5,6,7
63:9,11
102:15
103:9,12
104:5
105:3
107:12
114:2,19
116:13,22
123:12,22
146:25
150:13
160:6
211:7
250:19
280:1
291:20
292:21
**remind** 58:23
207:24
250:24
299:14
**remote** 59:22
106:6
**render**
218:12
**rendering**
39:15
45:18 46:3
**repeat**
223:25
**repeated**
224:11,16
224:20
**rephrase**
221:4
**replaced**
245:11
**replacement**
182:14,22
183:23
210:16
**replacem...**
183:12
**replicating**
52:21
**report** 8:10
21:6,16,25
22:9,17
27:22 28:3
28:7,11,17
28:20 30:8
38:13
39:16
59:13
66:14
68:15 73:6
86:5,21
177:11
180:6

186:19
244:10
249:1
**reporter**
4:12,19
301:25
302:5
303:2
**Reporting**
2:25 4:13
**reports** 10:9
21:10
28:21
**repository**
248:3
**represent**
4:25 21:9
42:5 58:2
61:13
74:13
177:3,6
251:9
285:10
**represen...**
61:22
**represented**
30:18 34:4
51:5
**represen...**
6:4 86:4
86:20
**request** 8:21
23:2 27:20
38:14
59:18
62:15
63:22
66:11
78:19
85:10 91:2
93:10 98:9
98:14
99:12
126:5
143:10
147:4,12
147:15
151:8
153:2
156:3
159:7
160:17
166:7,10
167:18
188:13,17
196:21
201:20
211:13
214:20,23
215:1
221:16,20
225:2,4,11
225:17,22
225:23
226:3,10
226:12,21
227:1,2,2
227:3,22
230:10,11
231:15,19
231:25
232:4,7,8
232:17,25
233:8,13
233:22
234:14,14
234:21,21
236:13,23
236:23,24
238:20
249:4,8,12
249:17
250:7
251:7
253:8,16
255:18,22
256:9,10
257:3,16
258:1,2
262:23
269:10
270:2,21
270:25
271:1
282:3,17
**requested**
212:17
213:24
214:3,19
218:23
219:15
220:4,12
221:12
232:12,18
233:10
236:16
237:7
251:22
**requesting**
55:5,7
56:12
217:15
226:9
237:17
258:11,12
**requests**
218:20
233:4,12
234:2,23
237:10,19
244:24
246:22
249:20
255:12
256:21
257:5,11
257:19
269:5,13
269:22
271:4
**require** 41:3
41:15,22
42:18
45:17,23
46:11
71:10
162:19
163:14,18
164:20
234:4,7,11
246:21
247:16
249:3,12
**required**
39:15
81:25
105:10
165:6
204:1
237:15
**requirement**
45:9 98:16
163:23
168:23
209:19
233:15
234:10
237:9
252:12
**requirem...**
184:9,17
185:5,20
185:25
186:2,3
195:25
209:21
**requires**
46:8 163:8
163:10
165:1,4
225:3
226:21
230:10
235:15
236:22,23
**requiring**
152:23
**research**
24:7 47:23
48:4,21,23
49:5 50:20
62:17,18
62:21 69:2
72:5,10,21
73:2,9,14
73:16 79:7
101:19
102:4
103:8,22
104:11
105:6
116:9,25
148:25
149:5
150:4,8
283:25
**researched**
70:2
120:19
**researcher**
77:4
**researchers**
60:16
103:4
121:15
**reservation**
128:14,23
**residence**
73:17,25
74:1
**resident**
73:23
**resolution**
199:2
293:8,20
294:1,14
297:20
**resource**
128:23
**respect**
28:24
65:18,20
120:2
**respective**
195:5
**responds**
249:5
258:5
**response**
8:12,16
16:18 42:5
232:16
244:24
246:21
274:24
300:15,24
301:2,3,9
**responses**
271:4
**responsi...**
243:16
**responsive**
284:9
**rest** 195:25
195:25
196:13,14
**restate**
69:19
**restraint**
125:16

**result** 48:9
109:6
135:18
136:16,17
136:21
197:13
198:23
199:6,10
**resulted**
74:6
136:12
**resulting**
137:7
**results**
270:1
288:2
**retained**
3:19 5:24
11:13 13:5
13:12
61:10 62:3
62:8,11
77:18,19
77:25 78:5
146:10,16
**retention**
62:11
**retrieve**
220:19
222:5
244:23
246:22
247:17
**retrieved**
197:5,20
212:11
220:22
221:1,6
222:8,20
223:2,16
246:6,6
**retrieves**
219:9
258:4
**return**
270:25
**reuse** 234:23
237:10
**reverse**
257:8
**review** 6:10
16:21,24
17:4,5,17
17:18 18:5
18:11
19:15,17
20:20,22
21:18,20
22:8 27:4
27:13 28:2
30:2,4
31:10
36:22
45:14
48:10 57:8
58:8 88:4
211:21
231:9
259:7
280:14
302:16
**reviewed**
15:9,10,10
15:11,12
16:12 17:7
17:8,14,19
18:14,15
18:18,21
19:12,21
20:1,17,23
21:1,4
30:6 55:15
88:19 89:4
150:15
156:11
238:16
259:3,5
280:11
286:22
**reviewing**
35:20
36:17 86:1
216:10,18
286:21
**rewrite**
125:2
**rid** 108:19
**rife** 180:14
**right** 21:8
29:6 30:16
32:2 33:8
34:24 35:1
61:7,25
64:7,12
74:16 84:4
91:12 96:4
99:19
112:2
114:18
116:16
119:1
120:25
124:17
128:7
129:23
144:23
149:3,9,19
150:1
151:1
152:1
156:12
159:17,22
160:5
165:22
168:17,20
169:16
173:4
181:16
194:25
195:9
207:1
212:23
216:21
222:6,19
225:8
231:11
236:18
238:6,7
245:18,20
247:9
249:8
250:15
264:17
279:22
288:22
**RMR** 1:24
303:17
**Road** 2:12
**Robert** 18:24
**Rolling**
62:25
**rough** 302:11
302:15
**roughly**
295:14,17
**RTP** 283:15
283:16,16
284:1
288:7
290:9,15
290:19,22
**RTP/RTSP**
282:24
283:6,9,23
285:20
286:7,13
**RTSP** 283:15
283:17
284:2
288:7
290:9,15
290:19,22
**rules** 81:24
**runs** 289:2
**rush** 302:15

**S**

**S** 4:1 156:15
**Sam** 156:15
**sample** 252:5
**Samsung**
61:11,15
62:3,5,7,8
**San** 2:8
**satisfac...**
275:18
**satisfy**
195:24
208:22
226:12
**saw** 55:23
272:5,6
290:1
**saying** 37:20
38:10
41:23
55:12,16
96:19,20
96:24
133:11
134:4
135:4
140:19
144:10
160:24
162:18
166:20
173:12
175:7
178:11
181:24
183:6
184:1
193:15,16
194:5
206:21
207:22
217:10
219:16
221:2
222:21
225:14
229:25
232:22
233:7
234:22
236:5
262:9
263:16
264:2
266:5
275:21
295:21
**says** 29:19
29:24,25
61:8,21
67:7 80:21
91:20 96:6
106:16
114:3,21
130:22
132:3
156:1
169:22,24
170:3,13
170:21
178:16
182:9,24
183:1
184:5,23

189:6
191:15,17
191:19
192:1,19
193:3
194:2
195:3,10
195:12
196:14,23
197:2
207:1
216:21
228:14
229:16
233:9
234:19
246:5
262:3
269:3
274:24
282:23
285:12
286:22
288:7,17
289:2
295:6,20
**scalability**
272:18
**scalable**
114:6,9
**scale** 134:25
**scaling**
99:21,23
99:25
100:4,7,16
100:18,21
105:3,5,5
110:14
111:13,19
111:23
112:16
128:24
130:8,25
134:17,23
134:25
135:3
143:25
**scenario**
181:5
**scenarios**
241:17,21
**scene** 137:13
210:20
**schematic**
216:8
251:24
**scheme** 54:25
131:1
**schemes**
111:13,19
128:14
129:3,10
130:18,23
134:17,22
141:20,23
141:24
142:2,16
142:21,24
**schools**
59:21
**science** 74:3
104:9
**scope** 36:24
58:5 77:10
77:22
79:17
81:12
82:18 83:8
146:6
169:9
193:23
194:5,12
195:17,20
255:14
256:13,24
257:13
265:7
**screen**
102:18
276:13
277:3
278:10
279:8
**screening**
102:15
274:15
**script**
249:23
250:1,2
**scripts**
249:2,20
249:21
**se** 263:14
**search** 35:12
35:14,16
35:19
36:18
**searches**
35:8 49:1
**second** 44:8
58:11
90:14
105:4
107:18
114:10
119:7,9
126:2,14
126:14
128:3
135:16,19
135:23
136:15,16
136:20,20
137:6,6
138:1,2,10
138:10,12
138:12
139:1,3,8
139:10,14
139:15,18
139:22
140:9,24
140:25
143:15
153:5
162:23
172:23
175:23
179:1,16
189:6,7,12
189:14,18
189:25
190:4,11
190:18,25
191:1,7
192:1,2,11
192:18,21
192:22
193:4,5,9
193:20,24
194:2,7,13
194:20,24
195:4,22
196:9
197:6,20
200:6,8,14
203:19,19
204:2,8
205:8,9,10
206:1
207:6,16
209:3
210:21
211:5
243:23
246:19
262:25
284:6
288:6,17
288:22
289:3
295:3,7,12
295:13,17
296:14,20
296:21
297:2,7,7
297:18,21
298:8,8
**second-t...**
157:19
**seconds**
200:16,20
**secret** 263:1
263:6,12
263:18,24
264:2,3,14
264:18,24
264:25
265:2,2
266:6,7,13
266:24
267:25
**section** 23:4
23:9,11,14
23:19
27:23 28:7
28:11,17
29:3,5,8
29:12 84:5
84:8,18
85:4,13
88:15
90:22
111:6,11
126:3
132:3
134:12
143:11,15
159:10
281:17
282:6
297:22
**sections**
182:9
**security**
157:22
158:17
**see** 9:4 23:6
27:25
33:12
38:25
39:11,17
43:9,10
44:14
45:20 48:1
49:11
50:25 51:8
52:3 55:10
61:21
73:11
78:24 79:3
80:6 81:2
83:23 84:1
87:17,17
90:22 92:9
101:21
102:9
103:6
104:14,15
105:16
111:8,14
111:15
113:21
121:5
126:8,11
126:20
127:23
129:7
130:11,19
131:4

132:5
134:20
136:14
137:7
142:5
143:13,21
144:2
147:6,9,10
150:6
151:13
153:16
154:3,8
155:14
156:16
159:9,12
164:16
166:22
167:1
168:3
171:9,10
172:6
174:4
176:25
177:2
178:4
180:22,23
182:6,17
184:13
185:9,10
186:21
187:3
188:24
189:10,21
195:23
196:16,22
196:25
197:10,11
204:18
209:19
212:14
213:10
216:12
219:11
220:6
222:21
227:18
231:22
232:14
239:1
244:18,19
244:25
245:6
246:24,25
259:10,15
260:2,7,17
260:19
261:20,21
262:14,15
269:3,6
271:9,17
274:18,19
275:4
276:20
277:19,24
278:2
279:15,22
279:23
280:21
281:19
283:1
284:12
285:2,16
287:7,9,23
288:7,9
289:4
290:17
294:21
295:4,10
296:3,7,14
296:19
297:8,24
298:3,9
**seeing** 88:1
136:21
141:6
180:2,17
180:18,19
216:17
**seen** 12:13
26:25
52:23 55:8
55:14,17
56:3,5,13
56:14,15
56:17 57:1
79:22
216:3
265:9
286:13
**sees** 136:17
138:3
181:2
**segment**
177:20,24
178:1,7,8
179:3,3
182:15,20
182:21,23
183:17,22
183:23
185:12
186:4
214:3
**segmented**
262:7
267:11
**segmenting**
52:11,19
53:21 54:9
57:11,17
101:5
**segments**
51:5 52:12
101:2
171:7,13
171:21
172:5,9,14
172:15,20
172:22
178:12
182:5,12
183:2,12
183:14,20
184:7,10
185:2
188:3,6
189:2,13
212:5,11
212:18
213:7,8,24
214:18,22
214:24
215:2,4,8
215:14,15
227:25
228:4,7,25
229:3,13
229:15,17
229:23
230:1,6
241:25
250:6
267:9
**select**
200:23
201:4
214:8,14
214:18
**selected**
96:8 215:1
231:21
**selecting**
150:24
201:11
**selection**
240:19
**sender** 106:7
106:10
107:3
142:11,14
142:22,23
144:17
**sender-b...**
106:12
**sending**
249:5,17
250:7
**sends** 212:1
219:9
249:4,12
249:13,21
250:1
257:20
**senior** 73:15
73:20
**sense** 6:13
118:2
125:1
139:6
203:15
233:15,19
254:7
281:4,5
**sent** 133:25
134:1
135:18
142:22
252:9
253:25
256:9,10
**sentence**
41:2 42:16
44:9 48:18
49:4 50:19
51:2 55:3
55:12
67:11
80:23 96:6
111:10
126:15,22
129:1
131:6
132:2
143:15
151:11
153:4,11
153:22
154:24
155:10,11
155:16
157:19
164:7
166:20
168:19
171:9,10
172:3
173:7
186:23
227:11,16
246:19
259:23
260:4,13
260:18
261:14,15
262:25
271:11
274:9
282:23
284:6
285:12
294:23
297:23
**sentences**
94:13
130:21
169:6
182:3
284:21
**separate**
112:21

115:21
133:22
162:25
166:16,17
166:18
174:7
283:12
**separated**
143:19
144:15,22
**separately**
60:8
112:14,19
112:24
113:14
134:1
160:22
161:4,15
162:2,15
168:7
**September**
303:21
**sequence**
89:11
133:25
134:1
151:12,15
151:18,21
**serve** 10:21
11:9,14
12:10,17
**served** 48:7
284:8
**server** 51:3
51:12
93:15,21
93:23 94:9
94:10,20
94:21 95:3
96:8,15
97:3,15,25
98:18
142:9
155:23
212:10
214:9,15
214:19,24
215:2,5
221:17,21
222:1
225:4
231:20
232:13
233:1,16
236:18
249:5,5,9
249:10,13
249:13,16
249:18,21
250:3,4
252:3,9
253:11,15
254:1
255:12,19
255:23
256:9,10
256:21
257:6,10
257:16,19
257:20
258:1,1,3
258:4,5,11
258:12,13
263:4,10
263:24
264:9,16
265:5
270:21,23
285:13
286:13
**servers**
51:14 53:6
53:11,12
53:25
54:13
98:25
233:17
234:8
244:3,21
246:21
247:17,23
248:4
267:13,14
267:22
272:2,3,11
273:18,19
273:23
282:24
283:6,14
283:20,22
285:20
286:7
**service**
47:21
263:15
**services**
271:16,22
**set** 28:12
51:4 54:24
58:12
59:21
99:11
100:11
108:15
160:9
188:2
214:22,22
303:5
**sets** 51:4,13
295:2
**setup** 276:16
**seven** 83:22
**share** 9:13
281:6
**shared**
247:23
**shares** 231:2
**sharing**
102:15,19
**sharp** 136:12
**SHEET** 304:1
**Sheng** 2:7
3:4 4:21
4:22 5:12
7:7 13:11
13:17
14:19
25:14 26:8
26:17 29:2
33:24
34:23 35:6
37:5 39:6
40:22
41:13
45:10 46:5
46:16 53:2
54:18 56:1
58:7,19,22
59:8 60:22
61:1,23
69:5,9,16
72:19
75:12
77:11 78:1
80:1 81:16
82:4,24
83:3,10
87:7 88:8
89:18 90:2
90:18,21
95:9 96:2
97:13
109:15
111:4
115:20
120:20
122:1
123:6
130:13
137:20
138:8,17
141:10,14
145:17,21
146:9
148:13
160:2
165:11
174:18
175:15
180:24
185:3
193:1
194:22
197:24
198:9
201:3,13
201:17
203:4
204:6
206:11,24
207:18
209:23
210:17
211:1
218:15
222:18
223:10
224:17
226:1,14
227:5
228:11,15
228:18
229:1,7,20
241:19
242:7
243:5
248:7,18
253:1
254:10
255:6,17
256:18
257:7,18
258:9,17
265:19
267:1
268:24
270:10
273:1,6,10
273:12
275:14
276:7
278:6
279:1,18
281:16
286:4,17
289:18
290:6
291:9
298:21
299:6,10
299:14,21
301:12,20
302:3,10
**shim** 105:24
106:4,14
106:15,24
107:3
**shock** 274:10
**shockingly**
274:15
276:5
277:23
278:20
**short** 58:23
**shorter**
209:6,8,10
**show** 83:14
141:6
202:10,11
274:11

275:5,7,15
276:22
277:1,10
277:19
278:3,8,17
278:22
285:15,21
286:8,14
289:3,13
289:21
290:5,23
291:17
292:3,20
293:2
**show's** 275:8
276:13
277:3
278:10
279:7
**showed**
143:16
144:12,18
144:19
289:21
**showing**
138:20
250:18
287:1,25
289:10,10
289:13
290:25
291:4,13
291:13
**shown** 275:16
275:25
293:1
300:20
**shows** 217:2
250:22
292:2,19
**shuttle**
63:17,18
**side** 54:11
271:7
**sign** 302:17
**signature**
61:25
78:11
**signed** 22:12
92:17
**significant**
48:12
143:18
144:22
145:4
**signific...**
294:13
**signing**
22:10,16
**silly** 134:5
**similar**
32:17
101:1
180:7
209:14
256:8
**similarity**
151:3
**simple** 51:23
56:12
128:21
132:10,19
133:1,4
200:9
**simplified**
158:25
**simply** 96:23
100:22
143:5
281:22
282:12
**simulate**
287:6
**SimulCode**
294:20
**simultan...**
239:7,11
**single**
107:25
163:3
164:13,20
165:4
217:13,16
224:7
225:4,4,16
225:23
226:2,10
226:12
227:2,3,3
227:4
230:11,11
230:11
232:8,16
233:13
234:14,21
236:23,24
237:20
239:17
262:20
267:16
**singular**
76:6
**sit** 22:21
46:6
**site** 167:22
167:25
168:2
**sitting**
18:17
23:18
24:22
33:25 40:7
40:11,19
46:9 55:2
57:13,15
57:20
61:20 69:3
70:3,5,11
76:20
79:19 81:5
82:13 90:8
93:18
94:19
114:20
117:1
119:25
121:11
122:13,21
123:21
129:23
163:16
176:9
195:23
204:17
206:12,18
250:20
283:21
290:24
**situation**
181:18
**Six-zero**
154:22
**Sixty** 154:21
**Sixty-one**
157:9
**size** 197:4,7
197:13,21
198:22
199:18,21
199:24,25
200:4,23
201:5
294:14
**sized** 52:20
53:22
54:10
**sizes** 261:18
261:25
**skeptical**
153:25
154:6
**skill** 38:19
41:7,17
42:22 43:2
43:25
44:25 45:7
46:20
65:12,16
117:3,11
118:10
119:12
120:1,8
170:4
174:9,17
183:5
196:5,15
208:13,23
209:12,24
232:21
233:2,3,11
237:2
252:22
253:22
254:2,13
254:22
255:3,7,10
255:24
256:3,6,19
257:1,9,24
258:7
264:20
**skillful**
279:6
**skim** 281:21
282:11
**slide** 138:21
141:6
173:14,14
173:19
174:16
181:3
202:13,14
203:3
285:15,21
286:8,14
289:3,13
289:21
290:5,23
291:16
292:3,20
293:2
**slides**
172:23
173:2,7,10
173:12,17
173:25
174:2,10
175:24
176:6
177:1,5
179:2,4,17
179:21
180:2,11
180:20,23
181:14,15
181:21
187:15,21
**Sling** 20:13
**slower** 179:8
**small** 53:16
53:22
54:10
57:12,17
170:5
233:25
237:17
262:8
**smaller**
100:24
101:1,2

**Smart** 243:9
**smarts** 243:12
**smiling** 144:2
**smoking** 89:20
**so-called** 293:6
**software** 67:19 93:14 94:5 123:16 124:14 125:1,5,18 125:22 144:10,11 212:2,17 213:23 214:8,14 214:17
**solely** 169:11,20 170:2,8
**solution** 51:23 106:23 273:22
**Solutions** 262:13
**soon** 96:11 97:19 98:3 302:11
**sophisti...** 131:1
**sorry** 13:9 14:16 27:11 36:11 64:17 65:21 69:22 90:16 94:6 98:8 111:15 136:6 141:21 152:15 153:5,6 154:20 155:2,3 179:6 185:24 194:20 199:19 205:10 213:19 221:1,2,22 228:16 236:6 245:18 275:11 286:2 288:10 290:18 299:11,25
**sort** 48:24 115:24 217:9 250:4 280:24 288:1
**sound** 74:16
**sounds** 64:12 95:7 100:5 134:4
**source** 244:1 244:4 290:14,20
**sources** 93:4 290:12
**space** 63:17 63:18 65:5
**speak** 58:24 59:9 140:4 198:10,12 299:7,15 299:21
**speaking** 48:18 299:24
**specialized** 162:19 271:15,22 272:1,10 273:18,23
**specific** 10:24 41:3 41:15,22 42:18 48:14,17 76:5 100:5 115:5 136:24 163:21,23 165:1 214:22
**specific...** 13:3 35:14 49:8 121:24 122:19 123:12 214:20 220:8 282:10
**specific...** 9:23 17:25 18:2 43:6 44:10 46:23 50:3 176:16 231:3 247:2 251:11 252:20
**specific...** 9:14
**specifics** 6:7 44:6 80:22 284:25
**speculate** 89:15 273:25
**speculation** 34:20
**spell** 103:14
**spend** 17:10 21:15
**spent** 21:24 22:3
**splice** 210:24
**split** 6:2 7:16
**splitting** 261:16,23
**spoken** 19:4 19:6 20:8 202:16
**spread** 242:12,13
**spring** 57:10
**SS** 303:1
**stack** 75:18 105:19 106:17,20
**stages** 271:3
**standard** 29:15 30:9 31:4 38:1 38:5 91:8 91:18 92:13 93:22 94:10,21 96:14 97:3 98:18,25 100:20 294:25 300:13,18 300:23 301:1,11 302:8
**standards** 29:11,22 29:25 145:1
**standing** 77:21 83:8 146:4
**standpoint** 54:25
**start** 91:5 111:5 118:8 148:18 156:9 171:11 177:15 181:13 182:4 234:6
**started** 67:14 70:12 105:9 106:2 108:10 124:19 276:23
**starting** 66:18,23 67:12 68:2 72:4 162:16 177:19 186:20 211:20 238:21
**starts** 186:24 188:20 238:24
**startup** 98:4
**state** 30:12 38:16 41:2 42:17 43:1 43:6 44:10 45:15 47:17,20 47:24 48:4 49:5 50:19 51:2 55:4 59:20 65:18,23 66:2 68:15 73:8 79:8 80:2,24 85:15 92:2 92:6 101:17 103:3 104:10 112:2,6 113:18 116:16 121:1 153:12,22 164:3,6 167:20 171:5 177:23 244:20 246:20 302:1
**stated** 23:10 40:18 49:13

92:22
93:19,25
121:15
204:11,12
301:1
**statement**
28:25 40:2
40:3 55:22
65:3 80:5
80:8,19
81:4,19
82:1,16
84:12,13
84:21,21
85:5,8,14
85:16,18
86:11,11
86:14 87:4
87:5,16
92:16
104:17
125:14
140:12
142:19
158:11
162:1,2
165:8
182:25
183:5
228:21
229:12
245:16
269:17
270:13
**statements**
44:7 80:13
92:3,4,6
94:23
**states** 1:1
44:10
112:11
143:16
155:11,11
234:13
239:14
259:23
260:5,14
284:7
294:24
**static** 68:9
180:19,23
**stating**
39:13
81:14
85:14
150:3
**station**
253:12,17
**status**
284:23
**stay** 151:5
271:6
**Staying**
50:18
**steam** 92:11
**stenogra...**
4:5 303:6
**Stenotype**
1:23
**step** 123:5
174:19
175:16
211:20,25
212:13,16
212:22,24
213:17,23
214:2,4,5
214:7,13
214:23
215:3,10
215:13
217:20
218:3,6,19
218:22
219:1,13
219:17,19
220:9,10
220:16,18
220:23,25
221:6,9,11
221:13,14
221:16,20
221:24
222:4,9,11
223:2,5,17
**steps** 122:14
213:5,6
215:13
220:24
221:2,7
222:10,21
222:23
223:3,18
224:16,18
224:19
232:3
**stills**
202:13,22
291:14
**stock** 210:10
**Stones** 62:25
**stopped**
278:22
**storage**
244:23
245:3,5
246:5,7,8
246:9,11
246:14,23
247:6,7,13
247:14,18
247:19,22
247:22,24
**store** 215:4
221:25
**stored** 93:3
218:24
219:7,15
220:7
252:3
**storing**
56:11
**straight**
217:21
**straight...**
142:3
143:3,4
162:8
253:21
254:12
**stream** 63:17
71:21 75:8
75:9,11,22
75:23,24
92:25 93:3
98:4,24
99:5 100:1
100:8,23
100:25
101:2,6,7
107:18,24
108:16,17
108:18
112:24
122:17
124:11
129:6
131:8,24
132:1,9,10
132:13,18
132:19,25
133:1,15
133:16,18
142:1
150:23,24
155:23
163:4,9,18
164:14,21
165:5
231:21
239:17,21
240:3,13
241:5,12
243:17
274:11
289:9
294:1
296:15,19
296:23
298:4,7
**streamed**
62:22 63:1
63:8,13
112:23
113:13
203:12,14
217:3
287:11
**streaming**
47:23,24
48:5,9,13
49:2 50:20
50:24 51:7
51:23 52:8
55:6 60:4
60:7,19,21
64:3,6,10
64:23 65:8
65:9,13,17
65:22 66:1
74:7,25
76:11,16
76:18
78:22 91:4
91:6,16
92:11,18
93:12,22
94:3,10,21
95:2,19,23
96:15,16
97:4,14
98:17,24
99:5,21,24
100:2,13
101:18,24
102:1,4,25
110:4,19
112:13,14
120:5
135:15
146:21,24
153:13,24
154:1,10
154:15
155:1,12
155:19
157:15,21
158:15,24
160:21,25
161:9,11
161:13
162:10,13
162:21
164:10
216:16,23
217:11
239:6,10
239:13,16
253:25
255:8,11
255:22
256:16,20
257:10,15
258:24
259:24
260:6,9,11
260:16,22
261:2
262:12
263:2,15

264:9,10
264:11,12
265:10,12
265:17
266:15,16
267:4,6,6
267:25
268:9
271:7,14
271:21
272:2,11
276:11
280:3,4
281:8
283:10
284:22
285:5,18
286:5
288:4
295:16
**streamlet**
40:9 45:12
166:14,15
217:16
218:20,23
219:7,8,8
219:9,10
219:15
220:4,7,7
220:12,19
220:22,24
221:6,8,12
221:17,17
221:21,21
221:25
222:3,5,8
222:10,14
222:15,19
223:2,4,16
223:18
224:11,20
225:2,5,11
226:22
227:4,4
230:10,11
230:12
231:19,25
232:4,7,17
232:25
234:14,15
234:20,20
236:13,16
236:22,23
236:24
237:10
270:20,20
**streamlets**
38:24
39:10,14
39:20
40:14 51:5
216:10,15
216:16,19
216:22,23
217:2,8,11
221:25
224:1
225:17,22
225:23
226:3,8
227:1
232:12,18
233:8,10
233:18,25
234:8
237:8
244:23
265:15
267:13,21
270:2
**streams**
66:16,20
72:7 97:9
112:9,12
112:23
113:2,6
126:17
127:4,14
127:16
129:13,16
129:25
130:25
131:3,22
142:18,23
240:24
267:21
284:7
295:7
**Street** 1:22
2:3,7 4:15
**strike** 14:11
18:22
28:15 30:3
35:18
36:16 39:7
40:9 46:8
63:8 65:25
72:25 91:5
94:6
108:25
113:12
136:17
161:11
175:17
183:18
186:7,8
191:5
192:8
195:18
208:15
216:25
218:6
221:22
255:9
268:16
279:3
283:4,20
290:7,13
291:10
292:15
293:14
301:7
**structure**
54:23
252:5
**stuck** 181:14
284:8
**student** 24:8
24:11
51:18
103:20,24
104:2,3,8
104:22
105:1
**students'**
24:6
**studied**
52:17
**stuff** 284:17
**subcolle...**
188:22
189:2,7,13
190:17,18
190:24
191:2,5,7
191:7,10
191:11,14
191:16,23
192:2,10
192:11,13
192:19,21
193:3,5
203:19
**subcolle...**
171:8,14
171:21
177:25
178:1
182:10,13
182:15
183:14,20
184:7,10
**subjective**
116:18,23
117:15,20
118:1,2
**submit** 11:22
80:11
**submitted**
8:11 12:1
15:10
16:16,22
18:6 19:19
20:24 21:6
21:10 42:4
42:6 61:5
61:14 66:6
77:15
90:12
146:2
152:22
**subsequent**
224:11,20
233:4
234:23
**substance**
299:22
**substantial**
162:20
294:13
**substant...**
177:20,24
179:2
180:7
184:8
185:11,11
189:19
193:11
195:5,13
204:21
209:5,9,13
**substant...**
21:11
33:15
80:25 81:9
81:20 82:7
82:15
84:10,16
84:22 85:2
85:6,11,19
88:19 89:4
**substitute**
183:11
**substituted**
184:11
**success**
143:18
144:23
145:1,4,5
145:7
**successful**
111:3
268:16,18
272:22
273:19
**successf...**
110:2
**successive**
224:1
**suddenly**
139:1
**sufficient**
57:20
169:13
170:9,18
252:21
277:21
**suggest**
162:9
**suggestion**

174:4
210:12
**suitability**
111:12,18
**Suite** 2:7,13
**suited** 112:3
157:20
158:14
**summarize**
236:11
**Summary**
143:12
**summer** 57:10
**super** 63:5
158:10
**supply** 239:5
239:9
**support** 8:11
16:17,22
18:6 21:6
21:10 42:4
64:15 66:6
111:23
153:7
160:11
161:2
162:1
170:24
176:16
177:10,14
202:1
224:24
247:2
301:2
**supported**
29:20
30:15
59:25 73:9
239:13
**supports**
168:9
186:18
**supposed**
205:6
**sure** 14:20
15:18 28:5
31:12,16
36:13 37:8
38:8 46:22
59:1 62:14
69:21
73:15
78:16 80:2
93:20
100:17
103:11
110:24
112:15
118:19
126:4
128:11
134:14
138:18
140:15
141:13
143:9
148:17
154:13
156:7
179:9
198:2
200:2,11
211:6,22
231:14
235:17
242:22
245:15
246:16
247:9
264:21
269:9
271:10
275:11,15
275:20
281:12
292:23
**sustain**
276:2,18
**sustainable**
149:23
275:24
**sustained**
288:5
**switch**
179:21
181:3,8,13
184:16
185:1
**switched**
180:2
276:24,25
278:8
279:3,5
**switching**
181:23
**sworn** 1:19
5:9 304:23
**synchronize**
134:2
169:14
170:10
**synchron...**
170:15,19
**system** 66:19
72:6 75:6
76:11,16
91:5,6,16
92:18
93:13,22
94:4,10,21
95:2,19
96:15
97:15,23
98:17,24
99:5
102:13,21
102:24
103:5,23
104:13,21
105:7
106:3,20
106:25
108:6
109:5
110:3,18
111:7,11
111:22
112:2,7
113:5,8,11
113:13,19
113:23
114:15
115:5,6,22
121:16
122:12
124:15,18
124:20
125:3,11
134:12
135:15
142:10,10
143:17,24
144:11,13
144:16,20
145:6
146:24
149:10,16
149:21,23
154:1
179:11
180:1,8,9
180:25
183:16
184:16
188:21
191:22
200:22
201:4
212:21,24
213:13
214:5
215:3,9
220:11,15
220:18,23
221:7,13
221:24
222:4,9,20
223:3,17
223:25
236:15,21
239:4
253:25
255:8,11
255:22
256:16,20
257:10,15
264:9
267:4,6
268:12
277:10,11
280:9
285:7
289:12,20
290:22,23
**systems**
48:11,24
56:17
72:22 97:4
119:5
149:6
150:9
154:11,15
180:6
239:15
243:25
267:7
283:25
285:6,10

**T**

**T** 296:16,19
296:23
**table** 3:1
287:22,25
288:25
289:1
296:18,24
297:5
298:6
**tables**
296:12
**tail** 242:20
**take** 6:9
58:22
107:23
122:14
123:4,8,22
123:25
174:14,19
175:16
185:11
197:24
200:16,19
205:7
207:19
219:2
240:20
248:9
265:15
289:8
**take-away**
53:10
**take-home**
205:5
**take-on**
161:1
**taken** 1:21
1:23 18:12
20:15 59:4
145:13

294:10
299:2
300:6
**takes** 186:4
**talk** 128:13
164:1,25
217:17
248:20
250:20
299:19
**talked** 39:4
203:16
**talking** 57:2
83:12
122:7
135:20
140:20
165:9
195:14
198:13
200:10
233:11,12
235:13
262:5
277:17
278:15
283:24
293:9,22
**talks** 204:19
**task** 35:20
**TCP** 154:7
237:15
263:3,23
264:7,15
265:3,16
266:14,18
266:21
267:3
268:4,8,13
268:14,19
269:13,23
282:14
283:18
284:5,20
**TCP-based**
282:23
283:5,14
283:19,22
285:19
286:6
**TCP/IP** 95:11
95:13,19
95:24,24
96:9 97:16
98:1
105:18
167:23
169:11,21
170:2,9
**teach** 162:9
233:19
**teaches**
162:11
170:19
**teaching**
74:4
162:17
163:13
210:11
**team** 103:8
103:17,22
104:19
105:6
108:5
121:1
**Teams** 16:8,8
102:13
**tearing**
233:21
**technical**
73:3 292:6
**technique**
52:18
109:6
132:20
263:10
264:1,4
269:12,22
**techniques**
100:11
104:25
105:2
112:17
132:11
133:1,4
260:1
**technolo...**
1:6 4:9
91:9,19
92:14
**technolo...**
200:11
**technology**
52:8 66:19
72:6
104:11,19
108:7
110:4,19
119:18
137:4
258:25
259:24
260:5,10
260:22
261:2
263:2
265:3
268:1,9
271:21
272:2,12
274:12
278:4
281:8
285:19
286:6
**teens** 55:24
**telecomm...**
105:11
**telephone**
168:1
**telephony**
168:1
169:3
**tell** 70:6
81:5
121:17
122:14,22
122:25
123:3
128:3
129:24
162:6
179:25
230:17
250:21
290:24
**telling** 96:6
**tells** 233:3
233:10
250:6
**temporal**
134:17,23
135:3
152:4,8
**Ten** 211:9
**term** 10:2,5
24:24
38:23
39:10
40:24 41:2
41:14,16
41:18
42:14,17
42:23
45:12
46:17,19
66:15
99:13,20
100:21
102:16
107:8
273:8
**termed** 50:22
**terms** 41:19
45:16,22
46:7,10
56:10,13
84:7
100:19,20
110:1
138:15
163:13
254:18
260:15
267:3
270:16
271:1
272:15,21
280:2
**Terrible**
217:1
**test** 289:2
290:23
**testified**
5:10 7:9
14:20
17:13 54:9
68:1 69:12
69:13
117:19
121:10
130:6
156:20
186:17
203:17
204:9
208:4
255:21
291:12
**testimony**
7:12,13,14
39:2 40:16
41:10
69:13
156:23
194:1,10
194:11
203:22,24
208:1,17
209:1,14
228:14,15
289:19
290:21
**testing**
108:22
**tests** 287:12
287:20
288:12
289:20
290:4
291:7
**text** 202:14
202:15,19
208:9
253:23
254:16
**thank** 8:9
42:2 47:19
64:20,24
83:20
101:14
155:9
227:14
235:6
251:3
262:22
282:2
**thereof**
177:25
178:1

182:10,13
183:14,20
184:7,10
**thing** 108:10
108:23
116:20
125:17
247:8
268:2,11
272:22
**things** 35:25
55:2 56:8
56:9 67:4
72:11
102:12
116:23
140:6
147:21
148:11
161:3
200:7,9,15
200:18
242:20
243:14
271:2
284:25
**think** 5:17
6:12,14,16
10:11
14:10
16:11 17:7
23:16,17
24:4 33:21
35:4 37:1
37:20 44:5
47:10 57:1
57:10
67:18 70:8
70:10,25
71:7 74:3
80:14 85:9
86:10 97:9
97:11
100:19
102:14
105:2,4
107:11
109:12,23
110:6,25
114:9
115:13
118:7,12
119:6
120:8
123:17
128:15
129:18
131:23
132:16
139:5
140:19
141:8
144:5
146:7,22
148:4,5,14
150:11
154:13
158:10
159:18
160:24
162:8
163:11,15
163:22
165:7,22
169:17
173:18,19
174:6
178:11,22
183:5,25
185:10,23
190:2
193:22
196:5
197:22
205:3,6
206:8,9
207:15
208:22
213:14
221:10
222:25
226:18
229:11,14
232:21
233:2
235:14
236:12
237:4
238:4
241:16
245:10,16
246:3
247:20,21
248:1,5
251:1
253:20,22
261:8,8,9
263:13,16
264:2,21
266:13
274:21
276:9
277:16
278:1,14
278:18,21
280:17,18
284:1
286:12
288:19,23
291:3,21
291:23
292:1,18
293:4,5
295:19,21
299:18
300:25
301:14
**third** 114:25
115:10
129:1
**third-to...**
83:18
132:2
231:12,18
**third-to...**
83:24
**Thirty-t...**
227:14
**thought**
12:22
29:21
51:22 52:1
52:5 75:16
79:22
144:3
161:6
235:19
242:25
259:21
263:12
265:2
266:4
**three** 18:8
113:19
114:16,22
115:6
246:14
275:3
**three-ish**
18:9
**threw** 135:1
136:11
**throttle**
285:14
**throughput**
132:14
**throw** 107:23
133:15
**throwing**
108:1
131:20
143:5
**thumbnail**
296:5,10
296:15
297:14
**time** 4:3
11:8 13:24
16:3,6
21:15
22:20 24:1
31:2 38:19
46:21,24
49:10 50:6
50:14
51:11,19
52:9 55:16
59:2 66:13
66:16,20
67:4,10
68:17
71:13 72:3
72:7 74:4
74:18 75:4
88:9 93:20
98:4 105:2
107:21
115:24
116:5
118:16,19
119:8,13
126:25
128:19
130:8
133:20
134:5
142:25
145:8,15
147:18
148:7,9,10
148:20
149:1,6,17
150:9
151:23
152:5
153:18,25
155:1,12
155:19
157:15
158:3
172:10,16
172:20
174:21
175:8,10
176:11,11
185:12
186:4
187:14,20
198:3,7
215:9
227:16
228:22,23
229:12,16
229:17
230:1,2
234:1
243:15
248:12,16
254:3,22
259:3
271:1,5
276:11
277:7,17
278:5,14
279:13
280:1,11
293:15
295:15
298:23
299:4

300:8
301:23
303:4
**timeframe** 150:16
**timeline** 40:24 41:3 41:8,21 42:14,18 42:23 43:3 44:11,17 45:13 249:3,4,6 249:13 250:8,24 251:12,17 251:21,24 251:25 252:2,6,8 253:11,16 257:5 258:3,5,6
**times** 5:16 16:24 17:20 18:5 18:9 22:8 130:24 204:17 237:20 238:10,17 259:7 280:14,17
**timesheets** 21:22
**title** 35:24 36:15
**titled** 23:4 27:23 29:5 74:14 78:22 90:22 110:13 111:6 126:3 134:12 143:12 159:10 259:1 262:12 280:8 281:17 282:6 294:19
**titles** 36:5
**today** 4:23 5:19 9:6 13:24 14:4 15:5 18:17 22:21 23:18 24:23 25:21 33:25 40:7 40:11,19 46:6,9 49:24 52:8 55:2,6,16 56:2 57:14 57:15,21 61:20 69:4 70:4,5,11 76:20 79:19 81:6 82:13 87:14 90:8 93:18,25 94:19 99:9 102:14 105:14 107:8,13 107:17 109:4 114:20 116:6 117:2 119:25 120:6,9,16 121:11,17 122:13,21 123:21 124:10 130:5 134:6 136:4,25 137:4,18 137:21 153:13 154:16 163:17 176:9 177:7 194:1,11 194:11 195:23 204:17 206:12 208:1 283:21 289:19 290:21,24 300:13
**today's** 145:1 301:18,22
**told** 263:17
**tolerable** 137:24
**tolerance** 270:14
**Tom** 296:16
**tongue** 235:3
**tool** 102:17
**top** 61:3 69:1 70:7 83:22 112:1 113:16 120:25 206:8 296:23
**topic** 120:23 148:25 163:15 219:25
**topics** 49:3
**TOR** 64:16,17
**total** 17:10 18:8 296:19 297:1,6,18 298:7
**totally** 289:21
**Trade** 11:5,7
**TRADEMARK** 1:1
**traditional** 95:8 133:25 265:11,17
**traffic** 157:24 158:19,23
**trailer** 287:19
**trailers** 287:8
**training** 205:3,16 205:22
**transcribed** 1:24
**transcript** 18:11,19 18:21 19:13,16 20:18,21 302:1 303:6
**transcri...** 148:15
**transfer** 66:20 72:7 95:11 155:25 228:23,23 229:13,16 229:18,22 230:1,2,5 243:1 262:5
**transfers** 97:15,25
**transforms** 96:8
**transiting** 270:20,22
**transitions** 136:12
**transmis...** 66:25 67:22 68:6 68:21 69:15,22 69:24 70:14,17 70:23 71:3 71:7,11,16 71:25 72:13 75:10,24 104:12,20 104:25 108:7 131:17,19 133:17 149:7 150:10 170:11 184:8,17 185:5 186:3 189:20 193:11 195:6,14 195:15 196:15,18 196:23 197:3,5 198:19 199:16,20 199:23 200:22 201:6 204:21 209:5 281:18 282:6
**transmis...** 169:14 170:20
**transmit** 107:1,25 131:11,25 133:16 134:8 135:7 148:7 158:23 185:12
**transmitted** 66:17 107:3 113:9 135:13,14 149:22 271:4
**transmit...** 106:8 108:2

113:4
119:21
131:16
135:2,16
147:18
148:19
149:1
**transpired** 82:22
**transport** 153:13
261:18,25
262:12
**treat** 112:18
**treated** 160:21
161:14
162:2,14
**treating** 168:6
**TRIAL** 1:1
**true** 29:1,8
40:2,3
67:24 92:4
92:5,23
127:1
142:24
161:25
183:7
187:12
240:15
255:12
257:8
270:13
299:19
303:7
**truly** 278:18
**truth** 31:6
**truthful** 156:24
**try** 6:10
105:25
106:6
108:18
136:8
**trying** 36:20
37:17 53:3
53:15
82:10
96:19
108:22
115:25
117:6
118:5,18
119:16
120:7
140:2,3
160:5
162:5
185:8
208:24
248:5
250:24
287:2
**Tuesday** 1:16
4:4
**turn** 8:19
22:25
27:18
38:12 47:8
59:12
61:24
62:12 73:5
78:17
90:11
91:24 93:6
98:7 126:1
127:21
143:8
147:1,11
151:6
153:1
156:2
159:6
164:4
166:5,19
167:16
171:2
188:11
201:18
211:12
215:22,25
231:6
238:19
248:19,23
250:14
251:1
253:2
262:11
286:18
294:16
**turns** 40:20
**TV** 4:8 243:9
**TVs** 243:12
**Twelve** 101:16
**twice** 200:19
**twisted** 235:3
**two** 15:25
16:11 43:7
43:12
79:22
105:2
113:25
114:17
115:7
119:7
123:1
127:22
128:18
130:21
142:10
169:6
172:4
173:22
176:14
200:16,19
207:8
208:15,25
209:13,15
210:19
225:17,22
225:23
235:20
246:11
270:18
282:9
283:11
302:5
**two-dime...** 110:14
111:23
130:25
**two-way** 60:1
112:8,12
112:22
113:1,6
**type** 105:10
134:25
296:15,19
296:23
298:4,7
**types** 104:23
157:23
158:19
167:6
**typical** 114:11,13
**typically** 35:14,15
82:11
99:25
102:14
119:1
151:25
152:7
282:24

**U**

**U.S** 49:8
61:5 74:10
77:15
156:17
**UDP** 283:17
283:18
284:3
**ultimately** 226:25
**unambiguous** 233:1
**UNC** 73:17,23
73:25
104:12,20
108:7
110:20
148:25
149:5
242:6
284:3
**uncompre...** 166:24
**underlying** 95:10
**underneath** 171:5
**understand** 7:25 8:16
10:15 19:9
20:14
24:18 41:7
41:17
42:22 43:2
44:1 45:1
45:7 56:8
65:21
80:12
82:10
89:25
96:20
100:21
108:18
120:9
124:13
138:7
142:19
144:25
148:3
152:8
162:5
163:11
164:18
170:4
174:9
183:6
184:15,23
196:16
199:4
210:7
217:23
237:4
254:6
255:15
256:14,16
260:9,20
261:1
262:4
275:21
285:9
290:11
292:23
296:11
**understа...** 8:6 10:18
20:6,10
25:2,15
26:10,21
30:8,13,22
31:2,3,8
31:13,21

32:3,5,6,7
32:10,16
32:22
38:17 40:8
40:12
80:16
130:5
181:12,22
191:4,6
213:12
219:18
252:11,14
259:2
261:4
262:9
285:5
286:25
289:6
290:7
291:24
292:13,17
296:9
**understands**
196:6
**understood**
38:11
107:8,13
110:1
142:15
163:3
164:13
173:20,21
287:13
**undoubtedly**
92:22
137:24
198:20
**undue** 252:24
255:4
256:4
257:4
**Unified** 12:7
**uniform**
52:20
**unique** 285:7
**uniquely**
36:5 219:1
**unit** 152:5
**United** 1:1
12:6
**units** 114:9
132:12
133:5,9
**universally**
158:23
**University**
59:19,21
73:10 74:8
103:16,24
205:21
207:1
**unmarked**
211:10
**unpatent...**
300:14
**unwashed**
105:16
**usable**
143:18
144:14,21
**use** 43:18
44:1,16
45:1 51:12
51:14
53:11,23
53:24
54:11,12
73:19 91:8
91:18
92:13
96:24
104:19
105:12
115:25
117:6
138:24
141:24
142:16,21
148:6
153:14,19
154:11,16
157:15
168:22
173:6
187:5
209:25
210:1
232:23
233:7,15
234:7,23
237:12
243:3
263:2,8,19
263:23
264:3,7,14
265:3
266:14,18
266:21
268:7,12
268:18
270:1
272:17
273:17,24
284:1
**user** 44:13
44:18
74:14
112:13,24
136:17,17
136:21
137:6
138:3,15
138:25
139:3
140:19,23
140:25
150:25
167:22,25
168:2
169:1,2
170:1,8
179:24,25
180:1,25
181:2,2,8
181:14,20
203:5,12
212:6
216:16,23
217:3,11
243:6,7,8
243:8,9
244:4
253:12,17
253:17
275:5,7,15
275:17,22
275:23
276:4,4,22
277:2,8
278:9
279:3,7
292:24
293:1,13
293:16,18
294:4,6
**user's**
239:11
**users** 169:20
170:11
201:11
239:7,11
243:4,10
**uses** 168:19
177:4
178:20
187:1
233:17
**USPTO** 32:1
32:13 33:1
33:11,17
34:13,16
**usual** 108:20
**Utah** 11:19
11:21 12:1
12:2

**V**

**V-i-v-i-...**
287:8
**valid** 6:12
6:15,15
**validity**
29:9
300:20
**vanilla**
53:24
54:13
71:19
273:17
**variable**
142:3
**variety** 62:7
107:20
148:6
153:23
**various**
150:23
261:17,24
**Venable** 2:2
4:22,24
**verify**
251:13
**versa** 258:11
**version**
112:6
172:9,23
175:23
176:5,7,10
177:25
178:7,12
179:1,2,11
179:14,15
179:16
181:23
182:22,23
183:18,22
183:24
185:13,15
186:6,9,12
187:13,15
187:17,18
187:19,21
188:7
189:25
190:1,11
190:12,15
190:24
191:1
202:21,23
203:2,3,6
203:18
204:24,24
205:8,10
205:11
206:1,2,3
206:13,15
206:16,25
207:7,20
208:2,2,5
208:5,6,10
208:12,17
208:18
209:3,3,7
209:25
210:1,18
210:19,20
210:21,25
276:23,24
277:1
278:9,9

279:6
293:21
294:8
297:14
298:12
302:11
**versions**
171:7,12
171:20,25
172:13,19
174:21
175:2,10
175:19
176:2,14
176:14
178:3,9,15
178:16,18
178:22,23
182:10,13
182:20
183:3,15
183:21
208:15
210:1,13
212:6,8
**versus** 4:8
6:2 109:3
123:5
138:12
**VGA** 180:12
**vice** 258:11
**video** 2:25
4:13 47:23
47:24 48:5
48:8,9,13
48:13 49:2
49:2 50:23
52:8,19
53:21 54:9
56:11
57:12,17
60:3,6,19
60:20 64:3
64:6,7,10
64:23 65:8
65:9,13,17
65:22 66:1
66:21 67:1
67:23
68:21
69:24 70:9
70:15,17
70:24 71:3
71:12,16
71:25 72:8
72:13,21
75:5 76:11
78:22 91:7
91:17
92:12,25
93:3,15
95:19,23
96:7,15
97:4,15,25
98:4 99:5
99:21,24
100:8
101:18,23
101:24,25
102:3,7,18
102:21,25
103:1
106:11
108:15,15
109:13
110:1,15
112:9,12
112:14,18
112:22,24
113:1,4,6
113:9,10
113:14
116:3
119:2
120:5
121:2,3,8
121:16,19
122:3,16
124:3,16
125:11
126:10,16
126:24
127:2,6,9
127:13,16
127:18,19
131:14,14
131:18,19
133:22
134:1,7,8
134:17,18
134:23,25
135:1,2,3
135:4,16
135:22
136:15,16
136:19,21
137:3,5,7
137:25
138:9,12
138:12,21
138:22
139:8,14
139:21,22
140:4,8,9
143:6,18
144:14,21
146:21,24
147:18,21
147:23
148:7,11
148:20
149:1,7,15
149:21,24
149:25
150:1,10
150:23
151:11,12
151:15,15
151:18,18
151:23,24
152:3,5,8
152:23
157:21
158:14,24
158:25
160:20,21
160:25
161:4,9,11
161:13,14
161:23,24
162:2,9,13
162:14,18
162:19,21
162:25
163:2,7,14
163:18
164:9,9,11
164:11,13
164:20
165:4
166:24,25
167:4,8,9
167:22
168:6,25
169:10,18
169:25
170:6,10
170:15
172:10,14
172:16,16
172:20
173:15,17
173:20
174:1,11
174:15,21
174:24
175:3,4,6
175:7,7,8
175:10,19
176:2,5,11
176:12
178:25
179:1,3,12
179:14,15
179:21
180:2,8,9
180:13,15
180:15,17
181:1,8,13
181:23
187:14,20
188:8,9,23
189:2,5,7
189:9,13
189:14,14
189:18
190:1,3,5
190:6,12
190:17,19
190:21,25
191:2,7,8
191:9,10
191:11,14
191:16,24
192:2,5,11
192:12,13
192:20,22
192:23
193:4,5,7
193:10,20
193:21,24
193:25
194:7,8,13
194:13,20
194:21,23
194:24
195:4,21
195:22
196:9,9
198:18
199:17,23
202:13,14
202:17,22
203:2,5,6
203:10,18
203:20
204:3,4,7
204:7,8,8
204:20
205:3,4,5
205:9,15
205:16,17
205:22,22
206:1,2,14
207:6,7,13
207:15,17
207:19,20
207:24,25
208:5,6,7
208:8,10
208:12,15
209:3,6,7
209:8,25
210:10
212:5,18
213:24
214:3
215:22
239:5
243:17
267:10
275:22,23
279:4,6
280:8
282:25
283:7,10
283:15
284:22
288:21
289:10,14

289:22
290:10,25
291:14
292:24
293:8,11
293:11,20
295:7
297:15,17
298:13
**video's**
152:10
**video-re...**
4:6
**video.MS...**
290:25
**video.ms...**
288:8,11
288:16
289:14
290:14
291:5,14
**videocon...**
111:22
**videogra...**
2:17 4:2
4:11 59:2
59:6 145:9
145:15
198:3,7
248:12,16
298:23
299:4
300:4,8
301:17,21
**videos** 60:8
208:3,18
208:25
209:13,15
210:19
267:10
287:11
**view** 27:6,14
33:16
44:13,19
128:22
228:20
264:18
267:24
**viewer** 218:2
223:14,14
223:19
239:22
241:12
242:11
**viewer's**
240:1,11
240:23
**viewers**
241:23
242:12,13
242:15
**viewers'**
243:18
**viewing**
216:14,22
217:8
239:12
243:19
275:18
**virtual**
40:24 41:3
41:8,21
42:14,17
42:23 43:3
44:11,17
45:12
249:2,4,6
249:13
250:7,24
251:12,17
251:21,25
252:2,5,5
252:8
253:11,16
257:5
258:3,4,6
269:18,21
269:25
270:12,16
**virtually**
243:4
**Virtue**
269:12
**visiting**
74:5
**Vividas**
287:8,18
**voice-ov...**
148:11
**vs** 1:5
**VT** 44:11

W

**W-i-l-l-...**
76:22
**wags** 242:21
**want** 15:16
23:8 58:19
88:2 94:13
94:14
103:13
126:9
128:4,13
129:21
130:10
136:6
153:8
162:21
163:25
164:25
231:12,17
235:1
237:18
248:9
282:21
294:10
295:23
302:14
**wanted** 24:8
24:11,13
51:20
105:15,15
208:14,16
209:11,12
241:8
**Washington**
1:15,22
4:16
**wasn't** 17:1
17:2 31:19
54:3
125:18,23
259:18
277:23,23
290:18
**watch** 62:21
120:7
207:15,23
276:19
277:9
278:16,22
**watched**
205:17
207:14
275:5,15
276:22
**watching**
138:25
140:19,23
141:1,5
181:1,20
275:22
292:24
293:13,17
294:5
**way** 25:13
26:16
71:22 82:3
88:23
106:8
115:17
126:24
131:15
133:25
135:4,12
136:3,23
136:24
137:18
139:19
145:6
152:7
161:5
179:10
215:9
217:10
241:8,10
266:16
276:10
286:15
288:23
303:11
**ways** 75:17
105:6
144:7
**We'll** 58:12
88:9
250:20
299:19
**we're** 108:1
110:6
132:3
186:16
198:4,8
235:12
242:8
245:13
248:13,17
277:17
278:15
284:7
293:21
298:24
299:5
300:5
301:24
**we've** 58:17
83:12
86:10
94:12
131:23
141:8,16
197:22
213:22
248:7
297:22
**web** 51:3,12
51:14 53:5
53:11,12
53:24
54:13
92:25 93:4
93:22
94:10,21
96:14 97:3
98:25
158:22
212:10
214:9,14
214:19,24
215:1,5
244:21
246:21
247:17
248:4
249:9
253:11,15
258:3,4
263:4,4,9
263:24
264:8,16

265:4
267:13
273:17
**weekend**
259:6,9
280:13,18
**well-known**
27:23
261:19
262:1
**went** 289:3
289:13,21
290:4,23
292:14
**weren't** 67:5
131:18
**West** 2:3
**whatsoever**
57:16
82:14
**white** 2:17
4:10
280:25
**widely**
143:19
144:14,21
157:23
158:18
**widespread**
157:15,22
158:18
**Willebeek**
76:22,23
76:25 77:2
77:3 79:2
79:5,10,11
79:14 80:3
80:18,25
82:25
83:15,25
84:3,11,17
84:17 85:3
85:3,11,12
85:16,21
85:24
90:23
**willful** 92:6
**Williams**
2:12 5:5
15:19
299:18,25
300:1
**Wilson** 2:11
3:7 5:1,1
7:3 13:7
13:15
14:14
15:19
25:10,19
26:14
28:22
33:18
34:19 35:2
36:23 39:1
40:15 41:9
45:4,25
46:12
52:13
54:14
55:19 58:5
58:17
61:17
68:23 69:7
69:11
72:15 75:1
77:9,21
79:16
81:11,22
82:17 83:7
87:1,24
89:6,23
90:16 95:4
95:20 97:5
109:9
110:21
115:11
120:13
122:23
130:2
137:9
138:4,13
140:10
141:2,8
146:4
147:25
159:23
174:12
175:11
180:3
184:20
192:14
194:15
197:15,22
198:1
200:24
201:7
202:24
203:23
206:5,17
207:9
209:16
210:3,22
218:9
223:6
224:3,13
225:19
226:5,23
228:9,13
228:16
229:5,9
241:14
242:2,17
252:15
254:4,24
255:13
256:12,23
257:12,22
258:15
266:9
268:20
270:7
271:24
272:13
273:4,8
275:9,19
277:4
278:12
279:9
281:14
285:22
286:9
289:15,23
291:1
298:14
299:11
300:11
301:15,19
302:14
**win** 266:22
**wish** 304:2
**witness** 1:19
3:2 5:8
7:5 8:20
13:9,16
14:16 23:2
25:12,20
26:15
27:20
28:24
33:20
34:21 35:3
36:25
38:14 39:3
40:17
41:11 45:6
46:2,14
47:21 48:7
52:15
54:16
55:21 58:6
58:21 59:1
59:18
61:19
62:15
63:22
66:11
68:25
69:11,13
72:17 75:3
77:24
78:19
79:18
81:13,23
82:19 87:3
88:1 89:8
89:25
90:20 91:2
93:10 95:6
95:22 97:7
98:9,13
99:12
109:11
110:23
115:13
120:15
121:22
122:25
126:4
130:4
137:11
138:6,15
141:4,13
143:9
146:7
147:3,12
147:15
148:2
151:7
153:2
156:3
159:7,25
160:17
166:7,10
167:18
174:14
175:13
180:5
184:22
188:13,17
192:16
194:17
196:20
197:17
198:2
201:1,9,20
203:1,25
206:7,18
207:11
209:18
210:5,24
211:13
218:13
222:14
223:8
224:5,14
225:21
226:7,25
227:22
228:20
229:11
231:14
238:20
241:16
242:4,19
248:11
251:6
252:17
253:7
254:6
255:1,15

256:14,25
257:14,23
258:16
262:22
265:8
266:11
268:22
269:9
270:9
272:15
275:11,20
277:6
278:14
279:11
281:15
282:3,17
285:24
286:10
289:17,25
291:3
298:16
299:10,17
301:14,16
**won** 73:2
**word** 10:8
44:17 45:1
168:20,22
173:6
187:2
216:14
283:18
**worded**
247:20
**words** 28:19
168:17
176:25
177:19
185:9
186:24
196:7
241:3
245:2,4,9
245:11
246:1
251:12
**work** 6:15,17
6:20 7:19
14:6 48:10
63:23 67:3
67:3,5,7
68:17
70:17
72:20 74:6
76:5,10,17
93:20
101:18
102:3,7
105:11,16
105:19
108:23
126:7
130:9
150:5
174:5
179:5
267:5
268:12,13
283:16,24
284:1,2,19
**worked** 7:15
7:18 13:1
52:18 56:6
71:20
91:23
100:22
103:23
105:1,17
112:17
145:6
153:23
154:15
276:11
283:14,19
**working** 22:3
68:1 70:12
70:16
108:11
118:25
119:5
283:22
**works** 213:13
213:16
**world** 118:6
128:22
**wouldn't**
208:19
209:8,24
241:9
267:24
276:6,12
276:20
**wow** 52:1,3,5
54:5
**write** 225:6
**writing** 20:1
**written**
172:11
**wrong** 181:25
222:25
236:6,21
**wrote** 31:2
127:12
128:17
**WWW** 98:17

**X**

**Y**

**yeah** 6:22
10:18 57:1
71:13
126:24
128:2,5
138:6
140:21
144:8
148:4
151:2
165:12
185:8
186:2
192:16
194:18
207:3
250:7
252:17
259:20
269:25
**year** 18:12
**years** 52:2,3
79:22
89:13
108:10
116:11,13
123:2
149:2,8,11
149:12
**yesterday**
16:9,10
**York** 2:3,3

**Z**

**Zoom** 2:12,19
2:20 16:4
16:7
102:13

**0**

**1**

**1** 1:16 3:8
4:4 22:25
45:14
57:23,24
58:2 59:16
59:16
162:10
167:16,20
168:16
188:21
191:23
202:23
203:2,3,6
204:24
206:15,16
206:25
207:20
208:2,10
208:12,18
209:4,7,25
210:19,20
210:25
215:18
238:3
259:10
281:23
301:23
**1:24** 198:5
**1:26** 198:4
**1:34** 198:6,8
**10** 3:17
114:14
187:25
188:6
224:9
231:6,13
231:18
232:3,17
234:10
236:10,12
236:22
237:3
250:9,12
281:10,15
**10,469,544**
1:11
**10,469,555**
1:13
**10,951,680**
1:12
**10:07** 59:2,5
**10:16** 59:5,6
**100** 200:5
242:13,15
**100-kilobit**
200:6,14
**1001** 2:12
165:17,19
215:19
**10036** 2:3
**1004** 167:13
167:13
211:3
245:15
**1005** 235:5
238:6,7
**101** 2:7
**102** 159:6,9
159:13
**11** 66:4,9,14
67:7 68:14
221:2
222:23
280:21
282:20
**11,470,138**
1:10
**11,677,798**
1:9
**11:56** 145:10
145:14
**110** 3:12
**12** 73:5,8
101:15,17
143:8,11
169:7
251:2,4,10
251:20
253:18
296:20
**12:19** 145:14

145:16
**120** 238:13
**124** 224:24
224:25
225:1
**13** 102:6
103:3
104:10
121:14
**137** 210:8
**138** 9:18
34:2,9,18
35:21 42:7
43:7,11
44:9 45:17
66:6 153:8
160:12
162:11
164:7
165:20
166:2
170:25
202:1
215:20,23
216:1
217:6
218:25
225:3
226:20
230:9
232:1
234:3,13
235:9,12
235:13,18
235:24
236:4
244:14,15
244:16,17
245:2,19
245:21
246:4,17
246:20
247:2
250:11
251:11,18
253:2
**14** 221:2,3
225:2,12
231:25
234:3,5,6
234:7,9,11
234:12,18
234:18,19
234:19
235:8,14
235:15,21
235:23
**141** 248:19
248:23
249:1,19
**142** 98:8,11
**145** 3:13
**15** 5:21,22
62:12
135:19
136:15,20
137:6
149:2,7,11
298:8
**150** 298:8
**151** 2:3
**16** 216:4,6
219:2
**16-by-9**
293:10
294:25
295:2
296:13
**16-minute**
207:13
**165** 3:14,15
**17** 166:19
286:18,21
287:7,22
**185** 274:6,7
274:8
**19** 116:10
166:20
238:22
294:16
296:19
298:7
**1980s** 66:18
66:23 67:5
67:12,15
70:22 71:1
71:23 72:2
72:4
**1990s** 47:25
48:5 50:20
59:19
62:16,20
102:21
153:24
**1991** 73:8
74:24
**1992** 67:21
68:2 70:15
71:10,15
75:6,21
149:13,15
150:8
**1993** 67:22
68:2 70:15
**1994** 63:1
**1995** 69:6
70:6,9
**1997** 64:10
64:23 65:6
65:12,24
65:25 66:1
110:13,17
112:8
113:23
114:4,11
114:13
116:1,4,5
116:7,24
117:4,9
118:15,21
119:11
127:12
128:17,21
129:9,25
132:17,24
134:22
137:3,19
142:15,20
143:1,23
144:12,19
145:1,3
170:4
174:9
**1997s** 65:8
**1998** 79:6
92:20,24
93:2,12,21
94:9,20
95:3,16
98:16,23
99:4
**1999** 155:18

**2**

**2** 3:9 28:7
28:11,17
60:23,24
61:25
62:13
63:20
119:6,8
126:1,3
167:16,20
168:16
169:7
176:23
177:9,16
177:23
179:19
182:3
184:3
185:7
186:17
187:24
188:5
202:21
204:24
206:3,13
208:2,5,5
208:6,18
210:1,19
261:12
275:1,2,3
275:16
279:20
280:20
282:12,13
**2.4** 295:7,12
295:12,23
298:19
**2:43** 248:14
**2:45** 248:13
**2:57** 248:15
248:17
**20** 5:21,22
10:22
156:2,4,10
**200** 2:13
166:21,24
200:13
**2000** 52:9
158:2,7
**2000s** 47:25
48:6
157:21
158:1,8,11
158:13
159:3
**2001** 8:8,10
8:23 21:5
21:17,25
22:4,13,16
22:22 23:1
27:19 28:7
37:7 39:16
40:23
300:24
301:9
**2004** 117:10
117:12,24
117:25
118:15
119:11
120:10,12
158:2
259:11
261:23
263:25
264:6,7
**2005** 261:8
261:10
**2006** 42:1,3
47:9 58:16
59:13
64:13 66:5
73:6 101:9
153:6
160:10
224:23
244:9,11
248:24
274:4
300:16
**2007** 147:8
148:2,5
149:11
157:14
280:22
**201** 3:16
**2010** 158:7,8

158:9
**2011** 258:19 260:20 265:21 266:1 269:1
**2012** 51:19 292:5,5 294:17 296:2
**2013-ish** 51:19
**2016** 24:13 49:9,16 50:6,14 51:10 52:9 55:15 153:18
**2016-2017** 150:15
**2017** 47:3 49:10,14 49:16 50:6 50:14 51:11 55:16 153:18
**2018** 47:3 49:14
**2020** 10:23 15:6
**2021** 10:23
**2022** 92:16 92:23 98:21 99:2 99:9
**2024** 1:16 4:4 118:9 118:10,15 119:11 301:23 304:23
**2028** 303:21
**2059** 280:7 281:11 286:19
**206** 153:9 170:23
**22** 28:2 94:1 94:25 227:9,10 227:10
**220** 288:8,21
**220-kilobit** 288:17
**23** 59:12 225:3,12 232:1 234:3,5,13
**24** 213:2 238:19
**2400** 295:17 295:24 297:6
**25** 213:2
**250** 3:17
**26** 29:18 30:4,7,12
**27** 31:10 37:6 213:3
**28** 225:3,12 232:1 234:3,5,13
**2C** 211:14,16 211:20,21 211:25 213:17

**3**

**3** 3:10 8:19 8:23 9:2 77:6,7 78:12 90:12,19 91:25 111:5,11 112:1 120:25 130:14,17 134:10 166:5 187:25 188:5
**3-by-4** 294:25
**3:54** 299:2
**3:56** 298:24
**30** 6:20 7:10 108:10 116:10,13 135:16,22 136:15,20 137:5,25 138:10 139:1,8 140:23 227:9,10 227:13,21 297:7 303:21
**30-frame** 138:11
**30/70** 6:2
**300** 3:7
**304** 219:9
**31** 251:2,4 251:10,16 251:20 253:18
**310-1769** 2:25
**32** 296:20
**3212.218...** 2:4
**33** 139:11 216:4,6 227:9,13 227:21
**340** 34:5,10 34:11,15 35:20 36:21
**35** 216:5,6
**3800** 2:7

**4**

**4** 3:11 83:4 83:5 141:15,21 201:18,23 202:3,4,22 204:23 206:4,14 207:20 208:6
**4-by-3** 296:13
**4.3** 296:13
**4:09** 299:3
**4:12** 299:5
**4:13** 300:5,6
**4:27** 300:7
**4:29** 300:9
**4:31** 301:23 302:18
**40** 39:9,13 64:13,19 147:1,6
**41** 38:12,16 38:22 45:11 152:12,14
**415.343....** 2:8
**42** 40:23 41:2,24 42:10,13 42:16 98:7 151:6,10 152:15,18 152:21,25 219:3
**42nd** 2:3
**43** 43:1 44:8 251:2,5,10 251:16,21 253:19
**44** 45:11,14
**444** 47:14 49:20,23 50:2,6,10 50:15,21 51:12,16 52:10 53:5 54:7,20 55:7,13 56:3 150:15 159:17,20 159:25 160:4
**45** 45:15 177:16,18 177:23 219:3
**46** 47:8,14 47:16 49:5 50:18 55:4 55:13
**47** 153:1,5,9 153:12
**48** 58:14
**49** 177:17,18 177:23 182:3,4

**5**

**5** 3:4,12 110:6,7,10 110:13 120:25 126:2 141:16 201:23 202:5
**5,892,754** 74:11
**50** 147:11,13 150:3
**50,000** 63:13
**508** 211:20 211:25
**516** 212:13 212:16 213:18,19 213:21,23 214:2
**524** 214:5,7 214:13
**528** 214:23 214:25
**53** 160:14,15 160:20 161:2,8,12 162:5,7
**532** 215:3
**548** 212:22 212:23,24 213:5 214:4 215:10,13
**55** 166:5,8 182:3,4 184:3 185:7
**552** 213:6 215:13
**555** 230:18 230:18,21 230:24

231:2,7
232:4
235:11,19
235:22
236:10,13
237:3,22
**557** 146:17
146:20
147:7,20
148:21
149:3,8,13
159:22
160:4,6
**56** 164:3,4
165:9
**560** 213:6
215:13
**57** 3:8

**6**

**6** 3:13,19
27:18,22
145:22,23
145:25
147:2
154:17
160:9
167:17,20
168:16
244:17,20
245:14,19
245:24
246:4
247:6,12
247:16
262:11
**6,389,473**
156:18
**60** 3:9
154:19
155:4,8,10
155:11,21
166:6,9
**600** 44:11
**61** 78:17,17
78:21 80:2
80:24
155:2
157:8,19
176:23
177:9
184:3
185:7
186:17,20
186:23
**64** 114:10
**650.739....**
2:14
**652** 61:15
62:9
**66** 176:23
177:1,9
186:17
187:24
188:2,5
**6A** 250:14,15
250:16,18
250:21,22
251:16,20
253:18

**7**

**7** 3:14 83:16
83:16,21
83:23
165:12,14
165:16,20
165:20
166:19
169:7
230:14,21
259:11
268:25
271:6
**7,818,444**
49:9
**70** 6:21,25
7:10,19
**700** 1:21
4:15
**702** 219:10
**704** 219:9
**710** 219:8
**74** 171:2,4
172:4
176:13
177:11
186:19
**75** 90:18,25
**754** 74:13
**76** 93:6,8
**77** 3:10

**8**

**8** 3:15
165:24,25
166:2,8
201:14
215:19,20
245:22
**8,050,652**
61:6
**80** 289:3
**800** 2:25
14:2
**824** 78:6
79:15 80:5
80:20
82:20,23
83:11,16
83:24 84:4
85:22
88:11,16
89:16,20
90:4,9
**83** 3:11

**9**

**9** 3:16 64:21
64:21
188:11,15
188:19,20
189:1,6,12
189:17,23
190:9,15
190:22
191:19,21
192:1,7,9
192:18
193:3,23
194:2,6,11
194:12
195:17,20
196:1
199:15
201:15,19
201:25
203:17,18
204:11,12
204:15
208:7,17
208:22
209:13,19
209:22
215:22
216:1,8
217:2
221:2
222:23
224:6,7,19
253:2,5,10
253:14,19
253:21,23
254:8,11
254:15,16
254:19,21
255:4,18
256:4,8
257:3
274:22,23
274:25
**9's** 205:25
207:5
**9,742,824**
77:16
**9:06** 1:22
4:3
**900** 216:9
**904** 217:20
218:3
**906** 218:6,19
**908** 218:22
219:1,7,14
219:17,19
220:2,10
221:11
**910** 219:9
220:16,18
220:23
221:7,13
222:4,9
223:3,17
**914** 220:25
221:9
222:11,24
223:5,13
**916** 221:14
221:16,20
**918** 221:24
**92** 67:19,20
71:8
**93** 67:19,20
**94111** 2:8
**94304-1007**
2:13
**97** 119:5
202:12