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UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

- - - - - x

GOOGLE LLC, :
Petitioner, :
v. : Case No.
WITHROW NETWORKS : IPR2025-00775
INC., :
Patent Owner. :

- - - - - x

Deposition of MATTHEW GOLDMAN
Conducted Virtually
Tuesday, April 7, 2026
10:59 a.m. Central

Job No.: 627292
Pages: 1 - 54
Reported By: Lori L. Thielmann, CSR, RPR

1 Deposition of MATTHEW GOLDMAN, held virtually:

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4 ** ALL PARTIES ATTENDED REMOTELY **
5
6

7 Before Lori L. Thielmann, Certified Shorthand
8 Reporter, in and for the State of Illinois, State
9 of California, Registered Professional Reporter.
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I N D E X

EXAMINATIONS PAGE

MATTHEW GOLDMAN

Examination by Mr. Gardner	5
Examination by Mr. Thompson	52

E X H I B I T S

Exhibit No.	Description	Page
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1001	894 Patent	38
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1003	US patent number 6,389,473	22
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Matthew S. Goldman,

Monday, July 21, 2025

1081	Goldman declaration submitted	44
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in re-exam proceedings

related to the Carmel

reference

1082	Documents referred to in	44
------	--------------------------	----

Declaration

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

2

3 MATTHEW GOLDMAN,

4 having been first duly sworn and testified as
5 follows:

6 EXAMINATION

7 BY MR. GARDNER:

8 Q Good morning, Mr. Goldman. Can you please
9 state your full name for the record?

10 A Yes, it's Matthew Goldman.

11 Q Are you at home or in an office for
12 today's deposition?

13 A I am at home.

14 Q Is there anybody in the room with you?

15 A No.

16 Q Can you describe the electronic equipment
17 that you're using for the deposition?

18 A It is my personal laptop.

19 Q Is it a laptop on a wireless connection or
20 on a wired connection?

21 A Yes, it is on a -- it is on my home wi-fi
22 network.

1 Q Is that wireless?

2 A It is wireless.

3 Q Other than the computer you're using for
4 the deposition, do you have any other devices with
5 you like a phone or a tablet?

6 A My cell phone is sitting beside me.

7 Q While we're on the record today, do you
8 agree that you won't communicate with anyone
9 regarding the deposition without informing me of
10 that communication like, for example, chat
11 messages or text messages or something like that?

12 A I will agree to do that.

13 Q And do you have any notes or documents
14 with you today?

15 A I have one document with me today and my
16 stapler is not that big so it's in two pieces, but
17 I have a printed copy of my declaration.

18 Q And when you say a printed copy of your
19 declaration, do you happen to know the exhibit
20 number for this case that's labeled on there?

21 A No, just the case number is labeled on
22 this. Oh, I stand corrected. Hold on. It's in

1 little tiny letters on the numbers on the bottom.

2 I believe it is Exhibit 2014.

3 Q Great. Thank you. And how many times
4 have you been deposed, Mr. Goldman?

5 A Deposed in a -- can you clarify which type
6 of -- I mean deposed in a similar expert witness
7 role?

8 Q I'd say how many times have you been
9 deposed regardless of the reason for the
10 deposition.

11 A If I were to guess, and it would be a
12 guess, it would be somewhere between 6 and 10
13 times.

14 Q Would you say you're fairly comfortable
15 with the rules and procedures for a deposition?

16 A I am.

17 Q I'll mention just a few things for today's
18 deposition before we get started. The first is,
19 it's important that we not speak over each other
20 so that it makes it easier for the court reporter
21 to take down what's being spoken.

22 Does that make sense?

1 A It does.

2 Q That becomes particularly important
3 because this is being done over a videoconference
4 and as I'm sure you understand, sometimes when two
5 people are speaking at the same time, the video
6 conference doesn't pick it up. So I will make my
7 best effort not to interrupt you today and I'll
8 just ask that you make your best effort not to
9 interrupt me; is that fair?

10 A It is.

11 Q And I'll just remind you that there might
12 be times when your counsel needs to interject
13 objections and I'm sure they'd appreciate, you
14 know, that you give time for that so that nobody's
15 speaking over each other; is that fair?

16 A It is.

17 Q If the audio ever cuts out or for some
18 reason you can't hear me, will you just let me
19 know?

20 A I will.

21 Q You understand you're under oath for
22 today's deposition?

1 A I do.

2 Q And do you understand that even though we
3 are not sitting in a courtroom, the testimony you
4 give has the same significance as if we were in
5 open court?

6 A Yes, I understand that.

7 Q From time to time, I might ask a question
8 that is unclear. And if any of my questions are
9 unclear, I ask that you let me know what about my
10 question is not clear to you; is that fair?

11 A It is.

12 Q And if you don't tell me that there was
13 something about my question that was unclear, I'll
14 assume that you understood my question; is that
15 fair?

16 A That is fair.

17 Q Is there any reason you can't give
18 accurate, truthful testimony today?

19 A There's no reason I cannot.

20 Q I just want to confirm that you're not
21 sick or taking any medications that would give you
22 some kind of concern.

1 A No, I do have a little bit of a runny nose
2 but that's not going to affect my testimony today,
3 although it might ask me to pause to get a Kleenex
4 every once in a while.

5 Q Of course. And --

6 A As a matter of fact, why don't I get the
7 Kleenex box now. Is that okay?

8 Q Yeah, that is completely fine.

9 (Off the record.)

10 THE WITNESS: That solves that problem.

11 BY MR. GARDNER:

12 Q And I will just add that if at any time
13 you need a break today, I'll just ask that you
14 answer the pending question before taking a break
15 unless it relates to an attorney-client privilege
16 issue that you need to discuss with your counsel;
17 is that fair?

18 A It is.

19 Q Now, one of the prior depositions that
20 you've been a part of was in the corresponding
21 litigation between Withrow Networks and Google,
22 correct?

1 A Yes.

2 (Exhibit 1080 was marked for
3 identification.)

4 Q In the Zoom chat feature, I have sent you
5 a PDF document that's been premarked as
6 Exhibit 1080.

7 Were you able to access that?

8 A I can see it. Would you like me to click
9 on it?

10 Q Yeah, would you please open that and
11 download it or whatever you need to do so that you
12 can review it.

13 A I think it's probably easiest, if it's
14 okay with you, that I download it.

15 Q That's great. Just let me know when
16 you're ready.

17 A And you'd like me to open that once it's
18 downloaded, correct?

19 Q Please do, thank you.

20 A I have opened it, yes.

21 Q Exhibit 1080 is a document titled, Remote
22 videotaped deposition of Matthew S. Goldman,

1 Monday, July 21, 2005.

2 MR. THOMPSON: Correction, 2025.

3 MR. GARDNER: Thank you, Roger.

4 BY MR. GARDNER:

5 Q 2025. Do you have that document?

6 A That is the document that I've opened,
7 yes.

8 Q This is a copy of the deposition
9 transcript from your deposition in the District
10 Court litigation between Withrow Networks and
11 Google, correct?

12 A I believe that is the case, yes.

13 Q And you testified truthfully at that
14 deposition, correct, Mr. Goldman?

15 A Yes.

16 Q Did you have an opportunity to review the
17 deposition transcript after your deposition?

18 A I did.

19 Q Did you make any changes or corrections to
20 your testimony?

21 A I believe I did. I'm not 100 percent
22 sure, but I'm pretty sure that I did request some

1 things to be changed in that.

2 MR. GARDNER: Counsel, are you aware of
3 any corrections or changes that were made? Do you
4 have an errata for the deposition?

5 MR. THOMPSON: I don't know. I wasn't
6 handling that part of the case. I would have to
7 check with the file.

8 MR. GARDNER: Okay.

9 MR. THOMPSON: I have it offline. I don't
10 know where to look for it so.

11 MR. GARDNER: That's fine. You can do it
12 offline.

13 BY MR. GARDNER:

14 Q With the understanding that we will always
15 give slightly different answers or description,
16 I'm not going to go through the entirety of your
17 -- this deposition transcript with the
18 understanding that generally speaking,
19 Mr. Goldman, if I ask you the same questions, you
20 would give the same answers as you provided at
21 that deposition, correct?

22 A I would expect that to be the case.

1 Q One of the terms in -- actually, strike
2 that.

3 When I refer to the 849 patent, do you
4 understand that I'm referring to US patent number
5 10,771,849 that is the subject of this IPR?

6 A Would you please give me a moment to check
7 the entire number because I always refer to it as
8 just 849. May I take a moment to go confirm that?

9 Q Yeah, that's fine. I think even on the
10 front page of the declaration that you have, it
11 should have the US patent number.

12 A I am looking at my hard copy now. Okay.
13 Would you please read me the number you just said
14 a minute ago and I'm looking at a number that's on
15 the top of my -- excuse me -- my declaration.

16 Q Yes, US patent number 10,771,849.

17 A Yes, that is correct.

18 Q And if I use -- sorry -- if I refer to it
19 as the 849 patent, you'll understand what I'm
20 referring to?

21 A I will.

22 Q One of the terms that's used in the 849

1 patent is playback, correct?

2 A Correct.

3 Q Now, there are multiple aspects to
4 playback, right?

5 A Correct.

6 Q Fluidity is one of the aspects of
7 playback, correct?

8 A In 849, yes.

9 Q And video quality is one of the aspects of
10 playback in the 849 patent, correct?

11 A Correct.

12 Q Audio quality is also an aspect of the
13 playback in the 849 patent, correct?

14 A Correct.

15 Q Would you agree that audio quality is
16 related to sample rate?

17 A Sample rate is one aspect of audio
18 quality. So under the guise that it takes more
19 than just knowing the sample rate to be able to
20 play back audio with quality, then, yeah -- yes,
21 excuse me.

22 Q Generally speaking, a higher sample rate

1 corresponds to a higher audio quality; is that
2 correct?

3 A If you're referring to uncompressed audio,
4 then that is generally understood to be correct.

5 Q And a lower sample rate would generally
6 correspond to lower quality, correct?

7 A Again, with the understanding that we're
8 referring to uncompressed audio, yes.

9 Q For video quality -- video quality is
10 generally related to the data rate of the video;
11 is that correct?

12 A No. That's not really correct. Because
13 in the case of video, there are multiple aspects
14 and even if the -- well, I suppose -- let me think
15 about this for a second. All other factors being
16 the same and, again, referring to uncompressed
17 video, if the -- well, even that. To be honest
18 with you, even that is subject to interpretation
19 because uncompressed video typically if it has
20 certain parameters and it is uncompressed, it has
21 a known data rate depending on its aspects such as
22 frame size, frame rate, and other similar types of

1 aspects to it, and in the case if it's compressed
2 video, then the data rate, it would depend heavily
3 on the compression technology used.

4 Q But generally speaking, if we keep these
5 other factors the same, higher quality videos have
6 higher data rates and lower quality videos have
7 lower data rates; is that right?

8 A Speaking in a generality, that is
9 generally correct, yes.

10 Q Another term that shows up in the 849
11 patent is the term fluidity, correct?

12 A Yes.

13 Q In the context of the 849 patent, fluidity
14 refers to the smoothness and continuity of
15 playback as perceived by the viewer, correct?

16 A Yes. That is how 849 refers to fluidity.

17 Q Now, when we talk about the aspect of
18 playback as perceived by the viewer, this captures
19 the idea that fluidity is intended to match the
20 human perception of time, right?

21 A Well, the human perception of time as well
22 as image or audio quality as well. It's a

1 combination of factors.

2 Q Maybe as an example, we would agree that
3 if I'm in person, my in-person experience is maybe
4 optimal fluidity; is that correct?

5 MR. THOMPSON: I would object to the use
6 of the term in person. Are you referring to --
7 what do you mean by that because I'm not sure I
8 understand.

9 MR. GARDNER: You're not being deposed,
10 Roger, so I will just ask that you limit your
11 objections to form.

12 MR. THOMPSON: My objection is to form,
13 but I think it's confusing.

14 MR. GARDNER: Understood.

15 BY MR. GARDNER:

16 Q You can answer the question.

17 A So I don't believe you've given me enough
18 information to answer that. So may I ask for
19 clarity?

20 Q Yeah, so if I'm at a live event
21 experiencing that event in person, that would
22 have -- my perception of that would have optimal

1 fluidity, correct?

2 A Well, it would have optimal reality. I
3 would hope that it would also have fluidity as
4 well. I can't speak to what you're hearing and
5 seeing, but I would say it's fair to say that if
6 you're comparing at a live event, as you say, if
7 you're comparing being at an event, listening and
8 watching it, as opposed to receiving a stream
9 that's being delivered to you and you're not
10 there, then in that case, I would say being there
11 in person is more optimal than -- likely more
12 optimal than a stream -- a stream or something
13 being delivered to you remotely and reproduced on
14 a display. I believe I've captured the essence of
15 what you were seeking there.

16 Q Yeah, so let's maybe give an example of
17 two different scenarios. One, would be a system
18 that stays on each frame in a video for a full
19 second, that would be poor fluidity, correct?

20 A I really don't understand what you mean.

21 Q A video is a series of frames, correct?

22 A You mean a recorded -- or a -- if you're

1 referring to how the technology records something
2 as video, yes, it is a series of frames.

3 Q And the human perception of those frames,
4 if the frames are fast enough, then the human
5 being doesn't perceive that it's a series of
6 frames, they just perceive that it's a fluid
7 moving picture, correct?

8 A May I modify what you're saying a little
9 bit because --

10 Q Please do.

11 A Okay. So if you're seeking what would be
12 -- the human visual system will not perceive that
13 the video is a series of individual discrete
14 frames if the frame rate is above the perception
15 of the human visual system, yes. So if the frame
16 rate is higher than that level, whatever that
17 level is, then, yes, it would perceive a series of
18 discrete frames as -- that are being delivered in
19 realtime at that rate. It would have to be a
20 constant rate, as being -- as being -- they would
21 not recognize that it was an individual -- sorry,
22 something popped up on my screen there because I

1 touched my keyboard -- I can't talk with without
2 using my hands, I guess. So it would not perceive
3 the video as being a series of discrete images.

4 Q If, for example, the frame rate was one
5 frame per second, that would be poor fluidity
6 because a human being would see or perceive that
7 change between frames, assuming that, for example,
8 it's a live event like a basketball game or
9 something like that where the movement would be
10 noticeable on a one-second interval, correct?

11 A Yes. If you're holding one frame for one
12 second in the next frame and the constant rate of
13 the stream is one frame per second, then the human
14 visual system would perceive that as a series of
15 individual pictures as opposed to a video, so that
16 would be -- that would fail one aspect of
17 fluidity. It would not be fluid for that one
18 aspect. But fluidity has multiple aspects to it
19 but that's one.

20 Q Would it be fair to say that the goal for
21 fluidity is a video that matches the viewer
22 perception? I'm sorry. Strike that.

1 Would it be fair to say that the goal for
2 fluidity of a video is that the viewer perception
3 of the video matches the in-person experience?

4 A I think that's fair.

5 Q One of the prior references that's
6 discussed in this IPR proceeding is the Carmel
7 reference. Do you know what I'm referring to when
8 I refer to the Carmel reference?

9 A In relation to this case, because Carmel
10 has multiple -- has multiple intellectual
11 property. In relation to this case, I know what
12 the primarily reference would be for Carmel.

13 Q Just to make sure we'll avoid any doubt, I
14 have loaded into the chat a copy of Exhibit 1003
15 to this IPR.

16 (Exhibit 1003 was marked for
17 identification.)

18 A I am downloading that now. Assuming that
19 any time that you provide me a file to look at,
20 you expect me to download it and look at it.

21 Q Yes, any time I provide you a file, please
22 just go ahead and download it and open it up.

1 A I'm downloading and I'm going to open that
2 file now.

3 Q Let me know once you have it open.

4 A Yes, I have it open.

5 Q Exhibit Number 1003 to this IPR is US
6 patent number 6,389,473, correct?

7 A Correct.

8 Q And that's a United States patent where
9 the first name of the inventor a Sharon Carmel,
10 correct?

11 A Sharon, yes.

12 Q Thank you. And for purposes of today's
13 deposition, would it be clear to you if I refer to
14 this as the Carmel reference or Carmel?

15 A Now that you've said this is the one
16 you're referring to, yes, that will be clear.

17 Q One of the goals of Carmel is to achieve
18 realtime broadcasting, right?

19 A I'd have to take a look at it again to be
20 100 percent sure, but I am familiar enough with it
21 to -- to at least -- you know, at least -- yes, I
22 believe that is one of the goals behind it.

1 Q One of the embodiments in Carmel for
2 realtime broadcasting is a multi-level data stream
3 embodiment.

4 Are you familiar with that?

5 A Yes, I am.

6 Q In the multi-level data stream embodiment,
7 the client device makes an initial assessment of
8 the link bandwidth, and then the client selects
9 one of the available quality levels in the stream,
10 correct?

11 A Correct.

12 Q The client then downloads and plays back
13 the video at that selected quality level, correct?

14 A Plays -- yes, it plays -- it plays back
15 the chunks of information it receives based on --
16 yes. I just want to be make sure we separate
17 what's actually in the -- it's playing back what
18 the chunk information is that may or may not match
19 -- well, I guess it would match the data, right.

20 Q Sorry. I'm just going to re-ask my
21 question just to see if we agree or disagree.
22 After the client selects an available quality

1 level, it then downloads and plays back the video
2 at that selected quality level, correct?

3 A It -- the term quality level is subjective
4 here. It's -- that's why -- it will play -- it
5 will attempt to play back the individual chunks
6 it's playing back at the bit rate in which it's
7 encoded in the chunk. That's what it will attempt
8 to do at playback. If it's able to do that, then,
9 yes, it will match the encoded rate that's on it.
10 Depends -- the playback itself depends on the
11 resources and the client, but that is the intended
12 use is to play back that.

13 Q You started your response with that
14 quality level is subjective. Maybe we can go to
15 column 11 of Carmel and right at the top of column
16 11 starting at line 2 -- let me know when you get
17 there?

18 A All right. So you want me to look at the
19 473 Carmel document that you sent me,
20 Exhibit 1003?

21 Q Yes, please.

22 A And you want me to go to column 11?

1 Q Yes.

2 A Okay. I'm at column 11. Line?

3 Q 2.

4 A Line 2. Line 2 says, Server generally
5 using a simple ACTP link after reading.

6 Q So I'm going to start with, After reading,
7 header 43, and preferably making an initial
8 assessment of the link bandwidth, the client
9 selects one of the available quality levels in the
10 stream.

11 Do you see that?

12 A I do.

13 Q And quality levels is the terminology that
14 Carmel uses, correct?

15 A I'd have to -- it is using it in this
16 paragraph here. I'd have to re-read Carmel to
17 refresh myself if that's how it refers everywhere.
18 It is referring to it as a quality level here,
19 yes.

20 Q And the paragraph continues, Responsive to
21 the selection, server 36 begins to transmit data
22 slices at the chosen quality level. The slices

1 are received, decoded, and output by the client,
2 correct?

3 A That is what it says, yes.

4 Q And this is referring to the selection of
5 one of the available quality levels that download
6 at the chosen quality level and the playback at
7 that quality level, correct?

8 A The first two are correct. It is the
9 attempt -- it would be the attempted play-out
10 level and I do need to clarify. The reason I said
11 the quality was subjective was because this is
12 specifically defining what you mean by quality
13 which is a chosen quality level. That's different
14 than just using the term quality. So I know it is
15 -- I know definitely what you mean here now
16 because it is the chosen quality level of the
17 stream that the client requested. So I hope that
18 clears up why I said the quality was subjective.
19 You meant here, specifically quality meaning the
20 chosen quality level.

21 And the second aspect of it is that is
22 what it will be -- it will be received and it will

1 be decoded and it will be output by the client if
2 the client has the resources to be able to -- to
3 play it and do the playback correctly, that will
4 be the playback bit rate that it will do. It is
5 subjective to what the client has the capability
6 to do.

7 Q The quality levels in Carmel correspond to
8 data rates, correct?

9 A Yes.

10 Q And in Carmel, it's the client device that
11 adjusts the quality level selection, correct?

12 A It's the client device that determines
13 what -- it's a little bit more complicated than
14 that. It is the client that makes a selection but
15 the client is told what quality levels are
16 available and then as you mentioned earlier, it
17 does an assessment of the link rate, the network,
18 and based on that, it will request one of the
19 available quality levels.

20 Q Carmel teaches that the client computer is
21 what chooses among the streams of available
22 quality levels depending on the bandwidth; is that

1 correct?

2 A Yes.

3 Q And Carmel teaches that the client devices
4 play back the data stream according to that
5 selected data rate, correct?

6 A It will attempt to play it back at that
7 selected data rate.

8 Q You would agree that one of the purposes
9 of Carmel is to maintain the download and replay
10 rates so that they're generally equal to the data
11 rate of the stream, correct?

12 A Well, that is what I recall Carmel's
13 saying. At the end of the day, the way a client
14 implements that -- and I don't think that -- I
15 don't believe that Carmel actually mentions how it
16 would be done, but at the end of the -- the client
17 has to do certain functions and operations in
18 order to achieve what the Carmel patent describes.
19 In other words, the mechanism through which you --
20 you request a -- the client requests a particular
21 quality level, the streams that's available, it
22 receives that level, that is covered in Carmel.

1 What Carmel doesn't cover is how a client
2 behavior operates. Carmel assumes that if the --
3 if the -- if the set of chunks that make up the
4 streams at that quality level are downloaded, that
5 it will play out at that rate, but it doesn't
6 actually describe how the client does it or would
7 do it.

8 Q We would agree at least one of the
9 purposes of Carmel is to ensure realtime delivery
10 of the multimedia streams by maintaining the
11 upload, download, and replayed rates so that
12 they're generally equal to the assigned or given
13 data rate of the stream, correct?

14 A I do agree that that's what Carmel is
15 describing, so I believe that's what -- that's
16 what the aspiration of Carmel is.

17 Q You've analyzed the 849 patent for both
18 this IPR as well as in relation to certain issues
19 in the District Court litigation between Withrow
20 and Google, correct?

21 A I'm sorry. Can you say that again?

22 Q Yes. You've analyzed the 849 patent for

1 both this IPR as well as in relation to certain
2 issues in the District Court litigation between
3 Withrow and Google, correct?

4 A Correct.

5 Q Would you say you're familiar with the 849
6 patent?

7 A Yes.

8 Q Okay. The claims of the 849 patent
9 discuss object parameters. Are you familiar with
10 that?

11 A Yes.

12 Q Can you give me examples of object
13 parameters?

14 A Yes. I mean, I'd have -- I don't have an
15 exact memory so I don't remember exactly every one
16 that was mentioned. So an example of an object
17 parameter would be its frame resolution, its frame
18 rate, its associated position or tag within the
19 stream, as well as a lot of other identifying
20 stream information on it. Again, I just don't
21 remember every one that's in there, but that is a
22 type of information that is in the object

1 parameters.

2 Q If we're talking about audio, would sample
3 rate be an example of an object parameter?

4 A Yes.

5 Q And if we're talking about video, is data
6 rate an example of an object parameter?

7 A Frame rate is, the -- yes, I suppose in
8 one -- in one usage of the information, that data
9 rate would be included. When you say data rate,
10 you mean the bit rate of the data chunk or the
11 slice or whatever the term -- they all use very
12 similar terminology even though they use the same
13 lexicon, sometimes the words mean something
14 different. But, yeah, if that's what you mean by
15 data rate is the intended realtime play-out rate
16 of the video, then, yes, that could be one of the
17 parameters that are in there.

18 Q In the 849 patent, it describes the use of
19 shortcuts by the client device in order to
20 optimize the video decoding process, correct?

21 A Correct.

22 Q And those shortcuts are at the cost of

1 video output quality, correct?

2 A Not always.

3 Q But it is a true statement that the
4 shortcuts are specifically designed to drastically
5 reduce the number of computations necessary at
6 certain critical steps in the video decoding
7 process at the cost of that video output quality,
8 correct?

9 A Not in all cases.

10 Q Is it correct in some cases?

11 A By definition, it's correct in some cases
12 because 849 describes multiple layers of
13 optimizations that can be done in order to
14 maintain fluidity in video and audio quality. But
15 in some cases, other cases, it's through the novel
16 approach and the algorithms that the complexity or
17 the processing power needed or the memory or a
18 variety of things is less than what the standard
19 tool kit that was available at the time had.
20 That's part of what 849's novel approach to this
21 is.

22 Q We agree that one of the ways that the 849

1 patent adjusts playback is by adjusting the number
2 of shortcuts that are taken at the cost of video
3 output quality, correct?

4 A There are cases -- the way I have to
5 answer it because the construction of your
6 sentence is a bit confusing to me. So if I may,
7 there were cases where if there's extreme issues
8 either in the -- in the -- in the bandwidth that's
9 available coming to the client or in the type of
10 stream it is, that is the amount of processing
11 power would exceed that of that particular device.
12 Because the shortcuts that are described are in a
13 hardware independent set of code or an outlet that
14 can be downloaded, that it might have to take more
15 extreme measures in order to maintain fluidity at
16 the same time maximizing the audio and video
17 quality.

18 So, yes, there are cases where it could be
19 a degradation in video or audio quality but that
20 is only in the extreme cases. In many cases, by
21 implementing -- let me see if I can figure out a
22 way to say this. There are some cases where if

1 you played -- did the playback with the streams
2 that you receive in the -- using the standard
3 features and functions that came with the codec,
4 the tool kit that you would normally load on to a
5 client, that if he used that, you would have an
6 issue. It would not be a fluid output. But if he
7 used some of these shortcuts, it would be fluid
8 but there would be no human perceived difference
9 in quality by using these. That's some of the
10 novel algorithms that are in 849.

11 Q Is adjusting the number of shortcuts that
12 are taken at the cost of video output quality an
13 example of adjusting playback?

14 A Say that one more time, please.

15 Q Is adjusting the number of shortcuts that
16 are taken at the cost of video output quality an
17 example of adjusting playback?

18 A Yes, sort of. The thing that's causing me
19 a bit of confusion is the number of shortcuts.
20 The way that 849 works is it evaluates the stream
21 versus the capabilities of a client and there are
22 multiple level -- it has a different level

1 settings for each shortcut as well as for the
2 overall stream processing. So there's like
3 multiple different levels and then within each
4 shortcut, there are levels of application for it.

5 If you take the more extreme versions of
6 the -- of the shortcuts or the tool kit that is
7 described in 849, if you take the more extreme
8 cases like the lower levels because you simply
9 don't have -- in that particular client, you don't
10 have enough processing power or memory or whatever
11 else it uses to determine. There's a whole set of
12 factors that are listed in 849 that it uses to
13 determine which level to apply. If you take the
14 more extreme versions of that, in order to
15 maintain fluidity there would be some compromise
16 in audio and video quality by definition because
17 the device is simply incapable of doing it.

18 But the whole purpose behind 849 is to
19 lessen that. In other words, it's trying to
20 maintain the video and audio quality by applying
21 these tools versus if the standard tools were
22 applied.

1 So there are cases, of course, where if
2 it's a -- I don't know how to really describe
3 it -- a low end or a low cost device back in this
4 time frame where it just didn't have enough memory
5 or processing power to do any of the streams that
6 are being offered by -- in the case of Carmel as
7 you were describing it there -- that it would have
8 to make these adjustments in order to be fluid.
9 In other words, Carmel by itself provides the
10 stream to the client but it doesn't -- it doesn't
11 guarantee that the client is -- has the capability
12 to play that out. That's where 849 comes in.

13 Q Can you go -- you have that 849 patent
14 still open that's Exhibit 1001?

15 A I think I do. No, I don't. I can reopen
16 it though. Would you like me to?

17 Q Yes, please.

18 A Actually, I never had 849 open. I had my
19 previous deposition and 473. I will need to find
20 849 on my laptop. Is that okay?

21 Q Oh, I'm sorry. I can send it to you. I
22 thought -- my apologies.

1 A That's the 1001?

2 Q Yeah, why don't you go ahead and open it
3 up and we'll make sure.

4 A I'm just making sure. I have three
5 documents. I'm looking at the chat. The 1001 is
6 the new one you sent?

7 Q Correct. Can you please open it?

8 A I'm downloading it now. I'm opening that
9 document. I have that document open.

10 (Exhibit 1001 was marked for
11 identification.)

12 Q Can you go to -- first, is this is the 849
13 patent that we've been discussing?

14 A It is.

15 Q Can you go to column 4 and let me know
16 when you're there.

17 A I will. Column 4, I am there.

18 Q Starting around line 7, there's a
19 paragraph that starts, In a third aspect, the
20 invention provides novel optimizations for digital
21 video decoding.

22 Do you see that?

1 A I am reading that right now, yes.

2 Q Around lines 14 through 16, there's a
3 sentence that reads, The client player decoder
4 dynamically adjusts how many shortcuts must be
5 taken.

6 Do you see that?

7 A I do.

8 Q We agree that adjusting the number of
9 shortcuts that are taken at the cost of output
10 video quality as described here in the 849 patent
11 is one of the ways to adjust playback; is that
12 correct?

13 A I'm sorry. Would you please repeat that?

14 Q We agree that adjusting the number of
15 shortcuts that are taken at the cost of output
16 video quality as described here in the 849 patent
17 is one of the ways to adjust playback; is that
18 correct?

19 A Again, you're associating the number of
20 shortcuts taken with impacting quality. It
21 depends on which shortcuts. The shortcuts are
22 designed to reduce the number of computations

1 necessary as stated in this paragraph on line 16
2 and 17, so those -- there's not a one-to-one
3 correspondence between reducing the computations
4 necessary and impacting the quality of the output.

5 Q What the 849 patent states in the exact
6 sentence that you were just reading is these
7 shortcuts are specifically designed to drastically
8 reduce the number of computations necessary at
9 certain critical steps in the video decoding
10 process at the cost of output of -- at the -- of
11 is missing -- at the cost of video output quality,
12 correct?

13 A Yes, what I was pointing out was --

14 Q That's what the patent states, correct?

15 A Yes, but --

16 Q I don't need any further testimony. I'm
17 just -- my question is simple. That's what the
18 patent states, correct?

19 A But that's not the question you asked me.
20 I'm sorry.

21 Q Okay. The patent states, These shortcuts
22 are specifically designed to drastically reduce

1 the number of computations necessary at certain
2 critical steps in the video decoding process at
3 the cost of video output quality, correct?

4 A Yes, the patent does state that.

5 Q The 849 patent also describes that the
6 processing of multimedia objects can be dependent
7 on object parameters, correct?

8 A Yes.

9 Q So if object parameter change -- strike
10 that.

11 For example, if object parameters change,
12 the processing is adjusted based on those changes
13 to object parameters, correct?

14 A They may be.

15 Q For example, the 849 patent provides -- or
16 the sample rate of an audio stream might change
17 between multimedia objects, correct?

18 A Yes, it does provide the ability to -- it
19 -- how can I say this? It recognizes that the
20 sample rate is one of the aspects of an object
21 parameter and based on what that sample rate is
22 and the capabilities of the client device, it

1 might -- it will -- it will determine which
2 selections of tools are used, if any -- if any
3 tools are used. They might not need to use any.

4 Q If you can go to claim 1.

5 A In 849?

6 Q The 849 patent. It's on the last page of
7 the document.

8 A So go all the way to the end?

9 Q Correct.

10 A I'm on page 33 that's labeled at the
11 bottom right-hand side, column 19 or 20?

12 Q Claim 1, I think you'll find it in column
13 19.

14 A Yes. I see claim 1 at line 19 -- starting
15 at line 19.

16 Q Part of claim 1 recites, Fluidity, video
17 quality, and audio quality being maintained,
18 correct?

19 A It does.

20 Q And the claim language recites three
21 related limitations: selecting, autonomously
22 adjusting, and utilizing optimized decoding

1 processes, correct?

2 A Correct.

3 Q For selecting, the claim recites that the
4 selection reflects the available network
5 bandwidth, correct?

6 A I need to find that to see if that's what
7 it says. By selecting the plurality of said
8 multimedia objects that reflect available network
9 bandwidth. It does say that.

10 Q So, for example, if available network
11 bandwidth is high, I might select a high quality
12 stream, correct?

13 A That is correct.

14 Q The next limitation then recites,
15 Autonomously adjusting said selection and
16 playback, correct?

17 A Correct.

18 Q Said selection you understand refers to
19 the selection that we made based on available
20 network bandwidth, correct?

21 A That is partially what it bases it on,
22 yes.

1 Q So, for example, if the network bandwidth
2 reduces, I might go from a high quality stream to
3 a low quality stream; is that correct?

4 A That is correct.

5 Q Then the final part of the limitation --
6 sorry, strike that.

7 The final part of maintaining fluidity,
8 video quality, and audio quality is utilizing the
9 optimized decoding processes, correct?

10 A To maintain quality playback, correct.

11 Q Quality playback there refers to fluidity,
12 audio quality, and video quality, correct?

13 A Yes.

14 Q I am introducing two additional exhibits,
15 Exhibit 1081 and Exhibit 1082. Can you let me
16 know when you are able to download those and open
17 them?

18 (Exhibits 1081 and 1082 were marked for
19 identification.)

20 A I will. Would you like me to open both of
21 these documents?

22 Q I would. And we'll start with

1 Exhibit 1081, if that helps.

2 A All right. 1081. Yes, it is open in
3 front of me.

4 Q Exhibit 1081 is a declaration you
5 submitted in re-exam proceedings related to the
6 Carmel reference; is that correct?

7 A That is.

8 Q And you signed this declaration under
9 penalty of perjury, correct?

10 A I did.

11 Q And you stand by your statements in this
12 declaration, correct?

13 A I do.

14 Q Can you open up Exhibit 1082?

15 A It is open.

16 Q Do you recognize Exhibit 1082?

17 A It might have been one of the documents
18 that I referred to in my declaration. I have to
19 be honest with you, again, I don't have an identic
20 memory, so I would have to -- I would have to
21 double check that, but it's in the same vein of
22 documents I could have referred to.

1 Q Well, let's go ahead and not make it a
2 guessing game and we'll go through.

3 A Right, if you can find where I -- in
4 Exhibit 1081 where I refer to this, then I will be
5 able to agree.

6 Q Perfect. Let's just talk about
7 Exhibit 1081 generally first. Exhibit 1081, you
8 went through and you described some of the ways in
9 which the Carmel patent differed from the prior
10 art; is that correct?

11 A Yes, it is.

12 Q And one of the ways you argued that Carmel
13 differed from the prior art is that Carmel uses
14 client driven instead of server driven control,
15 correct?

16 A Correct.

17 Q And if you go to paragraphs 33 and 34
18 which are on PDF page 9, but page 8 of the
19 declaration, let me know when you're there.

20 A I'm looking at paragraph 33.

21 Q You note that this approach was later
22 adopted as a standard by the industry, HTTP

1 adaptive streaming, several years after it was
2 first developed in the Carmel patent, correct?

3 A Correct.

4 Q And in support, you cite a paper that's
5 entitled, Implementing adaptive HTTP streaming
6 using the web.

7 Do you see that?

8 A There you go. That is the article.

9 Q And that is Exhibit 1082, correct?

10 A It is.

11 Q A second way you argued that Carmel
12 differed from the prior art is that Carmel uses
13 files instead of data packets, correct?

14 A Correct.

15 Q You also note that this feature was
16 adopted several years later as standard in the
17 industry pointing again to adaptive HTTP streaming
18 in Exhibit 1082, correct?

19 A Correct.

20 Q Another way you argued that Carmel
21 differed from the prior art is that Carmel uses
22 rate control, correct?

1 A I'm near 100 percent sure I said that, but
2 I'm going to have to find it.

3 Q It's on page 11 -- PDF page 12, page 11 on
4 the numbered page on the documents starting at
5 paragraph 41.

6 A 41. The 473 patent below insures realtime
7 deliveries. Is that where I'm looking?

8 Q Yeah.

9 A Yes, I can see here that I do refer to it
10 as explicit steps for rate control.

11 Q And in this section in paragraph 42, which
12 extends onto the next page, you again cite to the
13 paper which is 1082 which discusses adaptive HTTP
14 streaming, correct?

15 A Correct.

16 Q If you go to paragraph 39.

17 A 39, I'm there.

18 Q This -- in paragraph 39, you discuss that
19 the quality levels in Carmel correspond to
20 assigned data rates, correct?

21 A Correct.

22 Q And that Carmel teaches that the client

1 computers choose among streams of different
2 quality levels depending on bandwidth, correct?

3 A Correct.

4 Q You also talk about that this concept of
5 realtime broadcasting in Carmel -- and just for
6 simplicity, we can go to paragraph 46.

7 A Moving to 46. 46. Oops, 46, yes, I am
8 there.

9 Q And realtime broadcasting refers to the
10 transmission of data to one or more clients
11 matching the human perception of time, correct?

12 (Reporter asks for clarification.)

13 A Correct.

14 Q And this is, as we discussed earlier, the
15 fact that the Carmel reference is trying to allow
16 a client to have the experience of watching a
17 video that's as closest to the realtime fluid
18 experience, correct?

19 A Yes, as a generality, that is correct.

20 MR. GARDNER: I'm having a computer issue
21 so -- and it's been about an hour. Do you guys
22 mind if we take a short break?

1 THE WITNESS: I don't mind at all. We can
2 stretch. What time would you like me back?

3 MR. GARDNER: Roger, can we go off the
4 record?

5 MR. THOMPSON: I was just get -- yes, I
6 have no objections going off the record for a
7 little bit.

8 (Off the record.)

9 COURT REPORTER: Back on the record.

10 BY MR. GARDNER:

11 Q Mr. Goldman, I've added to the chat box,
12 Exhibit 1055. Could you download and open that
13 document and let me know once you have that.

14 (Exhibit 1055 was marked for
15 identification.)

16 A I will do so. I have that open.

17 Q Exhibit 1055 is a copy of the complaint
18 and Exhibit Number 2 and Exhibit Number 3 to the
19 complaint in the related District Court litigation
20 between Withrow and Google.

21 Is that the document you have,
22 Mr. Goldman?

1 A I'm not familiar with this document but I
2 see that it says complaint, demand for jury trial.

3 Q Well, I'll direct your attention to
4 specific portions of the document. Can you go to
5 what is labeled in the lower right-hand corner
6 page 25, and by that, each page has in the lower
7 right-hand corner Google Exhibit Number 1055
8 followed by a page number. And I'm -- that's the
9 page number I'm referring to.

10 A Okay. So I see on the lower right-hand --
11 of this page, I see Google Exhibit 1055, page 025.

12 Q Correct. Pages 25 through 59 are a claim
13 chart of claim 1 of the 849 patent.

14 Do you see that?

15 A I see the pages. I don't know what the
16 pages mean, I'm sorry. But I do see the pages in
17 here.

18 Q Maybe I can ask a simple question, which
19 is have you reviewed these infringement charts
20 before today?

21 A No, I have not.

22 MR. GARDNER: I will pass the witness.

1 MR. THOMPSON: That was it? You're
2 closing your end of the deposition?

3 MR. GARDNER: That's correct -- well, I
4 mean, subject to obviously my right to ask
5 additional questions if you ask any.

6 MR. THOMPSON: Well, I have one question.

7 EXAMINATION

8 BY MR. THOMPSON:

9 Q Earlier on -- Mr. Goldman, if you remember
10 earlier on during your testimony with Mr. Gardner,
11 he had asked you a question that he kind of cut of
12 off on your answer.

13 Do you remember that?

14 A No, I'm sorry. I do not.

15 Q I believe it was when relating to the
16 tying of --

17 MR. THOMPSON: Well, I'll tell you what.
18 Let's go off the record for a minute so I get
19 mine -- I hadn't expected to be put on the spot
20 that quick, so rather than have everybody watch me
21 fumfah around, give me about five minutes to put
22 my question together and we'll get back on the

1 record.

2 Is that all right, Mr. Gardner?

3 MR. GARDNER: Of course.

4 THE WITNESS: See you in five.

5 MR. THOMPSON: See you in five.

6 (Off the record.)

7 COURT REPORTER: Back on the record.

8 MR. THOMPSON: We decided we have no
9 further questions and we're prepared to close it
10 out.

11 MR. GARDNER: Okay. Thanks all.

12 MR. THOMPSON: Have a great day.

13 MR. GARDNER: Thank you, Mr. Goldman.

14 (Proceedings concluded at 12:28 Central.)

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CERTIFICATE OF SHORTHAND REPORTER

I, LORI THIELMANN, Certified Shorthand Reporter, Registered Professional Reporter, before whom the foregoing proceeding was taken, do hereby certify that the foregoing transcript is a true and correct record of the testimony given, all done to the best of my skill and ability; that said testimony was taken by me stenographically and thereafter reduced to typewriting under my direction; that reading and signing was not discussed; and that I am neither counsel for, related to, nor employed by any of the parties to this case and have no interest, financial or otherwise, in its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my signature this 13th day of April, 2026.



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