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UNITED STATES PATENT AND TRADEMARK OFFICE
IPR 2025-00775

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GOOGLE LLC,

 Petitioner,

 v.

WITHROW NETWORKS INC.,

 Patent Owner.

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January 7, 2026
9:41 a.m.

Deposition of

NATHANIEL POLISH, Ph.D., held at the
offices of COOLEY LLP, 55 Hudson Yards,
New York, New York, before Sharon Pearce,
RDR, CRR, CRC, NYRCR, a Registered
Diplomate Reporter, Certified Realtime
Reporter, and Notary Public of the State
of New York.

* * *

Page 2 1 2 A P P E A R A N C E S: 3 4 COOLEY LLP Attorneys for Petitioner 5 55 Hudson Yards New York, New York 10001 6 7 BY: EAMONN GARDNER, ESQ. 8 9 VILLEGAS & CEFO LLP Attorneys for Patent Owner 10 1350 Avenue of the Americas, Floor 2 11 New York, New York 10019 12 BY: STEPHEN McBRIDE, ESQ. 13 14 * * * 15 16 17 18 19 20 21 22 23 24 25	Page 4 1 POLISH, Ph.D. 2 Q. What fields are those in? 3 A. So one of them is Daedalus 4 Technology Group, which is my consulting 5 firm, that this work is done under, and we 6 do product design and development for all 7 kinds of different tech companies. And 8 the other company is a company called 9 Super Alert that's in the business of 10 designing and deploying and operating 11 sensors that monitor systems within large 12 residential buildings. 13 Q. I'll give you a few instructions 14 to start. First, you are under oath 15 today. 16 Do you understand you need to 17 answer truthfully, to the best of your 18 ability? 19 A. Yes. 20 Q. Please listen carefully to my 21 questions. If you do not understand what 22 is being asked, please ask for 23 clarification. 24 A. Okay. 25 Q. Please allow me time to finish
Page 3 1 POLISH, Ph.D. 2 N A T H A N I E L P O L I S H, Ph.D. 3 having first been duly sworn by 4 Sharon Pearce, the Notary Public, 5 was examined and testified as 6 follows: 7 EXAMINATION 8 BY MR. McBRIDE: 9 Q. Good morning, Mr. -- Dr. Polish. 10 My name is Steve McBride, and I'm going to 11 be take your deposition today. 12 Can you please state your full 13 name for the record. 14 A. Nathaniel Polish, P-O-L-I-S-H. 15 Q. You are Dr. Polish; right? 16 A. Yes. 17 Q. Where do you currently live? 18 A. Upper West Side in Manhattan, 19 near Columbia University. 20 Q. And what's your current 21 occupation? 22 A. Well, I'm a technology 23 consultant. I have a couple of different 24 companies that I'm -- that I'm running, 25 that I'm, you know, CEO of.	Page 5 1 POLISH, Ph.D. 2 my question before you answer. Please 3 allow a little bit of time for your 4 attorney to interject an objection. 5 Please provide audible responses for the 6 court reporter. Nonverbal communications 7 may not be recorded. 8 A. I understand. 9 Q. From time to time, your attorney 10 may speak up to enter an objection. 11 Unless your attorney also instructs you 12 not to answer, you still need to answer my 13 question. 14 Do you understand? 15 A. Yes. 16 Q. Is there any reason, sitting 17 here today, that you cannot answer my 18 questions truthfully, to the best of your 19 ability? 20 A. No. 21 Q. Do you have any impairments or 22 are you on any medications that could 23 impact your ability to answer? 24 A. No. 25 Q. Did you do anything to prepare

Page 6 1 POLISH, Ph.D. 2 for this deposition? 3 A. Yes. 4 Q. And what was that? 5 A. Well, I met with counsel 6 yesterday for a few hours and went over my 7 report. 8 Q. And this deposition was 9 originally scheduled for December 17th. 10 Did you prepare before that as 11 well? 12 A. Yes. 13 Q. How many times did you meet 14 before that deposition? 15 A. Once or twice. I don't 16 remember. 17 Q. Who did you meet with yesterday? 18 A. Just Mr. Gardner. 19 Q. And how long did you meet? 20 A. It was probably about five 21 hours. 22 Q. Did you review any documents to 23 prepare for today's deposition? 24 A. Yes. 25 Q. What were those documents?	Page 8 1 POLISH, Ph.D. 2 bit of time. Probably on the order of a 3 couple hundred hours. 4 Q. And do you know how much total 5 time you've billed on this matter? 6 A. No, I don't offhand. 7 Q. Approximately what percentage of 8 your work is related to litigation? 9 A. It varies a lot. At the moment, 10 it's about half my time. Last year, I 11 think -- I probably was involved with 12 litigation for about a thousand hours, so 13 about half my time. 14 Q. What percentage of that half of 15 your time is devoted to patent litigation? 16 A. All of that. That's the -- 17 well, I should -- let me just -- so there 18 was one case that was involving helping a 19 company out with allegations of 20 wiretapping, which wasn't patent 21 litigation, so I don't know -- maybe 22 90 percent of it was patent litigation. 23 Q. Okay. How many times have you 24 been deposed? 25 A. Somewhere north of 120, 130
Page 7 1 POLISH, Ph.D. 2 A. My declaration, the Krebs 3 patent, and the -- I think we at least 4 looked at all the references for the 5 different grounds that are in my 6 declaration. 7 Q. Aside from the declaration, the 8 Krebs patent, and the references in the 9 grounds, did you look at any other 10 documents to prepare for today's 11 deposition? 12 A. No. I don't think so. 13 Q. How much time did you spend 14 preparing for this deposition? 15 A. Well, so I'll just take the 16 definition in terms of yesterday, I spent 17 five hours with counsel. Prior to that, I 18 probably spent another, you know, 10, 19 15 hours reviewing the documents on my 20 own, and I probably did a similar review 21 process back in December when I was 22 preparing for that -- for that deposition. 23 Q. How much time did you spend 24 preparing your report in this IPR? 25 A. So that was a while ago. A fair	Page 9 1 POLISH, Ph.D. 2 times over 22 years. 3 Q. How many of those depositions 4 were for inter partes reviews? 5 A. I don't know. I mean, IPRs vary 6 in terms of what part of my business is 7 involved in IPRs. I don't think I could 8 really break it down by that. It's not 9 anything close to half or anything. You 10 know, there have been a few IPRs that I 11 think I have in my expert witness 12 experience list, and I think -- maybe not 13 all of them, but most of them I've been 14 deposed. 15 Q. Okay. And do you have a 16 ballpark figure of how many IPRs that 17 would be? 18 A. I don't. I wouldn't want to 19 speculate. 20 Q. Not a majority of your 21 depositions you've taken? 22 A. Oh, no. 23 Q. Small, small percentage of the 24 depositions? 25 A. Yeah.

Page 10 1 POLISH, Ph.D. 2 Q. Do you typically submit 3 declarations in IPRs? 4 A. Yes. 5 Q. How long is your typical IPR 6 declaration? 7 A. I think they're usually at least 8 100 pages. You know, depends obviously on 9 the number of different grounds and how 10 many different references are in the 11 grounds. But I don't -- can't remember 12 any that were less than 100 pages, and 13 they're not as long as some expert 14 reports, but something -- so somewhere 15 between 100 pages and 300 pages is pretty 16 common. 17 Q. Okay. You've got some documents 18 there in front of you. 19 Which documents do you have? 20 A. So this -- this is a binder 21 provided to me by counsel when I came in. 22 Do you want me to just go through it which 23 ones are in here? 24 Q. Yeah, if you don't mind. 25 A. Sure. So first one seems to be	Page 12 1 POLISH, Ph.D. 2 Q. Okay. Turn to page 8, please. 3 A. Okay. 4 Q. At paragraph 11, you mention 5 work in the area of computer speech. 6 A. Yes. 7 Q. And the second sentence there, 8 it says, "As part of that work, I 9 developed signal processing systems and 10 algorithms to filter and manipulate sound, 11 especially speech." 12 Do you see that? 13 A. Yes. 14 Q. How does this relate to the 15 transport of streaming media? 16 A. So that experience is 17 particularly relevant to decoding of 18 media, streaming media and otherwise, so 19 things like understanding how speech or 20 video is compressed and decompressed, how 21 that media is manipulated and filtered. 22 So this is not necessarily directly 23 involved in the network-level transport. 24 It's involved in the encoding and decoding 25 of the media.
Page 11 1 POLISH, Ph.D. 2 my CV and expert witness experience list. 3 The next one is the Krebs patent, the '849 4 at issue in the case. There's the '473 5 Carmel patent. There's the Mattavelli 6 reference. There's the Wang reference. 7 This looks like this is the -- right -- 8 the Wolters reference -- the Wolters 9 reference, W-O-L-T-E-R-S. There's the Gao 10 reference, the Yu reference, and then 11 there's my declaration in this matter. 12 Q. Great. And are all of those 13 clean copies? 14 A. Well, I just got them. 15 Q. Best of your knowledge? 16 A. They appear to be -- yeah. I 17 don't see any marks on them. 18 Q. Okay. Go ahead and open your 19 declaration up. That's Exhibit 1002. 20 A. Okay. 21 (Exhibit 1002, Declaration of 22 Nathaniel Polish, Ph.D., was 23 previously marked for identification.) 24 A. I'll take it out so I can leaf 25 through it more easily. Okay.	Page 13 1 POLISH, Ph.D. 2 Q. Move on to page 9 in 3 paragraph 13. 4 A. Okay. 5 Q. You mentioned something called 6 interactive voice editing systems. 7 A. Yes. 8 Q. What is an interactive voice 9 editing system? 10 A. So -- well, what I'm referring 11 to there is systems I built for Dun & 12 Bradstreet that were to -- that were used 13 to select pieces of speech, trim them, and 14 pull them out and put into a database to 15 be used for speech synthesis. So I built 16 a series of tools that allowed a user to 17 record speech, compress it, manipulate it, 18 adjust it, and then extract it for use in 19 these databases. So that's what I'm 20 referring to there as an interactive -- 21 interactive in the sense that it was 22 interacting with the user and it was for 23 editing voice. 24 Q. So it records somebody's speech, 25 and then you manipulate that into some

Page 14 1 POLISH, Ph.D. 2 other form? 3 A. So it was -- those systems, we 4 had a -- in most cases, we had a voice 5 actor we hired to speak well, and they 6 would speak, we'd record it, and then do 7 some processing on it to remove noise, to 8 manipulate it in certain ways, and then we 9 would trim out particular usually 10 word-level or sub-word-level fragments to 11 be used within a database. 12 And the complexity there came 13 from making sure that what we extracted 14 from the voice actor was compatible with 15 previous extractions of voice so that when 16 we knit them together, they would sound 17 natural and work well. 18 Q. And then the next paragraph, you 19 mention "industrial strength interactive 20 voice response system that allows users to 21 access streaming media via their 22 cellphones." 23 Do you see that? Paragraph 14. 24 A. Okay. Yes. 25 Q. Can you tell me a little bit	Page 16 1 POLISH, Ph.D. 2 scale, meaning hundreds of people at a 3 time for various purposes. It could be 4 emergency response. It could be telling 5 people what was in the cafeteria. But it 6 was really targeted towards emergency 7 situations. 8 Q. Okay. At paragraph 15, you 9 state that you developed -- this is the 10 bottom of page 9, starting at page 10 of 11 your report. You state you developed many 12 other systems that utilize various 13 networking techniques for moving data 14 around the internet in a timely way, 15 taking into account spontaneous changes in 16 network capacity and usage. 17 Do you see that? 18 A. Yes. 19 Q. Can you give some examples of 20 those types of systems? 21 A. Sure. So there's the work I did 22 for IVT, which was talked about in a 23 previous paragraph, where we were 24 delivering streaming video and audio to 25 people over the internet and made
Page 15 1 POLISH, Ph.D. 2 more about that system? 3 A. Sure. So that was -- that was a 4 system that -- right. So what they were 5 trying to do was create announcements and 6 informational snippets that they would 7 make available to subscribers who would 8 either -- you could either -- you would 9 either call out to people to deliver these 10 announcements or people would call in to 11 get an announcement. 12 The sort of applications they 13 contemplated was, for example, at a 14 hospital, you might have several hundred 15 workers at the hospital, and if there was 16 some emergency or some broadcast they 17 wanted to make to the personnel but with 18 more precision than just putting it on the 19 loud speaker, they would call out and 20 deliver these recordings to people, and 21 then they could -- the people could ask 22 for repeat. They could acknowledge 23 receipt of it, things like that. 24 So it was meant to deliver 25 high-quality audio at relatively large	Page 17 1 POLISH, Ph.D. 2 spontaneous changes to what we were 3 sending and how we were sending it, 4 depending upon what was going on on the 5 internet at the time and what was going on 6 on the local computers at the time. 7 In addition to that, I feel like 8 we were constantly doing projects in which 9 we had content on content servers that was 10 being migrated to other content servers 11 sort of in the background. And we would 12 use the network capacity that was 13 available, and we would try to make the 14 migrations of content move smoothly 15 without taxiing the network. So we would 16 be pretty aware of what was going on 17 between our content servers so that we 18 could migrate content without saturating 19 channels. 20 Q. Just backing up a second. 21 Of your work in patent 22 litigation, what percentage is for 23 defendants and what percentage was for 24 plaintiffs? 25 A. You know, the last time I was

Page 18 1 POLISH, Ph.D. 2 asked that question was about three or 3 four years ago, and I looked at it, and it 4 was about fifty-fifty. Maybe it was 5 53 percent defendant and 47 percent 6 plaintiff. I don't think it's really 7 changed since then. It's certainly not a 8 large amount towards one or the other. 9 It's about evenly split. 10 Q. Moving to paragraph 17 of your 11 declaration, page 10. 12 This is the materials considered 13 section; right? 14 A. Yes. 15 Q. Did you consider any materials 16 that are not listed here? 17 A. I don't think so. I think I -- 18 there's quite a few materials listed here. 19 I tried to make sure in this -- in this 20 declaration that everything that I drew on 21 for, for example, what a person of 22 ordinary skill would have known at the 23 time -- I try to ground all of it in some 24 reference. I don't think there's anything 25 I considered that wasn't listed here.	Page 20 1 POLISH, Ph.D. 2 Did I read that correctly? 3 A. Yes. 4 Q. Would a person of ordinary skill 5 in the art need any experience with 6 wireless technologies? 7 A. So I think a person of ordinary 8 skill would have had networking knowledge 9 and experience, and certainly at the time, 10 there was a pretty wide range of 11 networking physical layers that were in 12 wide use, including wireless. So I think 13 somebody who fit this description would 14 have had experience with wireless, or so 15 they would have understood what the 16 constraints of wireless were and would 17 have brought that knowledge to bear. 18 Q. So are you saying that the 19 experience in networking or streaming 20 media systems would subsume the wireless 21 part? 22 A. I think it would -- it would 23 include wireless, and if in some peculiar 24 situation it -- the person didn't have 25 actual experience in wireless, the
Page 19 1 POLISH, Ph.D. 2 Q. Okay. Since submitting your 3 declaration, have you considered any other 4 documents that are not listed there? 5 A. For this matter? 6 Q. For this matter, yes. 7 A. No. 8 Q. Okay. Let's move down to 9 page 16. And this is in the section 10 "Person of Ordinary Skill in the Art." 11 A. Okay. 12 Q. At paragraph 21, you're giving 13 your opinion on the level of ordinary 14 skill in the art; correct? 15 A. Yes. 16 Q. And I'll read it here into the 17 record. "A person of ordinary skill in 18 the art at the time with the alleged 19 invention would have had a bachelor's 20 degree of computer science, computer 21 engineering, or electrical engineering, or 22 the equivalent, and at least two years of 23 work experience in networking or streaming 24 media systems, particularly audio and 25 video over the internet."	Page 21 1 POLISH, Ph.D. 2 networking knowledge they would have 3 gained from a bachelor's degree in 4 electrical engineering or computer science 5 would have equipped them to understand the 6 particular issues of wireless. 7 Q. Okay. Please take a look at 8 page 23 -- or paragraph 23. I'm sorry. 9 A. Okay. 10 Q. And in paragraph 23, you state, 11 "I qualify as a person of ordinary skill 12 in the art as of the alleged priority date 13 of April 18, 2005." 14 Do you see that? 15 A. Yes. 16 Q. What experience in networking or 17 streaming media systems did you have as of 18 April 18, 2005? 19 A. Well, as I said in the prior 20 sections, at the very least, you can look 21 to my work for IVT. That was streaming 22 media back in the, you know, 1990s, early 23 2000s, the work for Savos, which was 24 streaming media over cellphone. At the 25 very least those. And as of this point, I

Page 22 1 POLISH, Ph.D. 2 had a Ph.D. as of 1993, and so had vastly 3 more education than a person of ordinary 4 skill. Yeah. 5 Q. What types of mobile devices 6 were available in April 2005? 7 A. Mobile devices. So in 8 April 2005, there were -- there were 9 cellphones. There were flip phones. 10 There were -- it was before what we now 11 think of as smartphones. So they didn't 12 have the big screens and all that that 13 we're used to now. 14 There were devices that were 15 combinations of PDAs and cellphones, 16 devices like the Treo, which were, you 17 know, like -- what do they call it -- a 18 palm pilot combined with a cellphone. So 19 there were a variety of different kinds of 20 handheld devices that used wireless to 21 communicate. 22 Q. Were mobile phones in April of 23 2005 capable of streaming video? 24 A. So I'm not aware of any products 25 that were around at that time, at least I	Page 24 1 POLISH, Ph.D. 2 don't -- but the products weren't -- the 3 companies who would be marketing those 4 things didn't think there was a market for 5 them at the time, given the costs. 6 Q. Were there any constraints 7 involving the cellular transmission 8 standards, the wireless standards at the 9 time? 10 A. Well, I mean, any constraints is 11 a big word. But there were -- there was 12 this continuous evolution in the bandwidth 13 available on the cellphone networks. I 14 believe at the time, LTE was just getting 15 going, and that involved availability of 16 bandwidth that was starting to get 17 possible to use with video, but it was 18 expensive. 19 And at least in the 20 United States, the phone companies weren't 21 so -- they were -- the phone companies in 22 the United States were looking to improve 23 audio phone calls with improving their 24 networks. They weren't -- they weren't so 25 into having the bandwidth being used for
Page 23 1 POLISH, Ph.D. 2 don't remember any that would -- that 3 would stream video. There were people 4 working on it, and I probably had in my 5 lab mobile devices that I pushed video 6 over, but nothing that -- I don't remember 7 there being products that were doing it. 8 Q. Was that because there were 9 constraints on the hardware at the time, 10 in terms of the mobile phone itself? 11 A. Well, there were constraints in 12 all different directions. The networks 13 were getting more powerful all the time. 14 Wi-Fi was becoming more common. But they 15 were still very expensive, and so I don't 16 think there was -- there was interest in 17 fielding a product in that space. There 18 were also big limitations in power 19 consumption on the devices so that if you 20 streamed for very long, you'd drain the 21 battery very quickly. 22 So it was the beginning times, 23 and so there were people experimenting 24 with it, and there were things in the lab 25 that would be streaming video, but I	Page 25 1 POLISH, Ph.D. 2 things like video. So there were a number 3 of things that constrained it, including 4 hardware and including business -- 5 business issues that limited the use of 6 these things for video at that time. 7 Q. And at what point in time were 8 commercially available mobile phones able 9 to stream video? 10 MR. GARDNER: Objection to form. 11 A. I mean, it depends on exactly 12 what one means by "able to." I think 13 certainly by the time that -- by 2010 and 14 the iPhone, you started to see people 15 using these devices for video in various 16 forms. You know, when it became, you 17 know, ubiquitous the way that it is now, I 18 can't give you a date. 19 Q. Okay. Let's move down to the 20 claim construction section. That starts 21 at page 18, but I have a question about 22 paragraph 29 at page 19. 23 A. Okay. 24 Q. Okay. So your declaration 25 states that you are applying the Phillips

Page 26 1 POLISH, Ph.D. 2 standard for claim construction. 3 Do you see that? 4 A. Yes. 5 Q. And you're not expressly 6 construing any terms in your declaration; 7 correct? 8 A. That's correct. 9 Q. So is it accurate to say you are 10 applying the plain and ordinary meaning to 11 each claim term? 12 A. Yes. 13 Q. And your declaration does not 14 provide any opinions regarding specific 15 claim constructions; correct? 16 A. I'm not -- I am not explicitly 17 construing any of the claim terms in here. 18 I'm just using plain and ordinary meaning. 19 Q. Okay. Please turn to page 46 of 20 your declaration. 21 A. Okay. 22 Q. And this is the section titled 23 "Application of the Prior Art to the 24 Challenged Claims." 25 A. Yes.	Page 28 1 POLISH, Ph.D. 2 Do you see that? 3 A. Yes. 4 Q. And you state, "Prior to slicing 5 the data in audio and video segments, 6 Carmel teaches that the multimedia data is 7 preferably compressed (i.e. encoded) by 8 computer 34." 9 Do you see that? 10 A. Yes. 11 Q. Is encoding the same thing as 12 compression? 13 A. Compression -- I'm sorry. Can 14 you ask the question again? 15 Q. Is encoding the same thing as 16 compression? 17 A. It's not the same thing, no. 18 Q. What's the difference? 19 A. Well, compression is a process 20 of taking one data stream and reducing its 21 size in such a way that it can be returned 22 back to its prior state or something close 23 to its prior state. That can be a form of 24 encoding. Encoding is representing of 25 data in some form, which can compress or
Page 27 1 POLISH, Ph.D. 2 Q. Do you see that? 3 A. Yes. 4 Q. And we have the chart of the 5 different grounds and the different 6 references used for each ground. 7 Do you see that? 8 A. Yes. 9 Q. Did you yourself choose these 10 grounds? 11 A. I may have for some of them. We 12 discussed them extensively. I don't 13 recall who came up with particular of the 14 secondary references. I believe that 15 Carmel was chosen before I got retained on 16 the case, but I believe -- it could well 17 be that most of the secondary ones I came 18 up with. But I'm not sure. 19 Q. Okay. Moving down to page 52. 20 And this is in the section -- this is a 21 summary of Carmel -- part of the section 22 that says "Summary of Carmel." 23 A. Okay. 24 Q. And if you go to paragraph 54 -- 25 84. Sorry. 84.	Page 29 1 POLISH, Ph.D. 2 might not compress. In the case of the 3 way the Carmel teaches it, they're talking 4 about data coming off of a video camera 5 and compressing it, which, in their case, 6 would be involving coding, and then 7 cutting it up into slices. 8 Q. So to paraphrase it, are you 9 saying that compression is a type of 10 encoding? 11 MR. GARDNER: Objection to form. 12 A. It can be thought of that way. 13 Compression is a -- is a way of 14 representing one set of data in another 15 form that typically is used to reduce its 16 size. And that can be used as a form of 17 encoding. 18 Q. Okay. If we go down to page 82 19 of your report. 20 A. Okay. 21 Q. You see we're talking about -- 22 this is the section that talks about Claim 23 1[a.ii]. 24 Do you see that? 25 A. Yes.

Page 30 1 POLISH, Ph.D. 2 Q. So we're talking about the 3 limitation "wherein, said audio and video 4 segments are associated with object 5 parameters and supplied host path 6 identification to form multimedia 7 objects." Correct? 8 A. Yes. 9 Q. And at paragraph 29, you state 10 Carmel discloses and renders obvious this 11 limitation; correct? 12 A. It's paragraph 129, but yes. 13 Yes. 14 Q. I'm sorry if I misspoke. 15 Paragraph 129. 16 And then the second sentence 17 says, "Carmel in view of Mattavelli also 18 renders obvious this claim element." 19 Do you see that? 20 A. Yes. 21 Q. So it's your opinion that Carmel 22 by itself discloses and renders obvious 23 this limitation; correct? 24 A. Yes. 25 Q. But it's also your opinion that	Page 32 1 POLISH, Ph.D. 2 found it. 3 A. I'm there. 4 Q. I think this is still talking 5 about limitation a.ii; correct? 6 I should say I think 7 paragraph 145 is still talking about 8 limitation a.ii; correct? 9 A. Yes. It's still within that 10 discussion. 11 Q. If you go five lines, down at 12 paragraph 145, you state, "These 13 teachings, at minimum and in view of the 14 knowledge of a person of ordinary skill in 15 the art, fairly suggest and render obvious 16 the supply of host path identification." 17 Do you see that? 18 A. Yes. 19 Q. Okay. Are you relying on 20 knowledge of a POSITA here as supplying 21 the host path identification? 22 A. I guess what I'm relying on 23 there is that Carmel talks about using 24 protocols such as FTP and HTTP to 25 transport the segments to the various
Page 31 1 POLISH, Ph.D. 2 Carmel in view of Mattavelli renders 3 obvious this limitation; correct? 4 A. Yes. 5 Q. What is it that Mattavelli is 6 adding? 7 A. So -- all right. Let's see 8 here. 9 Q. You start talking at 10 paragraph 137 about -- 11 A. Yes. 12 Q. And when I say what is 13 Mattavelli adding, I mean what limitation. 14 A. Well, so Mattavelli is talking 15 about additional object parameters. So 16 Carmel discloses various object parameters 17 which I describe throughout this section 18 and that Mattavelli also has different 19 object parameters or additional object 20 parameters, particularly complexity 21 prediction information. So it just adds 22 to what Carmel is disclosing. 23 Q. Okay. Can you please move down 24 to paragraph 145 on page 98 of your 25 declaration. And let me know when you've	Page 33 1 POLISH, Ph.D. 2 servers and that -- that that -- in order 3 for those protocols to operate, a person 4 of ordinary skill would know that those 5 require host path identification in order 6 for those protocols to operate. 7 So I believe that Carmel 8 discloses and teaches host path 9 identification through the use of those 10 protocols and that someone of ordinary 11 skill would know that about those 12 protocols. I don't believe that -- my 13 point is I don't believe that a person of 14 ordinary skill is adding something -- 15 adding some knowledge. It's just they 16 would know that HTTP and FTP involve the 17 use of host path identification. 18 Q. Okay. If we move on to 19 paragraph 163. This is going to be at 20 page 114. 21 Let me know when you're there. 22 A. I'm there. 23 Q. I think we're talking about 24 limitation b.ii; correct? 25 A. Yes, that's correct.

Page 34 1 POLISH, Ph.D. 2 Q. And limitation b.ii is wherein, 3 said multimedia objects are located using 4 HTTP and received by said multimedia 5 player from servers using a wireless 6 connection; correct? 7 A. That's correct. 8 Q. Okay. Going back to 9 paragraph 163. You state, "Carmel also 10 expressly teaches the use of a wireless 11 connection to connect a client to a server 12 via its incorporation of Carmel '432 and 13 Carmel '230." 14 Do you see that? 15 A. Yes. 16 Q. And then if you go down to 17 footnote 7 on the same page, and breaking 18 across to page 115, all the way at the 19 last sentence on page 115, you state, "If 20 Carmel is not considered a single combined 21 reference, Carmel in view of the teachings 22 of Carmel '432 and/or Carmel '230 would 23 have rendered this claim element directed 24 to a wireless connection obvious." 25 Do you see that?	Page 36 1 POLISH, Ph.D. 2 they're saying everything is as broad as 3 possible, ordinary networks, ordinary 4 servers, which I believe includes 5 wireless. 6 The incorporation -- you know, 7 the adding of Carmel '432 and '230 just 8 makes it more explicit. And since they're 9 incorporated by reference, that's easy. I 10 believe that '473 -- that Carmel '473 11 would absolutely be considered to include 12 wireless connections by a person of 13 ordinary skill in the art. 14 Q. Does Carmel '473 discuss 15 wireless connections anywhere? 16 A. I don't believe it -- I don't 17 believe it explicitly says wireless 18 connections. It's talking about the 19 widest possible range of networks, which, 20 at the time that Carmel '473 was filed, 21 there weren't -- there weren't many 22 cellphones that were able to do this, but 23 they were talking about applying their 24 techniques to the widest range of 25 networks.
Page 35 1 POLISH, Ph.D. 2 A. Yes. 3 Q. Okay. So just to break down, 4 first of all, you're giving an opinion 5 that Carmel '432 -- I'm sorry -- Carmel 6 '473 can rely on Carmel '432 and Carmel 7 '230's contents as part of Carmel '473 8 patent because of incorporation by 9 reference; correct? 10 A. That's correct. 11 Q. And then you're saying if they 12 aren't incorporated by reference, then you 13 would just combine those two other Carmel 14 patents -- the '432 patent and '230 -- to 15 arrive at the invention; is that correct? 16 A. That's what I say in the 17 footnote, yes. 18 Q. And you're using the Carmel '432 19 and Carmel '230 patents because Carmel 20 '473 patent doesn't expressly disclose 21 using the wireless connection; correct? 22 A. So Carmel -- I just want to 23 quote the numbers correctly here. So 24 Carmel '473 talks about using the broadest 25 possible range of network connections. So	Page 37 1 POLISH, Ph.D. 2 Q. Okay. Please move down to 3 page 116 at paragraph 165. Paragraph 165 4 breaks over to page 117 as well. Let me 5 know when you're there. 6 A. I'm there. 7 Q. Paragraph 165, you state, "To 8 the extent that this claim element" -- 9 just to stop right there, we're still 10 talking about Element b.ii; right? 11 A. Yes. 12 Q. B.ii. 13 A. Yes. 14 Q. You say, "To the extent that 15 this claim element requires that the 16 multimedia objects are received by the 17 multimedia player from a plurality of 18 (that is, two or more) servers, Carmel 19 teachings, in view of the knowledge of one 20 of ordinary skill in the art, render such 21 an arrangement obvious." 22 Do you see that? 23 So Carmel doesn't expressly 24 disclose receiving by said multimedia 25 player from servers, plural, using a

Page 38 1 POLISH, Ph.D. 2 wireless connection; right? 3 That is, Carmel teaches one 4 server, not multiple servers. 5 A. Carmel talks about one HTTP 6 server that is used to respond to HTTP 7 requests from the client, and they just -- 8 they talk about it as a server. 9 Q. Okay. Please turn to page 153 10 of the declaration. Let me know when 11 you're there. 12 A. I'm there. 13 Q. So this section is talking about 14 Claim Limitation 1 [c.iv]; correct? 15 A. Yes. 16 Q. And that limitation is "and by 17 utilizing optimized decoding processes to 18 maintain quality playback"; correct? 19 A. Yes. 20 Q. Please go down to page 159. 21 A. Okay. 22 Q. And I think here, we're still 23 talking about limitation c.iv; correct? 24 A. I think we're still within that 25 section, yes.	Page 40 1 POLISH, Ph.D. 2 that to the extent that it would be 3 necessary to also be reducing 4 computational load for audio, a person of 5 ordinary skill would have been able to 6 apply those similar techniques to audio. 7 And Mattavelli is -- does talk 8 about using video and audio streams, so it 9 certainly contemplates streams that have 10 audio and video in them, but it doesn't 11 address itself to applying those 12 techniques in detail to the audio streams 13 or the audio component of the stream. 14 It would be great if we could 15 take a couple-of-minute break sometime in 16 the next five to ten minutes. 17 Q. Yeah. Let me wrap up just a 18 couple of more questions here. 19 A. Sure. 20 Q. Okay. Move down to page 178. 21 A. Okay. 22 Q. And the section starting at 23 page 178 is discussing Claim 2; correct? 24 A. Yes. 25 Q. And Claim 2 is "The method of
Page 39 1 POLISH, Ph.D. 2 Q. So take a look at paragraph 206. 3 And you state, "Further, to the 4 extent that 'optimized decoding processes' 5 is interpreted to mean that both optimized 6 video decoding processes (like those 7 taught by Mattavelli) and optimized audio 8 decoding processes must be employed, 9 Mattavelli's teachings, in view of the 10 knowledge of a person of ordinary skill in 11 the art, further suggest and render 12 obvious configuring a multimedia player to 13 utilize optimized audio decoding processes 14 as well as optimized video decoding 15 processes." 16 Do you see that? 17 A. Yes. 18 Q. Are you -- did you make this 19 statement because Mattavelli doesn't 20 expressly disclose utilizing audio 21 decoding processes? 22 A. I made this statement because 23 Mattavelli is specifically talking about 24 various techniques to reduce the 25 computational load for decoding video and	Page 41 1 POLISH, Ph.D. 2 Claim 1, wherein the transmission of the 3 multimedia objects is carried out by 4 protocols that can serve files in a 5 directory." Correct? 6 A. Yes. 7 Q. Okay. Move down to page 182, 8 paragraph 227. Let me know when you're 9 there. 10 A. I'm there. 11 Q. And 227 breaks across 182 and 12 onto 183. 13 You state, "In addition to 14 implicitly disclosing the transmission of 15 multimedia objects by protocols that can 16 serve files in a directory, these 17 teachings of Carmel, in view of the 18 knowledge of one of ordinary skill in the 19 art, also render this claim element 20 obvious." 21 Did you make this statement 22 because Carmel doesn't expressly disclose 23 transmission of multimedia objects as 24 carried out by protocols that can serve 25 files in a directory?

Page 42 1 POLISH, Ph.D. 2 A. I made this statement because 3 Carmel is talking about using FTP and 4 HTTP, which are well known to give you 5 access to files within a directory, but 6 they don't -- Carmel doesn't specifically 7 say that, because they don't need to, but 8 I was making it clear here that a person 9 of ordinary skill would know that HTTP and 10 FTP give you access to files within a 11 directory. 12 So again, I think you were 13 asking a similar question about HTTP and 14 FTP with respect to host names, that 15 people would know that those protocols 16 give you access to files in directories, 17 even if Carmel isn't specifically telling 18 you that. 19 Q. Okay. Just a few more questions 20 here. 21 MR. GARDNER: Why don't we just 22 go for a break before we're going to 23 go to a different section? 24 MR. McBRIDE: I mean, we're 25 still in the declaration. I'm trying	Page 44 1 POLISH, Ph.D. 2 (Recess) 3 4 BY MR. McBRIDE: 5 Q. Dr. Polish, during the break, 6 did you have any discussions with your 7 attorney regarding this IPR? 8 A. No. 9 Q. One last question on your 10 declaration for now. 11 Which limitations in Claim 1 are 12 you relying on Mattavelli for? 13 MR. GARDNER: Objection to form. 14 A. Well, I'm -- it's an interesting 15 question. I'm looking at a combined 16 system of Carmel and Mattavelli, and I'm 17 using Mattavelli's disclosure of a 18 decoding process, and I think that has 19 relevance within a range of elements. 20 It's explicitly dealing with the last 21 element involving optimized decoder, but 22 that's -- but that element is part of -- 23 and I don't remember how we're enumerating 24 them offhand. But it's -- that's relevant 25 to some of the other elements within Claim
Page 43 1 POLISH, Ph.D. 2 to finish up the declaration. 3 MR. GARDNER: The witness said 4 he wanted to take a break in a couple 5 of minutes. 6 MR. McBRIDE: I'll just put on 7 the record that I'm not finished with 8 the line of questioning that I was 9 preparing here. But -- 10 MR. GARDNER: Okay. You can put 11 that on the record. 12 MR. McBRIDE: Objection. 13 MR. GARDNER: The witness asked 14 for a break. That's just respectful 15 that you give the witness a break if 16 they want one. 17 MR. McBRIDE: And I said five or 18 ten minutes, and it hasn't been five 19 or ten minutes yet. 20 MR. GARDNER: We're going on a 21 break. 22 MR. McBRIDE: All right. An 23 objection. 24 MR. GARDNER: Okay. Let's go on 25 a break.	Page 45 1 POLISH, Ph.D. 2 1. 3 Q. The optimized decoding process 4 is at page 153, if that's what you're 5 looking for. 6 A. Actually, do you happen to know 7 offhand where I've got the Claim 1 written 8 out? I could also -- 9 Q. Oh, the claim listing? 10 A. Yeah. That has the way we're 11 calling out the names of those elements. 12 Q. I know that there was an exhibit 13 filing I can pull for you here. 14 A. I'll just go to the Krebs 15 patent. Right. So Mattavelli is talking 16 about an optimized decoding process. And 17 that's relevant within the element that 18 begins playing back received multimedia 19 objects. That playback is occurring with 20 that optimized decoding process. So I'm 21 use -- so Mattavelli is involved in that 22 last piece, but it's also -- it's also 23 part of those prior elements, starting 24 with playing back. 25 Q. All right. Please pull up the

Page 46 1 POLISH, Ph.D. 2 '849 patent, the Krebs patent. This is 3 Exhibit 1001 for the record. 4 A. Okay. 5 (Exhibit 1001, United States 6 Patent 10,771,849, was previously 7 marked for identification.) 8 Q. Okay. The title is "Multimedia 9 Systems For Mobile Client Platforms." 10 Do you see that? 11 A. Yes. Just -- you said 12 multimedia systems. It's multimedia 13 system. I don't know that anyone cares. 14 But -- 15 Q. Thank you for the correction. 16 The title was "Multimedia System For 17 Mobile Client Platforms." 18 Do you see that? 19 A. Yes. 20 Q. What is your experience with 21 mobile client platforms? 22 A. Well, there's lots. Let me pick 23 a couple. We had talked before about a 24 client of mine called Savos where we were 25 doing distribution of audio messages over	Page 48 1 POLISH, Ph.D. 2 perspective of multimedia player? 3 Q. Well, so for example, 4 independent claim 6 claims a multimedia 5 player comprising. 6 Do you see that? 7 A. Yes. 8 Q. And then each of the steps talks 9 about something that the multimedia player 10 does; correct? 11 A. In claim 6, yes. 12 Q. In claim 7, you have a system; 13 correct? 14 A. Right. Claim 7 has a system, 15 and it talks about a content server, and 16 it talks about a multimedia player. So I 17 think different claims -- you say from the 18 perspective of. Different claims seem to 19 have different emphasis in terms of 20 different components of the overall 21 system. 22 Q. Right. So for Claim 7, the 23 first limitation talks about a centralized 24 content server; right? 25 A. Yes.
Page 47 1 POLISH, Ph.D. 2 cellphones. That was an example. 3 I have also over the years had 4 many other clients that were using mobile 5 client platforms, including I had a client 6 called Place Corp where we were making 7 small pager-sized devices that received 8 messages and displayed them to users 9 depending upon the location. That was a 10 mobile client platform. Built a system 11 that was using a small handheld device 12 that was used for parts picking in a 13 warehouse where somebody would walk around 14 and have this handheld mobile device, and 15 it would tell them where to go to pick 16 parts to put into a bin. Those are just a 17 couple of examples. 18 Q. Please turn to the claims at -- 19 this is page 33 of Exhibit 1001. 20 A. Okay. 21 Q. So the independent claims here 22 are drafted from the perspective of a 23 multimedia player; correct? 24 MR. GARDNER: Objection. Form. 25 A. What do you mean from the	Page 49 1 POLISH, Ph.D. 2 Q. And then the rest of the 3 limitations talk about a multimedia 4 player; right? 5 A. That's right. 6 Q. And all the limitations after 7 that, at least one multimedia player are 8 discussing what the multimedia player 9 does; correct? 10 A. Yes. 11 Q. And then Claim 1 is similar in 12 that the first limitation is receiving 13 audio and video segments. It's not clear 14 what's doing that; correct? 15 A. Yeah. I mean, Claim 1 is a 16 little bit weird in the sense that it's 17 got -- receiving is coming before 18 requesting there, so one way to view that 19 is it's being received by the server, 20 which is what goes on in Carmel, but it 21 could also be being received by the 22 multimedia player. It doesn't matter 23 really what -- how that resolves. 24 Q. And then the next limitation 25 starts requesting by multimedia player;

Page 50 1 POLISH, Ph.D. 2 correct? 3 A. That's right. 4 Q. And all limitations after that 5 are talking about what the multimedia 6 player is doing; correct? 7 A. Yes. Yeah. You could think of 8 it that way. 9 Q. What is a multimedia player? 10 A. A multimedia player -- well, a 11 multimedia player is a player that plays 12 multimedia. It's something that takes 13 multimedia content, decodes it, and 14 presents it to a user. 15 Q. What multimedia players were 16 available in 2005? 17 MR. GARDNER: Objection. Form. 18 A. I'm not sure what specific 19 products were around at that time. I know 20 that, you know, I had built a multimedia 21 player in the late '90s as part of my work 22 for IVT. There were a variety of 23 companies that sold multimedia players for 24 specific purposes. I don't -- I don't 25 know what products I could call out with	Page 52 1 POLISH, Ph.D. 2 So in the context of this 3 patent, optimized decoding process seems 4 to be referring to this approach to giving 5 up certain precision or quality within the 6 decoding in order to make the process more 7 computationally efficient. 8 Q. In Claim 4, one of the claim 9 terms is an I-frame. 10 Do you see that? 11 A. Yes. 12 Q. Okay. What is an I-frame? 13 A. So an I-frame in MPEG is a frame 14 that can stand alone, that all the 15 information necessary to render the frame 16 is available within the frame. It's 17 usually in the form of a JPEG, so it just 18 has the -- a given image, and then 19 subsequent frames within the -- what's 20 called a GOP or a group of pictures -- 21 subsequent frames are computed relative to 22 the I-frame. I-frame usually means index 23 frame. 24 Q. Is that a term of art in MPEG? 25 A. What? I-frame?
Page 51 1 POLISH, Ph.D. 2 specific dates. 3 Q. Were you aware of any multimedia 4 players that were available on mobile 5 phones in 2005? 6 A. I think same answer. I don't -- 7 there were experimental things. I don't 8 know that there were particular products 9 available in 2005 for mobile phones. 10 Q. Do you see the last limitation 11 of Claim 1 where it states "utilizing 12 optimized decoding processes to maintain 13 volume playback"? 14 A. Yes. 15 Q. What is an optimized decoding 16 process? 17 A. So the way that the patent talks 18 about it is that it's a decoding process 19 that has the ability to sacrifice certain 20 aspects of quality in order to make the 21 process more computationally efficient. 22 And the Krebs patent talks a great deal 23 about the operation of that process, and 24 they refer to that as an optimized 25 decoding process.	Page 53 1 POLISH, Ph.D. 2 Q. Yes. 3 A. Yes. 4 Q. Please turn to page 24 of the 5 patent. This is Column 1. 6 A. Okay. 7 Q. If you go down to line 12, under 8 "Background of the Invention." 9 A. Okay. 10 Q. Do you see that? 11 A. Yes. 12 Q. At line 12, it states, "The 13 current methods of distributing multimedia 14 data over the wireless Internet to mobile 15 clients are constrained by existing 16 wireless bandwidth, and the realtime 17 decoding, processing and displaying of 18 multimedia content with limited hardware 19 capabilities." 20 Do you see that? 21 A. Yes. 22 Q. Do you agree that as of 23 April 2005, methods for distributing 24 multimedia data over the wireless internet 25 were constrained by existing wireless

Page 54 1 POLISH, Ph.D. 2 bandwidth? 3 A. Broadly speaking, yes. 4 Q. Do you agree that as of 5 April 2005, methods for distributing 6 multimedia data over the wireless internet 7 were constrained by realtime decoding, 8 processing, and displaying of multimedia 9 content with limited hardware 10 capabilities? 11 A. I mean, I agree with the premise 12 that mobile clients were constrained in 13 their ability to do realtime decoding and 14 processing of content at that time. I 15 think that's true. 16 Q. Okay. Please set that aside for 17 now and pull up the Carmel reference, 18 which is marked as Exhibit 1003. 19 A. Okay. 20 (Exhibit 1003, United States 21 Patent 6,389,473, was previously 22 marked for identification.) 23 Q. Okay. On the first page of 24 Carmel, on the left is the filing date. 25 Do you see that?	Page 56 1 POLISH, Ph.D. 2 I certainly used Wi-Fi at the time to 3 stream within my lab. I don't know if 4 there were commercial products to do it. 5 Wi-Fi at the time could support an order 6 of, you know, one or two megabits, which 7 was enough for a certain video to be 8 streamed. 9 Q. So if we take a look at the 10 abstract, it says, "A method for realtime 11 broadcasting from a transmitting computer 12 to one or more client computers over a 13 network." 14 Do you see that? 15 A. Yes. 16 Q. So Carmel is directed to 17 realtime broadcasting; correct? 18 MR. GARDNER: Objection to form. 19 A. Carmel addresses realtime 20 broadcasting. They also talk about being 21 able to use prerecorded material and 22 transmit that. But at the beginning here, 23 they are addressing realtime broadcast. 24 Q. So where in Carmel is it talking 25 about prerecorded material?
Page 55 1 POLISH, Ph.D. 2 A. Yes. 3 Q. So the filing date is 4 March 24, 1999; correct? 5 A. Yes. 6 Q. Could cellular networks at that 7 time stream video? 8 MR. GARDNER: Objection. Form. 9 A. I don't know if they could 10 stream video. They typically weren't used 11 to stream video. 12 Q. Do you recall what the wireless 13 cellular standards were in effect in 1999? 14 A. In the U.S., we had something 15 called AMPS, which was an analog cellular 16 standard, and we had -- I guess we had 17 something called GPRS, which provided -- 18 there were some digital wireless telephony 19 standards. There was also -- there was 20 also Wi-Fi, which was around in those 21 days, and one certainly could push video 22 over Wi-Fi. 23 Q. Could Wi-Fi at the time stream? 24 MR. GARDNER: Objection. Form. 25 A. Could Wi-Fi at the time stream?	Page 57 1 POLISH, Ph.D. 2 A. So I'll continue going through 3 it, but I'll point to a couple of things. 4 Q. Okay. 5 A. First of all, Carmel has this 6 networking server in Figure 1. I guess 7 it's 36. And once segments have been 8 uploaded to that server, they're stored in 9 files, and they're available for streaming 10 at any point in the future. So that's -- 11 that's a file that's available for 12 streaming to a client. 13 In Column 2, paragraph beginning 14 29, "In some preferred embodiments of the 15 present invention, the data stream 16 comprises multimedia data captured or 17 generated by the transmitting computer." 18 So anything the transmitting 19 computer has on it, whether it's captured 20 or generated, can be uploaded to the media 21 server. 22 Q. So you're basically saying in 23 addition to this idea of being able to 24 broadcast, you can take these events and 25 upload them to a server for playback

15 (Pages 54 - 57)

Page 58 1 POLISH, Ph.D. 2 whenever you want to in Carmel. 3 A. Well, Carmel's principal design 4 is that the transmitting computer has some 5 kind of media, and it is sent to the 6 transmitting computer for then subsequent 7 streaming to the clients. That's the 8 system that they contemplate. 9 And how -- where those media 10 come from doesn't matter. They talk about 11 it partly -- because they're talking about 12 balancing data rates, so they talk about 13 it in terms of broadcast. But they also 14 are clear that anything that's on the 15 transmitting computer can be compressed, 16 sliced, and sent up to the transmitting 17 computer. 18 Q. Is the balancing of data rates 19 important for realtime broadcast? 20 A. Well, Carmel is teaching moving 21 content from the transmitting -- from the 22 transmitting computer to the network 23 server, and then from the network server 24 to the client, and that the various 25 computer -- the system tries to keep the	Page 60 1 POLISH, Ph.D. 2 they're quote/unquote streaming because 3 the rate is able to keep up with the play 4 at rate. And that's what Carmel is 5 talking about. 6 Q. Right. Because you're 7 videotaping somebody, right, and that data 8 is going to the computer. If that 9 computer can't transmit, and the client 10 can't receive the data rates to keep up 11 with that video, then you can't stream 12 realtime; correct? 13 MR. GARDNER: Objection. Form. 14 A. I guess that's a way to put it. 15 The point is that prior systems where the 16 data channel couldn't keep up with the 17 data rate of the video, you had to do it 18 in batches. And in order to stream it, 19 what it sort of means for it to stream is 20 that you're keeping up with it so that you 21 don't have to fully download the video 22 slower than realtime and then play it 23 back. 24 Q. When you say you're keeping up 25 with it, what is keeping up with it?
Page 59 1 POLISH, Ph.D. 2 data rates about the same. I think that's 3 their term, is about the same. So it's 4 important that -- for Carmel, that those 5 things are balanced so that you're not 6 getting out of sync. 7 Q. Because you couldn't stream 8 realtime if you don't have synchronized 9 data rates; correct? 10 MR. GARDNER: Objection. Form. 11 A. Well, I don't know how to put 12 it. They're talking about being able to 13 keep up with the data rate. And if you 14 can't keep up with the data rate, then you 15 can't play realtime video. 16 Q. If you can't -- 17 A. As opposed to in situations 18 where you can't keep up, and the way you 19 would do it is you'd fully download the 20 video. So they're making a distinction 21 between prior systems where you might have 22 an hour's worth of content that maybe 23 takes two hours to download, and you'd 24 fully download it onto the client and then 25 play it from the client, and then Carmel,	Page 61 1 POLISH, Ph.D. 2 A. Each of the different computers 3 in the chain have to be able to move the 4 data over some period of time -- maybe not 5 instantaneously, but over some period of 6 time, they need to be able to move the 7 data at about the rate at which it's being 8 generated and consumed. And if you 9 can't -- if any computer in that chain 10 can't keep up, then it falls behind, and 11 you have to buffer it and do other 12 techniques that make it impossible to do 13 realtime. 14 Q. Please go up to page 4 of 15 Carmel. It's Figure 3D. 16 And what we're looking at is the 17 data structure for Carmel's broadcast 18 sequence; correct? 19 A. I'm sorry. This is page 5. 20 Figure 3D is sufficient. 21 Q. Page 5. Thank you. 22 A. Okay. Okay. What's your 23 question about 3D? 24 Q. So what we're looking at in 25 Figure 3D is the data structure for

Page 62 1 POLISH, Ph.D. 2 Carmel's broadcast sequence; correct? 3 A. Well, it's one -- there's a 4 bunch of different embodiments in Carmel. 5 This is talking about an embodiment where 6 different coding levels are stored within 7 a single file. So there's other versions 8 where the coding levels are in different 9 files, but this is talking about a data 10 structure for slices at different -- 11 slices of audio and video at different 12 coding levels. 13 Q. So it's a data structure for 14 broadcasting slices at the audio and video 15 at different coding levels; correct? 16 Column 5, line 58, talks about Figure 3D, 17 if that's helpful. 18 A. Right. Yeah. They call that a 19 broadcast sequence, but -- so first of 20 all, this is one particular embodiment 21 where they're combining multiple coding 22 levels in the same thing -- in the same 23 data structure. And this is a data 24 structure of a file. This isn't the data 25 structure of a broadcast. This is a file.	Page 64 1 POLISH, Ph.D. 2 Q. But Audio Level 1, Block 45, 3 that's a data slice; right? 4 A. This is a representation -- this 5 is a file format for storing a data slice 6 within a single file. 7 Q. So are you saying that all of 8 the 45s in Figure 3D are part of the same 9 data slice? 10 MR. GARDNER: Objection to the 11 form. 12 A. So data slices -- let me just 13 see how they're describing it here. 14 Right. So if you look at 15 Figure 3A, those are talking about 16 individual slices which are segments of 17 data in time that are sent from the 18 transmitting computer to the web server. 19 And each slice -- I'm quoting 20 Column 7, line 23. "Each slice contains a 21 segment of video and/or audio data 22 corresponding to a respective consecutive 23 time interval." 24 So those are the slices. And 25 then they are -- and then in Figure 3D,
Page 63 1 POLISH, Ph.D. 2 And what would happen is the client would 3 make requests for pieces within this file. 4 Q. So when we look at Figure 3D, 5 and you see Audio Level 1, Audio Level 2, 6 Video Level 1, Video Level 2, these are 7 the different data slices that Carmel is 8 talking about; right? 9 A. One second. 10 So as they talk about in detail 11 in Column 8, starting at line 42, again, 12 as I said, this is a file format of a 13 multilevel data stream. So these 14 different -- they're labeled here Audio 15 Level 1. That's coding level, meaning 16 quality level or different data rate. So 17 there's audio. 18 I believe the first one, what's 19 labeled I guess -- I see. So Audio 20 Level 1(1) is the first slice of audio at 21 Level 1, and then you jump over to Audio 22 Level 1(2), that's the second slice of 23 audio at that level. So they're 24 interleaving different quality levels of 25 the same audio in this file.	Page 65 1 POLISH, Ph.D. 2 you're seeing a file format that stores 3 the slices in a single file. So each of 4 these little blocks, like Audio 5 Level 1(1), that's storing the data that 6 came across as a slice. 7 Q. You're saying this is in the 8 server? Figure 3D? 9 A. 3D is in the -- is a file -- is 10 a file stored on the server, on the web 11 server. 12 Q. When you say Audio Level 1(1), 13 that's referring to the first block marked 14 45 there; right? 15 A. Yes. 16 Q. All right, Dr. Polish. Please 17 pull up Exhibit 1004. That's the 18 Mattavelli reference. 19 A. Okay. I'm there. 20 (Exhibit 1004, Mattavelli paper 21 titled "Computational Graceful 22 Degradation For Video Decoding," was 23 previously marked for identification.) 24 Q. Okay. So Mattavelli is a paper 25 that was from a 1998 convention; right?

Page 66 1 POLISH, Ph.D. 2 A. Yeah. It was from a 1998 3 conference. 4 Q. Mattavelli is not specifically 5 discussing wireless applications; correct? 6 A. Let's see. They don't 7 specifically talk about wireless. They're 8 just talking about ways of using the 9 graceful degradation of video decoding. 10 They would allow the use of MPEG on less 11 powerful processors and less powerful 12 systems. 13 Q. Is Mattavelli's computational 14 graceful decoding essentially trading 15 video quality for more efficient 16 processing? 17 A. I'm sorry. Can you repeat that? 18 Q. Is Mattavelli's computational 19 graceful decoding trading video quality 20 for more efficient processing? 21 MR. GARDNER: Objection to form. 22 A. I mean, broadly speaking, 23 Mattavelli is coming up with techniques 24 for reducing computational load at the 25 expense of certain aspects of video	Page 68 1 POLISH, Ph.D. 2 MR. GARDNER: We have no 3 questions at this time. So we can 4 close the deposition. 5 (TIME NOTED: 11:53 a.m.) 6 7 _____ NATHANIEL POLISH 8 9 _____ 10 Subscribed and sworn to before me this _____ 11 day of _____, 2026. 12 _____ Notary Public 13 14 15 16 17 18 19 20 21 22 23 24 25
Page 67 1 POLISH, Ph.D. 2 quality, the same as in the Krebs patent. 3 It's the same kind of tradeoff going on, 4 that you can give up certain things, make 5 it less exact, make the video decoding 6 less exact, but do it at lower 7 computational cost. 8 Q. When you say reducing 9 computational load, where is the 10 computational load being reduced? 11 A. You mean in which device? 12 Q. Yes. 13 A. In the decoder, which would 14 typically be on the client. 15 MR. McBRIDE: That's all the 16 questions I have for now. Do you guys 17 want to take a break and -- 18 MR. GARDNER: Sure. 19 MR. McBRIDE: -- I guess do any 20 redirect. 21 (Recess) 22 (Continued on the next page to 23 allow for signature line and jurat.) 24 25	Page 69 1 2 I N D E X 3 WITNESS EXAMINATION BY PAGE 4 NATHANIEL POLISH MR. McBRIDE 3 5 6 7 E X H I B I T S 8 POLISH DESCRIPTION PAGE 9 Exhibit 1001 United States Patent 46 10 10,771,849 11 Exhibit 1002 Declaration of 11 Nathaniel Polish, Ph.D. 12 Exhibit 1003 United States 54 13 Patent 6,389,473 14 Exhibit 1004 Mattavelli paper titled 65 "Computational Graceful 15 Degradation For Video Decoding" 16 17 18 19 20 *** MR. McBRIDE of VILLEGAS & CEFO LLP retained all 21 exhibits. *** 22 23 24 25

4 I, SHARON PEARCE, RDR, CRR, CRC,
5 NYRCR, a Notary Public for and within the
6 State of New York, do hereby certify:
7 That the witness whose testimony as
8 herein set forth, was duly sworn by me;
9 and that the within transcript is a true
10 record of the testimony given by said
11 witness.
12 I further certify that I am not
13 related to any of the parties to this
14 action by blood or marriage, and that I am
15 in no way interested in the outcome of
16 this matter.
17 IN WITNESS WHEREOF, I have hereunto
18 set my hand this 14th day of January,
19 2026.

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1 VERITEXT/NEW YORK REPORTING, LLC
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4 CASE NAME: GOOGLE LLC v. WITHROW NETWORKS
5 INC.
6 DATE OF DEPOSITION: January 7, 2026
7 WITNESS' NAME: NATHANIEL POLISH, Ph.D.
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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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