

<p style="text-align: right;">Page 1</p> <p>1 UNITED STATES PATENT AND TRADEMARK OFFICE</p> <p>2 BEFORE THE PATENT TRIAL AND APPEAL BOARD</p> <p>3</p> <p>4 ORACLE AMERICA, INC.,</p> <p style="padding-left: 100px;">Case IPR2016-00373</p> <p>5 Petitioner, Patent 7,378,992</p> <p>6 vs. and</p> <p>7 REALTIME DATA LLC, Case IPR2016-00374</p> <p style="padding-left: 100px;">Patent 8,643,513</p> <p>8 Patent Owner.</p> <hr/> <p>9</p> <p>10</p> <p>11</p> <p>12 VIDEOTAPED DEPOSITION OF KENNETH A. ZEGER, Ph.D.</p> <p>13 VOLUME I</p> <p>14 San Diego, California</p> <p>15 Thursday, January 5, 2017</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22 Reported by:</p> <p style="padding-left: 20px;">DENISE MARLOW</p> <p>23 RPR, CLR, CSR No. 11631</p> <p>24 Job No. 2498587</p> <p>25 PAGES 1 - 154</p>	<p style="text-align: right;">Page 3</p> <p>1 APPEARANCES:</p> <p>2</p> <p>3 FOR PETITIONER ORACLE AMERICA, INC.:</p> <p>4 WILMER CUTLER PICKERING HALE & DORR, LLP</p> <p>5 BY: GREGORY H. LANTIER, ESQ.</p> <p>6 1875 Pennsylvania Avenue, NW</p> <p>7 Washington, DC 20006</p> <p>8 1.202.663.6327</p> <p>9 gregory.lantier@wilmerhale.com</p> <p>10</p> <p>11 FOR PATENT OWNER REALTIME DATA LLC:</p> <p>12 STERNE KESSLER GOLDSTEIN FOX</p> <p>13 BY: JOSEPH E. MUTSCHELKNAUS, ESQ.</p> <p>14 ZHU HE, ESQ.</p> <p>15 1100 New York Avenue, NW</p> <p>16 Washington, DC 20005</p> <p>17 202.371.2600</p> <p>18 jmutsche@skgf.com</p> <p>19</p> <p>20 ALSO PRESENT:</p> <p>21 KORY ROSS, VIDEOGRAPHER</p> <p>22 DR. JAMES STORER</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 2</p> <p>1 UNITED STATES PATENT AND TRADEMARK OFFICE</p> <p>2 BEFORE THE PATENT TRIAL AND APPEAL BOARD</p> <p>3</p> <p>4 ORACLE AMERICA, INC.,</p> <p style="padding-left: 100px;">Case IPR2016-00373</p> <p>5 Petitioner, Patent 7,378,992</p> <p>6 vs. and</p> <p>7 REALTIME DATA LLC, Case IPR2016-00374</p> <p style="padding-left: 100px;">Patent 8,643,513</p> <p>8 Patent Owner.</p> <hr/> <p>9</p> <p>10</p> <p>11</p> <p>12 Videotaped Deposition of KENNETH A. ZEGER,</p> <p>13 Ph.D., taken at 12275 El Camino Real, Suite 200, Del</p> <p>14 Mar, California, commencing at 9:11 a.m. and ending at</p> <p>15 2:56 p.m. on Thursday, January 5, 2017, before Denise</p> <p>16 Marlow, RPR, CLR, CSR No. 11631.</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 4</p> <p>1 I N D E X</p> <p>2 THURSDAY, JANUARY 5, 2017</p> <p>3</p> <p>4 WITNESS</p> <p>5 KENNETH A. ZEGER, Ph.D.</p> <p>6</p> <p>7 EXAMINATION BY PAGE</p> <p>8 Mr. Lantier 8, 149</p> <p>9 Mr. Mutschelknaus 147</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

			Page 5				Page 7
1	KENNETH A. ZEGER, Ph.D.			1	SAN DIEGO, CALIFORNIA, THURSDAY, JANUARY 5, 2017		
2	Oracle America, Inc. v. Realtime Data LLC			2	9:11 A.M.		
3	Thursday, January 5, 2017			3			
4	INDEX TO EXHIBITS			4	THE VIDEOGRAPHER: Good morning. We are on the 09:11:54		
5	NUMBER	DESCRIPTION	PAGE	5	record at 9:11 a.m. on January 5th, 2017. This is the 09:11:56		
6	Exhibit 1	Declaration of Kenneth A. Zeger,	11	6	video-recorded deposition of Dr. Kenneth Zeger. My name 09:12:01		
7		Ph.D., in Support of Patent Owner's		7	is Kory Ross, here with our court reporter, Denise 09:12:06		
8		Response to Petition		8	Marlow. We are here from Veritext Legal Solutions at 09:12:09		
9		Case IPR2016-00373		9	the request of counsel for petitioner. This deposition 09:12:12		
10		Realtime 2022		10	is being held at Sheppard Mullin, located at 12275 El 09:12:16		
11	Exhibit 2	Declaration of Kenneth A. Zeger,	14	11	Camino Real, No. 200, in Del Mar, California 92130. The 09:12:20		
12		Ph.D., in Support of Patent Owner's		12	caption of this case is "Oracle America, Inc., et al., 09:12:27		
13		Response to Petition		13	versus Real Data LLC [sic]," Case No. IPR2016-00373 and 09:12:30		
14		Case IPR2016-00374		14	IPR2016-00734 [sic]. 09:12:40		
15		Realtime 2022		15	Please note that audio and video recording will 09:12:45		
16				16	take place unless all parties agree to go off the 09:12:49		
17	Exhibit 3	Software Practice & Experience	15	17	record. Microphones are sensitive and may pick up 09:12:52		
18		Article by Hsu		18	whispers, private conversations, and cellular 09:12:54		
19		Oracle 1003		19	interference. I'm not related to any party in this 09:12:56		
20				20	action, nor am I financially interested in the outcome 09:13:00		
21	Exhibit 4	U.S. Patent No. 5,870,036	22	21	in any way. 09:13:02		
22		Oracle 1004		22	If there are any objections to proceeding, 09:13:03		
23				23	please state them at the time of your appearance, 09:13:04		
24	Exhibit 5	U.S. Patent 6,253,264	24	24	beginning with the noticing attorney. 09:13:06		
25		Oracle 1005		25	MR. LANTIER: I'm Greg Lantier from the law firm 09:13:08		
			Page 6				Page 8
1	INDEX TO EXHIBITS (Continued)			1	Wilmer, Cutler, Pickering, Hale & Dorr, LLP, here today 09:13:12		
2	NUMBER	DESCRIPTION	PAGE	2	on behalf of the petitioner Oracle. Accompanying me at 09:13:13		
3	Exhibit 6	U.S. Patent 7,378,992	25	3	today's deposition is Dr. James Storer. 09:13:18		
4		Oracle 1001		4	MR. MUTSCHELKNAUS: I am Joseph Mutschelknaus on 09:13:23		
5				5	behalf of Patent Owner Realtime Data. Accompanying me 09:13:24		
6	Exhibit 7	U.S. Patent 8,643,513	28	6	is my colleague, Zhu He. 09:13:31		
7		Oracle 1001		7	And as a point of clarification, the IPR numbers 09:13:33		
8				8	are IPR2016-00373, which was correctly stated, and 09:13:36		
9				9	IPR2016-00374 as opposed to -- I think earlier you said 09:13:42		
10				10	-734. 09:13:48		
11				11	THE VIDEOGRAPHER: Oh. I apologize. Thank you. 09:13:50		
12				12	MR. MUTSCHELKNAUS: Okay. 09:13:52		
13				13	THE WITNESS: My name is Ken Zeger. I'm being 09:13:52		
14				14	deposed today. 09:13:57		
15				15	THE VIDEOGRAPHER: Thank you. 09:13:59		
16				16	The witness will be sworn in, and counsel may 09:13:59		
17				17	begin examination. 09:14:01		
18				18	09:14:01		
19				19	KENNETH A. ZEGER, Ph.D.,		
20				20	having been first duly sworn, testified as follows:		
21				21			
22				22	EXAMINATION		
23				23	BY MR. LANTIER:		
24				24	Q. Good morning. 09:14:17		
25				25	A. Hi. 09:14:18		

Page 9			Page 11		
1	Q. Please state your name for the record.	09:14:19	1	Q. Each time we come back from break, I'm going to	09:15:58
2	A. Ken Zeger.	09:14:20	2	ask you whether you had any conversations with counsel	09:16:00
3	Q. Where do you reside?	09:14:21	3	for Realtime during the break. Okay?	09:16:04
4	A. San Diego, California.	09:14:22	4	A. Okay.	09:16:08
5	Q. What's your occupation?	09:14:23	5	Q. And you will need to tell me everything that you	09:16:08
6	A. Professor at the University of California San	09:14:24	6	discuss with counsel for Realtime at that point. Okay?	09:16:11
7	Diego.	09:14:27	7	A. Okay.	09:16:15
8	Q. How long have you been a professor at the	09:14:27	8	Q. Just before we get started, are there any	09:16:17
9	University of California San Diego?	09:14:30	9	questions that you have about the deposition today?	09:16:20
10	A. Since 1996.	09:14:32	10	A. No.	09:16:23
11	Q. And in what department are you a professor?	09:14:33	11	(Exhibit 1 marked)	09:16:23
12	A. It's called the department of electrical and	09:14:36	12	BY MR. LANTIER:	09:16:23
13	computer engineering.	09:14:38	13	Q. Let's just set up the record so that -- that	09:16:25
14	Q. Do you understand you're under oath today?	09:14:40	14	it's clear. And because we are conducting the	09:16:30
15	A. Yes.	09:14:42	15	deposition for two separate IPR proceedings today, I'm	09:16:34
16	Q. How many times, approximately, have you had your	09:14:43	16	going to mark exhibits with numbers during today's	09:16:37
17	deposition taken before today?	09:14:45	17	deposition, and we'll use those numbers to refer to the	09:16:39
18	A. About 15 times.	09:14:46	18	exhibits.	09:16:42
19	Q. Do you have any questions about how this	09:14:49	19	The first document that I'll ask the court	09:16:46
20	deposition will proceed?	09:14:51	20	reporter to mark, we'll call Exhibit 1. And this is a	09:16:48
21	A. No.	09:14:52	21	copy of your declaration submitted in the IPR No.	09:16:57
22	Q. Do you think you understand the process, having	09:14:53	22	2016-00374.	09:17:02
23	been through it over a dozen times?	09:14:55	23	I'm sorry. I -- I meant to say IPR2016-00373.	09:17:13
24	A. Yes, I do.	09:14:57	24	MR. LANTIER: Joe, it looks like I have a bumper	09:17:53
25	Q. Do you understand that you're legally obligated	09:14:59	25	crop of copies of the declaration in the five -- in the	09:17:56
Page 10			Page 12		
1	to testify truthfully today?	09:15:02	1	-374 proceeding and have been shorted copies of the	09:17:57
2	A. Yes.	09:15:03	2	declaration in the -373 proceeding. Do you happen to	09:18:01
3	Q. And do you understand that you're legally	09:15:04	3	have a copy of that with you?	09:18:04
4	obligated to provide the whole truth in your answers	09:15:06	4	THE WITNESS: I think so.	09:18:05
5	today?	09:15:09	5	MR. MUTSCHELKNAUS: We do have a copy of the	09:18:07
6	A. Yes.	09:15:10	6	-373.	09:18:09
7	Q. Is there any reason that you might not be able	09:15:10	7	THE WITNESS: I can use these if you want to	09:18:10
8	to testify consistent with those obligations?	09:15:13	8	use --	09:18:10
9	A. No.	09:15:16	9	BY MR. LANTIER:	09:18:11
10	Q. Let me explain just a little bit about how I	09:15:21	10	Q. Well, I need you to use the --	09:18:11
11	will conduct the deposition. First, I'm happy to take a	09:15:24	11	A. Oh, the official? Okay.	09:18:12
12	break anytime you need one. Okay? If you could answer	09:15:27	12	Q. Yeah. Yes. Did you -- did you have any notes	09:18:12
13	me verbally --	09:15:30	13	or anything --	09:18:15
14	A. Yes. Yes, that's okay.	09:15:31	14	A. No. They're clean, completely clean. Yeah.	09:18:15
15	Q. The only thing I'll ask is that we don't take a	09:15:33	15	Q. So we'll provide a copy. The court reporter has	09:18:22
16	break in between a question being asked and the answer	09:15:35	16	marked that as Deposition Exhibit No. 1.	09:18:23
17	to that question being given. Okay?	09:15:39	17	A. Okay.	09:18:26
18	A. That's fine.	09:15:41	18	Q. And the first question is, Dr. Zeger, do you	09:18:32
19	Q. Whether you ask for them or not, we'll take	09:15:42	19	recognize Exhibit 1?	09:18:34
20	several breaks throughout the day today. Okay?	09:15:44	20	A. Yes.	09:18:36
21	A. Okay.	09:15:48	21	Q. What is it?	09:18:36
22	Q. And when we're on break, we'll be off the	09:15:48	22	A. This is my declaration regarding the '992	09:18:37
23	record, and the court reporter will not be transcribing	09:15:50	23	patent.	09:18:40
24	any of the discussions. Okay?	09:15:55	24	Q. And that is the declaration that you submitted	09:18:43
25	A. Yes.	09:15:57	25	in IPR2016-00373. Is that correct?	09:18:45

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<p>1 A. It seems to be, yes. 09:18:51</p> <p>2 Q. Okay. I -- I may refer to that declaration in 09:18:53</p> <p>3 that proceeding today as the '992 patent IPR. If I do 09:18:56</p> <p>4 that, will you understand what I'm talking about? 09:19:03</p> <p>5 A. Yes. 09:19:06</p> <p>6 Q. Is that your signature on Exhibit 1? 09:19:06</p> <p>7 A. Yes, it is. 09:19:10</p> <p>8 Q. Are there any statements in Exhibit 1 that you 09:19:12</p> <p>9 would like to change? 09:19:15</p> <p>10 A. Not that I know of at this time. 09:19:17</p> <p>11 Q. And are there any statements in Exhibit 1 that 09:19:19</p> <p>12 you'd like to delete? 09:19:22</p> <p>13 A. Not that I know of. 09:19:23</p> <p>14 (Exhibit 2 marked and subsequently withdrawn) 09:19:25</p> <p>15 BY MR. LANTIER: 09:19:25</p> <p>16 Q. I'll ask the reporter to mark as Exhibit 2 a 09:19:25</p> <p>17 copy of a document that is titled the "Declaration of 09:19:30</p> <p>18 Kenneth A. Zeger in Support of Patent Owner's Response 09:19:38</p> <p>19 to Petition" in IPR2016-00373. 09:19:42</p> <p>20 A. What's the difference? 09:20:11</p> <p>21 MR. MUTSCHELKNAUS: Greg, I think this is the -- 09:20:13</p> <p>22 THE WITNESS: Something's wrong. 09:20:14</p> <p>23 MR. MUTSCHELKNAUS: -- this is the same -- same 09:20:16</p> <p>24 declarations, 1 and 2. 09:20:16</p> <p>25 THE WITNESS: Yeah, it got marked by two exhibit 09:20:18</p>	<p>1 Q. Is that your signature on Exhibit 2? 09:21:40</p> <p>2 A. Yes. 09:21:43</p> <p>3 Q. Are there any statements in Exhibit No. 2 that 09:21:44</p> <p>4 you would like to change? 09:21:49</p> <p>5 A. Not that I know of. 09:21:51</p> <p>6 Q. Are there any statements in Exhibit 2 that you'd 09:21:52</p> <p>7 like to delete? 09:21:54</p> <p>8 A. Not that I know of. 09:21:55</p> <p>9 Q. Now, as we said before, today's deposition will 09:21:58</p> <p>10 be focused on both the '992 patent IPR and the '513 09:22:01</p> <p>11 patent IPR proceedings. Do you understand that? 09:22:10</p> <p>12 A. Yes. 09:22:12</p> <p>13 Q. Unless I specify otherwise when I ask a 09:22:14</p> <p>14 question, I'll be referring to both of the IPR 09:22:16</p> <p>15 proceedings. Is that okay? 09:22:20</p> <p>16 A. Yes. 09:22:22</p> <p>17 Q. And if for any reason your answer would differ 09:22:22</p> <p>18 for one IPR proceeding as opposed to the other one, 09:22:25</p> <p>19 please just let me know, and I'll make sure I ask the 09:22:29</p> <p>20 questions separately so that the record is clear on that 09:22:32</p> <p>21 point. Okay? 09:22:36</p> <p>22 A. Yes. 09:22:37</p> <p>23 (Exhibit 3 marked) 09:22:37</p> <p>24 MR. LANTIER: Let me mark as the next document, 09:22:37</p> <p>25 just so we get things out of the way, a copy of the Hsu 09:22:39</p>
Page 14	Page 16
<p>1 numbers, but it looks like the same document. 09:20:21</p> <p>2 MR. LANTIER: Oh. I apologize. And thank you 09:20:23</p> <p>3 for pointing that out. 09:20:25</p> <p>4 I'll ask the court reporter to take back the 09:20:27</p> <p>5 document that was marked as Exhibit No. 2 and mark this 09:20:29</p> <p>6 document, which is a copy of the declaration in 09:20:35</p> <p>7 IPR2016-00374 regarding Patent No. 0[sic],643,513, as 09:20:42</p> <p>8 Exhibit 2. 09:20:46</p> <p>9 (Exhibit 2 marked) 09:20:46</p> <p>10 THE WITNESS: Thank you. 09:21:03</p> <p>11 BY MR. LANTIER: 09:21:04</p> <p>12 Q. Dr. Zeger, do you recognize Exhibit 2? 09:21:14</p> <p>13 A. Yes. 09:21:17</p> <p>14 Q. What is it? 09:21:17</p> <p>15 A. This is my declaration regarding the '513 09:21:18</p> <p>16 patent. 09:21:21</p> <p>17 Q. And the -- on the face of that document, it says 09:21:21</p> <p>18 it relates to IPR2016-00374. Correct? 09:21:24</p> <p>19 A. That's correct. 09:21:28</p> <p>20 Q. I may refer to that proceeding as the '513 09:21:28</p> <p>21 patent IPR. Is that okay? 09:21:31</p> <p>22 A. Yes. 09:21:33</p> <p>23 Q. And you'll understand what I'm referring to if 09:21:33</p> <p>24 I -- if I call it the '513 patent IPR? 09:21:36</p> <p>25 A. Yes. 09:21:39</p>	<p>1 article that is the subject of the declarations. So 09:22:49</p> <p>2 I'll ask the court reporter to mark as Exhibit No. 3 a 09:22:53</p> <p>3 document titled "Software Practice and Experience" on 09:22:58</p> <p>4 its face. 09:23:02</p> <p>5 THE WITNESS: Thanks. 09:23:20</p> <p>6 BY MR. LANTIER: 09:23:30</p> <p>7 Q. Dr. Zeger, do you recognize Exhibit 3? 09:23:30</p> <p>8 A. Yes. 09:23:33</p> <p>9 Q. What is it? 09:23:33</p> <p>10 A. This is a copy of a -- one of the documents in 09:23:35</p> <p>11 this case by -- the author is -- the first author is 09:23:39</p> <p>12 H-S-U. I think we agree to pronounce it "Hsu," 09:23:45</p> <p>13 approximately? 09:23:51</p> <p>14 Q. Yes. 09:23:51</p> <p>15 A. Okay. 09:23:52</p> <p>16 Q. Okay. When is the first time you saw Exhibit 09:23:52</p> <p>17 No. 3? 09:23:54</p> <p>18 A. Well, as an exhibit right now, but do you mean 09:24:00</p> <p>19 prior? 09:24:03</p> <p>20 Q. Yes. So fair -- fair clarification. If you 09:24:03</p> <p>21 turn to page 4 of Exhibit No. 3, do you see that there's 09:24:07</p> <p>22 an article that begins on that page titled "Automatic 09:24:21</p> <p>23 Synthesis of Compression Techniques for Heterogenous 09:24:25</p> <p>24 Files"? 09:24:25</p> <p>25 A. Yes. 09:24:27</p>

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<p>1 Q. When is the first time that you saw this 09:24:28 2 article? 09:24:30 3 A. So I -- I definitely saw it several months ago 09:24:30 4 as part of this case. And I don't know if I saw it 09:24:35 5 before that. I may have seen it years ago when it was 09:24:37 6 published. I just don't remember. 09:24:40 7 Q. Okay. You are aware that this article was 09:24:42 8 published. Correct? 09:24:44 9 A. It appears to be, yes. 09:24:45 10 Q. These -- if we turn back to page 1, the cover of 09:24:56 11 Exhibit 3 says "Software Practice and Experience." Is 09:24:59 12 that a journal that you're familiar with? 09:25:02 13 A. It's not a typical journal that I look at. I 09:25:04 14 may have seen it before. 09:25:08 15 Q. Okay. And so fair to say that you're not a 09:25:09 16 regular reader of Software Practice and Experience? 09:25:13 17 A. I'm not sure regular -- I mean, I -- I may have 09:25:16 18 read -- it's -- it's the kind of thing where I may have 09:25:20 19 even read this particular article and not really paid 09:25:23 20 attention to the title on top. So I really don't know 09:25:26 21 either way how often I read articles from it. 09:25:29 22 Q. Sure. Where -- where were you employed in 1995? 09:25:32 23 A. 1995 I was at the University of Illinois 09:25:35 24 Urbana-Champaign. 09:25:47 25 Q. And were you a -- you were a professor there? 09:25:49</p>	<p>1 Mr. Hsu that -- that he was working to publish his 09:27:05 2 research? 09:27:09 3 A. I have no recollection of that. 09:27:10 4 Q. And have you ever met or spoken to Amy Zwarico? 09:27:13 5 A. I -- I don't think so. But, I mean, it's 09:27:20 6 possible, but I certainly don't remember it. 09:27:23 7 Q. Okay. 09:27:25 8 A. Yeah. 09:27:26 9 Q. If you could turn to the second page of Exhibit 09:27:35 10 3, and the type is very small, and I -- I'm sorry about 09:27:37 11 that, do you see that in the third paragraph from the 09:27:50 12 bottom of the page, it says that Software Practice and 09:27:55 13 Experience is published monthly by -- by John Wiley & 09:28:00 14 Sons Limited? 09:28:03 15 A. Yes. And it has like an ISBN number in there? 09:28:06 16 Q. Yes. 09:28:11 17 A. Or ISSN, yeah. I do see that. 09:28:11 18 Q. What does the ISSN number mean? 09:28:15 19 A. You know, I'm -- I'm not a -- like a expert on 09:28:18 20 ISSN numbers, but I think it refers to -- I'm guessing 09:28:20 21 it's something like ISBN where it refers to a specific 09:28:24 22 journal. It's an identifier number. 09:28:29 23 Q. And then -- and John Wiley is a well-known 09:28:31 24 publisher of journals. Correct? 09:28:34 25 A. It's a well-known publisher, yes. 09:28:36</p>
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<p>1 A. Yes. I was a associate professor at that time. 09:25:51 2 Q. In the computer science department? 09:25:52 3 A. Electrical engineering department, yeah. 09:25:53 4 Q. Okay. If you'd turn just to the -- the final 09:25:55 5 page of Exhibit 3, which is page 1116 of the journal, do 09:25:56 6 you see in the first sentence that there is a Kenneth 09:26:03 7 Zeger who is thanked by the authors for -- for his 09:26:04 8 assistance on some of the research? 09:26:04 9 A. Yes, I do. 09:26:12 10 Q. And are you that Kenneth Zeger? 09:26:13 11 A. I believe so. 09:26:16 12 Q. Okay. Do you recall discussing some of this 09:26:18 13 research with either William Hsu or Amy Zwarico? 09:26:23 14 A. I have a very vague recollection. I think -- I 09:26:30 15 think his name is Bill -- Bill Hsu. And I think he took 09:26:34 16 my class or came by my office a couple times. This is 09:26:38 17 about 23 years ago, so it's a very, very, very vague -- 09:26:42 18 like I don't remember any of the details at all. 09:26:45 19 Q. Okay. 09:26:48 20 A. But, yeah, I do -- I do think he's not making 09:26:48 21 that up. I think I actually did talk to him. 09:26:49 22 Q. And can you be any more specific about what you 09:26:52 23 discussed with Mr. Hsu? 09:26:55 24 A. I really don't remember, actually. 09:26:58 25 Q. Were you aware at the time that you spoke with 09:27:02</p>	<p>1 Q. And then in the second paragraph from the 09:28:39 2 bottom, there is a note regarding how to subscribe to 09:28:41 3 the journal. Correct? 09:28:45 4 A. I see where it says "To subscribe." 09:28:46 5 Q. And it says that in 1995 the subscription price 09:28:48 6 was \$825 US? 09:28:53 7 A. Yeah, although I think it's referring to 09:28:58 8 England, but I'm -- I'm not sure if that price applies 09:29:00 9 to people in England or not. 09:29:03 10 Q. Just to clarify that -- I think I agree -- what 09:29:10 11 you're saying is that it appears that in order to 09:29:13 12 subscribe to this journal, you need to contact a John 09:29:16 13 Wiley & Sons office that's located in Sussex, England. 09:29:20 14 Correct? 09:29:24 15 A. It says -- that's correct. You should contact 09:29:26 16 somebody in England, and then it refers -- I don't know 09:29:29 17 if that dollar amount refers -- I mean, it's clearly 09:29:31 18 U.S. dollars. I really don't know exactly who pays 09:29:34 19 that. I don't know if it's people in England, people in 09:29:37 20 America. I'm just reading it for the first time. 09:29:40 21 Q. Fair point. And then there's a note to the USA 09:29:43 22 Postmaster directly below. Right? 09:29:45 23 A. Yes, there is. 09:29:49 24 Q. Do you have any doubt that if a person contacted 09:29:50 25 John Wiley and paid the subscription fee for the journal 09:29:54</p>

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<p>1 Software, Practice and Experience, that they could 09:29:59</p> <p>2 obtain a copy of this journal? 09:30:01</p> <p>3 A. I don't know one way or the other. I don't see 09:30:05</p> <p>4 why not, but I really can't confirm it or deny it either 09:30:08</p> <p>5 way. 09:30:12</p> <p>6 Q. Okay. But you don't see anything on the face of 09:30:13</p> <p>7 this document that suggests that you couldn't do that. 09:30:15</p> <p>8 correct? 09:30:18</p> <p>9 A. Doesn't say anything about not doing it. 09:30:18</p> <p>10 Q. In the course of offering your opinions in these 09:30:41</p> <p>11 proceedings, did you have an opportunity to study 09:30:44</p> <p>12 Exhibit 3 carefully? 09:30:46</p> <p>13 A. Yes. 09:30:47</p> <p>14 Q. And did you study Exhibit 3 carefully in 09:30:48</p> <p>15 preparing to offer your opinions? 09:30:50</p> <p>16 A. Yes. 09:30:53</p> <p>17 Q. And is there anything in Exhibit 3 that you 09:30:55</p> <p>18 remember not understanding? 09:30:58</p> <p>19 A. I don't remember offhand. I know that I 09:31:13</p> <p>20 certainly understood enough for my opinions. But 09:31:15</p> <p>21 whether there was some minor issue that I didn't 09:31:18</p> <p>22 understand that was unnecessary, I can't recall at this 09:31:21</p> <p>23 time. 09:31:23</p> <p>24 Q. Sure. And it's not a memory test. I just -- if 09:31:23</p> <p>25 there was anything in particular that stood out to you 09:31:26</p>	<p>1 A. Yes, I did. 09:33:07</p> <p>2 Q. And did you read every word? 09:33:08</p> <p>3 A. I think so. 09:33:09</p> <p>4 Q. Did you study each figure? 09:33:10</p> <p>5 A. I think so. 09:33:11</p> <p>6 Q. Do you know any of the authors of Exhibit -- 09:33:15</p> <p>7 Exhibit 4? Strike that. 09:33:17</p> <p>8 Do you see that there is a listing of inventors, 09:33:18</p> <p>9 and that inventor's William Sebastian? 09:33:25</p> <p>10 A. No, I do not. 09:33:31</p> <p>11 Q. Okay. If -- thank you for clarifying that. 09:33:32</p> <p>12 Do you see that that's a listing of inventors 09:33:35</p> <p>13 and that those inventors are Peter Anthony Franaszek, 09:33:38</p> <p>14 John Timothy Robinson, and Joy Aloysius Thomas? 09:33:45</p> <p>15 A. Yes, I do. 09:33:51</p> <p>16 Q. Do you know any of those individuals? 09:33:52</p> <p>17 A. I met Joy Thomas many, many years ago when I was 09:33:55</p> <p>18 in graduate school but not more than a few, like, couple 09:33:58</p> <p>19 times. I wouldn't say today I really know him. 09:34:01</p> <p>20 Q. Was -- was that individual also a student? 09:34:04</p> <p>21 A. He had been a student, I believe, at Stanford, 09:34:07</p> <p>22 and I was at a different school and -- you know, I -- I 09:34:10</p> <p>23 think I've met him at conferences as well, so it's -- 09:34:14</p> <p>24 yeah, at the time I met him, I think he had already 09:34:17</p> <p>25 graduated at that time. 09:34:21</p>
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<p>1 as something you didn't understand as you read it, I -- 09:31:28</p> <p>2 I would probably ask you some questions about that. 09:31:31</p> <p>3 A. I mean -- 09:31:33</p> <p>4 Q. So if there's anything that you can identify, 09:31:34</p> <p>5 just let me know. 09:31:36</p> <p>6 A. I think I understand the teaching that's in 09:31:38</p> <p>7 here. You know, that doesn't mean that it's a complete 09:31:39</p> <p>8 detailed teaching as I would prefer it, but from what 09:31:44</p> <p>9 was taught, at least, I understand it. 09:31:47</p> <p>10 (Exhibit 4 marked) 09:31:50</p> <p>11 MR. LANTIER: Okay. We'll just mark the other 09:31:50</p> <p>12 two pieces of -- or the other two documents that we're 09:31:52</p> <p>13 going to focus on today in terms of prior art, so that 09:31:55</p> <p>14 those are available. First I'll ask the court reporter 09:32:07</p> <p>15 to mark as Exhibit No. 4 a document titled U.S. Patent 09:32:09</p> <p>16 No. 0 -- I'm sorry -- 5,870,036 to Franaszek, et al. 09:32:12</p> <p>17 THE WITNESS: Thanks. 09:32:39</p> <p>18 BY MR. LANTIER: 09:32:50</p> <p>19 Q. Dr. Zeger, do you recognize Exhibit 4? 09:32:51</p> <p>20 A. Yes, I do. 09:32:53</p> <p>21 Q. What is it? 09:32:54</p> <p>22 A. This is the '036 patent issued to what we call 09:32:55</p> <p>23 Franaszek. 09:32:59</p> <p>24 Q. Did you study Exhibit 4 carefully before 09:33:00</p> <p>25 submitting your expert opinions in these proceedings? 09:33:03</p>	<p>1 Q. And approximately when would that have been? 09:34:29</p> <p>2 A. Probably like 1989, 1990, and then maybe a 09:34:31</p> <p>3 couple years after that at conferences. 09:34:36</p> <p>4 Q. And -- and as concerns the other two individuals 09:34:38</p> <p>5 identified as inventors of the '036 patent, which is 09:34:41</p> <p>6 Exhibit 4, do you know either of them? 09:34:45</p> <p>7 A. I don't think so. I mean, often I meet hundreds 09:34:48</p> <p>8 of people at conferences. I may have shook his hand. 09:34:52</p> <p>9 But I just don't remember. 09:34:55</p> <p>10 Q. And do you see that the '036 patent is assigned 09:34:57</p> <p>11 to IBM Corporation? 09:35:01</p> <p>12 A. Yes. 09:35:03</p> <p>13 Q. Are you familiar with IBM Corporation? 09:35:04</p> <p>14 A. Yes. 09:35:06</p> <p>15 Q. And was IBM known as a company that was working 09:35:07</p> <p>16 in the digital data compression space during the 1990s? 09:35:11</p> <p>17 A. I wouldn't say it was well known for that. But, 09:35:18</p> <p>18 I mean, apparently they did some work on it, based on 09:35:20</p> <p>19 this patent. 09:35:23</p> <p>20 (Exhibit 5 marked) 09:35:24</p> <p>21 MR. LANTIER: And then let's mark as Exhibit 5 a 09:35:24</p> <p>22 document titled "U.S. Patent 6,253,264." 09:35:28</p> <p>23 MR. MUTSCHELKNAUS: Greg, do you have a copy? 09:35:50</p> <p>24 MR. LANTIER: Oh. Didn't mean to leave you out. 09:35:52</p> <p>25 MR. MUTSCHELKNAUS: Thank you. 09:35:56</p>

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<p>1 BY MR. LANTIER: 09:35:57</p> <p>2 Q. Dr. Zeger, do you recognize Exhibit 5? 09:36:07</p> <p>3 A. Yes. 09:36:09</p> <p>4 Q. What is it? 09:36:09</p> <p>5 A. This is the '264 patent with Inventor Sebastian. 09:36:10</p> <p>6 Q. And do you know Mr. Sebastian? 09:36:14</p> <p>7 A. I don't think I've ever met him. 09:36:17</p> <p>8 Q. Have -- were you aware of his work before 09:36:18</p> <p>9 working on these proceedings? 09:36:20</p> <p>10 A. Yes. 09:36:22</p> <p>11 Q. How so? 09:36:23</p> <p>12 A. I believe I've -- I've been involved in other 09:36:24</p> <p>13 Realtime cases that I -- his -- I think it was his 09:36:28</p> <p>14 patent came up in those cases. 09:36:31</p> <p>15 Q. Did you study Exhibit 5 carefully before 09:36:34</p> <p>16 submitting your expert declaration in this case? 09:36:36</p> <p>17 A. Yes. 09:36:39</p> <p>18 Q. And did you review every word of it? 09:36:40</p> <p>19 A. I believe so, yes. 09:36:41</p> <p>20 Q. Did you review each figure? 09:36:42</p> <p>21 A. Yes. 09:36:44</p> <p>22 (Exhibit 6 marked) 09:36:44</p> <p>23 MR. LANTIER: All right. And now what I'd like 09:36:45</p> <p>24 to do is get out of the way marking the two patents that 09:36:49</p> <p>25 are a subject of this proceedings so that they're 09:36:54</p>	<p>1 this proceeding, did you study the '992 patent 09:39:18</p> <p>2 carefully? 09:39:21</p> <p>3 A. Yes. 09:39:22</p> <p>4 Q. And did you read every word? 09:39:23</p> <p>5 A. I think so, yeah. 09:39:24</p> <p>6 Q. Did you study every figure? 09:39:25</p> <p>7 A. Yes. 09:39:26</p> <p>8 Q. When is the first time that you heard of the 09:39:37</p> <p>9 inventor of the '992 patent, James J. Fallon? 09:39:39</p> <p>10 A. I think that would most likely be the same time 09:39:40</p> <p>11 I first saw a patent issued to him, or -- or where he's 09:39:41</p> <p>12 the inventor, and which I can't exactly pin down that 09:39:44</p> <p>13 date, but they would be the same time. 09:39:48</p> <p>14 Q. Before being retained as an expert for Realtime 09:39:50</p> <p>15 Data, you had not heard of James J. Fallon. Correct? 09:39:52</p> <p>16 A. Other than perhaps having seen his patent, not 09:39:58</p> <p>17 part of the case or any of the cases. If I had seen his 09:39:59</p> <p>18 patent, I may have seen his name but not -- I never met 09:40:03</p> <p>19 him at that point or anything. 09:40:06</p> <p>20 Q. And have you ever read any of James Fallon's 09:40:07</p> <p>21 work other than issued patents? 09:40:12</p> <p>22 A. No. 09:40:14</p> <p>23 Q. Have you ever heard any of James Fallon's work 09:40:15</p> <p>24 discussed at an industry conference? 09:40:17</p> <p>25 A. Not that I can recall. 09:40:20</p>
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<p>1 available to you if you need to refer to them at any 09:36:57</p> <p>2 point. 09:37:04</p> <p>3 First I will ask the court reporter to mark as 09:37:04</p> <p>4 Exhibit No. 6 a document titled "U.S. Patent 7,378,992" 09:37:06</p> <p>5 that names James J. Fallon as the inventor. 09:37:13</p> <p>6 BY MR. LANTIER: 09:37:17</p> <p>7 Q. Dr. Zeger, do you recognize Exhibit 6? 09:38:12</p> <p>8 A. Yes. 09:38:14</p> <p>9 Q. What is it? 09:38:14</p> <p>10 A. This is the '992 patent in these proceedings. 09:38:14</p> <p>11 Q. When's the first time you saw the '992 patent? 09:38:18</p> <p>12 A. I've certainly seen it this year as part of 09:38:23</p> <p>13 these proceedings. And I may have seen it in other 09:38:27</p> <p>14 cases that I've been involved in for Realtime. 09:38:30</p> <p>15 Q. Prior to being retained as an expert for 09:38:37</p> <p>16 Realtime, had you ever seen the '992 patent? 09:38:40</p> <p>17 A. I may have, but I don't recall. 09:38:42</p> <p>18 Q. And do you recall approximately in what year you 09:38:43</p> <p>19 would have first seen the '992 patent? 09:38:46</p> <p>20 A. Well, if -- if this case was the first time I 09:38:55</p> <p>21 saw it, then it would be 2016. If I'd seen it in a 09:38:58</p> <p>22 prior Realtime case, I think like 2010 or '11-ish or 09:39:00</p> <p>23 possibly could go back a couple years before that maybe, 09:39:03</p> <p>24 so like within the last ten years is certainly true. 09:39:07</p> <p>25 Q. And before submitting your expert declaration in 09:39:13</p>	<p>1 (Exhibit 7 marked) 09:40:21</p> <p>2 MR. LANTIER: Let's mark as the next exhibit a 09:40:26</p> <p>3 document titled "U.S. Patent No. 8,643,513," again, 09:40:28</p> <p>4 identifying as the inventor James J. Fallon, and this 09:40:35</p> <p>5 will be Exhibit 7. 09:40:39</p> <p>6 BY MR. LANTIER: 09:40:41</p> <p>7 Q. And take any time you need, but the first 09:41:10</p> <p>8 question, predictably, will be, do you recognize Exhibit 09:41:12</p> <p>9 7? 09:41:15</p> <p>10 A. Yes. 09:41:16</p> <p>11 Q. What is it? 09:41:16</p> <p>12 A. This is the '513 patent in this proceeding. 09:41:17</p> <p>13 Q. And when is the first time you saw the '513 09:41:21</p> <p>14 patent? 09:41:21</p> <p>15 A. I think the answer is the same as a gave for the 09:41:22</p> <p>16 '992. 09:41:26</p> <p>17 Q. Okay. And did you study the '513 patent before 09:41:27</p> <p>18 submitting your expert declaration in this proceeding? 09:41:30</p> <p>19 A. Yes. 09:41:33</p> <p>20 Q. Did you read every word? 09:41:33</p> <p>21 A. I think so. 09:41:35</p> <p>22 Q. Did you review every figure? 09:41:37</p> <p>23 A. Yes. 09:41:39</p> <p>24 Q. If you could go back to Exhibit 6, which is the 09:41:40</p> <p>25 '992 patent, I'd like to start with some points that I 09:41:44</p>

<p style="text-align: right;">Page 29</p> <p>1 think are uncontroversial so that we can sort of focus 09:41:50</p> <p>2 our time on the issues where there may be more of a 09:41:54</p> <p>3 disagreement of opinion. 09:41:57</p> <p>4 If you could turn to Claim 48 of the '992 09:42:05</p> <p>5 patent, and that's on the second-to-last page of the 09:42:08</p> <p>6 exhibit, and just let me know when you're there. 09:42:12</p> <p>7 A. I got it. 09:42:15</p> <p>8 Q. Okay. I'm going to ask you a series of 09:42:16</p> <p>9 questions about the limitations of Claim 48. But you 09:42:20</p> <p>10 understand that Claim 48 is the only claim that's at 09:42:23</p> <p>11 issue in the '992 IPR proceeding. 09:42:26</p> <p>12 A. Yes. 09:42:31</p> <p>13 Q. Correct? 09:42:32</p> <p>14 So if we start at the beginning, in your '992 09:42:33</p> <p>15 IPR declaration, you do not dispute that the Hsu 09:42:36</p> <p>16 reference discloses receiving a data block. Correct? 09:42:50</p> <p>17 A. I don't think I dispute that. 09:42:53</p> <p>18 Q. And in your declaration you don't dispute that 09:42:55</p> <p>19 the Hsu reference discloses associating at least one 09:42:59</p> <p>20 encoder to each of one of several data types. Correct? 09:43:03</p> <p>21 A. I believe that's correct. 09:43:10</p> <p>22 Q. In your '992 IPR declaration, you don't dispute 09:43:11</p> <p>23 that Hsu discloses analyzing data within the data block 09:43:17</p> <p>24 to identify a first data type of the data within the 09:43:21</p> <p>25 data block. Correct? 09:43:25</p>	<p style="text-align: right;">Page 31</p> <p>1 Q. And then in the final -- the final limitation, 09:46:06</p> <p>2 it recites, Wherein the analyzing of the data within the 09:46:09</p> <p>3 data block to identify one or more data types excludes 09:46:14</p> <p>4 analyzing based only on a descriptor that is indicative 09:46:18</p> <p>5 of the data type of the data within the data block. Do 09:46:23</p> <p>6 you see that? 09:46:26</p> <p>7 A. I see that. 09:46:27</p> <p>8 Q. And in your '992 patent IPR declaration, you do 09:46:28</p> <p>9 not dispute that Hsu discloses that limitation. 09:46:32</p> <p>10 Correct? 09:46:36</p> <p>11 A. That's correct. 09:46:58</p> <p>12 Q. Now, if you could turn to the '513 patent, which 09:46:58</p> <p>13 is Exhibit 7, there are a number of claims that are at 09:47:02</p> <p>14 issue in the -- the '513 patent IPR. And if it's 09:47:12</p> <p>15 helpful for you, I can represent to you which those are, 09:47:17</p> <p>16 and you can circle them on your copy if that would be 09:47:21</p> <p>17 helpful. I'm not saying you have to do that, but -- 09:47:23</p> <p>18 A. Yeah, that's a good -- that's a good -- 09:47:25</p> <p>19 Q. -- I did it on my copy. 09:47:25</p> <p>20 A. Sorry. 09:47:26</p> <p>21 Q. No, that's okay. 09:47:26</p> <p>22 A. That's a good idea. 09:47:26</p> <p>23 Q. So the claims that have been instituted -- and, 09:47:28</p> <p>24 Joe, please speak up if -- if I do this wrong -- are 09:47:32</p> <p>25 Claims 1, 2, 4, 6, 11, 12, 13, 14, 15, 16, 18, 19, 20, 09:47:38</p>
<p style="text-align: right;">Page 30</p> <p>1 A. I believe that's correct. 09:43:27</p> <p>2 Q. And in your '992 IPR declaration, you don't 09:43:29</p> <p>3 dispute that Hsu discloses compressing, if said first 09:43:33</p> <p>4 data type is the same as one of said several data types, 09:43:39</p> <p>5 said data block with said at least one encoder 09:43:44</p> <p>6 associated with said one of said several data types, 09:43:45</p> <p>7 that is the same as said first data type to provide a 09:43:49</p> <p>8 compressed data block. Correct? 09:43:53</p> <p>9 A. I believe that's correct. 09:44:11</p> <p>10 Q. Now, the next limitation is compressing, if said 09:44:12</p> <p>11 first data type is not the same as one of said several 09:44:12</p> <p>12 data types, said data block with a default encoder to 09:44:16</p> <p>13 provide said compressed data block. Do you see that? 09:44:20</p> <p>14 A. Yes. 09:44:24</p> <p>15 Q. And you do dispute that Hsu discloses that claim 09:44:24</p> <p>16 element. Correct? 09:44:28</p> <p>17 A. That's correct. 09:44:29</p> <p>18 Q. But you do not dispute that that claim element 09:44:30</p> <p>19 is disclosed in the -- by the Franaszek reference. 09:44:34</p> <p>20 Correct? 09:44:39</p> <p>21 A. Yes, I believe that's correct. 09:45:20</p> <p>22 Q. And you also, in your '992 IPR declaration, do 09:45:21</p> <p>23 not dispute that that claim element is disclosed by the 09:45:24</p> <p>24 Sebastian patent as well. Correct? 09:45:29</p> <p>25 A. That's correct. 09:46:06</p>	<p style="text-align: right;">Page 32</p> <p>1 and 22. And I think we can do this without going 09:48:06</p> <p>2 through each of the claims individually, but we'll start 09:48:12</p> <p>3 and -- and see. 09:48:15</p> <p>4 So if we start with Claim 1 -- and take a moment 09:48:18</p> <p>5 to review it if -- if that's helpful. 09:48:23</p> <p>6 A. Okay. 09:48:36</p> <p>7 Q. Do you see that the first claim limitation -- 09:48:37</p> <p>8 well, strike that. 09:48:40</p> <p>9 Do you see that there's what we call the 09:48:41</p> <p>10 preamble that says "A method of compressing a plurality 09:48:44</p> <p>11 of data blocks"? 09:48:48</p> <p>12 A. Yes. 09:48:49</p> <p>13 Q. And you don't dispute that both the Hsu and 09:48:50</p> <p>14 Franaszek references disclosed methods of compressing a 09:48:54</p> <p>15 plurality of data blocks. Correct? 09:48:59</p> <p>16 A. I think that's accurate. 09:49:08</p> <p>17 Q. So if we start with the first limitation, do you 09:49:09</p> <p>18 see that the first limitation of Claim 1 of the '513 09:49:11</p> <p>19 patent is, Analyzing the plurality of data blocks to 09:49:15</p> <p>20 recognize when an appropriate content-independent 09:49:19</p> <p>21 compression algorithm is to be applied to the plurality 09:49:22</p> <p>22 of data blocks? 09:49:28</p> <p>23 A. Yes, I see that. 09:49:29</p> <p>24 Q. In your '513 IPR declaration, you -- you opine 09:49:30</p> <p>25 that Hsu does not disclose that limitation. Correct? 09:49:34</p>

<p style="text-align: right;">Page 33</p> <p>1 A. Correct. 09:49:42</p> <p>2 Q. But you do not dispute in that declaration that 09:49:45</p> <p>3 the first limitation of Claim 1 is disclosed in the 09:49:48</p> <p>4 Franaszek reference. Correct? 09:49:54</p> <p>5 A. Well, let me clarify that the analyzing that -- 09:50:00</p> <p>6 that first step of the method is qualified by the 09:50:06</p> <p>7 "wherein" at the end, or one of the whereins at the end. 09:50:10</p> <p>8 So together with the wherein clause, I do dispute it. 09:50:17</p> <p>9 Q. And can you explain why that is? 09:50:22</p> <p>10 A. Well, let's see. I got to be careful which 09:50:24</p> <p>11 wherein it is. I believe it's the first of the two 09:50:29</p> <p>12 whereins. So that would be like line 39, Column 26. 09:50:34</p> <p>13 That wherein qualifies the analyzing the plurality step 09:50:41</p> <p>14 up in line 24. And the qualification is that the 09:50:45</p> <p>15 wherein says that the analyzing the plurality of data 09:50:48</p> <p>16 blocks to recognize when the appropriate 09:50:52</p> <p>17 content-independent compression algorithm is to be 09:50:54</p> <p>18 applied excludes analyzing based only on a descriptor, 09:51:00</p> <p>19 et cetera, et cetera. I'll just stop there. So it's -- 09:51:04</p> <p>20 it's adding a further sort of limitation to the step of 09:51:08</p> <p>21 analyzing the plurality of data blocks that you asked me 09:51:11</p> <p>22 about. So the dispute is that Franaszek does not 09:51:15</p> <p>23 perform the first step of the method subject to the 09:51:19</p> <p>24 qualification starting in line 39. 09:51:23</p> <p>25 Q. Okay. In other words, if I'm understanding you 09:51:27</p>	<p style="text-align: right;">Page 35</p> <p>1 Q. -- intended to be confusing. 09:52:53</p> <p>2 A. Okay. 09:52:55</p> <p>3 Q. What I was intending to clarify is that you've 09:52:56</p> <p>4 offered the opinion that Franaszek does not disclose 09:52:59</p> <p>5 performing a -- an analysis of a uncompressed data block 09:53:03</p> <p>6 using something other than a descriptor. Correct? 09:53:11</p> <p>7 A. That's correct. 09:53:17</p> <p>8 Q. And what I'm asking you is whether you agree 09:53:23</p> <p>9 that in terms of just the performing the analysis of 09:53:26</p> <p>10 that uncompressed data block, you haven't disputed in 09:53:28</p> <p>11 your declaration that Hsu does perform an analysis of 09:53:32</p> <p>12 uncompressed data that is not solely based on a 09:53:36</p> <p>13 descriptor. 09:53:43</p> <p>14 A. So basically that's correct, but let me state it 09:53:45</p> <p>15 clearly. I do not dispute that Hsu analyzes data blocks 09:53:48</p> <p>16 based other than on descriptors, but the -- but so long 09:53:53</p> <p>17 as you do not include the fact that it would be for 09:53:59</p> <p>18 something to do with content-independent compression. 09:54:02</p> <p>19 Q. Yes. And I had tried to -- that had been the 09:54:06</p> <p>20 question I'd asked a couple back, and that's -- 09:54:08</p> <p>21 A. Okay. 09:54:09</p> <p>22 Q. -- a good clarification. 09:54:10</p> <p>23 A. Okay. So basically I agree with you, just with 09:54:11</p> <p>24 that provision. 09:54:14</p> <p>25 Q. So if we move down the claim, then, the second 09:54:19</p>
<p style="text-align: right;">Page 34</p> <p>1 correctly, in your opinion, Franaszek is analyzing only 09:51:29</p> <p>2 based on a descriptor indicative of a characteristic 09:51:36</p> <p>3 attribute or parameter. Is that fair? 09:51:43</p> <p>4 A. That's my understanding, yes. 09:51:46</p> <p>5 Q. Is there any other reason set forth in your '513 09:51:47</p> <p>6 IPR declaration that Franaszek does not disclose the 09:51:51</p> <p>7 first limitation of Claim 1? 09:51:59</p> <p>8 A. I don't recall another reason. I mean, maybe 09:52:01</p> <p>9 there is something. But I don't -- I can't think of 09:52:08</p> <p>10 any. 09:52:10</p> <p>11 Q. Okay. And you don't dispute in your '513 IPR 09:52:11</p> <p>12 declaration that Hsu does disclose a data block analysis 09:52:16</p> <p>13 that excludes analyzing based only on a descriptor 09:52:23</p> <p>14 indicative of any of characteristic attribute or 09:52:27</p> <p>15 parameter. Correct? 09:52:33</p> <p>16 A. Well, it's a little confusing because we were 09:52:33</p> <p>17 just talking about the first step of the method, and 09:52:36</p> <p>18 that first step relates to content-independent 09:52:38</p> <p>19 compression. Now you're asking me a question that I 09:52:40</p> <p>20 don't think you mentioned content-independent 09:52:43</p> <p>21 compression in there, so I feel like we're deviating 09:52:45</p> <p>22 from the first step. Is that what's going on? 09:52:48</p> <p>23 Q. No. It -- it is what's going on, but it 09:52:51</p> <p>24 wasn't -- 09:52:53</p> <p>25 A. Oh. 09:52:53</p>	<p style="text-align: right;">Page 36</p> <p>1 limitation of Claim 1 of the '513 patent is applying the 09:54:20</p> <p>2 appropriate content-independent data compression 09:54:24</p> <p>3 algorithm to a portion of the plurality of data blocks 09:54:27</p> <p>4 to provide a compressed data portion. Do you see that? 09:54:31</p> <p>5 A. Yes. 09:54:34</p> <p>6 Q. And in your expert declaration in the '513 IPR, 09:54:34</p> <p>7 you don't dispute that that claim limitation is 09:54:38</p> <p>8 disclosed by the Franaszek reference. Correct? 09:54:42</p> <p>9 A. I believe that's correct. 09:54:56</p> <p>10 Q. The third limitation of Claim 1 is analyzing a 09:54:57</p> <p>11 data block from another portion of the plurality of data 09:55:01</p> <p>12 blocks for recognition of any characteristic, attribute, 09:55:05</p> <p>13 or parameter that is indicative of an appropriate 09:55:08</p> <p>14 content-dependent algorithm to apply to the data block. 09:55:11</p> <p>15 Do you see that? 09:55:17</p> <p>16 A. Yes. 09:55:18</p> <p>17 Q. And in your '513 IPR declaration, you don't 09:55:18</p> <p>18 dispute that the Hsu reference discloses that claim 09:55:23</p> <p>19 limitation. Correct? 09:55:26</p> <p>20 A. I don't -- I think that's correct. 09:55:45</p> <p>21 Q. And then the fourth limitation is applying the 09:55:47</p> <p>22 appropriate content-dependent data compression algorithm 09:55:51</p> <p>23 to the data block to provide a compressed data block 09:55:56</p> <p>24 when the characteristic, attribute, or parameter is 09:55:59</p> <p>25 identified. Do you see that? 09:56:04</p>

<p style="text-align: right;">Page 37</p> <p>1 A. Yes. 09:56:06</p> <p>2 Q. And again, for the fourth limitation of Claim 1 09:56:06</p> <p>3 in your '513 patent IPR declaration, you do not dispute 09:56:08</p> <p>4 that Hsu discloses that limitation. Correct? 09:56:13</p> <p>5 A. That's -- I believe that's correct. 09:56:32</p> <p>6 Q. And we already spoke about the fifth limitation 09:56:33</p> <p>7 of Claim 1. Correct? 09:56:37</p> <p>8 A. The fifth limitation, I only see -- I see four 09:56:44</p> <p>9 steps and then two whereins. 09:56:47</p> <p>10 Q. Yes. I was referring to the first wherein 09:56:50</p> <p>11 clause as a -- as the -- 09:56:52</p> <p>12 A. Oh. 09:56:53</p> <p>13 Q. -- limitation because it's set off -- 09:56:54</p> <p>14 A. Okay. 09:56:57</p> <p>15 Q. -- separately. But why don't I rephrase the 09:56:57</p> <p>16 question. 09:57:01</p> <p>17 Do you see that there are two wherein clauses at 09:57:01</p> <p>18 the conclusion of Claim 1 of the '513 patent? 09:57:06</p> <p>19 A. Yes. 09:57:09</p> <p>20 Q. And in the testimony you already gave, we 09:57:09</p> <p>21 discussed the -- the -- your opinions regarding the 09:57:11</p> <p>22 disclosure or lack thereof of the first wherein clause 09:57:18</p> <p>23 in the Hsu and Franaszek references. Correct? 09:57:22</p> <p>24 A. Yes. 09:57:25</p> <p>25 Q. So if we look at the second wherein clause, you 09:57:26</p>	<p style="text-align: right;">Page 39</p> <p>1 Claim 15 that are different from your opinions with 09:59:04</p> <p>2 respect to Claim 1 of the '513 patent. Correct? 09:59:08</p> <p>3 A. Well, I think I have to provide different 09:59:14</p> <p>4 opinions in the sense that 15 is a device or an 09:59:17</p> <p>5 apparatus and Claim 1 is a -- is a collection of steps 09:59:20</p> <p>6 and method. So with respect to that notion, they have 09:59:23</p> <p>7 to be somewhat different. 09:59:27</p> <p>8 Q. If it helps, feel free to refer to anywhere in 09:59:29</p> <p>9 your declaration for the '513 IPR, and the table of 09:59:32</p> <p>10 contents may be a helpful place to start. But what I'm 09:59:37</p> <p>11 asking is, there are no opinions that you offer 09:59:41</p> <p>12 regarding Claim 15 that would distinguish its validity 09:59:47</p> <p>13 from the validity of Claim 1 of the '513 patent. 09:59:53</p> <p>14 Correct? 09:59:59</p> <p>15 A. So I think I -- I think I'm agreeing with you, 09:59:59</p> <p>16 and I'll just clarify. I don't believe I provided any 10:00:03</p> <p>17 opinions that state that the validity of either Claim 1 10:00:06</p> <p>18 or Claim 15 is dependent upon the validity of the other. 10:00:10</p> <p>19 Is that basically what you're asking? 10:00:14</p> <p>20 Q. No, a slightly different question, which is -- 10:00:16</p> <p>21 I'll back up. And I'm going to do this for all of the 10:00:18</p> <p>22 claims that are in the -- in the proceeding just so we 10:00:22</p> <p>23 can narrow the issues for today's deposition. 10:00:25</p> <p>24 You understand that patent validity is assessed 10:00:27</p> <p>25 on a claim-by-claim basis. Right? 10:00:32</p>
<p style="text-align: right;">Page 38</p> <p>1 see that the second wherein clause is, Wherein the 09:57:29</p> <p>2 analyzing the data block to recognize the any 09:57:32</p> <p>3 characteristic, attribute, or parameter excludes 09:57:35</p> <p>4 analyzing based only on the descriptor. 09:57:38</p> <p>5 A. Yes, I see that. 09:57:49</p> <p>6 Q. With respect to the content-dependent data 09:57:51</p> <p>7 compression that is disclosed in Hsu, you don't dispute 09:57:54</p> <p>8 that Hsu discloses that second wherein clause. Correct? 09:57:59</p> <p>9 A. That's correct. 09:58:02</p> <p>10 Q. If we look at the -- the claims that have been 09:58:08</p> <p>11 circled on your copy of the '513 patent, which are the 09:58:12</p> <p>12 claims at issue in the '513 IPR proceeding, do you see 09:58:16</p> <p>13 that there's a second independent claim and that's Claim 09:58:20</p> <p>14 15? 09:58:22</p> <p>15 A. Yes. 09:58:23</p> <p>16 Q. In your '513 IPR declaration, you haven't 09:58:24</p> <p>17 provided any opinions that Claim 15 should be found not 09:58:30</p> <p>18 invalid if Claim 1 is found to be obvious. Correct? 09:58:37</p> <p>19 A. I think I got lost in -- too many "nots" in 09:58:44</p> <p>20 there. 09:58:48</p> <p>21 Q. Sure. Let me rephrase. 09:58:49</p> <p>22 There are no arguments -- strike that. I don't 09:58:50</p> <p>23 mean there are arguments. And let me begin over, the 09:58:50</p> <p>24 new question. 09:58:50</p> <p>25 You don't offer any opinions with respect to 09:58:51</p>	<p style="text-align: right;">Page 40</p> <p>1 A. I understand that. 10:00:36</p> <p>2 Q. Yes. And so what I'm asking is, in terms of the 10:00:36</p> <p>3 opinions regarding the failure of Oracle's petition to 10:00:39</p> <p>4 demonstrate the invalidity of the claims at issue in the 10:00:44</p> <p>5 '513 patent, the argue -- the opinions that you've 10:00:48</p> <p>6 advanced with -- for -- with respect to Claim 1 apply 10:00:54</p> <p>7 equally to Claim 15, in your opinion. Correct? 10:00:56</p> <p>8 A. Basically, correct, other than the fact that I 10:00:59</p> <p>9 pointed out one's a method and one's an apparatus claim. 10:01:01</p> <p>10 But basically that's correct. 10:01:05</p> <p>11 Q. Okay. And there's no opinion that you offer 10:01:06</p> <p>12 that only applies to Claim 15 but doesn't apply to Claim 10:01:08</p> <p>13 1. Correct? 10:01:12</p> <p>14 A. Again, subject to the apparatus-versus-method 10:01:14</p> <p>15 claim, I think that's basically correct. 10:01:17</p> <p>16 Q. Okay. Then let's just go through the -- the 10:01:19</p> <p>17 dependent claims so that we can, again, narrow the 10:01:21</p> <p>18 issues for discussion today. As I mentioned before, the 10:01:26</p> <p>19 following dependent claims are at issue in the '513 IPR 10:01:30</p> <p>20 proceeding: Claims 2, 4, 6, 11, 12, 13, 14, 15, 16, 18, 10:01:34</p> <p>21 19, 20, and 22. 10:01:51</p> <p>22 A. I believe you said 15 in there is a dependent 10:02:03</p> <p>23 claim, which is not correct. 10:02:04</p> <p>24 Q. Thank you for clarifying. I didn't mean to do 10:02:05</p> <p>25 that, and you're right that Claim 15 is an independent 10:02:06</p>

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<p>1 claim. 10:02:06</p> <p>2 Now, referring to Exhibit 2, which is the 10:02:08</p> <p>3 declaration in the '513 patent IPR, beginning at page 91 10:02:10</p> <p>4 of that declaration, you have offered some additional 10:02:30</p> <p>5 opinions regarding the validity of Dependent Claims 4 10:02:32</p> <p>6 and 18. Correct? 10:02:34</p> <p>7 A. I don't know if that's the first place I do, but 10:02:35</p> <p>8 I certainly see Claims 4 and 18 in the caption on the 10:02:37</p> <p>9 boldface caption on page 91. 10:02:41</p> <p>10 Q. And if you refer to page 101, I think you'll see 10:02:45</p> <p>11 that you have also offered some additional opinions 10:02:49</p> <p>12 regarding the validity of Claim 6 of the '513 patent. 10:02:51</p> <p>13 Do you see that? 10:02:56</p> <p>14 A. Yes. 10:02:57</p> <p>15 Q. With the exception of Claims 4, 6, and 18, in 10:03:00</p> <p>16 your '513 IPR declaration, you don't offer any separate 10:03:04</p> <p>17 opinions with respect to any of the other dependent 10:03:10</p> <p>18 claims at issue. Correct? 10:03:14</p> <p>19 MR. MUTSCHELKNAUS: Objection. Vague. 10:03:16</p> <p>20 THE WITNESS: I -- I don't know if I 10:03:18</p> <p>21 specifically addressed the other dependent claims. But 10:03:20</p> <p>22 certainly anything I say about the independent claims 10:03:24</p> <p>23 from which they depend applies. But whether I went 10:03:29</p> <p>24 beyond analysis of the underlying independent claims, I 10:03:33</p> <p>25 can't say just looking at this if there's nothing else 10:03:36</p>	<p>1 the '513 patent IPR. And this is just for your 10:05:13</p> <p>2 reference, that this question will be with respect to 10:05:16</p> <p>3 both of the proceedings. 10:05:19</p> <p>4 Let me know when you're there. 10:05:24</p> <p>5 A. Yeah, I'm on page 28. 10:05:25</p> <p>6 Q. And I -- I -- I think I misspoke. I meant to 10:05:32</p> <p>7 say page 10. 10:05:34</p> <p>8 A. Ten? 10:05:36</p> <p>9 Q. Yeah, I meant to say Paragraph 28 -- 10:05:36</p> <p>10 A. Okay. 10:05:38</p> <p>11 Q. -- which is on page 10. 10:05:39</p> <p>12 A. Okay. I see Paragraph 28. 10:05:57</p> <p>13 Q. At the time you submitted your expert 10:05:59</p> <p>14 declarations, you understood that objective indicia of 10:06:01</p> <p>15 nonobviousness can be important evidence regarding 10:06:06</p> <p>16 whether a patent is obvious. Correct? 10:06:10</p> <p>17 A. Yes. 10:06:13</p> <p>18 Q. And you also understood what those objective 10:06:14</p> <p>19 indicia are. Correct? 10:06:17</p> <p>20 A. Yes. That's outlined in my Paragraph 28. 10:06:19</p> <p>21 Q. In your '513 IPR declaration, you didn't offer 10:06:21</p> <p>22 any opinion that objective indicia of nonobviousness 10:06:27</p> <p>23 provide any evidence that any of the instituted claims 10:06:31</p> <p>24 of the '513 patent are not obvious. Correct? 10:06:35</p> <p>25 A. Despite the fact you had multiple negations 10:06:39</p>
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<p>1 in this report. Whatever's in here is in here. 10:03:39</p> <p>2 BY MR. LANTIER: 10:03:42</p> <p>3 Q. Okay. Would it help you to review the 10:03:43</p> <p>4 declaration to determine whether you had offered any 10:03:45</p> <p>5 separate opinions? 10:03:48</p> <p>6 A. I'd have to go through and just kind of march 10:03:52</p> <p>7 through each paragraph and make sure I didn't mention 10:03:55</p> <p>8 any other dependent claims. 10:03:58</p> <p>9 Q. Just to be clear, I -- I did not mean to suggest 10:04:00</p> <p>10 that your opinions with respect to the independent 10:04:04</p> <p>11 claims wouldn't apply to the dependent claims to the 10:04:07</p> <p>12 extent that they're dependent from those independent 10:04:11</p> <p>13 claims. What I'm trying to do is avoid trodding ground 10:04:13</p> <p>14 that we don't need to trod during today's deposition. 10:04:22</p> <p>15 And as I understand it, you're saying if you 10:04:26</p> <p>16 haven't identified a dependent claim and offered an 10:04:31</p> <p>17 opinion specific to that dependent claim in your 10:04:34</p> <p>18 declaration, then -- then you haven't offered an opinion 10:04:38</p> <p>19 with respect to the dependent claim. Correct? 10:04:42</p> <p>20 A. I think that's correct. I would -- like I say, 10:04:46</p> <p>21 it's a hundred pages, so it's hard to memorize the 10:04:48</p> <p>22 entire thing. I'd have to go through and check. 10:04:51</p> <p>23 Q. But it's your declaration. Correct? 10:04:54</p> <p>24 A. It is my declaration. 10:04:56</p> <p>25 Q. Could you turn to page 28 of your declaration in 10:05:10</p>	<p>1 there, I believe I agree with that statement. 10:06:43</p> <p>2 Q. Okay. I'll try to do it with fewer. In your 10:06:46</p> <p>3 '513 IPR declaration, you offer no opinions that any 10:06:48</p> <p>4 objective indicia of nonobviousness provides evidence 10:06:52</p> <p>5 that an instituted claim of the '513 patent is not 10:06:57</p> <p>6 obvious. Correct? 10:07:01</p> <p>7 A. I believe that's correct. 10:07:02</p> <p>8 Q. And in your declaration in the '992 IPR, you 10:07:03</p> <p>9 offer no opinion that objective indicia of 10:07:06</p> <p>10 nonobviousness provides any evidence that Claim 48 of 10:07:09</p> <p>11 the '992 patent is not obvious. Correct? 10:07:14</p> <p>12 A. Correct. 10:07:17</p> <p>13 Q. Okay. Then I will not ask you any questions on 10:07:17</p> <p>14 that topic. 10:07:20</p> <p>15 We'll take a break in a minute. Just -- I'll 10:07:37</p> <p>16 ask you a couple more questions. 10:07:38</p> <p>17 And you've provided your C.V. in this case, and 10:07:39</p> <p>18 it's -- it has extensive information about your 10:07:41</p> <p>19 background. One question I had is, have you ever, 10:07:44</p> <p>20 yourself, designed a data compression system? 10:07:46</p> <p>21 A. Yes. 10:07:50</p> <p>22 Q. Okay. How many times have you done that? 10:07:50</p> <p>23 A. Many times. Quite a bit over the years. I've 10:07:53</p> <p>24 done it in research at the university. I've done it in 10:07:57</p> <p>25 industrial consulting and various other things. 10:08:01</p>

<p style="text-align: right;">Page 45</p> <p>1 Q. As of the year 2001, had you ever designed a 10:08:04</p> <p>2 data compression system? 10:08:08</p> <p>3 A. Yes. 10:08:12</p> <p>4 Q. Okay. About how many times had you done so by 10:08:14</p> <p>5 that point in time? 10:08:17</p> <p>6 A. Probably every year starting in the early 1980s 10:08:18</p> <p>7 until then. I mean, it's hard to count them. It's hard 10:08:21</p> <p>8 to determine what a system actually is. But pretty much 10:08:24</p> <p>9 continuous for -- and you said what year? Ninety-- 10:08:28</p> <p>10 Q. I think it's 2001. 10:08:29</p> <p>11 A. 2001? So, I mean, I probably first started back 10:08:31</p> <p>12 when I was freshman, sophomore -- maybe sophomore at 10:08:34</p> <p>13 MIT, so that would be about 1981, continuous to whatever 10:08:40</p> <p>14 your date was, 2001, so 20 years. 10:08:44</p> <p>15 Q. So I won't ask you about each of those examples. 10:08:48</p> <p>16 Could you describe in a general level what the system 10:08:51</p> <p>17 was that you designed as a sophomore at MIT? 10:08:57</p> <p>18 A. Sure. I was a student in the electrical 10:09:00</p> <p>19 engineering department, and I was in a special program 10:09:02</p> <p>20 where I did research in a co-op program. And I did my 10:09:05</p> <p>21 research at Hewlett-Packard Laboratories in Palo Alto in 10:09:09</p> <p>22 the summer and also in -- in part of the school year. 10:09:15</p> <p>23 So I designed a processor for -- I mean a compression 10:09:17</p> <p>24 system for speech coding, and it's called ADPCM. I'll 10:09:20</p> <p>25 say it again slowly: A-D-P-C-M. And that stands for 10:09:27</p>	<p style="text-align: right;">Page 47</p> <p>1 present it. Are you familiar with levels of encoding? 10:11:02</p> <p>2 A. Yes. 10:11:08</p> <p>3 Q. And are you familiar with the Lempel-Ziv-Welch 10:11:09</p> <p>4 algorithm? 10:11:13</p> <p>5 A. Yes. 10:11:15</p> <p>6 Q. That is an algorithm that is used to compress 10:11:18</p> <p>7 certain types of data. Correct? 10:11:22</p> <p>8 A. That -- that's -- roughly speaking, that's 10:11:24</p> <p>9 correct, yes. 10:11:26</p> <p>10 Q. Now, the -- the -- the inventions described in 10:11:27</p> <p>11 the claims of the '513 and the '992 patents are directed 10:11:31</p> <p>12 to a particular compression algorithm like Lempel-Ziv. 10:11:36</p> <p>13 Correct? 10:11:41</p> <p>14 A. Well, again, it -- I mean, I don't mean to 10:11:43</p> <p>15 nitpick the words, but it depends what you mean by 10:11:44</p> <p>16 "directed to." They certainly could involve them. 10:11:48</p> <p>17 Q. That's right. But they don't -- the claims are 10:11:52</p> <p>18 not limited to one particular algorithm, are they? 10:11:54</p> <p>19 A. That's correct. 10:11:58</p> <p>20 Q. So -- 10:11:59</p> <p>21 A. Oh, I'm sorry. Let me clarify. They're not 10:12:00</p> <p>22 limited to one particular algorithm such as Lempel-Ziv. 10:12:02</p> <p>23 It depends how you define "algorithm." It's all -- the 10:12:06</p> <p>24 words matter here. 10:12:09</p> <p>25 Q. And that's why I wanted to have the discussion, 10:12:10</p>
<p style="text-align: right;">Page 46</p> <p>1 Adaptive Differential Pulse Code Modulation. And 10:09:28</p> <p>2 basically that was a system that I designed, 10:09:35</p> <p>3 implemented, wrote software, got it to work on a piece 10:09:38</p> <p>4 of hardware for digitizing and encoding human speech. 10:09:43</p> <p>5 Q. Let me just get some terminology straight. I 10:09:50</p> <p>6 want to hear more about that. But when you -- when I 10:09:55</p> <p>7 said a -- well, strike that. 10:09:58</p> <p>8 Was ADPCM a new compression algorithm, or was it 10:10:00</p> <p>9 a new system for performing data compression? 10:10:05</p> <p>10 A. Neither. ADPCM was a existing compression 10:10:09</p> <p>11 algorithm for speech, and I implemented that with a new 10:10:12</p> <p>12 twist to it, a slight improvement to it, which 10:10:17</p> <p>13 constituted the work that I did for my master's 10:10:20</p> <p>14 research. 10:10:23</p> <p>15 Q. So you were making an improvement to a 10:10:24</p> <p>16 particular algorithm for compressing data. Is that 10:10:28</p> <p>17 correct? 10:10:32</p> <p>18 A. Basically that's correct, yes. 10:10:32</p> <p>19 Q. Okay. Now, the -- in addition to the particular 10:10:34</p> <p>20 algorithms that get used to compress data, there are 10:10:38</p> <p>21 different methodologies that can be used to compress 10:10:45</p> <p>22 data, and the patents at issue in this -- in these 10:10:48</p> <p>23 proceedings are an example of that. Right? 10:10:51</p> <p>24 A. I'm not sure what you mean by "methodologies." 10:10:54</p> <p>25 Q. Well, maybe this is the -- the better way to 10:10:57</p>	<p style="text-align: right;">Page 48</p> <p>1 because I -- I want to be clear as we go on today when 10:12:13</p> <p>2 we're talking about a compression algorithm, as I would 10:12:17</p> <p>3 think of Lempel-Ziv or LZW being, as opposed to a system 10:12:22</p> <p>4 or method for data compression, which I would think of 10:12:30</p> <p>5 as being more similar to what's claimed in the '992 and 10:12:33</p> <p>6 '513 patents. Does that make sense? 10:12:39</p> <p>7 A. Roughly speaking, I -- that's okay. But we have 10:12:42</p> <p>8 to be careful because the word "algorithm" is not part 10:12:44</p> <p>9 of the claim language, as far as I remember. So, I 10:12:48</p> <p>10 mean, just on a general, rough scale that's -- that's 10:12:50</p> <p>11 okay. 10:12:53</p> <p>12 Q. Are there words that you'd prefer to use to 10:12:53</p> <p>13 differentiate when -- between when we're talking about a 10:12:56</p> <p>14 particular compression algorithm like LZW versus a 10:13:01</p> <p>15 broader system that may incorporate different 10:13:06</p> <p>16 algorithms? 10:13:09</p> <p>17 A. Well, I'm not sure that that distinction -- 10:13:11</p> <p>18 well, I'm not sure how that distinction is going to play 10:13:13</p> <p>19 a role in discussing the patents and the claims. But I 10:13:16</p> <p>20 guess we can just use the word "algorithm" and "system" 10:13:20</p> <p>21 if that's what you'd like to use, and we'll try to make 10:13:21</p> <p>22 sure we're clear on it. 10:13:21</p> <p>23 Q. Okay. And I -- I -- okay. 10:13:23</p> <p>24 A. But just to -- with the note that algorithm 10:13:25</p> <p>25 often refers to the whole system too. So it really 10:13:28</p>

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<p>1 depends who you're talking to and what the context is. 10:13:33</p> <p>2 Q. Yes. And I was -- for the time being I was -- I 10:13:35</p> <p>3 was just trying to get some clarification about your 10:13:38</p> <p>4 background/experience. 10:13:41</p> <p>5 A. Okay. 10:13:43</p> <p>6 Q. With that distinction in mind, have you ever 10:13:43</p> <p>7 designed a data compression system? 10:13:46</p> <p>8 A. Yes. And now maybe -- maybe we need to back up 10:13:49</p> <p>9 and undo what we just agreed to -- 10:13:52</p> <p>10 Q. Sure. 10:13:56</p> <p>11 A. -- because I think there's going to be inherent 10:13:56</p> <p>12 confusion. It's -- it's a very vague question when you 10:13:59</p> <p>13 ask about did I design a system versus an algorithm. 10:14:01</p> <p>14 Sometimes a distinction is whether, you know, a 10:14:03</p> <p>15 particular thing you design has somebody's name attached 10:14:07</p> <p>16 to it, like Abraham Lempel or Jacob Ziv. And, you know, 10:14:11</p> <p>17 sometimes an unnamed thing may be called one thing and 10:14:15</p> <p>18 algorithm may be associated with a named technique. So 10:14:17</p> <p>19 if you're asking me have I ever designed a system, I've 10:14:22</p> <p>20 designed -- I mean, I would call them algorithm systems 10:14:25</p> <p>21 that I can implement in software that compress data. So 10:14:29</p> <p>22 I'm not sure exactly what your distinction is. 10:14:32</p> <p>23 Q. Why don't I try it a different way. Have you 10:14:37</p> <p>24 ever designed a new data compression system that 10:14:40</p> <p>25 incorporated previously known data compression 10:14:44</p>	<p>1 A. Well, first I had to read the literature to see 10:16:41</p> <p>2 what existed. I read a number of technical papers. 10:16:44</p> <p>3 Then I had to so-call brainstorm, had to think of ideas. 10:16:48</p> <p>4 And then I used pencil and paper to write down equations 10:16:52</p> <p>5 and formulas and make sure that my methods were accurate 10:16:59</p> <p>6 and correct. And then I wrote software to simulate it 10:16:59</p> <p>7 at a higher-level language. I think I used C at that 10:17:03</p> <p>8 time. Then I actually implemented it in realtime on a 10:17:08</p> <p>9 digital signal processor called a TMS320. It's made by 10:17:13</p> <p>10 Texas Instruments. And then I wrote the assembly code 10:17:18</p> <p>11 for that and hooked it up to speakers and microphones 10:17:22</p> <p>12 and then got it to work. 10:17:25</p> <p>13 Q. And how is it that you first had the idea to 10:17:27</p> <p>14 attempt to develop software that would allow the LPC 10:17:34</p> <p>15 system to handle -- did you say it was data in varying 10:17:45</p> <p>16 orders? Is that -- 10:17:54</p> <p>17 A. No. The linear predictive coding filter had a 10:17:55</p> <p>18 variable order to it, which means that instead of 10:17:59</p> <p>19 looking at like the last ten samples and predicting the 10:18:01</p> <p>20 next one, sometimes you look at the last six, the last 10:18:05</p> <p>21 12. That number varies. 10:18:08</p> <p>22 Q. How did you get the idea to attempt to write 10:18:10</p> <p>23 software that would -- that would perform that 10:18:20</p> <p>24 operation? 10:18:22</p> <p>25 A. Well, the hard part was getting the idea of how 10:18:22</p>
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<p>1 algorithms? 10:14:50</p> <p>2 A. Yes. I just told you about one. 10:14:52</p> <p>3 Q. Oh, great. So then let's go back to the work 10:14:53</p> <p>4 you did as a sophomore at MIT on ADPCM. Can you explain 10:14:56</p> <p>5 what your contribution was to that technology? 10:15:04</p> <p>6 A. You mean -- when you say "contribution," you 10:15:08</p> <p>7 mean what I added that didn't previously exist? 10:15:10</p> <p>8 Q. Correct. 10:15:13</p> <p>9 A. Okay. So what I added there, it's a little 10:15:14</p> <p>10 complicated, but part of the ADPCM system which I had 10:15:17</p> <p>11 not yet described to you used a technique called 10:15:22</p> <p>12 "linear predictive coding," often referred to as LPC. 10:15:26</p> <p>13 And linear predictive coding is a method of estimating 10:15:31</p> <p>14 the value of digitized speech samples based on 10:15:35</p> <p>15 previously seen speech samples or previously 10:15:40</p> <p>16 reconstructed speech samples. And that involves using 10:15:44</p> <p>17 what's called a filter or a prediction filter. And a 10:15:50</p> <p>18 prediction filter has a particular order. And the order 10:15:54</p> <p>19 is how many previous samples you look at when you make 10:15:57</p> <p>20 that estimation. 10:16:00</p> <p>21 My contribution was designing a new type of LPC 10:16:01</p> <p>22 prediction system where the order varied in time, so it 10:16:05</p> <p>23 was adaptive as opposed to a fixed-order LPC system. 10:16:10</p> <p>24 Q. And what was the process you went through to 10:16:33</p> <p>25 make that contribution to the ADPCM system? 10:16:38</p>	<p>1 to come up with the technique. The writing the software 10:18:25</p> <p>2 was the natural way to test it. And that's what -- I 10:18:28</p> <p>3 was an employee of HP at the time. And, you know, they 10:18:32</p> <p>4 said, Oh, that's a great idea. Let's see how it works, 10:18:35</p> <p>5 and maybe we can use it for something. So they 10:18:39</p> <p>6 suggested I implement it. 10:18:42</p> <p>7 Q. So just maybe -- maybe I didn't ask the question 10:18:44</p> <p>8 clearly. How did you get that -- that original idea? 10:18:46</p> <p>9 A. Okay. The -- the original idea, I read the 10:18:50</p> <p>10 literature, saw what was out there, and I realized that 10:18:53</p> <p>11 there's potentially a way to improve the system. So I 10:19:02</p> <p>12 just thought about it for a while and said, Hmm, maybe 10:19:05</p> <p>13 varying the order might give us something because 10:19:11</p> <p>14 nobody's done that before. And so I just kind of 10:19:14</p> <p>15 thought about it as an independent idea based on -- I 10:19:16</p> <p>16 would look at what existed out there. I think I looked 10:19:19</p> <p>17 at one particular -- or I -- you know, I read in the 10:19:22</p> <p>18 textbook, I knew what was out there, and then I just 10:19:26</p> <p>19 thought of an improvement. 10:19:29</p> <p>20 Q. And at that -- at the point in time you did 10:19:31</p> <p>21 that, were there known techniques for varying the order? 10:19:32</p> <p>22 A. Yeah, I think there was -- not -- not the exact 10:19:40</p> <p>23 thing that I did, but there was certainly the notion of 10:19:44</p> <p>24 varying orders of similar things were out there. You 10:19:47</p> <p>25 know, just what's called adaptive systems, things that 10:19:52</p>

<p style="text-align: right;">Page 53</p> <p>1 change in time. That was a known thing. That's kind of 10:19:57 2 ahead of in the head of any engineer. So that's 10:20:03 3 probably what stimulated my idea to think about -- about 10:20:05 4 changing the order of the LPC filter. 10:20:08 5 Q. Now, so that was work you did when you were a 10:20:13 6 sophomore in college. Correct? 10:20:16 7 A. I think it was the summer of my -- after my 10:20:18 8 sophomore year. 10:20:21 9 Q. Or thereabouts. 10:20:22 10 A. Yes. 10:20:24 11 Q. Okay. And you said that you've designed many, 10:20:24 12 many algorithms or systems since that time, so I don't 10:20:28 13 want to ask you about all of them. Is there any 10:20:32 14 algorithm or system that you've designed over the course 10:20:35 15 of your career that you would think is the most similar 10:20:40 16 to what's being described in the claims of the '513 and 10:20:43 17 '992 patents? 10:20:49 18 A. I don't think I've ever designed any system, 10:20:51 19 certainly not what the claims say. I never put together 10:20:53 20 content-independent, content-dependent claims -- I mean 10:20:59 21 compression techniques. So, no, I don't think I've ever 10:21:04 22 done that. 10:21:07 23 Q. Okay. Now, and I'm -- just to be open, I'm not 10:21:08 24 trying to get you to invalidate the claims of the 10:21:13 25 patents. What I'm -- what I'm asking is you talked 10:21:17</p>	<p style="text-align: right;">Page 55</p> <p>1 you approach designing a new data compression system 10:22:57 2 changed? 10:23:03 3 A. Again, I -- I'm not sure what you mean by 10:23:04 4 "methodology." What's that? 10:23:06 5 Q. As I recall your testimony, you said that in the 10:23:08 6 course of developing the modified ADPCM technique, you 10:23:15 7 went back and reviewed the literature. Is that correct? 10:23:20 8 A. That's certainly true. 10:23:24 9 Q. And that you were aware of some literature that 10:23:26 10 discussed in a slightly -- in a somewhat different way 10:23:31 11 varying the order in a -- in a compression system. 10:23:37 12 Correct? 10:23:41 13 A. Not -- maybe -- I had the notion of varying the 10:23:42 14 order or just varying things in general, not necessarily 10:23:45 15 specific to that. 10:23:48 16 Q. But you had reviewed literature that -- that 10:23:49 17 discussed that. You said that adaptive coding was -- 10:23:51 18 was known at the time. Correct? 10:23:54 19 A. I either reviewed literature, or I just knew 10:23:56 20 about it from previous review. 10:23:58 21 Q. Yeah. 10:24:00 22 A. I mean, there's a certain amount of knowledge in 10:24:00 23 your head. 10:24:03 24 Q. Sure. And then you sat down and you developed 10:24:04 25 an idea for making this modification to ADPCM. Correct? 10:24:07</p>
<p style="text-align: right;">Page 54</p> <p>1 about sort of the work that you did on ADPCM which 10:21:19 2 involved varying the order of -- in connection with that 10:21:24 3 system. The nine -- as we discussed a little bit 10:21:30 4 earlier, the 9,920,513 patents are directed to a claimed 10:21:35 5 invention that can use any number of different 10:21:41 6 preexisting data compression algorithms. Correct? 10:21:48 7 A. Well, I don't know what you mean by "directed 10:21:57 8 to," but they certainly -- you could use multiple 10:22:00 9 compression techniques or algorithms or whichever word 10:22:03 10 we want to use just informally as part of -- as part 10:22:07 11 of the invention. 10:22:12 12 Q. And so what I was asking is, have you ever 10:22:13 13 developed or designed any data compression systems that 10:22:15 14 used preexisting data compression algorithms but in a 10:22:22 15 new way? 10:22:29 16 A. I think that's the same question you asked me. 10:22:30 17 It's the same answer. It's -- the one I gave you is one 10:22:31 18 example of it. 10:22:32 19 Q. Okay. 10:22:35 20 A. The -- I mean, that's not the only example, but 10:22:35 21 ADPCM with linear predictive coding was an existing 10:22:39 22 technique, and I -- and I built upon that. 10:22:43 23 Q. And you described the process that you went 10:22:45 24 through to do that work at Hewlett-Packard while you 10:22:47 25 were in college. Over time has your methodology for how 10:22:53</p>	<p style="text-align: right;">Page 56</p> <p>1 A. Very generally speaking, that's correct, yes. 10:24:13 2 Q. So my question is, since that point in time, for 10:24:16 3 the other systems that you've developed, have you 10:24:21 4 basically used the same process, or did you use a 10:24:26 5 different process to design systems? 10:24:29 6 A. First, I wouldn't really characterize it as a 10:24:36 7 process. It's more of a haphazard thing. I -- 10:24:39 8 sometimes I sit down and deliberately read the 10:24:42 9 literature and try to come up with a better way to do 10:24:44 10 something. Sometimes it just pops into my head. And 10:24:47 11 this happens to all people that are researchers. And 10:24:50 12 sometimes you just get lucky; something comes in. 10:24:50 13 Sometimes you are confronted with a problem, and you 10:24:51 14 spend a long time trying to solve it. So it's -- it 10:24:53 15 really depends on the situation. 10:24:57 16 Q. Is there any system that you've designed that 10:25:01 17 you can recall going through a different process with? 10:25:06 18 A. Yeah. I mean, probably each one's a little bit 10:25:09 19 different, actually. 10:25:13 20 Q. Give one example, please. 10:25:14 21 A. I can just go chronologically. The next one 10:25:16 22 would be -- well, I designed another one while I was an 10:25:20 23 undergraduate, but I'll skip that, go to graduate 10:25:23 24 school. So I was a Ph.D. student, and I designed a 10:25:27 25 system whose fundamental components are based on what's 10:25:31</p>

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<p>1 called vector quantization. That's abbreviated VQ. So 10:25:34</p> <p>2 that was for my Ph.D. work. I designed a number of 10:25:42</p> <p>3 different systems. I analyzed them mathematically. I 10:25:45</p> <p>4 wrote software to simulate them. Some of them I even 10:25:49</p> <p>5 implemented in realtime. 10:25:52</p> <p>6 Q. What was the improvement that you made to VQ? 10:25:55</p> <p>7 A. Well, there's -- there's -- it's not just one 10:25:59</p> <p>8 thing. There's a -- there's a number of different ones. 10:26:02</p> <p>9 It depends which one you're talking about. 10:26:04</p> <p>10 Q. Sorry. It's not an area I'm familiar with. 10:26:07</p> <p>11 Could you start with one, and we can talk from there? 10:26:10</p> <p>12 A. Okay. So one example would be to improve the 10:26:13</p> <p>13 quality in terms of the -- let's say to improve the 10:26:16</p> <p>14 end-to-end distortion versus rate comparison of VQ 10:26:23</p> <p>15 subject to what's called channel noise, and with a 10:26:30</p> <p>16 complexity constraint. 10:26:42</p> <p>17 Q. And so I apologize for being a step behind. 10:26:45</p> <p>18 How -- how did this improve data compression in 10:26:49</p> <p>19 particular? 10:26:54</p> <p>20 A. Well, again, it's kind of complicated. But data 10:27:02</p> <p>21 compression by itself doesn't often take into account 10:27:06</p> <p>22 many constraints in the world, such as speed, 10:27:07</p> <p>23 complexity, channel noise, space. So one of the 10:27:08</p> <p>24 constraints that I took in account, which is a real 10:27:13</p> <p>25 world constraint, is channel noise. And that means that 10:27:19</p>	<p>1 the quality of the compression. 10:29:00</p> <p>2 Q. Now, the '513 and '992 patents don't have 10:29:02</p> <p>3 anything to do with that. Correct? 10:29:06</p> <p>4 A. Well, they don't talk about channel noise. 10:29:08</p> <p>5 Q. What was the other system that you -- that you 10:29:15</p> <p>6 developed while you were an undergrad? 10:29:17</p> <p>7 A. So there was another one. This was part of a 10:29:20</p> <p>8 lab course I took. And it was a little bit tangential. 10:29:22</p> <p>9 It was mostly involved in actually building a computer 10:29:27</p> <p>10 from scratch. So we -- back then we had -- we didn't 10:29:33</p> <p>11 have microprocessors that we could use, so they -- in 10:29:35</p> <p>12 fact, the rules of the class were that we had to use 10:29:39</p> <p>13 discrete elements. These were called TTL logic. And we 10:29:42</p> <p>14 had to design a computer from just basic gates -- AND 10:29:47</p> <p>15 gates, OR gates, NAND gates -- without using what's 10:29:53</p> <p>16 called an ALU, an arithmetic logic unit. And so we 10:29:56</p> <p>17 basically designed a computer from scratch. I did this 10:29:58</p> <p>18 with two lab partners. 10:30:01</p> <p>19 And on top of that, I -- as part of this 10:30:03</p> <p>20 project, I designed a compression system for -- it was 10:30:06</p> <p>21 speech again. So we -- we interfaced it with a speech, 10:30:09</p> <p>22 a microphone, and we did compression speech. 10:30:12</p> <p>23 Q. How did the system work? 10:30:18</p> <p>24 A. Well, I'm not sure what your question is. 10:30:24</p> <p>25 Sorry. 10:30:26</p>
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<p>1 after you compress the data, if you transmit the data 10:27:21</p> <p>2 over like a radio link, for example, some of the bits 10:27:22</p> <p>3 that you send might not come out the same as when you 10:27:25</p> <p>4 sent them. That's called channel noise. 10:27:28</p> <p>5 So what I did is I worked on a way of 10:27:31</p> <p>6 compressing the data so that it anticipates the 10:27:34</p> <p>7 statistical fluctuations of a channel and can try to 10:27:38</p> <p>8 make the end result better than it would have been had I 10:27:42</p> <p>9 not compressed it with the channel noise in mind. 10:27:45</p> <p>10 Q. So was this some form of encrypting it with some 10:27:49</p> <p>11 kind of redundancy check, or was it some other way to 10:27:57</p> <p>12 deal with channel noise? 10:28:00</p> <p>13 A. It's neither. You sort of just combined two 10:28:01</p> <p>14 things that don't normally get combined. But it -- what 10:28:05</p> <p>15 it involved is modifying the data compressor to mitigate 10:28:09</p> <p>16 the effects of channel noise. It's -- the lingo people 10:28:13</p> <p>17 usually use for that is called joint source-channel 10:28:18</p> <p>18 coding, and you put like a hyphen between the word 10:28:21</p> <p>19 "source" and "channel." 10:28:24</p> <p>20 Q. Did performing -- well, strike that. 10:28:38</p> <p>21 So this was mainly a technique that dealt with 10:28:40</p> <p>22 distortions that could occur during transmission over 10:28:48</p> <p>23 the channel. Correct? 10:28:51</p> <p>24 A. It took into account distortion that could occur 10:28:52</p> <p>25 due to the channel. And that would ultimately affect 10:28:57</p>	<p>1 Q. Could you describe for me -- I don't need to 10:30:27</p> <p>2 hear about the -- the noncompression-related aspects. 10:30:29</p> <p>3 But could you describe for me how the speech compression 10:30:32</p> <p>4 aspect of that project operated? 10:30:35</p> <p>5 A. So that -- the -- maybe this might save you some 10:30:38</p> <p>6 time. The speech compression aspect of that, I -- I 10:30:42</p> <p>7 would not say is particularly innovative. It wasn't a 10:30:44</p> <p>8 new thing it was just implementing a speech compression 10:30:48</p> <p>9 algorithm based on existing prior art, let's say, just 10:30:52</p> <p>10 to demonstrate that the computer we built was adequate. 10:30:56</p> <p>11 So the main focus was the building the computer, but you 10:30:59</p> <p>12 asked about compression, so -- 10:31:04</p> <p>13 Q. Okay. I didn't want to skip it, because you -- 10:31:05</p> <p>14 you had raised it, but -- but fair enough. 10:31:07</p> <p>15 Why don't we take a break, and we'll come back 10:31:11</p> <p>16 in ten minutes. 10:31:15</p> <p>17 A. Sure. 10:31:21</p> <p>18 THE VIDEOGRAPHER: This ends Media No. 1 in the 10:31:22</p> <p>19 deposition of Dr. Kenneth Zeger. We are off the record. 10:31:25</p> <p>20 The time is 10:31 a.m. 10:31:26</p> <p>21 (Off record) 10:31:32</p> <p>22 THE VIDEOGRAPHER: This begins Media No. 2 in 10:54:38</p> <p>23 the deposition of Dr. Kenneth Zeger. We are back on the 10:54:41</p> <p>24 record. The time is 10:54 a.m. 10:54:44</p> <p>25</p>

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<p>1 BY MR. LANTIER: 10:54:46</p> <p>2 Q. Okay. Dr. Zeger, what did you discuss with 10:54:46</p> <p>3 counsel during the break? 10:54:49</p> <p>4 A. Talked about lunch, we talked about kidney 10:54:51</p> <p>5 stones, and we talked about stingrays. 10:54:55</p> <p>6 Q. Mostly very good. 10:55:00</p> <p>7 Have you ever designed any hardware for data 10:55:03</p> <p>8 compression? 10:55:07</p> <p>9 A. Yes. 10:55:11</p> <p>10 Q. What hardware was that? 10:55:12</p> <p>11 A. So actually let me just clarify. When you say 10:55:17</p> <p>12 design hardware, does that include putting together 10:55:21</p> <p>13 existing components to create a hardware system or 10:55:24</p> <p>14 board? 10:55:29</p> <p>15 Q. Yes, it does. 10:55:29</p> <p>16 A. Okay. Well, the very first thing I told you 10:55:30</p> <p>17 about at HP involved that. 10:55:32</p> <p>18 Q. Have you ever designed a new piece of hardware 10:55:34</p> <p>19 that wasn't constituted of -- of preexisting compression 10:55:36</p> <p>20 hardware? 10:55:43</p> <p>21 A. I think, yeah, I can say once. 10:55:49</p> <p>22 Q. When was that? 10:55:51</p> <p>23 A. That would be around late '90s. 10:55:54</p> <p>24 Q. And what did you design? 10:55:58</p> <p>25 A. Unfortunately I can't tell you. It was 10:56:00</p>	<p>1 A. Well, it's allowing the possibility of it. 10:57:35</p> <p>2 Q. Let me ask you a question not specific to Hsu. 10:57:39</p> <p>3 What is -- what is a data block? 10:57:45</p> <p>4 A. So that, have to be careful because "data block" 10:57:50</p> <p>5 I believe is part of the claim language in our claim. 10:57:54</p> <p>6 So are you talking about inside the context of the 10:57:57</p> <p>7 patents or just outside of them? 10:58:01</p> <p>8 Q. Would your answer be different? 10:58:03</p> <p>9 A. It could be. I don't know, you know, if -- I 10:58:04</p> <p>10 don't know if you want a formal construction or just a 10:58:10</p> <p>11 general off-the-cuff kind of idea. 10:58:12</p> <p>12 Q. I'm not asking for you to perform any legal 10:58:15</p> <p>13 claim construction. I'm just asking for your opinions 10:58:18</p> <p>14 as a person who's an expert in this area. 10:58:21</p> <p>15 Let's start with outside the context of the '992 10:58:26</p> <p>16 and '513 patents. What is a data block? 10:58:30</p> <p>17 A. Well, you just asked me about the Hsu reference 10:58:34</p> <p>18 that's Exhibit 3, so I can tell you in -- in their 10:58:36</p> <p>19 context I believe a block is just a collection of bytes. 10:58:40</p> <p>20 I think they may have even specified how many bytes. 10:58:49</p> <p>21 And I believe they're contiguous. They're in a row. I 10:58:52</p> <p>22 mean, I'm not sure where that was, but somewhere in 10:58:56</p> <p>23 there I recall they had blocks of a particular length. 10:58:58</p> <p>24 Q. And I think in the Hsu reference they use 10:59:04</p> <p>25 5000-byte-long sections, but that -- that may be 10:59:08</p>
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<p>1 classified work for the government. 10:56:04</p> <p>2 Q. Okay. Did you receive any patents for that 10:56:07</p> <p>3 work? 10:56:13</p> <p>4 A. No. No. 10:56:13</p> <p>5 Q. And you didn't publish anything concerning that 10:56:14</p> <p>6 work. Correct? 10:56:17</p> <p>7 A. I did publish, but it was classified 10:56:18</p> <p>8 publication. 10:56:21</p> <p>9 Q. Okay. You didn't publish anything that I could 10:56:22</p> <p>10 obtain. Correct? 10:56:25</p> <p>11 A. Most likely not. 10:56:27</p> <p>12 Q. Let's turn to the Hsu reference, then. And I 10:56:29</p> <p>13 wanted to ask you a couple questions about that one. 10:56:34</p> <p>14 Hsu is Exhibit No. 3. Do you have it before you? 10:56:38</p> <p>15 A. Yes. 10:56:47</p> <p>16 Q. And I was interested in a couple of things here. 10:56:47</p> <p>17 If we start with the summary, do you see that the second 10:56:57</p> <p>18 sentence has a parenthetical clause? 10:57:06</p> <p>19 A. Yes. 10:57:13</p> <p>20 Q. And the parenthetical clause says "possibly a 10:57:14</p> <p>21 different algorithm for each block." Correct? 10:57:17</p> <p>22 A. Yes. 10:57:21</p> <p>23 Q. So in the Hsu article, it's contemplated that a 10:57:22</p> <p>24 different compression algorithm will be used for each 10:57:28</p> <p>25 data block that's being compressed. Correct? 10:57:32</p>	<p>1 incorrect. Let's just confirm that. 10:59:16</p> <p>2 A. They talk about 500 -- I'm sorry. That's not a 10:59:28</p> <p>3 block. 10:59:32</p> <p>4 Q. And I think it's on maybe page 1102 of the 10:59:32</p> <p>5 journal. It's page 9 of the article. 10:59:35</p> <p>6 A. Oh, yeah, under the heading "Heterogeneous 10:59:42</p> <p>7 Compressor." 10:59:45</p> <p>8 Q. Yeah. 10:59:46</p> <p>9 A. Fixed size blocks, 5K in the current 10:59:46</p> <p>10 implementation. 10:59:50</p> <p>11 Q. Is that 5,000 bytes, or is it 5,000 bits, or you 10:59:52</p> <p>12 don't know? 10:59:56</p> <p>13 A. Actually I'm not sure, but I would have guessed 10:59:57</p> <p>14 bytes, but that's just a guess. I'd have to go and try 11:00:01</p> <p>15 to verify that. 11:00:04</p> <p>16 Q. Is it fair to say, though, that a data block is 11:00:06</p> <p>17 not limited to a 5,000-byte collection of bits? 11:00:09</p> <p>18 Correct? 11:00:16</p> <p>19 A. I -- I mean, I think their examples are specific 11:00:18</p> <p>20 numbers, but I don't think the techniques taught, you 11:00:23</p> <p>21 know, require a specific -- I don't think they're 11:00:26</p> <p>22 limited to that number. 11:00:29</p> <p>23 Q. Sure. And I'm not asking this question with 11:00:31</p> <p>24 respect specifically to Hsu. I'm just trying to 11:00:33</p> <p>25 understand what your understanding is of the -- of what 11:00:36</p>

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<p>1 a data block is. 11:00:38</p> <p>2 A. So just in general outside of the context of the 11:00:41</p> <p>3 patents in this -- in this case, roughly speaking, a 11:00:44</p> <p>4 block is typically just a collection of information, 11:00:47</p> <p>5 collection of bits, bytes, presumably continuously 11:00:50</p> <p>6 connected but not -- maybe not necessarily -- that's how 11:00:57</p> <p>7 most people typically would use the term "block." 11:01:02</p> <p>8 Sometimes people would use the word "vector." 11:01:05</p> <p>9 Q. Okay. And then as you read the '513 and '992 11:01:08</p> <p>10 patents, did you have a -- was your understanding of 11:01:11</p> <p>11 what a data block was in those patents different from 11:01:15</p> <p>12 your ordinary understanding? 11:01:18</p> <p>13 A. Let me take a look. 11:01:19</p> <p>14 So I think in the -- I'm looking right now at 11:01:43</p> <p>15 '513 patent, as an example, Claim 1. I think here data 11:01:46</p> <p>16 blocks could refer to what I just said, but it may have 11:01:52</p> <p>17 a broader meaning, you know, if we're using broadest 11:01:56</p> <p>18 reasonable interpretation. I didn't specifically 11:02:02</p> <p>19 construe the entire scope of what they mean. I didn't 11:02:05</p> <p>20 need to do that for this -- this case. But I don't 11:02:09</p> <p>21 think that they would necessarily be restricted to what 11:02:11</p> <p>22 I just said. It could be a much more general meaning. 11:02:15</p> <p>23 Q. Okay. One other piece of terminology. I just 11:02:19</p> <p>24 want to make sure I understand what your understanding 11:02:21</p> <p>25 is. For you, what is data compression? 11:02:23</p>	<p>1 certain things within that block occur. Other 11:03:34</p> <p>2 techniques will look for patterns. Other techniques 11:03:37</p> <p>3 will just -- I mean, there's -- again, it depends if 11:03:40</p> <p>4 it's lossy, depends if it's lossless. There's many 11:03:48</p> <p>5 different techniques. 11:03:53</p> <p>6 Q. What happens to the data in the block itself 11:03:56</p> <p>7 during the compression process? 11:03:56</p> <p>8 A. When you say what happens to it, I mean, the way 11:03:58</p> <p>9 this works is if you -- let's say, for example, you 11:03:59</p> <p>10 implement it on a computer. The data would typically -- 11:04:00</p> <p>11 if that's your input, it would reside somewhere in 11:04:04</p> <p>12 memory. And then you would run programs, techniques, 11:04:07</p> <p>13 subroutines, whatever you want to call it, that would 11:04:09</p> <p>14 process the data and produce a compressed version of it. 11:04:14</p> <p>15 What actually happens to that data, it just sits in 11:04:18</p> <p>16 memory typically. It doesn't wander away or anything. 11:04:21</p> <p>17 Q. The uncompressed data still sits in the memory? 11:04:23</p> <p>18 A. I mean, could. You could -- you could 11:04:24</p> <p>19 intentionally delete it if you want. You could change 11:04:24</p> <p>20 it if you want. It's really up to you. It's really up 11:04:27</p> <p>21 to the designer, the programmer. 11:04:30</p> <p>22 Q. And then what's the relationship between the 11:04:31</p> <p>23 compressed data and the uncompressed data? 11:04:34</p> <p>24 A. Well, so it depends what type of compression 11:04:38</p> <p>25 you're doing. If you're doing what's called lossless 11:04:42</p>
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<p>1 A. Now, is that in the context of a particular 11:02:29</p> <p>2 claim language or just generally speaking? 11:02:32</p> <p>3 Q. No, just generally speaking. 11:02:35</p> <p>4 A. Okay. Generally speaking, or again roughly 11:02:36</p> <p>5 speaking, data compression is -- and it's somewhat 11:02:38</p> <p>6 tautological, compressing data, reducing the amount of 11:02:40</p> <p>7 information, bits/bytes, to represent data. 11:02:44</p> <p>8 Q. And so how does the compression process 11:02:48</p> <p>9 typically work? 11:02:53</p> <p>10 A. I'm not sure there is a typical type of process. 11:02:54</p> <p>11 There's many different techniques. 11:02:57</p> <p>12 Q. And I understand there's different techniques. 11:02:59</p> <p>13 And I'm trying to ask the question from a higher level 11:03:00</p> <p>14 than that. So maybe we can just walk through it. 11:03:05</p> <p>15 There's a -- there's a block of uncompressed data. 11:03:08</p> <p>16 Okay? That you're going to compress. 11:03:11</p> <p>17 A. That's not required, but that's -- that could be 11:03:14</p> <p>18 an example. 11:03:16</p> <p>19 Q. Yes, it is an example. 11:03:17</p> <p>20 A. Okay. 11:03:19</p> <p>21 Q. And that block of uncompressed data is going to 11:03:19</p> <p>22 be compressed. What -- what happens during the 11:03:23</p> <p>23 compression process? 11:03:26</p> <p>24 A. It really depends on the technique. Some -- 11:03:27</p> <p>25 some techniques will analyze statistically how often 11:03:30</p>	<p>1 compression, the relationship is that the compressed 11:04:46</p> <p>2 data needs to retain enough information to recover the 11:04:50</p> <p>3 original uncompressed data completely. Okay. So it's 11:04:55</p> <p>4 completely -- the -- the original data is recoverable 11:04:58</p> <p>5 from the compressed data if it's lossless coding. 11:05:02</p> <p>6 The other relationship is that the idea -- the 11:05:07</p> <p>7 whole idea behind it is to reduce the amount of data. 11:05:08</p> <p>8 So presumably the compressed data is smaller than the 11:05:11</p> <p>9 uncompressed data. And then the -- the second situation 11:05:15</p> <p>10 is when you have lossy coding. And that's spelled 11:05:19</p> <p>11 L-O-S-S-Y. In that situation the data that comes in is 11:05:25</p> <p>12 compressed to data which does not necessarily exactly 11:05:32</p> <p>13 recover the original data but only approximately does. 11:05:33</p> <p>14 So that would be the relationship there. 11:05:39</p> <p>15 Q. Okay. If we go back to Exhibit 3, which is Hsu, 11:05:41</p> <p>16 and I'm still on the first page of the article, which is 11:05:50</p> <p>17 page 4 of the -- the exhibit -- 11:05:54</p> <p>18 A. Okay. 11:06:00</p> <p>19 Q. Under the title "Introduction," do you see it 11:06:01</p> <p>20 says "The primary motivation in studying compression is 11:06:04</p> <p>21 the savings in space that it provides"? 11:06:07</p> <p>22 A. Yes. 11:06:10</p> <p>23 Q. Do you agree with that? 11:06:11</p> <p>24 A. It's a very general statement. I would 11:06:18</p> <p>25 certainly say that it really depends on the context. In 11:06:20</p>

<p style="text-align: right;">Page 69</p> <p>1 some contexts it has nothing to do with space. It has 11:06:26</p> <p>2 to do with time. Sometimes it has to do with 11:06:30</p> <p>3 transmission bandwidth in a channel, how much -- how 11:06:34</p> <p>4 much you have to pay to send bits per second across a 11:06:38</p> <p>5 channel. Sometimes it has to do with complexity. 11:06:43</p> <p>6 Sometimes it has to do with heat dissipation. Like in a 11:06:46</p> <p>7 cellphone, you don't want to burn the battery out. 11:06:50</p> <p>8 Sometimes it has to do with how many instructions you 11:06:53</p> <p>9 use because you have a limited amount. There's many 11:06:57</p> <p>10 different reasons. 11:06:57</p> <p>11 So I would say as a general statement I disagree 11:06:57</p> <p>12 with this. But perhaps these authors have a particular, 11:07:02</p> <p>13 you know, idea in mind that -- for which maybe this is 11:07:05</p> <p>14 important. 11:07:08</p> <p>15 Q. Now, I'm going to ask you a couple of questions 11:07:09</p> <p>16 without directing you to a particular sentence, because 11:07:14</p> <p>17 I think they're covered in your report. But feel free 11:07:17</p> <p>18 to refer to anything you want to in Hsu. 11:07:21</p> <p>19 The -- the Hsu reference discloses a two-pass 11:07:27</p> <p>20 system for data compression. Correct? 11:07:34</p> <p>21 A. That's correct. 11:07:38</p> <p>22 Q. And in the first step, or the first pass, the 11:07:38</p> <p>23 data blocks are -- are analyzed. Correct? 11:07:43</p> <p>24 A. That's correct. 11:07:47</p> <p>25 Q. And those would be the uncompressed data blocks. 11:07:48</p>	<p style="text-align: right;">Page 71</p> <p>1 A. No. That's a mischaracterization. My -- my 11:09:43</p> <p>2 statement is that the whole idea behind Hsu -- or one of 11:09:46</p> <p>3 the main ideas behind Hsu is to take blocks that are 11:09:50</p> <p>4 compressed by the same compressor and kind of merge them 11:09:57</p> <p>5 together in a way, connect them, for reasons that they 11:10:00</p> <p>6 describe very clearly. So I'm not saying they don't 11:10:02</p> <p>7 account for the situation you described, but that's 11:10:06</p> <p>8 certainly not the main teaching of Hsu. I mean, it -- 11:10:09</p> <p>9 yeah. 11:10:12</p> <p>10 Q. I mean, if we go back to the -- the summary of 11:10:13</p> <p>11 Hsu, in the parenthetical we viewed before, it states 11:10:19</p> <p>12 that there would possibly be a different algorithm for 11:10:27</p> <p>13 each block. Correct? 11:10:31</p> <p>14 A. That's correct. 11:10:32</p> <p>15 Q. And that would be, for example, the situation 11:10:33</p> <p>16 where no two data blocks that are adjacent to one 11:10:34</p> <p>17 another are going to be compressed using the same 11:10:40</p> <p>18 algorithm. Correct? 11:10:44</p> <p>19 A. That could -- it could happen, but that's not 11:10:45</p> <p>20 the main idea behind Hsu. That's just kind of like a 11:10:48</p> <p>21 backup plan is how I would view that. That's not the 11:10:50</p> <p>22 goal of the teaching of Hsu. 11:10:54</p> <p>23 Q. But it is disclosed by Hsu. Correct? 11:10:56</p> <p>24 A. It's allowed by Hsu. 11:10:58</p> <p>25 Q. And in the -- in the first pass, which is the -- 11:11:04</p>
<p style="text-align: right;">Page 70</p> <p>1 They're analyzed to determine whether the -- there is a 11:07:53</p> <p>2 particular encoding algorithm that should be used for 11:07:56</p> <p>3 that data. Correct? 11:08:01</p> <p>4 A. That's one thing that's done, yes. 11:08:02</p> <p>5 Q. Okay. And then in the second pass, that 11:08:05</p> <p>6 compression occurs. Correct? 11:08:08</p> <p>7 A. That's one thing that occurs, yes. 11:08:11</p> <p>8 Q. And if no two blocks of uncompressed data that 11:08:13</p> <p>9 are adjacent to one another are going to receive the 11:08:25</p> <p>10 same compression algorithm, then in Hsu the data will be 11:08:29</p> <p>11 compressed on a block-by-block basis. Correct? 11:08:34</p> <p>12 A. Well, the premise there is not the idea behind 11:08:39</p> <p>13 the paper. It's not behind what's taught by Hsu. Hsu's 11:08:43</p> <p>14 fundamental premise is that you will have neighboring 11:08:47</p> <p>15 blocks compressed by the same compression algorithm. So 11:08:51</p> <p>16 you're asking a question that's -- whose premise is 11:08:56</p> <p>17 really contradictory to the whole idea behind Hsu. 11:09:00</p> <p>18 Q. Are you able to answer my question? 11:09:03</p> <p>19 A. I don't think I can because it's sort of -- it's 11:09:06</p> <p>20 a question with what I consider a false premise. 11:09:09</p> <p>21 Q. Your opinion in connection with these 11:09:23</p> <p>22 proceedings is based on your belief that Hsu does not 11:09:26</p> <p>23 account for a situation where no two adjacent blocks of 11:09:33</p> <p>24 data will receive the same compression algorithm. Is 11:09:39</p> <p>25 that correct? 11:09:42</p>	<p style="text-align: right;">Page 72</p> <p>1 where we agreed that analysis of the uncompressed data 11:11:08</p> <p>2 occurs, the data blocks are always analyzed on a 11:11:13</p> <p>3 block-by-block basis in Hsu. Correct? 11:11:18</p> <p>4 A. In the first -- yeah, in the first pass, I agree 11:11:23</p> <p>5 with that statement. 11:11:26</p> <p>6 Q. Now, if you turn to page 1104 of Exhibit 3, the 11:11:36</p> <p>7 Hsu reference -- 11:11:40</p> <p>8 A. Okay. 11:11:42</p> <p>9 Q. -- I wanted to ask some questions about the 11:11:43</p> <p>10 first full paragraph on that page, which begins with the 11:11:46</p> <p>11 phrase "To determine the block type." 11:11:50</p> <p>12 A. I see that. 11:11:52</p> <p>13 Q. Okay. This is the paragraph in Hsu where the 11:11:53</p> <p>14 document describes how the block type will be 11:12:01</p> <p>15 determined. Correct? 11:12:06</p> <p>16 A. It describes it there, yes. 11:12:09</p> <p>17 Q. This is the -- this is a description of 11:12:12</p> <p>18 something that will occur during Phase 1 in Hsu. 11:12:14</p> <p>19 Correct? 11:12:18</p> <p>20 A. It describes how the block type is determined, 11:12:19</p> <p>21 but let me point out it doesn't do it in very much 11:12:22</p> <p>22 detail. 11:12:26</p> <p>23 Q. But it -- this is something that is describing a 11:12:28</p> <p>24 portion of what happens in Phase 1. Correct? 11:12:31</p> <p>25 A. It's describing -- it's describing events that 11:12:34</p>

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<p>1 occur in Phase 1. That's correct. 11:12:38</p> <p>2 Q. The first sentence in that paragraph states that 11:12:39</p> <p>3 Hsu uses a procedure called new-file. Correct? 11:12:43</p> <p>4 A. That's right. 11:12:48</p> <p>5 Q. And it also states in that paragraph that 11:12:48</p> <p>6 new-file is an extension of the UNIX file command. 11:12:52</p> <p>7 Correct? 11:12:56</p> <p>8 A. That's correct. 11:12:57</p> <p>9 Q. As of 1995 were you familiar with the UNIX file 11:12:58</p> <p>10 command? 11:13:03</p> <p>11 A. Yes. 11:13:03</p> <p>12 Q. And how familiar with it were you? 11:13:04</p> <p>13 A. Well, I've -- I've been a UNIX user ever since 11:13:08</p> <p>14 the early 1980s, and I've used it continuously since 11:13:11</p> <p>15 then, probably never more than a week without using it. 11:13:15</p> <p>16 Q. And the UNIX file command is something that 11:13:19</p> <p>17 persons of skill in the data compression field would 11:13:22</p> <p>18 have been familiar with by the year 2001. Correct? 11:13:25</p> <p>19 A. People who are skilled in the art who use 11:13:29</p> <p>20 UNIX -- I mean, a lot of people don't use UNIX. But 11:13:35</p> <p>21 those that do use UNIX probably would be familiar with 11:13:40</p> <p>22 using the file command. They would almost certainly not 11:13:44</p> <p>23 be familiar with how it actually works. 11:13:49</p> <p>24 Q. Had you -- you had used the UNIX file command -- 11:13:51</p> <p>25 I'm sorry. You had used the UNIX file command yourself 11:13:55</p>	<p>1 really more focused on is how a person of skill in the 11:15:12</p> <p>2 art reading this article in 2001 would understand it. 11:15:16</p> <p>3 But if -- 11:15:19</p> <p>4 A. Okay. 11:15:20</p> <p>5 Q. If you want to make a point about 1994 versus 11:15:20</p> <p>6 1995, that's okay too. 11:15:23</p> <p>7 A. Okay. I think there actually is a slight 11:15:26</p> <p>8 distinction because -- 11:15:28</p> <p>9 Q. Sure. 11:15:29</p> <p>10 A. -- in my understanding of what Hsu's teaching, I 11:15:29</p> <p>11 have to know what Hsu knew at that time. And if a 11:15:32</p> <p>12 person like Hsu is writing this in '94, I have to 11:15:36</p> <p>13 understand, What is it that he's teaching? And file at 11:15:41</p> <p>14 that time, I don't -- I haven't seen any evidence that 11:15:45</p> <p>15 that was in the public domain or even known. I mean, 11:15:48</p> <p>16 these days sometimes things are published. But the 11:15:52</p> <p>17 source code for that, I haven't seen any evidence by 11:15:53</p> <p>18 Oracle or otherwise, or not that I know of, that file -- 11:15:55</p> <p>19 a source code behind file, how it really works, was 11:15:59</p> <p>20 available to a person of ordinary skill. So for all I 11:16:02</p> <p>21 know, a person of ordinary skill would know what's 11:16:06</p> <p>22 written in this paragraph and they would know what file 11:16:10</p> <p>23 does when you sit down in front of a computer and 11:16:13</p> <p>24 actually use it. And I certainly have sat down in front 11:16:16</p> <p>25 of a computer at that time period and used it, and I -- 11:16:18</p>
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<p>1 prior to 2001. Correct? 11:13:56</p> <p>2 A. Correct. 11:13:57</p> <p>3 Q. And it's a file type detector. Correct? 11:13:58</p> <p>4 A. I would call it a file type estimator. 11:14:03</p> <p>5 Q. And the -- the paragraph in Hsu that we've been 11:14:07</p> <p>6 looking at states that UNIX file works by examining the 11:14:13</p> <p>7 first 512 bytes of a file and comparing the pattern of 11:14:17</p> <p>8 data contained in it to a collection of known data 11:14:23</p> <p>9 patterns from UNIX and other operating systems. 11:14:27</p> <p>10 Do you see that? 11:14:30</p> <p>11 A. Yes. 11:14:31</p> <p>12 Q. And you agree that that's a fair description of 11:14:32</p> <p>13 how the UNIX file command works. Correct? 11:14:35</p> <p>14 A. Let me point out -- I don't know if I fully 11:14:40</p> <p>15 agree with that. At that time -- so are we talking 11:14:43</p> <p>16 about 1994 or '5? 11:14:46</p> <p>17 Q. Yes. We're talking about the time at which the 11:14:49</p> <p>18 article was written. 11:14:51</p> <p>19 A. Okay. The article was written, I believe, in 11:14:53</p> <p>20 '94. 11:14:56</p> <p>21 Q. Sorry. Published. In 1995. 11:14:57</p> <p>22 A. But the author's knowledge of UNIX would be at 11:15:00</p> <p>23 the time they submitted it, at least. I don't know 11:15:03</p> <p>24 which one you want me to talk about. 11:15:07</p> <p>25 Q. Fair enough to make the distinction. What I'm 11:15:09</p>	<p>1 I know what it produced. But there's no way to deduce 11:16:18</p> <p>2 from that what's really going on so-called under the 11:16:22</p> <p>3 hood at that time period. 11:16:26</p> <p>4 So furthermore -- I'm trying to get back to your 11:16:28</p> <p>5 question. But furthermore, there were many, many 11:16:32</p> <p>6 different UNIXes that existed at that time, as there do 11:16:35</p> <p>7 today. And UNIX was not necessarily consistent, or the 11:16:38</p> <p>8 functions like file were not necessarily operating the 11:16:44</p> <p>9 same or even programmed the same way. 11:16:47</p> <p>10 In fact, the footnote here, Footnote 20 on that 11:16:50</p> <p>11 first sentence that you -- of the paragraph that begins 11:16:54</p> <p>12 "To determine the block type," if you go back to the 11:16:57</p> <p>13 references, it refers to Ian Darwin in the Berkeley UNIX 11:17:00</p> <p>14 operating system. Now, this author Hsu doesn't say that 11:17:08</p> <p>15 he's referring to the file command as written by Ian 11:17:12</p> <p>16 Darwin. He's just footnoting the fact that there is a 11:17:17</p> <p>17 file command. So I don't even know if a person of 11:17:20</p> <p>18 ordinary skill in the art would know that. But it's -- 11:17:23</p> <p>19 it's pretty well known that Ian Darwin created his own 11:17:26</p> <p>20 file software from scratch. He even writes that he 11:17:29</p> <p>21 doesn't look at anybody else's code. So he just created 11:17:30</p> <p>22 that from scratch. 11:17:34</p> <p>23 I don't know what other file systems -- how 11:17:35</p> <p>24 they're written on other UNIX systems. They could be 11:17:37</p> <p>25 different. They probably are to some extent. And there 11:17:37</p>

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<p>1 was no standard at that time. So the bottom line is I'm 11:17:40</p> <p>2 note sure if I agree with the sentence. You asked me 11:17:44</p> <p>3 about that. I'm not sure to what extent that's 11:17:46</p> <p>4 reliable. 11:17:49</p> <p>5 Q. And that was in 1990 -- that's your -- that's 11:17:54</p> <p>6 you stating your understanding of what you believe Hsu 11:17:59</p> <p>7 would have understood at the time that he wrote this 11:18:01</p> <p>8 article. Correct? 11:18:07</p> <p>9 A. That's correct. 11:18:09</p> <p>10 Q. As a user of UNIX and the UNIX file command, by 11:18:10</p> <p>11 the year 2000 you knew that sometimes the UNIX file 11:18:16</p> <p>12 command would return an indication that the file was 11:18:25</p> <p>13 processed but its type was undetermined. Correct? 11:18:30</p> <p>14 A. That's correct, and it would -- it would produce 11:18:33</p> <p>15 the word "data" to indicate that fact. 11:18:35</p> <p>16 Q. And anyone who was familiar with the actual use 11:18:38</p> <p>17 of the UNIX file command by the year 2000 would have 11:18:42</p> <p>18 known that. Correct? 11:18:46</p> <p>19 A. Well, again, let me point out that by the year 11:18:47</p> <p>20 2000 there are many, many different types of UNIXes. 11:18:51</p> <p>21 And I'm basing this on the UNIXes that I've used. I 11:18:54</p> <p>22 can't certify that all UNIXes did the same thing. So 11:18:58</p> <p>23 I -- the answer is I don't know -- I can't account for 11:19:01</p> <p>24 every single UNIX, so I don't know. 11:19:03</p> <p>25 Q. But with respect to your experience, you 11:19:05</p>	<p>1 and compared to known patterns of data, but also the 512 11:20:52</p> <p>2 bytes in the middle of the set and the 512 bytes that 11:20:58</p> <p>3 were the last portion of the set, if they existed. 11:21:03</p> <p>4 Correct? 11:21:08</p> <p>5 A. Well, you're -- you're paraphrasing. That's not 11:21:09</p> <p>6 the entire sentence. But that's some of what's in that 11:21:12</p> <p>7 sentence. 11:21:16</p> <p>8 Q. Okay. Let me restate, then. The first 11:21:16</p> <p>9 modification that new-file made to UNIX file is that it 11:21:20</p> <p>10 would examine and compare not only the first 512 bytes 11:21:24</p> <p>11 of a data set but also 512 bytes in the middle of the 11:21:30</p> <p>12 set and the 512 bytes at the end if they exist. 11:21:36</p> <p>13 Correct? 11:21:42</p> <p>14 A. That's correct the way he wrote it. 11:21:43</p> <p>15 Q. And that first modification doesn't have 11:21:49</p> <p>16 anything to do with the way in which each of those 11:21:50</p> <p>17 512-byte segments will be analyzed. Correct? 11:21:54</p> <p>18 A. I disagree with that. 11:21:59</p> <p>19 Q. Okay. Where -- okay. How do you disagree? 11:22:01</p> <p>20 A. I believe that the first five words, it says 11:22:04</p> <p>21 first it examines and compares, and then it goes to tell 11:22:07</p> <p>22 about the various different portions. My understanding 11:22:10</p> <p>23 of this teaching from -- it's a -- it's a very limited 11:22:13</p> <p>24 teaching here. It's very vague, not detailed. It's 11:22:15</p> <p>25 very hard to understand what's going on. But my 11:22:19</p>
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<p>1 understood that the UNIX file command could not use 11:19:08</p> <p>2 determine a data type. Correct? 11:19:15</p> <p>3 A. From the times I used UNIX on the systems, the 11:19:17</p> <p>4 particular flavors of UNIX I used, that is correct. 11:19:21</p> <p>5 Q. And you're not aware of any version of UNIX that 11:19:24</p> <p>6 would always identify a data type. Correct? 11:19:29</p> <p>7 A. Again, what time period are you talking about? 11:19:33</p> <p>8 Q. By the year 2000. 11:19:36</p> <p>9 A. Oh. I don't know one way or the other because I 11:19:37</p> <p>10 haven't used every UNIX. 11:19:40</p> <p>11 Q. The description in Hsu of UNIX new-file is 11:19:45</p> <p>12 that -- excuse me, I -- I made a mistake. Strike the 11:19:50</p> <p>13 question. 11:19:55</p> <p>14 The description in Hsu of the UNIX file command 11:19:55</p> <p>15 states that it operated by examining the first 512 bytes 11:20:00</p> <p>16 of a file and comparing the pattern of data contained in 11:20:06</p> <p>17 it to a collection of known data patterns. Correct? 11:20:10</p> <p>18 A. That -- that's part of how Hsu characterized it. 11:20:11</p> <p>19 Q. And Hsu said that it -- its new-file proceeding 11:20:14</p> <p>20 works in a similar fashion. Correct? 11:20:26</p> <p>21 A. Correct. 11:20:31</p> <p>22 Q. But that there were two modifications. Correct? 11:20:32</p> <p>23 A. It says there it's with two modifications yeah. 11:20:34</p> <p>24 Q. The first modification is that under new-file 11:20:39</p> <p>25 not only the first 512 bytes of the file were examined 11:20:44</p>	<p>1 understanding is that the examination and the comparison 11:22:21</p> <p>2 includes modifications. 11:22:24</p> <p>3 Q. What words specifically in Hsu are you relying 11:22:29</p> <p>4 on for that opinion? 11:22:33</p> <p>5 A. Well, the previous sentence says, New-file works 11:22:35</p> <p>6 in a similar fashion with two modifications. First -- 11:22:38</p> <p>7 now, so everything that comes after "first" is part of 11:22:42</p> <p>8 the first modification. So part of that is the 11:22:47</p> <p>9 examination and comparison and then what it is that's 11:22:50</p> <p>10 compared. And then furthermore, if you read to the end 11:22:55</p> <p>11 of the paragraph in the context of the paragraph, it's 11:22:59</p> <p>12 very clear to me. 11:23:02</p> <p>13 Q. So your opinion -- your opinions about the -- 11:23:07</p> <p>14 the Hsu reference in this proceeding is based on your 11:23:12</p> <p>15 belief that the sentence beginning, First, comma, it 11:23:21</p> <p>16 examines, describes a modification that is made to the 11:23:26</p> <p>17 way in which an individual set of 512 bytes will be 11:23:31</p> <p>18 analyzed? 11:23:39</p> <p>19 A. Not exactly. My understanding is that if you 11:23:41</p> <p>20 read the entirety of Hsu and you have an understanding 11:23:46</p> <p>21 of how the UNIX file command works and you read Hsu, and 11:23:50</p> <p>22 specifically we talked about the situation where the 11:23:54</p> <p>23 ordinary file command in certain UNIXes, there's a 11:23:57</p> <p>24 situation where it doesn't recognize a type, so it 11:24:02</p> <p>25 returns a value of type -- it calls it data -- taking 11:24:06</p>

<p style="text-align: right;">Page 81</p> <p>1 all of that into account, Hsu never mentions anything 11:24:11</p> <p>2 about that situation, so the logical deduction of what a 11:24:15</p> <p>3 person of ordinary skill in the art would understand 11:24:17</p> <p>4 when they read this at the 2000 -- whatever it was, 11:24:21</p> <p>5 2001/2000 period of time, their understanding of what 11:24:23</p> <p>6 Hsu is teaching would have to be that there is some kind 11:24:26</p> <p>7 of change going on to the file command more than just 11:24:33</p> <p>8 where it looks. And furthermore, like I said, I didn't 11:24:35</p> <p>9 see any evidence that the -- a person of ordinary skill 11:24:41</p> <p>10 would even know what the file command is doing under the 11:24:44</p> <p>11 hood, say, how it works, because I don't think that was 11:24:49</p> <p>12 publically available. So I think a reasonable inference 11:24:50</p> <p>13 is that a person of ordinary skill in the art, when 11:24:52</p> <p>14 reading this paragraph of Hsu, would understand there's 11:24:56</p> <p>15 some slack here, and it -- Hsu may not be literally 11:24:58</p> <p>16 taking the file -- is almost certainly not taking the 11:25:02</p> <p>17 file command from UNIX and modifying it directly but 11:25:06</p> <p>18 somehow implementing their own version of it, and here 11:25:09</p> <p>19 they're summarizing the main ideas, the main changes. 11:25:12</p> <p>20 So that's why the phrase "it examines and compares" 11:25:16</p> <p>21 is -- would be understood by a person of ordinary skill 11:25:21</p> <p>22 at the time of the inventions in this IPR hearing to 11:25:25</p> <p>23 mean that there are modifications that are made, 11:25:29</p> <p>24 specifically, not allowing the case of a -- an "I don't 11:25:32</p> <p>25 know" situation. 11:25:35</p>	<p style="text-align: right;">Page 83</p> <p>1 provides a better indication of the primary data type of 11:27:22</p> <p>2 a file," et cetera, et cetera. And that word "primary" 11:27:25</p> <p>3 is italicized by Hsu, which is suggesting that it may 11:27:29</p> <p>4 not get the data type exactly right, but it just comes 11:27:35</p> <p>5 up with some answer. And then later on, the 11:27:41</p> <p>6 second-to-last sentence in that paragraph says, "Thus 11:27:45</p> <p>7 new-file decides on the most applicable data type." And 11:27:48</p> <p>8 the word "most applicable," that two-word phrase, is in 11:27:52</p> <p>9 quotation marks for emphasis by Hsu. And Hsu again is 11:27:57</p> <p>10 emphasizing that it basically never gives up. It never 11:28:00</p> <p>11 comes up with an "I don't know" or default situation. 11:28:03</p> <p>12 It always gets an answer even if it's perhaps not 11:28:07</p> <p>13 correct. It's either the primary data type, most 11:28:10</p> <p>14 applicable data type. Taking all that into account in 11:28:13</p> <p>15 the entirety of Hsu, that's why the phrase earlier, "it 11:28:16</p> <p>16 examines and compares," to me indicates that there's 11:28:20</p> <p>17 going to be modifications to the file -- the older UNIX 11:28:23</p> <p>18 file command in order to create the new-file command. 11:28:26</p> <p>19 And one of those modifications is certainly to get rid 11:28:31</p> <p>20 of the default case. 11:28:35</p> <p>21 Q. So just so I understand, the -- your opinion is 11:28:48</p> <p>22 that there are actually more than two modifications to 11:28:51</p> <p>23 the UNIX file command that are made for the purposes of 11:28:55</p> <p>24 new-file. Is that correct? 11:29:01</p> <p>25 A. Well, I think the way Hsu is counting 11:29:05</p>
<p style="text-align: right;">Page 82</p> <p>1 Q. Okay. So your opinion is that the words 11:25:36</p> <p>2 "examines and compares" in the third sentence of the 11:25:39</p> <p>3 first full paragraph in -- on page 1104 of Hsu would 11:25:48</p> <p>4 have been understood by a person of skill in the art to 11:25:57</p> <p>5 state that contrary to the ordinary operation of UNIX 11:26:02</p> <p>6 file, the new-file procedure will no longer be able to 11:26:06</p> <p>7 return an indication that the data type could not be 11:26:10</p> <p>8 determined. Is that correct? 11:26:14</p> <p>9 MR. MUTSCHELKNAUS: Objection to form. 11:26:16</p> <p>10 THE WITNESS: I believe that when a person of 11:26:17</p> <p>11 ordinary skill in the art reads those words "it examines 11:26:22</p> <p>12 and compares," in the context of everything disclosed in 11:26:26</p> <p>13 Hsu and their understanding of how file works, would 11:26:29</p> <p>14 mean basically what you said, that the -- the default 11:26:32</p> <p>15 case no longer exists in new-file. 11:26:36</p> <p>16 BY MR. LANTIER: 11:26:43</p> <p>17 Q. That is the basis for your opinion that changing 11:26:45</p> <p>18 Hsu to incorporate content-independent data compression 11:26:53</p> <p>19 would change the fundamental operation of Hsu. Correct? 11:26:59</p> <p>20 A. Well, all of my opinions are in my report. I 11:27:02</p> <p>21 mean, I can't just say that's my entire opinion. But 11:27:05</p> <p>22 there's -- in my report I outline a lot of the evidence 11:27:09</p> <p>23 and reasoning behind my opinion. But, you know, since 11:27:12</p> <p>24 I'm looking at this paragraph, I can point out here 11:27:16</p> <p>25 there's a sentence in this paragraph that reads, "This 11:27:19</p>	<p style="text-align: right;">Page 84</p> <p>1 modifications, if we're trying to enumerate 11:29:07</p> <p>2 modifications, his first modification is everything in 11:29:10</p> <p>3 the sentence that says "first." So I think he views the 11:29:12</p> <p>4 examination and comparing, which could be different than 11:29:16</p> <p>5 in file, together with the 512 bytes at the beginning, 11:29:20</p> <p>6 middle, and end, that's all his first modification. And 11:29:24</p> <p>7 the second modification is adding more of the known 11:29:27</p> <p>8 patterns. So that's the way he counts modifications. 11:29:29</p> <p>9 Q. And then Hsu is titled "Automatic Synthesis of 11:29:36</p> <p>10 Compression Techniques for Heterogenous Files." 11:29:41</p> <p>11 Correct? 11:29:45</p> <p>12 A. Yeah. 11:29:46</p> <p>13 Q. What's a heterogeneous file? 11:29:47</p> <p>14 A. I think he defines it as a mixture of different 11:29:50</p> <p>15 types of files. He says on page 1098, line 2, 11:29:54</p> <p>16 "Heterogeneous files are those which contain multiple 11:29:59</p> <p>17 types of data, such as text, images, binary, audio, or 11:30:05</p> <p>18 animation." 11:30:11</p> <p>19 Q. So a heterogeneous file is a -- is a single file 11:30:12</p> <p>20 that will contain data of multiple different data types. 11:30:16</p> <p>21 Correct? 11:30:21</p> <p>22 A. That seems to be the way he's defining it. 11:30:28</p> <p>23 Q. And so in Hsu, if we're looking back at page 11:30:37</p> <p>24 1104, one way to understand the reference to the 11:30:43</p> <p>25 indication of a primary data type of the file is that 11:30:52</p>

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<p>1 Hsu is interested in identifying which of the multiple 11:30:57</p> <p>2 data types in that particular file is the primary data 11:31:01</p> <p>3 type. Correct? 11:31:06</p> <p>4 MR. MUTSCHELKNAUS: Object to form. 11:31:15</p> <p>5 THE WITNESS: No. I don't think that's correct. 11:31:46</p> <p>6 I think that "primary" there means best guess at what 11:31:48</p> <p>7 the data type is. 11:31:52</p> <p>8 BY MR. LANTIER: 11:31:54</p> <p>9 Q. Data type of what? 11:31:55</p> <p>10 A. Well, okay. I -- I guess it's a little bit of 11:31:57</p> <p>11 what you said. It's kind of a mixture, actually. It's 11:32:03</p> <p>12 not a definite yes or no. It's if you have a -- if you 11:32:07</p> <p>13 have a file with multiple data types, the file may have 11:32:09</p> <p>14 more of one data type than the other. You know, it may 11:32:13</p> <p>15 be mostly images or something else. So I think it's 11:32:17</p> <p>16 trying to find out which one is the most significant in 11:32:22</p> <p>17 terms of occurrence so that it knows how to compress it. 11:32:27</p> <p>18 Q. The idea being that if -- if a particular file 11:32:32</p> <p>19 is two thirds text data and one third image data, the 11:32:34</p> <p>20 compression algorithm that should be used on that file 11:32:41</p> <p>21 should be a compression algorithm that is good for text 11:32:44</p> <p>22 data. Correct? 11:32:48</p> <p>23 A. In that example that's probably reasonable. 11:32:50</p> <p>24 Q. And then there's a second modification to UNIX 11:32:53</p> <p>25 file that's described in the first full paragraph on 11:33:00</p>	<p>1 To clarify one point, then, if we look the at 11:34:31</p> <p>2 the last sentence in that section -- it's the one that 11:34:33</p> <p>3 begins with "Thus new-file decides on the most 11:34:37</p> <p>4 applicable data type"? 11:34:40</p> <p>5 A. Yes. 11:34:42</p> <p>6 Q. See that? 11:34:42</p> <p>7 That's describing that new-file decides on the 11:34:43</p> <p>8 most applicable data type for the file. Correct? 11:34:46</p> <p>9 A. Yes. 11:34:55</p> <p>10 Q. Now, there -- and you've covered this in your -- 11:35:01</p> <p>11 your report, so I won't -- I won't belabor it. But 11:35:04</p> <p>12 there's a discussion then following the paragraph we 11:35:08</p> <p>13 were just discussing -- 11:35:10</p> <p>14 A. Actually, I'm sorry. Sorry to interrupt you. 11:35:10</p> <p>15 I -- I need to correct my previous answer. 11:35:13</p> <p>16 Q. Okay. 11:35:15</p> <p>17 A. Sorry. It's -- I believe that this is actually 11:35:16</p> <p>18 determining -- okay. Let's go back to the beginning of 11:35:18</p> <p>19 this paragraph. It says, "To determine the block type, 11:35:20</p> <p>20 we use the procedure new-file." So I believe it's 11:35:25</p> <p>21 determining the file -- the type for a block. 11:35:28</p> <p>22 Q. And in that paragraph is the block something 11:35:36</p> <p>23 different from the file, in your opinion? 11:35:44</p> <p>24 A. Let me just take a second to review my notes. 11:35:47</p> <p>25 Yeah, I'm sorry. So I misspoke before. Hsu is 11:37:59</p>
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<p>1 1104. And that's -- that's described in the final 11:33:04</p> <p>2 sentence of that paragraph. Correct? 11:33:08</p> <p>3 A. That's correct. 11:33:14</p> <p>4 Q. And Hsu -- the Hsu reference states there that 11:33:16</p> <p>5 the other change to the UNIX file command is that the 11:33:19</p> <p>6 known patterns of data have been increased by adding 11:33:24</p> <p>7 three graphics patterns. Do you see that? 11:33:28</p> <p>8 A. Yes. 11:33:30</p> <p>9 Q. And a person of skill in the art would have 11:33:30</p> <p>10 understood that to -- in 2001 to refer to adding three 11:33:33</p> <p>11 additional known patterns of data that correspond to 11:33:40</p> <p>12 graphics data. Correct? 11:33:46</p> <p>13 A. Yes. And actually I notice now there's 11:33:48</p> <p>14 something I need to correct a little bit. I don't know 11:33:50</p> <p>15 if I said it wrong, or let me just clarify. In a 11:33:53</p> <p>16 previous question I think I may have said that the first 11:33:56</p> <p>17 of those two modifications was that sentence that 11:33:58</p> <p>18 started "First it examines and compares," what I meant 11:34:01</p> <p>19 to say is it starts there, but it goes all the way down 11:34:05</p> <p>20 to the sentence you just referred to. So it -- that 11:34:09</p> <p>21 first modification starts from the word "first" and ends 11:34:11</p> <p>22 where it says "a three-way tie" at the -- and then a 11:34:15</p> <p>23 parenthesis and period. So that entirety is that 11:34:19</p> <p>24 so-called first of the two modifications. 11:34:25</p> <p>25 Q. Okay. Thank you for clarifying. 11:34:28</p>	<p>1 actually determining a type on a block-by-block basis. 11:38:03</p> <p>2 And this is described in my report, Exhibit 2, in 11:38:07</p> <p>3 Paragraph 54, for example. And this is mentioned in Hsu 11:38:11</p> <p>4 in a number of places. So, for example, on page 1102 of 11:38:18</p> <p>5 Hsu, under the heading "The Heterogeneous Compressor," 11:38:26</p> <p>6 in the fourth line below that heading, it says -- oh, 11:38:31</p> <p>7 I'm sorry, in the, yeah, fourth line below, it says, "In 11:38:36</p> <p>8 the first phase the system determines the type and 11:38:40</p> <p>9 compressibility of each block." 11:38:42</p> <p>10 Okay. And then -- and then if we go to page 11:38:45</p> <p>11 1104 at that paragraph we were talking about, which is 11:38:51</p> <p>12 eight lines down from the top, it starts, "To determine 11:38:54</p> <p>13 the block type." So there it's mentioning that we're 11:39:00</p> <p>14 determining the block type. So this is -- this 11:39:07</p> <p>15 determination is on a block-by-block basis. I think 11:39:09</p> <p>16 before I misspoke and said it was on a file basis. But 11:39:13</p> <p>17 it actually does it for each block. 11:39:17</p> <p>18 Q. And the blocks are 5,000 bytes in length. 11:39:20</p> <p>19 Correct? 11:39:24</p> <p>20 A. I think it said 5,000-something. I don't know 11:39:25</p> <p>21 if it was bytes. And that was just one example. 11:39:29</p> <p>22 Q. I think if we go back to page 1102 and review 11:39:34</p> <p>23 the section where it's describing the heterogeneous 11:39:39</p> <p>24 compressor -- 11:39:42</p> <p>25 A. That's right, and it says 5,000 in the current 11:39:44</p>

<p style="text-align: right;">Page 89</p> <p>1 implementation. 11:39:46</p> <p>2 Actually, I'm not sure if that 5,000 is talking 11:39:52</p> <p>3 about -- yeah. It's not -- it's not entirely clear what 11:39:55</p> <p>4 that 5K is referring to there. 11:40:04</p> <p>5 Q. In your experience, what would a person of skill 11:40:08</p> <p>6 in the art understand it to refer to? 11:40:11</p> <p>7 A. I think a person of ordinary skill would be 11:40:15</p> <p>8 confused. They might guess it's 5K bits per block. 11:40:20</p> <p>9 They might guess it's 5K bytes per block. They might 11:40:23</p> <p>10 guess it's 5K blocks per file. There's three options 11:40:25</p> <p>11 there. This teaching is not very clear at all. 11:40:29</p> <p>12 Q. And so you don't know what it means? Is that 11:40:33</p> <p>13 fair? 11:40:36</p> <p>14 A. Well, I've considered all the different options, 11:40:36</p> <p>15 and my opinion doesn't change depending on which of 11:40:38</p> <p>16 those options it is. 11:40:42</p> <p>17 Q. Now, if we go back to page 1104, Hsu discusses 11:40:44</p> <p>18 that it will examine the first 512 bytes of a data set, 11:40:49</p> <p>19 the 512 bytes in the middle of the set, and the 512 11:41:01</p> <p>20 bytes at the end of the set. Do you see that? 11:41:08</p> <p>21 A. Yes. And by the way, in my Paragraph 54 I 11:41:11</p> <p>22 notice that I wrote that Hsu uses fixed size blocks of 5 11:41:15</p> <p>23 kilobytes in size. So when I wrote this report, that 11:41:18</p> <p>24 was my best guess of what a person would understand of 11:41:21</p> <p>25 ordinary skill. But there is some ambiguity there. 11:41:24</p>	<p style="text-align: right;">Page 91</p> <p>1 5-kilobyte block instead. Correct? 11:43:48</p> <p>2 A. No, not a 5-kilobyte -- oh. Let's say just a 11:43:53</p> <p>3 block, not necessarily 5 kilobytes. In this example it 11:43:55</p> <p>4 is. But when we were discussing what the word "primary" 11:44:00</p> <p>5 meant, you had offered the possibility in a question to 11:44:04</p> <p>6 me whether primary was used to distinguish a primary 11:44:05</p> <p>7 type of a file consisting of many types within the file. 11:44:09</p> <p>8 And that was an incorrect answer I'd given you, so I'm 11:44:13</p> <p>9 correcting that at this time. It's on a block-by-block 11:44:16</p> <p>10 basis. It's not for the whole file. 11:44:20</p> <p>11 Q. Got it. And Hsu contemplates that a single 11:44:22</p> <p>12 5-kilobyte block could contain multiple different data 11:44:26</p> <p>13 types. Correct? 11:44:36</p> <p>14 A. I don't see that taught by Hsu. 11:44:38</p> <p>15 Q. You don't. Your -- you don't -- you don't see 11:44:47</p> <p>16 that taught in the paragraph on page 1104? 11:44:51</p> <p>17 A. I mean, unless I'm missing something, I don't 11:44:55</p> <p>18 currently see it. Or maybe I don't remember, maybe I'm 11:44:58</p> <p>19 forgetting, but I don't see -- I don't recall that being 11:45:01</p> <p>20 taught by Hsu. 11:45:04</p> <p>21 Q. Your understanding when Hsu teaches that there 11:45:05</p> <p>22 will be a majority vote to determine the most applicable 11:45:08</p> <p>23 data type -- strike that. I'm sorry. I lost my train 11:45:12</p> <p>24 of thought. 11:45:18</p> <p>25 You agree that new-file decides on the most 11:45:24</p>
<p style="text-align: right;">Page 90</p> <p>1 Q. Okay. Going back to my question, you do see the 11:41:28</p> <p>2 sentence that states that new-file will examine and 11:41:35</p> <p>3 compare not only the first 512 bytes of the data set but 11:41:39</p> <p>4 also the 512 bytes in the middle of the set and the 512 11:41:45</p> <p>5 bytes at the end if they exist. Correct? 11:41:48</p> <p>6 A. Yes, I see that. 11:41:52</p> <p>7 Q. And in that sentence the data set refers to a 11:41:55</p> <p>8 block. Correct? 11:41:59</p> <p>9 A. I mean, unless I'm missing something, that seems 11:42:01</p> <p>10 correct. 11:42:05</p> <p>11 Let me just actually double-check on that. 11:42:13</p> <p>12 Yes, I believe that's true. 11:42:46</p> <p>13 Q. And then in the next sentence, where it says 11:43:06</p> <p>14 "Thus new-file decides on the most applicable data type 11:43:09</p> <p>15 by a majority vote or the first data type detected in 11:43:13</p> <p>16 the case of a three-way tie," that's referring to a 11:43:17</p> <p>17 decision about the most applicable data type for the 11:43:21</p> <p>18 block. Correct? 11:43:25</p> <p>19 A. Correct. 11:43:28</p> <p>20 Q. Okay. Now -- 11:43:29</p> <p>21 A. Which means -- I'm sorry to overtalk you. Which 11:43:30</p> <p>22 means my previous testimony regarding files, that that 11:43:32</p> <p>23 was incorrect. I'm correcting it now. 11:43:36</p> <p>24 Q. Correcting it in the sentence that when you were 11:43:41</p> <p>25 referring to a file, you had intended to refer to a 11:43:44</p>	<p style="text-align: right;">Page 92</p> <p>1 applicable data type for a data block by a majority 11:45:27</p> <p>2 vote. Correct? 11:45:34</p> <p>3 A. Well, just to be precise, new-file decides on 11:45:36</p> <p>4 the most applicable data type by a majority vote. 11:45:39</p> <p>5 Q. Correct. So the new-file process described in 11:45:50</p> <p>6 Hsu decides on the most applicable data type for the 11:45:56</p> <p>7 data block by a majority vote. Correct? 11:46:00</p> <p>8 A. That's correct. 11:46:05</p> <p>9 Q. And the majority vote is based on the analysis 11:46:07</p> <p>10 of the first 520 bytes in that block, the middle 520 11:46:13</p> <p>11 bytes in that block, and the 520 bytes at the end of 11:46:21</p> <p>12 that block if they exist. Correct? 11:46:25</p> <p>13 A. Well, it says 512, not 520. But otherwise, yes. 11:46:28</p> <p>14 Q. Thank you for clarifying that. 11:46:43</p> <p>15 And it's your opinion that Hsu doesn't 11:46:46</p> <p>16 contemplate that within a single data block there could 11:46:48</p> <p>17 be data with different types -- of different types? 11:46:54</p> <p>18 A. Hsu's -- 11:47:00</p> <p>19 MR. MUTSCHELKNAUS: Objection to form. 11:47:02</p> <p>20 THE WITNESS: When -- when I analyze how a 11:47:04</p> <p>21 person of ordinary skill in the art at the time of the 11:47:08</p> <p>22 invention in this patent case would understand what Hsu 11:47:13</p> <p>23 was teaching, Hsu was -- there's no teaching of that at 11:47:18</p> <p>24 all in here. 11:47:21</p> <p>25</p>

<p style="text-align: right;">Page 93</p> <p>1 BY MR. LANTIER: 11:47:22</p> <p>2 Q. So your opinion is based on your understanding 11:47:22</p> <p>3 that the description of using a majority vote is 11:47:24</p> <p>4 unrelated to heterogeneous data. Is that correct? 11:47:31</p> <p>5 A. I don't know what you mean by "unrelated." 11:47:37</p> <p>6 You'd have to define that for me. 11:47:40</p> <p>7 Q. Well, heterogeneous data is data of multiple 11:47:42</p> <p>8 different data types. Correct? 11:47:46</p> <p>9 A. Well, as I -- as I mentioned before, Hsu defines 11:47:53</p> <p>10 this notion on page 10 -- 098 where he talks about 11:47:56</p> <p>11 heterogeneous files. I'm not sure he uses the 11:48:00</p> <p>12 expression "heterogeneous data." If it's in there, 11:48:04</p> <p>13 maybe you could point me to it. 11:48:08</p> <p>14 Q. That's a fair clarification. Thanks. 11:48:11</p> <p>15 So a heterogeneous file would be a file that 11:48:13</p> <p>16 contains data of multiple different data types. 11:48:16</p> <p>17 Correct? 11:48:19</p> <p>18 A. Basically, yes. 11:48:20</p> <p>19 Q. Is there -- is there any disclosure in Hsu that 11:48:23</p> <p>20 states that a 5000-byte block of data could not be 11:48:27</p> <p>21 heterogeneous? 11:48:36</p> <p>22 A. I don't think Hsu teaches one way or the other. 11:48:37</p> <p>23 Hsu just teaches that types are to be determined for 11:48:40</p> <p>24 blocks; never, ever suggests, hints, mentions explicitly 11:48:45</p> <p>25 or otherwise that a block would have multiple types. 11:48:53</p>	<p style="text-align: right;">Page 95</p> <p>1 it -- describe it if you look at the manual pages for 11:50:40</p> <p>2 the file functions out in the Web. 11:50:44</p> <p>3 And so it's a guessing game, and you try to get 11:50:45</p> <p>4 it right. And that's why sometimes you have 11:50:48</p> <p>5 disagreement between the three different parts of a 11:50:51</p> <p>6 file. So the vote tries to resolve that difference. 11:50:54</p> <p>7 And if two of them say one thing and the other says 11:50:57</p> <p>8 another, then you go for the two votes. That's what 11:51:00</p> <p>9 majority vote means in my understanding of how a person 11:51:04</p> <p>10 of ordinary skill would read this. 11:51:09</p> <p>11 Q. And you describe that the process is sort of an 11:51:12</p> <p>12 estimation. Is that right? 11:51:15</p> <p>13 A. The UNIX file command and this modification 11:51:16</p> <p>14 called new-file, in my opinion, are estimation processes 11:51:18</p> <p>15 where they try to guess the file type. They may not get 11:51:22</p> <p>16 it right, but they try to get it right as best as 11:51:25</p> <p>17 possible. 11:51:29</p> <p>18 Q. And that's true for homogeneous files as much as 11:51:30</p> <p>19 it is for heterogeneous files. Correct? 11:51:35</p> <p>20 A. You mean that if you use -- are you asking me if 11:51:37</p> <p>21 you use some sort of file or new-file-type command on a 11:51:41</p> <p>22 homogeneous file, whether it's still a guessing process? 11:51:45</p> <p>23 Q. No. I'm saying that if -- that the UNIX file 11:51:49</p> <p>24 command, in your opinion, is always a guessing process, 11:51:56</p> <p>25 and that would be true even if it was evaluating a 11:51:59</p>
<p style="text-align: right;">Page 94</p> <p>1 Q. And that's the basis for your opinion. Correct? 11:49:02</p> <p>2 A. What's the word "that" mean in that question? 11:49:05</p> <p>3 Q. That your understanding is Hsu doesn't suggest 11:49:07</p> <p>4 that a 5,000-byte block of data could consist of 11:49:10</p> <p>5 multiple data types. 11:49:17</p> <p>6 A. It's certainly -- it's certainly a true 11:49:23</p> <p>7 statement that Hsu does not teach that nor suggest that 11:49:24</p> <p>8 fact. 11:49:28</p> <p>9 Q. And so in your opinion, what's the significance 11:49:40</p> <p>10 of the majority vote? 11:49:43</p> <p>11 A. Well, Hsu describes -- let's take a look at that 11:49:46</p> <p>12 sentence. So it says, "New-file decides on the most 11:49:50</p> <p>13 applicable data type by a majority vote," in 11:49:53</p> <p>14 parentheses, "or the first data type detected in the 11:49:57</p> <p>15 case of a three-way tie." So my understanding is since 11:50:01</p> <p>16 the preceding sentences talk about taking three -- three 11:50:05</p> <p>17 looks -- one at the beginning -- 512 bytes at the 11:50:08</p> <p>18 beginning of what they're looking at, a middle 512, and 11:50:12</p> <p>19 then an end 512 -- that corresponds to the votes. 11:50:16</p> <p>20 So assuming there are, you know, enough of 11:50:20</p> <p>21 these 512 bytes to go around, the first 512 would be 11:50:22</p> <p>22 Vote No. 1, the middle would be Vote No. 2, et cetera. 11:50:27</p> <p>23 And it's not a -- the whole concept of estimating a file 11:50:31</p> <p>24 type is not a perfect science. It's a guessing game. 11:50:35</p> <p>25 It's an estimation problem. That's even how they define 11:50:37</p>	<p style="text-align: right;">Page 96</p> <p>1 homogeneous file or all the data was of the same data 11:52:02</p> <p>2 type. Correct? 11:52:08</p> <p>3 A. We're talking about the file -- UNIX file, not 11:52:08</p> <p>4 this new-file command? 11:52:10</p> <p>5 Q. Right. 11:52:12</p> <p>6 A. Yes. I -- in general the UNIX file command has 11:52:12</p> <p>7 to guess what type the file is that it's looking at. 11:52:17</p> <p>8 Sometimes it gets it exactly right; sometimes it's not 11:52:21</p> <p>9 right. 11:52:25</p> <p>10 Q. But just to be clear on one point, as you read 11:52:30</p> <p>11 the Hsu disclosure, your -- your opinion is that a 11:52:34</p> <p>12 purchase of ordinary skill in the art would understand 11:52:38</p> <p>13 that a single data block will always contain data of 11:52:42</p> <p>14 only one data type. Is that correct? 11:52:54</p> <p>15 A. I never said that. What I said is that Hsu 11:52:56</p> <p>16 tries to assign a data type, a single data type, to a 11:52:59</p> <p>17 block. Hsu doesn't teach anything whatsoever about 11:53:03</p> <p>18 whether blocks can have more than one data type. So my 11:53:07</p> <p>19 inference is that a person of ordinary skill in the art 11:53:11</p> <p>20 reading the Hsu disclosure would understand that a 11:53:15</p> <p>21 single block is to be assigned a single type by Hsu's 11:53:20</p> <p>22 new-file command. Whether or not that works, whether or 11:53:26</p> <p>23 not that's a good thing to do -- it's not taught, it's 11:53:29</p> <p>24 not described -- I don't know. I don't -- I don't even 11:53:32</p> <p>25 know how it works. It's very vague here. There's not 11:53:33</p>

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<p>1 much teaching. So, but there's certainly no hint 11:53:37</p> <p>2 whatsoever that you could have multiple data types 11:53:41</p> <p>3 within a block. 11:53:44</p> <p>4 Q. Okay. Let's move. Underneath that section 11:53:55</p> <p>5 there's a section on redundancy metrics. Do you -- oh, 11:53:57</p> <p>6 I'm sorry. Before we move on, I think we had started 11:54:02</p> <p>7 the discussion, and then you had to correct your answer. 11:54:05</p> <p>8 So I just need to finish the questioning there. 11:54:08</p> <p>9 Looking at the final sentence of the first full 11:54:10</p> <p>10 paragraph on 1104, it states, "The other change is that 11:54:13</p> <p>11 the known patterns of data have been increased by adding 11:54:17</p> <p>12 three graphics patterns." Do you see that? 11:54:22</p> <p>13 A. Yes. 11:54:25</p> <p>14 Q. That refers to a modification made in new-file 11:54:25</p> <p>15 to include, in the known patterns of data that will be 11:54:28</p> <p>16 used as a basis for comparing the uncompressed data 11:54:31</p> <p>17 under analysis, three graphics patterns. Correct? 11:54:38</p> <p>18 A. Basically that's right. 11:54:42</p> <p>19 Q. So that -- those would be, in other words, 11:54:43</p> <p>20 patterns that are typical of graph -- of particular 11:54:46</p> <p>21 types of graphics data? 11:54:50</p> <p>22 A. Roughly speaking, yes. 11:54:51</p> <p>23 Q. So then let's move on to the next portion of the 11:54:53</p> <p>24 disclosure. And that is the section on redundancy 11:54:58</p> <p>25 metrics. 11:55:03</p>	<p>1 didn't really analyze it, so I don't have a definitive 11:57:03</p> <p>2 answer. 11:57:07</p> <p>3 Q. And then Franaszek, Exhibit 4, is a piece of 11:57:08</p> <p>4 prior art that you described as performing a 11:57:14</p> <p>5 block-by-block analysis and compression. Is that 11:57:20</p> <p>6 correct? 11:57:21</p> <p>7 A. I believe that's correct, yes. 11:57:22</p> <p>8 Q. So in other words, in Franaszek there will be 11:57:24</p> <p>9 analysis and compression performed for each block rather 11:57:27</p> <p>10 than a two-pass system. Is that fair? 11:57:31</p> <p>11 A. Basically that's right. 11:57:37</p> <p>12 Q. Now, does Claim 1 of the '513 patent encompass a 11:57:38</p> <p>13 system that performs data compression on a 11:57:43</p> <p>14 block-by-block basis? 11:57:47</p> <p>15 A. Again, I didn't, you know, analyze the full 11:57:49</p> <p>16 scope of Claim 1. But certainly it applies to blocks, 11:57:52</p> <p>17 and I don't see any particular reason why it's 11:57:55</p> <p>18 restricted to blocks. 11:58:00</p> <p>19 Q. In other words, in your view, Claim 1 would be 11:58:02</p> <p>20 broad enough that it would encompass a -- potentially 11:58:04</p> <p>21 encompass a compression system that performs analysis 11:58:09</p> <p>22 and compression on a block-by-block basis. Correct? 11:58:13</p> <p>23 A. It would allow for that, yes. 11:58:17</p> <p>24 Q. Let's turn to Claim 4, which is one of the -- 11:58:21</p> <p>25 the claims on which you offered an opinion. And I'm not 11:58:27</p>
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<p>1 A. I see that. 11:55:04</p> <p>2 Q. Do you see that? The -- the analysis of the 11:55:05</p> <p>3 redundancy metrics in Hsu is used to determine 11:55:08</p> <p>4 whether -- whether the uncompressed data is further 11:55:14</p> <p>5 compressible. Correct? 11:55:19</p> <p>6 A. Correct. 11:55:21</p> <p>7 Q. Now, why don't we turn to Claim 48 of the '992 11:55:42</p> <p>8 patent. Strike that. 11:55:47</p> <p>9 Why don't we use Claim 1 of the '513 patent 11:55:49</p> <p>10 instead. 11:55:57</p> <p>11 A. Okay. 11:55:57</p> <p>12 Q. So that's Exhibit 7, Claim 1. 11:55:57</p> <p>13 A. I've got that open. 11:56:07</p> <p>14 Q. Okay. Now, you said before that the Hsu 11:56:08</p> <p>15 reference discloses a two-pass system in which -- in 11:56:10</p> <p>16 which analysis occurs during the first phase, the 11:56:15</p> <p>17 uncompressed data, and then the compression step occurs 11:56:19</p> <p>18 in the second phase. Is that right? 11:56:24</p> <p>19 A. That's correct. 11:56:27</p> <p>20 Q. Does Claim 1 of the '513 patent encompass 11:56:34</p> <p>21 two-pass methods for compressing data? 11:56:39</p> <p>22 A. You know, I didn't specifically analyze that 11:56:50</p> <p>23 question as part of my report, so I didn't offer an 11:56:53</p> <p>24 opinion about that. Offhand I don't see a reason why 11:56:55</p> <p>25 that would be excluded. But again, I didn't really -- I 11:56:59</p>	<p>1 trying to make this a memory test, so this is the one 11:58:30</p> <p>2 that I think begins at page 91 of your expert 11:58:34</p> <p>3 declaration, if that's -- if that's useful to you. 11:58:38</p> <p>4 A. Okay. I'm looking at page 91 of Exhibit 2. 11:58:57</p> <p>5 Q. Yeah. And I think if you just refresh your 11:59:01</p> <p>6 memory, if needed, with a review of Paragraph 1 -- 183, 11:59:04</p> <p>7 that would -- would likely be helpful for this question. 11:59:11</p> <p>8 A. Okay. 11:59:15</p> <p>9 Okay. I've read that. 11:59:15</p> <p>10 Q. Okay. And feel free to read the remainder of 11:59:48</p> <p>11 your opinion there. I just -- I just have a question 11:59:50</p> <p>12 about the -- the basis for your opinion. And I'll ask 11:59:53</p> <p>13 it, and you can review as needed. 11:59:55</p> <p>14 A. I've read Paragraph 183, just that -- 12:00:00</p> <p>15 Q. Yes. And I'm saying if after I ask my question 12:00:02</p> <p>16 you think it would be helpful to review any additional 12:00:05</p> <p>17 paragraphs, I'm not rushing you and please do so. 12:00:08</p> <p>18 A. Okay. 12:00:12</p> <p>19 Q. But as I understand your opinion stated at 12:00:12</p> <p>20 Paragraph 183 and follows in the '513 patent IPR 12:00:16</p> <p>21 declaration, your -- you understand Claim 4 to require 12:00:21</p> <p>22 that the content-dependent analysis and compression be 12:00:28</p> <p>23 completed before the content-independent analysis and 12:00:34</p> <p>24 compression begins. Is that correct? 12:00:41</p> <p>25 A. Well, it's slightly different wording. I use 12:01:00</p>

<p style="text-align: right;">Page 101</p> <p>1 the word "occurs," not "completed." So my Paragraph 183 12:01:08</p> <p>2 is saying that the content-dependent compression in the 12:01:16</p> <p>3 analysis occurs before the content-independent analysis 12:01:25</p> <p>4 and compression. 12:01:30</p> <p>5 Q. Yes. And the claim uses the word "occurs," so 12:01:32</p> <p>6 it -- you know, that is the right word to use. But what 12:01:35</p> <p>7 I'm trying to get at is I understand your opinion to be 12:01:39</p> <p>8 that Claim 4 would require that both the analysis of the 12:01:45</p> <p>9 data block and the application of content-dependent 12:01:51</p> <p>10 compression to the data block be complete, or have 12:01:56</p> <p>11 occurred, before any analysis of the data blocks for 12:02:02</p> <p>12 applying content-independent compression begins. Am I 12:02:15</p> <p>13 right to understand you that way? 12:02:21</p> <p>14 A. Let me think about it for a second. 12:02:24</p> <p>15 Well, okay. I think if -- this may help if we 12:02:29</p> <p>16 look at -- where is it? -- my Paragraph 187 in Exhibit 12:05:22</p> <p>17 2. In that Paragraph 187 -- this is on page 93 -- I'll 12:05:41</p> <p>18 start reading from the second-to-last line. Here I'm 12:05:55</p> <p>19 referring to Hsu. And this will help clarify what I 12:05:59</p> <p>20 meant in the question you asked. 12:06:02</p> <p>21 It says, "Therefore, Hsu cannot teach or suggest 12:06:04</p> <p>22 the timing features of Claim 4, i.e., that a first 12:06:06</p> <p>23 analysis and compression occur before a second analysis 12:06:10</p> <p>24 and compression, because in Hsu all analysis must be 12:06:12</p> <p>25 done before any compression can occur." 12:06:16</p>	<p style="text-align: right;">Page 103</p> <p>1 my opinion holds in both cases. 12:08:02</p> <p>2 Now, whether it's -- which one it is, I'm not 12:08:05</p> <p>3 sure I explicitly distinguished between them. I'm not 12:08:08</p> <p>4 sure I needed to. I think my writing suggests that 12:08:13</p> <p>5 it's -- it's the former, in other words, that the 12:08:19</p> <p>6 totality of A has to be completed before B even starts. 12:08:23</p> <p>7 But now that I look at it based on, you know, your 12:08:27</p> <p>8 question you're asking me, even if the second option 12:08:31</p> <p>9 is -- is let's say the correct one, I don't think my 12:08:35</p> <p>10 opinions would change at all. So I didn't have to -- I 12:08:40</p> <p>11 didn't need to fully construct what that phrase meant in 12:08:44</p> <p>12 order to analyze this alleged prior art. 12:08:48</p> <p>13 Q. So just so we're clear on the record, explain 12:08:52</p> <p>14 what Option 2 would be again? 12:08:55</p> <p>15 A. Okay. I'll say both the options, so -- 12:08:57</p> <p>16 Q. Yeah. 12:08:59</p> <p>17 A. If I'm saying A occurs before B -- 12:09:00</p> <p>18 Q. We'll call that Option 1. 12:09:03</p> <p>19 A. Option 1. A occurs before B. Let me define 12:09:05</p> <p>20 that to mean that all of A is completed before any of B 12:09:08</p> <p>21 begins. And Option 2 would be that at least some of A 12:09:12</p> <p>22 occurs before any of B begins. 12:09:21</p> <p>23 Do you want me, for the record, to say what A 12:09:35</p> <p>24 and B mean? 12:09:37</p> <p>25 Q. I think we have that above. 12:09:39</p>
<p style="text-align: right;">Page 102</p> <p>1 Well, okay. I'm sorry. Let me -- maybe that 12:06:35</p> <p>2 wasn't too helpful. But let me back up and say that, 12:06:37</p> <p>3 first of all, I believe that whichever of the two 12:06:41</p> <p>4 options of understanding what "occurs" means in Claim 4 12:06:45</p> <p>5 of the '513, let me clarify what those two options are. 12:06:49</p> <p>6 One is that -- in my mind, one option is that the 12:06:55</p> <p>7 applying the content-dependent data compression 12:06:59</p> <p>8 algorithm and the analyzing the data block, the fact 12:07:03</p> <p>9 that that occurs before analyzing the plurality of data 12:07:07</p> <p>10 blocks and the applying the content-independent data 12:07:12</p> <p>11 compression algorithm, the "occurs" there could 12:07:14</p> <p>12 theoretically -- let's just talk about a theory for a 12:07:18</p> <p>13 second -- mean that -- let me -- let me reduce that 12:07:21</p> <p>14 whole thing to A occurs before B, just for simplicity. 12:07:23</p> <p>15 Okay? 12:07:27</p> <p>16 "A occurs before B" on one hand might mean that 12:07:29</p> <p>17 A must be completed before B is started. That's part of 12:07:32</p> <p>18 the question you asked. Or it might mean that some 12:07:34</p> <p>19 portion of A takes place before some portion of B takes 12:07:37</p> <p>20 place. So in other words, you can't start B until at 12:07:41</p> <p>21 least something in A gets started. Okay. That's -- let 12:07:44</p> <p>22 me call that Option 2. 12:07:48</p> <p>23 In my opinion, the opinions that I expressed in 12:07:50</p> <p>24 this report, as far as I can tell, don't depend on which 12:07:54</p> <p>25 of those two options the real answer is. I think that 12:07:58</p>	<p style="text-align: right;">Page 104</p> <p>1 A. Okay. 12:09:41</p> <p>2 Q. There's an -- but there's an Option 3, which 12:09:42</p> <p>3 would be that A must be completed -- A must have 12:09:44</p> <p>4 occurred -- before B is completed. 12:09:53</p> <p>5 A. I see. 12:09:59</p> <p>6 I don't think that would change my opinion 12:10:34</p> <p>7 regarding what I wrote about that in my report, as far 12:10:37</p> <p>8 as I can tell. 12:10:39</p> <p>9 Q. So in Option 3, A -- which we define to be the 12:10:41</p> <p>10 analysis of the data block plus the application of a 12:10:47</p> <p>11 content dependent compression algorithm. Correct? 12:10:51</p> <p>12 A. That's correct. 12:10:57</p> <p>13 Q. -- would need to have a -- would need to occur, 12:10:57</p> <p>14 that is, the compression would need to be applied, 12:11:02</p> <p>15 before B. Correct? 12:11:06</p> <p>16 A. Well, I think you stated it as it would have to 12:11:11</p> <p>17 end before B ends. 12:11:15</p> <p>18 Q. That's right. And B is the analysis of 12:11:18</p> <p>19 plurality of data blocks and the application of the 12:11:26</p> <p>20 content-independent compression algorithm. Correct? 12:11:31</p> <p>21 A. Right. That's the definition of B. I don't 12:11:35</p> <p>22 think -- in my opinion, that Option 3 you gave is not 12:11:38</p> <p>23 what this means. But even if it was, I think my opinion 12:11:42</p> <p>24 would still hold. I think it's really Option 1 or 2. I 12:11:45</p> <p>25 didn't specifically -- this wasn't -- I didn't need to, 12:11:50</p>

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<p>1 you know, exactly pinpoint what this meant in order to 12:11:52</p> <p>2 analyze the -- the Hsu reference. So I think under 12:11:56</p> <p>3 either interpretation, my -- either 1, 2, or 3, even 12:12:00</p> <p>4 though I don't agree with 3, I think my opinion would 12:12:09</p> <p>5 still hold. 12:12:12</p> <p>6 Q. But in your declaration for the '513 patent, you 12:12:13</p> <p>7 didn't offer any opinions under Option 3. Correct? 12:12:17</p> <p>8 A. I don't believe that I -- that I explicitly did. 12:12:20</p> <p>9 But in response to your question, I'm saying right now 12:12:23</p> <p>10 that I think the same opinions would hold. 12:12:28</p> <p>11 Q. Let's talk about Hsu in the context of Option 3. 12:12:32</p> <p>12 In Hsu all of the data blocks are analyzed before -- 12:12:36</p> <p>13 well, strike that. 12:12:44</p> <p>14 In Phase 1 of Hsu, all of the data blocks were 12:12:45</p> <p>15 analyzed. Correct? 12:12:49</p> <p>16 A. Correct. 12:12:51</p> <p>17 Q. And then in Phase 2 the data blocks are 12:12:51</p> <p>18 compressed. Correct? 12:12:55</p> <p>19 A. That's correct. 12:12:58</p> <p>20 Q. And there's -- Hsu doesn't state one way or the 12:13:00</p> <p>21 other whether all of Phase 1 needs to be completed 12:13:05</p> <p>22 before one begins Phase 2. Correct? 12:13:10</p> <p>23 A. I'm sorry. Could you repeat that? 12:13:15</p> <p>24 Q. Yes. There's no statement one way or the other 12:13:17</p> <p>25 in Hsu as to whether all of Phase 1 must be completed 12:13:19</p>	<p>1 declaration is that in Hsu, if there are, for example, 12:16:01</p> <p>2 two adjacent data blocks that are going to receive the 12:16:07</p> <p>3 same compression algorithm, that those two blocks will 12:16:11</p> <p>4 be compressed together. Correct? 12:16:16</p> <p>5 A. Well, there will be a joint. There's no -- it's 12:16:21</p> <p>6 sort of a seamless compression as you transition from 12:16:23</p> <p>7 one to the other. 12:16:29</p> <p>8 Q. But if the following block is going to receive a 12:16:31</p> <p>9 different compression algorithm, then the Hsu system 12:16:33</p> <p>10 will change the algorithm and apply that algorithm to 12:16:36</p> <p>11 the next block. Correct? 12:16:38</p> <p>12 A. That's correct. 12:16:40</p> <p>13 Q. So what I meant by "serially" is that the data 12:16:40</p> <p>14 stream, the uncompressed data stream, will be compressed 12:16:45</p> <p>15 with the first compression algorithm being applied to 12:16:54</p> <p>16 the first set of blocks that is going to receive that 12:16:59</p> <p>17 compression algorithm, then the next set of blocks that 12:17:03</p> <p>18 will receive the second compression algorithm, et 12:17:07</p> <p>19 cetera. Correct? 12:17:12</p> <p>20 A. So Hsu will compress the blocks in the order 12:17:14</p> <p>21 that they appear, perhaps changing algorithm as it goes 12:17:17</p> <p>22 along. 12:17:21</p> <p>23 Q. Right. But it -- but Hsu, for example, doesn't 12:17:22</p> <p>24 disassemble the data stream and apply ten different 12:17:24</p> <p>25 compression algorithms in parallel. Correct? 12:17:32</p>
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<p>1 before Phase 2 begins, is there? 12:13:23</p> <p>2 A. I don't think -- I think it's not explicitly 12:13:36</p> <p>3 taught one way or the other. But I think implicitly 12:13:38</p> <p>4 that's what one would understand. Let me just take a 12:13:44</p> <p>5 quick look to refresh my memory here. 12:13:48</p> <p>6 No. So I disagree with your statement. I'm 12:14:28</p> <p>7 looking at the Hsu reference. Again, this is Exhibit 3, 12:14:31</p> <p>8 page 1100, the second full -- or, I'm sorry, third full 12:14:35</p> <p>9 paragraph that begins "Our approach." It says, "Our 12:14:41</p> <p>10 approach differs from adaptive compression because the 12:14:46</p> <p>11 system chooses each algorithm as well as the duration of 12:14:51</p> <p>12 its applicability before compression begins." So that 12:14:55</p> <p>13 indicates that all of the analysis has to be done before 12:14:58</p> <p>14 the compression starts. 12:15:01</p> <p>15 Q. Okay. So all of the -- in Hsu all of the data 12:15:05</p> <p>16 blocks that are to be compressed will be analyzed prior 12:15:09</p> <p>17 to the beginning of compression. Correct? 12:15:12</p> <p>18 A. Yes. 12:15:23</p> <p>19 Q. And then in the Phase 2 step, Hsu will apply 12:15:24</p> <p>20 different compression algorithms to different sets of 12:15:36</p> <p>21 data blocks. Correct? 12:15:40</p> <p>22 A. It could, yes. 12:15:45</p> <p>23 Q. And it does that serially. Correct? 12:15:48</p> <p>24 A. I'm not sure what you mean exactly. 12:15:55</p> <p>25 Q. Well, what you discussed in your -- in your 12:15:57</p>	<p>1 A. That's certainly not taught, yeah. 12:17:37</p> <p>2 Q. So if Option 3 is the correct understanding of 12:17:41</p> <p>3 Claim 4, then with respect to content-dependent data 12:17:45</p> <p>4 compression, the teaching of Hsu is that for at least 12:17:53</p> <p>5 the first set of blocks that will receive the first 12:18:00</p> <p>6 compression algorithm, that set of blocks will have been 12:18:03</p> <p>7 analyzed and compressed before analysis and compression 12:18:11</p> <p>8 occurs for the next set of blocks in order. Correct? 12:18:15</p> <p>9 MR. MUTSCHELKNAUS: Object to form. 12:18:27</p> <p>10 THE WITNESS: First of all, let me just restate 12:18:30</p> <p>11 that I don't agree at all with Option 3. I don't think 12:18:31</p> <p>12 that's what it means in the context of this patent, 12:18:35</p> <p>13 but -- so we have a hypothetical now. And I need to 12:18:38</p> <p>14 understand these parameters better. 12:18:41</p> <p>15 So let's see. I'm sorry. I got a little 12:18:44</p> <p>16 confused because I thought you were sort of, you know, 12:19:03</p> <p>17 following the language of Claim 4, but I think you asked 12:19:06</p> <p>18 me something slightly different. Is that correct? Or 12:19:09</p> <p>19 maybe I lost the question. 12:19:12</p> <p>20 BY MR. LANTIER: 12:19:13</p> <p>21 Q. So I didn't intend to do so, so if I did, we 12:19:14</p> <p>22 should clarify it. So Option 3 -- which I understand 12:19:17</p> <p>23 you disagree with. Okay? 12:19:22</p> <p>24 A. Yes. 12:19:25</p> <p>25 Q. -- is that Claim 4 requires that the analysis 12:19:25</p>

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<p>1 and the compression of a data block that will receive 12:19:34</p> <p>2 content-dependent data compression is -- fully occurs 12:19:38</p> <p>3 before compression -- before analysis and compression of 12:19:47</p> <p>4 a plurality of data blocks that will receive 12:19:53</p> <p>5 content-independent data compression fully occurs? 12:19:57</p> <p>6 MR. MUTSCHELKNAUS: Object to form. 12:20:03</p> <p>7 THE WITNESS: And by "fully" -- by "fully 12:20:04</p> <p>8 occurs" you mean completed. 12:20:04</p> <p>9 BY MR. LANTIER: 12:20:05</p> <p>10 Q. That's right. 12:20:06</p> <p>11 A. Okay. I understand the premise. 12:20:07</p> <p>12 Q. So both could be -- okay. Good. 12:20:08</p> <p>13 Then the question is, solely with respect to 12:20:12</p> <p>14 applying different content-dependent data compression 12:20:23</p> <p>15 techniques in Hsu, in the Hsu reference, the application 12:20:29</p> <p>16 of the first content-dependent data technique will be 12:20:37</p> <p>17 completed before the analysis and compression of the 12:20:46</p> <p>18 next content-dependent compression algorithm. Correct? 12:20:55</p> <p>19 A. I see. Okay. Now I understand the question. 12:21:03</p> <p>20 So just for my own sake, let me restate what I'm 12:21:05</p> <p>21 understanding. You're basically asking something very 12:21:09</p> <p>22 similar to Claim 4 except instead -- Claim 4 has 12:21:12</p> <p>23 content-dependent occurring before content-independent, 12:21:16</p> <p>24 and you're changing that to content-dependent before 12:21:19</p> <p>25 content-dependent again in the context of Hsu under this 12:21:21</p>	<p>1 sense, in terms of compressing content-dependent 12:24:50</p> <p>2 compressing block to block, you know, each -- there's a 12:24:56</p> <p>3 serial order there, I would say. 12:25:00</p> <p>4 MR. MUTSCHELKNAUS: Counsel, it's almost 12:30. 12:25:03</p> <p>5 Do you want to break for lunch or -- 12:25:04</p> <p>6 MR. LANTIER: Yes. 12:25:08</p> <p>7 MR. MUTSCHELKNAUS: Okay. 12:25:09</p> <p>8 MR. LANTIER: We can break for lunch. 12:25:09</p> <p>9 THE VIDEOGRAPHER: This ends Media No. 2 in the 12:25:10</p> <p>10 deposition of Dr. Kenneth Zeger. We're off the record. 12:25:13</p> <p>11 The time is 12:25 p.m. 12:25:17</p> <p>12 (Off record) 12:25:22</p> <p>13 THE VIDEOGRAPHER: This begins Media No. 3 in 13:29:56</p> <p>14 the deposition of Dr. Kenneth Zeger. We are back on the 13:29:58</p> <p>15 record. The time is 1:29 p.m. 13:30:02</p> <p>16 BY MR. LANTIER: 13:30:10</p> <p>17 Q. Dr. Zeger, I had a couple of questions about 13:30:11</p> <p>18 your opinions on claim construction, which are around 13:30:13</p> <p>19 page 35, Paragraph 85 and following in your declaration. 13:30:19</p> <p>20 A. Exhibit 2? 13:30:24</p> <p>21 Q. Exhibit 2, right, your '513 declaration. 13:30:26</p> <p>22 A. I'm sorry. Page 35 or -- 13:30:30</p> <p>23 Q. I think it's page 35 -- 13:30:33</p> <p>24 A. Okay. 13:30:33</p> <p>25 Q. -- Paragraph 85. 13:30:35</p>
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<p>1 hypothetical of the third logic where "occurs" means 12:21:26</p> <p>2 completely finished. 12:21:29</p> <p>3 Okay. Under -- under those set of restrictions, 12:21:32</p> <p>4 which again is not what's happening in Claim 4, that -- 12:21:34</p> <p>5 that sounds reasonable. 12:21:43</p> <p>6 Q. Now, if we turn to Claim 18 in the '513 patent, 12:22:03</p> <p>7 which is Exhibit 7, do you see that Claim 18 requires 12:22:23</p> <p>8 that the content-independent and content-dependent 12:22:32</p> <p>9 algorithms are applied serially? 12:22:37</p> <p>10 A. Yes, I do. 12:22:41</p> <p>11 Q. Now, I understand that, in your opinion, Hsu 12:22:43</p> <p>12 does not disclose content-independent algorithms. 12:22:45</p> <p>13 Correct? 12:22:49</p> <p>14 A. That's correct. 12:22:50</p> <p>15 Q. But you -- you agree that in Hsu the 12:22:51</p> <p>16 content-dependent algorithms, the different ones, are 12:22:54</p> <p>17 applied serially to the data. Correct? 12:22:59</p> <p>18 A. So the -- you know, again, Claim 18 depends from 12:23:56</p> <p>19 Claim 15. So when we're talking about the language of 12:24:03</p> <p>20 Claim 18, it's always in the context of everything else 12:24:05</p> <p>21 from Claim 15. So if we just kind of ignore Claim 15 12:24:09</p> <p>22 and just focus on the content-dependent compression that 12:24:13</p> <p>23 occurs in Hsu, since there is only content-dependent 12:24:16</p> <p>24 compression in Hsu, in my opinion, it -- the compression 12:24:21</p> <p>25 does compress one block after another block. So in that 12:24:32</p>	<p>1 A. Okay. Got it. 13:30:45</p> <p>2 Q. And this is the issue of what is required for 13:30:46</p> <p>3 content-independent data compression. And it may 13:30:49</p> <p>4 help -- I think I'll ask the question based on Paragraph 13:31:12</p> <p>5 88. But why don't you read pages 35 through 37 just to 13:31:16</p> <p>6 remember what we're talking about. I'm sorry, 13:31:21</p> <p>7 through -- through the end of 36. 13:31:22</p> <p>8 A. Okay. 13:31:26</p> <p>9 Okay. I finished that. 13:32:29</p> <p>10 Q. Okay. So if we look at Paragraph 88, you offer 13:32:31</p> <p>11 the opinion that a person of ordinary skill in the art 13:32:35</p> <p>12 would have understood that in the context of the '513 13:32:39</p> <p>13 patent a -- excuse me -- a compression algorithm needs 13:32:42</p> <p>14 to be applied, quote, without regard to the encoder's or 13:32:46</p> <p>15 encoders' ability to effectively encode the data type or 13:32:50</p> <p>16 content of the data block to be content-independent as 13:32:52</p> <p>17 claimed. Do you see that? 13:32:56</p> <p>18 A. Yes. 13:32:58</p> <p>19 Q. When -- when you say that the algorithm needs to 13:32:59</p> <p>20 be applied without regard to the encoder's ability to 13:33:04</p> <p>21 effectively encode the data type or content, what do you 13:33:07</p> <p>22 mean by that? 13:33:13</p> <p>23 A. I think it kind of speaks for itself. 13:33:28</p> <p>24 Q. Okay. Let me maybe confirm what I -- I think 13:33:32</p> <p>25 you don't mean, and I'm just trying to make sure I 13:33:35</p>

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<p>1 understand your -- your construction. 13:33:38</p> <p>2 If you could turn to Column 18 of the '513 13:33:43</p> <p>3 patent -- 13:33:49</p> <p>4 A. Okay. 13:33:57</p> <p>5 Q. -- and review beginning at approximately line 17 13:33:57</p> <p>6 with the sentence that says, "If the data stream content 13:34:01</p> <p>7 is not recognized," and just go ahead and read down to 13:34:05</p> <p>8 the end of that column to the extent you need to. If 13:34:09</p> <p>9 you remember this section, don't bother to reread it. 13:34:14</p> <p>10 A. Okay. 13:34:45</p> <p>11 Q. So that portion of Column 18 is describing one 13:34:46</p> <p>12 embodiment of content-independent data compression. 13:34:48</p> <p>13 Correct? 13:34:56</p> <p>14 A. Yes. 13:34:57</p> <p>15 Q. Okay. And what it's -- and I'm paraphrasing. 13:34:57</p> <p>16 But what it's describing is that if the content of the 13:34:59</p> <p>17 data is not recognized, that that block of data will be 13:35:04</p> <p>18 compressed using multiple different encoders or encoding 13:35:09</p> <p>19 algorithms, and a compression ratio will be calculated 13:35:14</p> <p>20 for each of those different encoders. Correct? 13:35:21</p> <p>21 A. That's basically correct. 13:35:24</p> <p>22 Q. Yeah, and that after that's performed, then the 13:35:26</p> <p>23 encoder that provided the highest compression ratio, 13:35:30</p> <p>24 assuming that it exceeded a preset threshold, would be 13:35:34</p> <p>25 used to encode that data block. Correct? 13:35:39</p>	<p>1 have been applied to that data block? 13:37:19</p> <p>2 A. Well, if you go up to line 20 in Column 18 of 13:37:24</p> <p>3 this '513 patent, it says -- let me just back up a 13:37:27</p> <p>4 little bit to line 17. If the data stream content is 13:37:32</p> <p>5 not recognized utilizing the recognition lists or 13:37:36</p> <p>6 algorithm's module, the data is routed to the 13:37:40</p> <p>7 content-independent encoder Module 30 and compressed by 13:37:44</p> <p>8 each enabled encoder E1 dot, dot, dot up to EN. That 13:37:49</p> <p>9 compression right there is without regard -- it's using 13:37:55</p> <p>10 that "without regard" language. So that's where I'm 13:37:59</p> <p>11 talking about. 13:38:02</p> <p>12 Q. I see. Okay. So you weren't trying, though, to 13:38:03</p> <p>13 exclude from your definition of content-independent data 13:38:06</p> <p>14 compression the embodiment that's described at Column 18 13:38:09</p> <p>15 of '513 -- of the '513 patent. Correct? 13:38:14</p> <p>16 A. When I construe things, I don't try to include 13:38:18</p> <p>17 or exclude. What I try to do is understand the meaning 13:38:22</p> <p>18 of the language in the claims in the context of the 13:38:25</p> <p>19 claims and the patent. And what I gave -- I think it's 13:38:27</p> <p>20 in my Paragraph 86, that construction is that -- let me 13:38:31</p> <p>21 just read it for the record. It's compression is 13:38:40</p> <p>22 applied using one or more encoders without regard to the 13:38:42</p> <p>23 encoder's or encoders', plural, ability to effectively 13:38:45</p> <p>24 encode. So that's my understanding of what this meaning 13:38:51</p> <p>25 is in the claims and in the context of the patent, and 13:38:55</p>
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<p>1 A. I believe that's -- that's basically what's 13:35:45</p> <p>2 going on. 13:35:48</p> <p>3 Q. Okay. So in some -- if that -- if that 13:35:48</p> <p>4 embodiment is utilized, then in some sense the -- the 13:35:49</p> <p>5 particular compression algorithm that's applied is being 13:35:57</p> <p>6 applied based on its ability to encode the data block. 13:36:03</p> <p>7 Correct? 13:36:08</p> <p>8 A. Your question needs clarification because 13:36:08</p> <p>9 there's different -- you said the data compression 13:36:11</p> <p>10 algorithm is applied. Okay. Let's be specific. Can 13:36:14</p> <p>11 you show me exactly the line number in Column 18 that 13:36:18</p> <p>12 you're referring to? 13:36:22</p> <p>13 Q. Yes. So it's, I think, line 60 through 64 is 13:36:33</p> <p>14 where they describe using the -- the highest compression 13:36:37</p> <p>15 ratio encoder? 13:36:43</p> <p>16 A. Well, it says a -- the data block having the 13:36:46</p> <p>17 high -- the greatest compression ratio is selected. You 13:36:51</p> <p>18 were talking about applying compression. Right? That's 13:36:56</p> <p>19 the words you used in your question. 13:36:59</p> <p>20 Q. Yeah, I was just using the words from your 13:37:03</p> <p>21 construction. 13:37:04</p> <p>22 A. Okay. 13:37:06</p> <p>23 Q. So -- okay. So am I then understanding 13:37:08</p> <p>24 correctly that the distinction you're drawing is that 13:37:11</p> <p>25 the -- all of the different encoding algorithms would 13:37:15</p>	<p>1 in particular it's supported by Column 18, like I was 13:38:59</p> <p>2 just reading around line 20, and I think I gave some 13:39:05</p> <p>3 other references in my declaration, because it 13:39:08</p> <p>4 encodes -- it compresses each of these E1 to EN, all 13:39:11</p> <p>5 that compression happens without regard to the encoder's 13:39:16</p> <p>6 ability to effectively encode. 13:39:20</p> <p>7 Q. And what's your understanding as a person of 13:39:26</p> <p>8 skill in the art as to what happens to the encoded data 13:39:28</p> <p>9 blocks that are not selected in the process described in 13:39:34</p> <p>10 Column 18 because they have a lower compression ratio 13:39:39</p> <p>11 than the -- the compressed data block with the highest 13:39:42</p> <p>12 compression ratio? 13:39:47</p> <p>13 A. Well, those blocks were -- you mean -- you're 13:39:47</p> <p>14 referring to encoders that were not selected? 13:39:50</p> <p>15 Q. I don't think so. I thought -- I understood 13:39:54</p> <p>16 your testimony to say that all of the encoders are 13:39:57</p> <p>17 selected but that only one of the resulting compressed 13:40:01</p> <p>18 data blocks will be selected, and that would be the one 13:40:06</p> <p>19 with the highest compression ratio. 13:40:11</p> <p>20 A. Well -- 13:40:13</p> <p>21 Q. If I'm misunderstanding you, please correct me. 13:40:13</p> <p>22 A. Okay. Let me -- let me -- I'm not sure if 13:40:15</p> <p>23 there's a misunderstanding, so let me just reclarify. 13:40:16</p> <p>24 Column 18, line 20 -- I'll just jump in the middle of 13:40:17</p> <p>25 the sentence. It says "Module 30 and compressed by 13:40:20</p>

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<p>1 each," emphasis on the word "each," "enabled encoder E1 13:40:24</p> <p>2 to EN." Okay. So that says that every one of those 13:40:30</p> <p>3 encoders E1 to EN is compressing the data. The word 13:40:34</p> <p>4 "the data" is in line 19. And it hasn't -- it doesn't 13:40:40</p> <p>5 decide whether to compress it based on the encoder's 13:40:42</p> <p>6 ability to effectively encode. It just does it 13:40:44</p> <p>7 automatically. So that -- that's where I get the 13:40:47</p> <p>8 language. That's supportive of my construction where it 13:40:50</p> <p>9 has the phrase "without regard to the encoder's ability 13:40:54</p> <p>10 to effectively encode." 13:40:57</p> <p>11 Q. Yes, and if you continue to read down, there's a 13:41:02</p> <p>12 select process. Correct? 13:41:05</p> <p>13 A. Correct. 13:41:07</p> <p>14 Q. And at the end it says, and this is at Column 13:41:08</p> <p>15 18, line 60, "If one or more of the encoded data blocks 13:41:12</p> <p>16 possess a compression ratio greater than the compression 13:41:15</p> <p>17 ratio threshold limit, then the encoded data block 13:41:17</p> <p>18 having the greatest compression ratio is selected." 13:41:21</p> <p>19 That's Step 1422. See that? 13:41:25</p> <p>20 A. Yes. 13:41:31</p> <p>21 Q. And my question is, what's your understanding as 13:41:32</p> <p>22 to what happens to the other compressed data blocks, the 13:41:34</p> <p>23 ones that were encoded with the other encoders? 13:41:39</p> <p>24 A. I don't know if the patent discusses that. 13:41:46</p> <p>25 Presumably they're not used. But that doesn't really 13:41:48</p>	<p>1 you know whether it will compress or not. 13:44:52</p> <p>2 A. Well, generally you would get compression; it's 13:44:57</p> <p>3 just a question of how much. 13:45:03</p> <p>4 Q. Well, sometimes applying a compression algorithm 13:45:07</p> <p>5 results in data expansion. Correct? 13:45:10</p> <p>6 A. Generally compression is supposed to compress. 13:45:13</p> <p>7 But, you know, we haven't exactly construed the exact 13:45:15</p> <p>8 meaning. But, yeah, sometimes you get rare events when 13:45:20</p> <p>9 they -- they could expand. 13:45:23</p> <p>10 Q. And so if -- if E1 through EN were applied and 13:45:25</p> <p>11 each one of them expanded the data block, would that be 13:45:29</p> <p>12 content-independent data compression or not? 13:45:32</p> <p>13 A. Well, I think to answer that question, a simpler 13:45:35</p> <p>14 question which really has the roots of the same issue is 13:45:39</p> <p>15 whether any compression algorithm, if it expanded a 13:45:43</p> <p>16 particular block of data, would you still call it a 13:45:46</p> <p>17 compression algorithm? And I think generally if 13:45:49</p> <p>18 something compresses in general, if that's what it's 13:45:52</p> <p>19 designed for, and, you know, every once in a while maybe 13:45:57</p> <p>20 it doesn't work or expands, I think it's still generally 13:45:59</p> <p>21 called a compression algorithm, certainly in the context 13:46:02</p> <p>22 of the patent. 13:46:02</p> <p>23 So I think the same logic applies to your 13:46:03</p> <p>24 question regarding Column 18, line 20, if generally you 13:46:07</p> <p>25 have compression algorithms, a set of encoders E1 to EN, 13:46:11</p>
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<p>1 affect the construction. 13:41:58</p> <p>2 Q. And so in your opinion, if the compression 13:42:20</p> <p>3 algorithm is applied before it's known whether it will 13:42:23</p> <p>4 compress the data well or not, that's always a 13:42:30</p> <p>5 content-independent compression algorithm? 13:42:38</p> <p>6 A. Well, I -- I think my construction kind of 13:42:45</p> <p>7 speaks for itself, that if your -- if compression is 13:42:47</p> <p>8 applied with one or more encoders and it does it sort of 13:42:50</p> <p>9 blindly without regard to whether it would be good or 13:42:55</p> <p>10 not, that's -- that's what's going on here in Column 18 13:42:58</p> <p>11 line 20, roughly. It doesn't say anything about having 13:43:02</p> <p>12 to use that ultimately as the output of some useful 13:43:05</p> <p>13 system. It just says that's what it does. 13:43:10</p> <p>14 Q. And in the -- in the Column 18 discussion, if 13:43:13</p> <p>15 all of the encoders, which are E1 through EN as you 13:43:21</p> <p>16 discussed, resulted in expanding the size of the data 13:43:27</p> <p>17 block, would that still be content-independent data 13:43:37</p> <p>18 compression? 13:43:42</p> <p>19 A. Well, I think the point of this is to compress. 13:43:50</p> <p>20 So I guess if we look at the claim, I think generally 13:44:00</p> <p>21 content-independent compression algorithm is supposed to 13:44:30</p> <p>22 compress. 13:44:34</p> <p>23 Q. But your -- I had understood your opinion to be 13:44:37</p> <p>24 you're going to apply the -- the algorithm, the 13:44:41</p> <p>25 content-independent data compression algorithm, before 13:44:45</p>	<p>1 and generally they would compress. So I think the 13:46:16</p> <p>2 premise there is that they are compression algorithms. 13:46:20</p> <p>3 Then the only question is, when do they decide to do the 13:46:24</p> <p>4 compression? Is it decided with or without regard to 13:46:28</p> <p>5 how well they're going to do? And the claim language 13:46:30</p> <p>6 content-independent compression algorithm -- I don't 13:46:34</p> <p>7 know if I got the exact terminology right, but -- yeah, 13:46:37</p> <p>8 whether that -- it's a decision of whether those 13:46:40</p> <p>9 compressors or encoders do their compression with or 13:46:45</p> <p>10 without regard to something. It's a separate question 13:46:50</p> <p>11 whether they're compressors in the first place. So 13:46:55</p> <p>12 premised on the fact that you assume that they're 13:46:58</p> <p>13 compressors, then it's just an issue of, do they check 13:47:00</p> <p>14 out how well they do? So you're asking me a question 13:47:03</p> <p>15 about whether or not they're even compressors. 13:47:05</p> <p>16 Q. Well, I think I'm -- I'm really trying to 13:47:06</p> <p>17 understand what the -- what the bounds are of your 13:47:08</p> <p>18 opinion regarding what content-independent data 13:47:17</p> <p>19 compression is. 13:47:20</p> <p>20 In Column 18 there's a discussion of comparing 13:47:22</p> <p>21 the encoded data blocks, the compressed data blocks, 13:47:29</p> <p>22 against a compression threshold. Correct? 13:47:34</p> <p>23 A. Which line number is that? 13:47:36</p> <p>24 Q. One instance would be line 45. 13:47:45</p> <p>25 A. Okay. Right. So there it's pointing out that 13:47:49</p>

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<p>1 there may be an unusual circumstance where none of these 13:47:57</p> <p>2 content-independent compressors is good enough, so don't 13:48:01</p> <p>3 even bother compressing. But that's -- I mean, that is 13:48:05</p> <p>4 what it is. It's a separate issue from this 13:48:08</p> <p>5 construction that we've been asking me about. 13:48:11</p> <p>6 Q. Well, I was -- I'm not sure if it is. So in 13:48:14</p> <p>7 Column 18, lines 48 and following, do you see that it 13:48:17</p> <p>8 says, "If there are no encoded data blocks having a 13:48:26</p> <p>9 compression ratio that exceeds the compression ratio 13:48:27</p> <p>10 threshold limit," parentheses, "negative determination 13:48:30</p> <p>11 in step 1420," close parentheses, "then the original 13:48:35</p> <p>12 unencoded input data block is selected for output and a 13:48:38</p> <p>13 null data compression type descriptor is appended 13:48:41</p> <p>14 thereto." You see that? 13:48:46</p> <p>15 A. Yes. 13:48:48</p> <p>16 Q. So in that instance has content-independent data 13:48:49</p> <p>17 compression been performed? 13:48:52</p> <p>18 A. Well, I don't -- see, I think in the 13:49:05</p> <p>19 construction -- I'm not construing whether 13:49:07</p> <p>20 content-independent compression has been performed. I'm 13:49:11</p> <p>21 construing the noun "content-independent data 13:49:15</p> <p>22 compression." Okay. And that's a different nuance 13:49:19</p> <p>23 there. So question is, what is a content-independent 13:49:23</p> <p>24 compression algorithm and all the variants that are sort 13:49:25</p> <p>25 of synonyms with that? And I'm construing that noun, as 13:49:30</p>	<p>1 compressor -- well, I guess we can talk about 13:51:35</p> <p>2 compression. A compression algorithm, that's the 13:51:39</p> <p>3 terminology used here. So a compression algorithm is -- 13:51:42</p> <p>4 generally speaking, it's an algorithm whose purpose is 13:51:44</p> <p>5 to compress and generally compresses. The fact that it 13:51:49</p> <p>6 may not compress a hundred percent of the time doesn't 13:51:52</p> <p>7 exclude it from being a compression algorithm. And I 13:51:55</p> <p>8 think that's kind of where you're going, because you're 13:51:58</p> <p>9 pointing to a very special case describing Column 18 in 13:52:00</p> <p>10 like on line 45 where -- or maybe line 50, where it's 13:52:05</p> <p>11 saying what to do in a oddball circumstance. And you 13:52:08</p> <p>12 don't exclude something from being a compression 13:52:14</p> <p>13 algorithm just because it occasionally fails. The main 13:52:16</p> <p>14 purpose of it is to compress, and we assume it does 13:52:19</p> <p>15 compress. 13:52:23</p> <p>16 Q. And you agree that the same -- the same 13:52:27</p> <p>17 algorithm could be both a content-dependent data 13:52:31</p> <p>18 compression algorithm and a content-independent data 13:52:37</p> <p>19 compression algorithm. Correct? 13:52:44</p> <p>20 A. Well, I don't think an algorithm is inherently a 13:52:45</p> <p>21 content-independent or content-dependent entity. It 13:52:49</p> <p>22 depends on how you use it. So if I name an algorithm, 13:52:54</p> <p>23 you know -- like, for example, Lempel-Ziv comes up in 13:52:58</p> <p>24 this case. I don't think you can say by itself it is 13:53:04</p> <p>25 content-dependent or content-independent. It depends 13:53:04</p>
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<p>1 given in my report in Paragraph 86. So you're asking me 13:49:35</p> <p>2 kind of a different question about whether -- I think 13:49:38</p> <p>3 your question is, in my mind -- my understanding, is 13:49:42</p> <p>4 that you're asking once I have such a 13:49:45</p> <p>5 content-independent type of compression, am I using it 13:49:48</p> <p>6 in a certain circumstance? And I don't think the claim 13:49:51</p> <p>7 speaks to when you have to use it. It just says -- I 13:49:55</p> <p>8 mean, it says what it says. 13:50:00</p> <p>9 Q. Well, the claim term is a content-independent 13:50:07</p> <p>10 compression algorithm. Right? 13:50:19</p> <p>11 A. That's -- that's right. That's a four-word 13:50:27</p> <p>12 phrase in the claim. 13:50:30</p> <p>13 Q. Right. And your construction is compression 13:50:32</p> <p>14 that is applied using one or more encoders without 13:50:37</p> <p>15 regard to the encoder or encoder's ability to 13:50:42</p> <p>16 effectively encode the data type or content of the data 13:50:45</p> <p>17 block. Correct? 13:50:49</p> <p>18 A. Yes. 13:50:50</p> <p>19 Q. So in your construction, then, is "compression" 13:50:58</p> <p>20 a noun? 13:51:15</p> <p>21 A. Yes. 13:51:16</p> <p>22 Q. Okay. And if the result is that the data 13:51:17</p> <p>23 expands, is it still compression? 13:51:20</p> <p>24 A. Well, this goes back kind of to the previous 13:51:28</p> <p>25 thing I was saying, that now we have to talk about a 13:51:31</p>	<p>1 how it's used. So the context of its use sheds light 13:53:04</p> <p>2 on -- you know, that claim terminology. 13:53:09</p> <p>3 Q. But let's take Lempel-Ziv as an example. As of 13:53:12</p> <p>4 2001, there had been numerous instances in which persons 13:53:19</p> <p>5 of skill in the art had used Lempel-Ziv to encode data 13:53:24</p> <p>6 when they didn't know whether Lempel-Ziv would 13:53:32</p> <p>7 effectively encode that data. Correct? 13:53:43</p> <p>8 A. I've seen no evidence provided by Oracle in this 13:53:47</p> <p>9 case saying that. I don't really -- I can't think of 13:53:48</p> <p>10 numerous cases where people didn't know that ahead of 13:53:50</p> <p>11 time. I think people generally have a good idea. 13:53:53</p> <p>12 Q. What was the algorithm that was used in the UNIX 13:53:57</p> <p>13 operating system in the late 1990s for compression? 13:54:01</p> <p>14 A. Are you stalking about compress? 13:54:04</p> <p>15 Q. Yes. 13:54:08</p> <p>16 A. I think that was a Lempel-Ziv-based thing. 13:54:08</p> <p>17 Q. And that Lempel-Ziv algorithm was applied -- or 13:54:12</p> <p>18 compression technique was applied to all of the data in 13:54:16</p> <p>19 the operating system, correct, in the file system? 13:54:21</p> <p>20 Correct? 13:54:24</p> <p>21 A. I have no idea what that question means. 13:54:25</p> <p>22 Q. Okay. 13:54:27</p> <p>23 A. When you say "applied to all the data," what 13:54:28</p> <p>24 data are you talking about? 13:54:30</p> <p>25 Q. The Lempel -- the version of Lempel-Ziv that was 13:54:31</p>

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<p>1 used in UNIX compress was always running in the 13:54:33</p> <p>2 background. Correct? 13:54:37</p> <p>3 A. No. That's false. 13:54:38</p> <p>4 Q. That's false? You don't understand that? 13:54:39</p> <p>5 A. I understand and it's false. 13:54:42</p> <p>6 Q. Okay. 13:54:47</p> <p>7 A. Yeah. 13:54:48</p> <p>8 Q. Let's -- 13:54:48</p> <p>9 A. In fact, let me just clarify that I -- I often 13:54:49</p> <p>10 use UNIX, and I'm certainly not running that in the 13:54:52</p> <p>11 background. 13:54:56</p> <p>12 Q. So is it your opinion that prior to 2001 it was 13:54:59</p> <p>13 not known to use a compression algorithm before you knew 13:55:02</p> <p>14 whether that data was likely to be compressible using 13:55:08</p> <p>15 that algorithm? 13:55:14</p> <p>16 A. I'm not sure what data you're referring to. 13:55:16</p> <p>17 Q. I'm just -- I'm asking just generally speaking. 13:55:20</p> <p>18 A. But you said using a compression algorithm, not 13:55:25</p> <p>19 knowing whether the data is compressible. I'm -- I 13:55:30</p> <p>20 just -- I'm not trying to nitpick. I just don't know -- 13:55:34</p> <p>21 Q. Sure. 13:55:36</p> <p>22 A. -- you're referring to. 13:55:36</p> <p>23 Q. Are you familiar with the PK ZIP product? 13:55:36</p> <p>24 A. Yes. 13:55:43</p> <p>25 Q. How did that work? 13:55:43</p>	<p>1 code to code things, and I apply it to data, and I don't 13:57:02</p> <p>2 know ahead of time whether it's going to work or not. 13:57:06</p> <p>3 Q. So that would be an instance of 13:57:10</p> <p>4 content-independent data compression under your 13:57:12</p> <p>5 definition. Correct? 13:57:14</p> <p>6 A. Not in the context of this patent. I mean, 13:57:14</p> <p>7 content-independent data compression is -- I mean, it's 13:57:18</p> <p>8 tied to the -- to the claim. So it's using one or more 13:57:22</p> <p>9 encoders without regard to the encoder's ability to 13:57:24</p> <p>10 effectively encode. I mean, we're kind of taking it out 13:57:27</p> <p>11 of the context of the whole claim itself. It's buried 13:57:31</p> <p>12 in with all of the other words here. It's superficially 13:57:35</p> <p>13 close to it, yes. 13:57:39</p> <p>14 Q. Why would the instance in which you wrote a 13:57:41</p> <p>15 program that applies Huffman encoding to data, before 13:57:45</p> <p>16 you know whether Huffman will effectively encode the 13:57:48</p> <p>17 data or not, fall outside of your claim construction of 13:57:51</p> <p>18 content-independent data compression? 13:57:56</p> <p>19 A. Well, I guess I was considering it in the 13:58:02</p> <p>20 context of, you know, the analyzing steps. I guess, 13:58:05</p> <p>21 okay, if you just focus on the applying step only in 13:58:07</p> <p>22 this method -- I mean, because, you know, the applying 13:58:12</p> <p>23 step is referring back to appropriate 13:58:15</p> <p>24 content-independent data compression algorithm, which 13:58:17</p> <p>25 was deduced by analyzing in the first step. But if we 13:58:21</p>
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<p>1 A. It's, again, a Lempel-Ziv-type thing. 13:55:45</p> <p>2 Q. But how -- what was the PK ZIP product? 13:55:47</p> <p>3 A. What do you mean, what was it? 13:55:51</p> <p>4 Q. What was it? How was it used? 13:55:53</p> <p>5 A. I don't know all the details off the top of my 13:55:53</p> <p>6 head. I need to review. I know the general idea. 13:55:55</p> <p>7 Q. What -- what's the general idea? 13:55:56</p> <p>8 A. It's a Lempel-Ziv-based compression algorithm. 13:55:57</p> <p>9 Q. And was there any analysis of the content of 13:56:01</p> <p>10 uncompressed data applied prior to compression being 13:56:04</p> <p>11 applied in the PK ZIP product? 13:56:10</p> <p>12 A. So one thing I don't remember off the top of my 13:56:20</p> <p>13 head which I would need to know is whether they used 13:56:23</p> <p>14 Huffman coding in there as well. If you could stipulate 13:56:26</p> <p>15 that one way or the other, it would help me give you a 13:56:30</p> <p>16 good answer. 13:56:31</p> <p>17 Q. Because why? What about Huffman coding? 13:56:32</p> <p>18 A. That would affect my answer. 13:56:36</p> <p>19 Q. Are there instances you know of where Huffman 13:56:39</p> <p>20 coding was used prior to 2001 to encode data prior to 13:56:42</p> <p>21 any analysis being performed to know whether Huffman 13:56:45</p> <p>22 would effectively encode that data? 13:56:50</p> <p>23 A. Yes. 13:56:53</p> <p>24 Q. And what were some of those instances? 13:56:54</p> <p>25 A. I've used Huffman codes myself. I've written 13:56:58</p>	<p>1 just kind of take it out of context there, then using 13:58:24</p> <p>2 a -- yeah, if I wrote a program to use -- to do Huffman 13:58:27</p> <p>3 coding and then I just gave it something to compress and 13:58:32</p> <p>4 didn't think about it, that could fit into this 13:58:39</p> <p>5 definition. 13:58:41</p> <p>6 Q. And that's something you had actually done 13:58:42</p> <p>7 before 2001. Correct? 13:58:44</p> <p>8 A. Yes. 13:58:46</p> <p>9 Q. Let's turn to your claim construction of 13:58:46</p> <p>10 append, which is only in Claim 6 of the '513 patent. 13:58:49</p> <p>11 And your opinions are set forth at page 101 and 13:58:55</p> <p>12 following of the '513 patent IPR declaration. 13:59:00</p> <p>13 A. You said page 101? Is that what you meant? 13:59:12</p> <p>14 Q. I think I meant page 101. 13:59:18</p> <p>15 A. Okay. Yes. 13:59:20</p> <p>16 Q. No. You are -- so we may be both right. You 13:59:21</p> <p>17 may prefer to refer to page 37, beginning at Paragraph 13:59:28</p> <p>18 89, which is the claim construction portion of -- 13:59:32</p> <p>19 A. Okay. 13:59:36</p> <p>20 Q. -- your declaration as opposed to the 13:59:36</p> <p>21 application section. 13:59:39</p> <p>22 A. I've got both of them open here. 13:59:41</p> <p>23 Q. Okay. Did you have a chance to review that 13:59:44</p> <p>24 Paragraph 89? 14:00:04</p> <p>25 A. Yeah, I looked at that. 14:00:06</p>

<p style="text-align: right;">Page 129</p> <p>1 Q. Okay. Your -- you have opined that a person of 14:00:07 2 skill in the art would have understood "appending" as 14:00:13 3 adding to the end of. Correct? 14:00:22 4 A. Well, specifically, I mean, I say a little more 14:00:26 5 than that, but that's basically the idea. 14:00:28 6 Q. Okay. I had excluded -- your construction in 14:00:30 7 full is, quote, appending a recognizable data token to, 14:00:30 8 close quote, means, quote, adding a recognizable data 14:00:34 9 token to the end of, close quote. Right? 14:00:37 10 A. That's correct. 14:00:42 11 Q. Okay. And I'd like to focus particularly on the 14:00:42 12 appending portion of that opinion, which I understand 14:00:45 13 you to be interpreting to mean adding to the end of. Is 14:00:50 14 that right? 14:00:56 15 A. That's basically right. 14:00:57 16 Q. Okay. And specifically, if I understand you 14:00:59 17 correctly, your opinion is that appending means adding 14:01:00 18 data to the back or trailing end of something. Correct? 14:01:05 19 A. Well, I didn't say adding data. You just added 14:01:11 20 that in there. 14:01:14 21 Q. Oh, sorry. In Paragraph 90 you did say adding 14:01:14 22 data. 14:01:19 23 A. Oh. Let me see. 14:01:21 24 Q. But if you'd like to amend that, that's okay 14:01:26 25 too. 14:01:29</p>	<p style="text-align: right;">Page 131</p> <p>1 not be literally touching the last thing, but it's at 14:02:42 2 the end. It's attached to the end of the thing you're 14:02:44 3 appending to. 14:02:44 4 Q. So for a recognizable data token to be appended 14:02:46 5 to the compressed data block, do you agree that it needs 14:02:53 6 to be attached to that data block? 14:02:58 7 A. Attached either directly or indirectly. Like I 14:03:01 8 said, you could have a data block followed by multiple 14:03:04 9 appendices, things that are appended. You could let's 14:03:08 10 say have a data block called X. I could append 14:03:11 11 something called A and another thing called B and 14:03:15 12 another thing called C. So I could append three things 14:03:17 13 to it, let's say in the order A, B, C. So C is still 14:03:21 14 appended to the data block X even though the other 14:03:24 15 appendages A and B are between them. But all three of 14:03:28 16 these -- A, B, and C -- I would consider as appended to 14:03:31 17 X. 14:03:33 18 Q. And so there could be a thousand things in 14:03:33 19 between the compressed data block and the recognizable 14:03:38 20 data token, and in your opinion, it would still -- that 14:03:42 21 recognizable data token would still be appended to the 14:03:45 22 data block? 14:03:50 23 A. Well, it -- I mean, that's not really the spirit 14:03:51 24 of the patent. But generally speaking, if you have a 14:03:53 25 data block and then the patent teaches appending 14:03:56</p>
<p style="text-align: right;">Page 130</p> <p>1 A. That's fine. Okay. I'm sorry. So what was 14:01:30 2 your question? 14:01:32 3 Q. That what your -- what you are interpreting your 14:01:34 4 construction to mean is that appending is adding data to 14:01:37 5 the back or the trailing end of something else. 14:01:43 6 Correct? 14:01:46 7 A. End of is -- I mean, I think -- are you trying 14:01:46 8 to make a distinction between end of and trailing? 14:01:50 9 Q. Well, the distinction I'm trying to make is that 14:01:53 10 there could be a front end, there could be a back end, 14:01:55 11 there could be a side end of something. 14:01:58 12 A. Okay. End is end. Trailing behind. End. I 14:02:00 13 don't know how else to say it. 14:02:05 14 Q. But just so we're clear on this, your -- your -- 14:02:07 15 your construction of append excludes anything that is 14:02:11 16 not attached to the back end of something else. 14:02:15 17 Correct? 14:02:21 18 A. As opposed to the front. It can't be attached 14:02:21 19 to the front -- 14:02:26 20 Q. Okay. So -- 14:02:26 21 A. -- or in the middle. Yeah, I mean, you could 14:02:27 22 have like -- you know, you can have, say, a block of 14:02:29 23 data. You could attach something -- I can't use hand 14:02:30 24 motions. You can attach something immediately after it, 14:02:33 25 or you can have several layers of appendices. It might 14:02:36</p>	<p style="text-align: right;">Page 132</p> <p>1 specific things to the data block, there can be more 14:03:59 2 than one. I don't think there can be a thousand. But, 14:04:02 3 you know, generally speaking, you could have more than 14:04:05 4 one. 14:04:09 5 Q. But your opinion is that if it's -- if the 14:04:10 6 recognizable data token is attached to the front end of 14:04:13 7 the compressed data block, that it's not appended. 14:04:20 8 Correct? 14:04:25 9 A. That's correct. 14:04:29 10 Q. Is there a particular part of the word 14:04:33 11 "appended" or "append" that you believe signifies "at 14:04:35 12 the back"? 14:04:41 13 A. Well, I don't think it's a question of breaking 14:04:42 14 down the syntax of the word itself from a word to 14:04:45 15 letters, if that's what you're getting at, or full names 14:04:49 16 or syllables. It's a issue of, what does that word mean 14:04:54 17 in the context of this patent? How is it used, you 14:04:57 18 know, and how is it normally used? And I think my 14:05:00 19 opinions are written down here, starting around these 14:05:04 20 paragraphs you pointed to. And I have some -- some 14:05:05 21 supporting dictionaries that are consistent with my 14:05:11 22 opinion, and some other evidence. So it's not just 14:05:15 23 based on like looking at the letters in the word or 14:05:19 24 anything. 14:05:22 25 Q. And do you know what -- well, strike that. 14:05:22</p>

<p style="text-align: right;">Page 133</p> <p>1 You do admit that in Paragraph 90 of your 14:05:27</p> <p>2 report, your declaration, that the '513 patent does not 14:05:32</p> <p>3 explicitly define the term "append." Correct? 14:05:38</p> <p>4 A. That's correct. 14:05:43</p> <p>5 Q. And you then cited a series of dictionaries in 14:05:51</p> <p>6 between Paragraphs 91 and 92 of your declaration. 14:05:55</p> <p>7 Right? 14:05:59</p> <p>8 A. That's correct. 14:06:02</p> <p>9 Q. Are there other dictionaries that you looked at 14:06:04</p> <p>10 in addition to the ones you cited here? 14:06:07</p> <p>11 A. Yes. 14:06:09</p> <p>12 Q. Which other ones did you look at? 14:06:10</p> <p>13 A. I don't remember. I -- I looked at a couple 14:06:13</p> <p>14 that just didn't have the word in there at all. I don't 14:06:15</p> <p>15 remember offhand which they were. 14:06:18</p> <p>16 Q. Did you look at some dictionaries that had 14:06:21</p> <p>17 definitions of append that you didn't think would be as 14:06:24</p> <p>18 supportive of your opinion? 14:06:27</p> <p>19 A. I didn't see any. 14:06:29</p> <p>20 Q. And how did you obtain the dictionaries that you 14:06:30</p> <p>21 looked at for this? 14:06:36</p> <p>22 A. I've got a collection in my house, and the law 14:06:37</p> <p>23 firm has some dictionaries, and together we looked at 14:06:41</p> <p>24 them. 14:06:46</p> <p>25 Q. All right. So for the Microsoft computer 14:06:46</p>	<p style="text-align: right;">Page 135</p> <p>1 Is that right? 14:08:02</p> <p>2 A. No. That's, as far as I know -- I mean, I'm not 14:08:03</p> <p>3 a lawyer, but I don't think that's part of the intrinsic 14:08:04</p> <p>4 evidence or anything else I should consider. 14:08:07</p> <p>5 Q. Are you familiar with the word "appendage"? 14:08:16</p> <p>6 A. In ordinary use, yes. 14:08:19</p> <p>7 Q. Yeah. So my arm is an appendage to my body. 14:08:21</p> <p>8 Right? 14:08:25</p> <p>9 A. Seems that's a good use of it, yes. 14:08:26</p> <p>10 Q. Now, with respect to Claim 6 of the '513 patent, 14:08:31</p> <p>11 in your opinion, Claim 6 could not be infringed by any 14:08:35</p> <p>12 system in which a recognizable data token was attached 14:08:40</p> <p>13 directly or indirectly to something other than the end 14:08:48</p> <p>14 of the compressed data block. Correct? 14:08:53</p> <p>15 A. It doesn't exclude that possibility. It just 14:08:56</p> <p>16 requires affirmatively that there be a data token 14:08:58</p> <p>17 appended. So conceivably you could have one in the 14:09:02</p> <p>18 beginning, one in the end. That's okay. It just -- you 14:09:05</p> <p>19 asked it, does it exclude it? 14:09:07</p> <p>20 Q. That's a fair point, so let me reask the 14:09:11</p> <p>21 question. 14:09:13</p> <p>22 With respect to Claim 6 of the '513 patent, in 14:09:14</p> <p>23 your opinion, that claim would not be infringed by any 14:09:19</p> <p>24 system which did not attach, directly or indirectly, a 14:09:26</p> <p>25 recognizable data token to the back end of the 14:09:31</p>
<p style="text-align: right;">Page 134</p> <p>1 dictionary that you cited, was that definition first 14:06:49</p> <p>2 identified by you or by Sterne Kessler? 14:06:52</p> <p>3 A. I don't know. 14:06:59</p> <p>4 Q. And for the Webster's New World Dictionary of 14:06:59</p> <p>5 Computer Terms that you cited, was that definition first 14:07:01</p> <p>6 identified by you or by Sterne Kessler? 14:07:01</p> <p>7 A. In general I don't remember for any of these who 14:07:05</p> <p>8 got it first. 14:07:08</p> <p>9 Q. And do you know how Sterne -- what other 14:07:11</p> <p>10 dictionaries Sterne Kessler looked at? 14:07:14</p> <p>11 A. I don't know. 14:07:18</p> <p>12 Q. Do you know if they provided you with all the 14:07:18</p> <p>13 definitions for append that they saw? 14:07:21</p> <p>14 A. I have no idea what they did. 14:07:23</p> <p>15 Q. Did anyone inform you that in prior litigation 14:07:26</p> <p>16 Realtime took the position that the specification of -- 14:07:33</p> <p>17 the specification that is common to the '513 patent and 14:07:38</p> <p>18 other patents was not limited to attaching data to the 14:07:42</p> <p>19 back of something? 14:07:47</p> <p>20 A. Nobody informed me of that. 14:07:48</p> <p>21 Q. Is that something you would liked to have known 14:07:49</p> <p>22 before you offered your opinion on this? 14:07:53</p> <p>23 A. I don't think that's relevant in performing 14:07:56</p> <p>24 claim construction. 14:07:59</p> <p>25 Q. So you wouldn't have taken that into account. 14:08:01</p>	<p style="text-align: right;">Page 136</p> <p>1 compressed data block. Correct? 14:09:35</p> <p>2 A. Well, I'm a little concerned about a legal issue 14:09:47</p> <p>3 here which is, first I'm not a lawyer, so let me clarify 14:09:52</p> <p>4 that. You asked me about infringement. I'm studying 14:09:56</p> <p>5 validity. And my understanding is that we use different 14:09:59</p> <p>6 claim construction standards. We use the BRI standard 14:10:03</p> <p>7 here, broadest reasonable interpretation. Infringement 14:10:07</p> <p>8 happens in district court where there's some other 14:10:08</p> <p>9 infringe -- some other claim construction criteria 14:10:10</p> <p>10 that's used. So I really can't speak to infringement. 14:10:13</p> <p>11 I can speak to validity. 14:10:15</p> <p>12 Q. Use the broadest reasonable interpretation 14:10:18</p> <p>13 standard. Under that standard a system that did not 14:10:32</p> <p>14 attach, directly or indirectly, a recognizable data 14:10:38</p> <p>15 token to the back end of the compressed data block would 14:10:42</p> <p>16 not meet the requirements of Claim 6 of the '513 patent. 14:10:47</p> <p>17 Correct? 14:10:52</p> <p>18 A. I don't think that would fall within the scope 14:10:52</p> <p>19 of Claim 6. 14:10:55</p> <p>20 Q. Now, you point out in Paragraph 92 of your 14:11:16</p> <p>21 declaration that a person of skill in the art would have 14:11:22</p> <p>22 understood that an example of file type descriptors 14:11:27</p> <p>23 would be file extensions like .doc or .exe. Correct? 14:11:32</p> <p>24 A. Yes. 14:11:43</p> <p>25 Q. And that was well known in advance of 2001. 14:11:44</p>

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<p>1 Correct? 14:11:46</p> <p>2 A. Yes. 14:11:47</p> <p>3 Q. So attaching -- or a descriptor to the back end 14:11:47</p> <p>4 of data, a data block, was known prior to 2001. 14:11:54</p> <p>5 Correct? 14:12:02</p> <p>6 A. Attaching a file type, like doc or exe, to the 14:12:07</p> <p>7 end of the name of a file was known at that time. 14:12:14</p> <p>8 Q. And .doc is, in your opinion, a descriptor. 14:12:15</p> <p>9 Correct? 14:12:17</p> <p>10 A. That's an example, yes. 14:12:18</p> <p>11 Q. That's an example of a descriptor appended to a 14:12:20</p> <p>12 block of data. Correct? 14:12:24</p> <p>13 A. Yes. 14:12:27</p> <p>14 Q. If you could turn to Paragraph 151 of your 14:12:35</p> <p>15 declaration in the '513 IPR proceeding, I wanted to ask 14:13:01</p> <p>16 a few questions about that. 14:13:10</p> <p>17 A. Paragraph 115? 14:13:10</p> <p>18 Q. 151, which is on page 72. 14:13:12</p> <p>19 A. Okay. 14:13:13</p> <p>20 Q. All right. So you offer in this paragraph and 14:13:14</p> <p>21 the following paragraphs an opinion that Oracle's 14:13:21</p> <p>22 rationale that a person of skill in the art would have 14:13:26</p> <p>23 combined Hsu and Franaszek because they are similar as 14:13:28</p> <p>24 generic, and it's insufficient to explain why a person 14:13:30</p> <p>25 of skill in the art would have combined the specific 14:13:33</p>	<p>1 recognize. I'd have to seed what they say. 14:14:50</p> <p>2 Q. So you just don't know? 14:14:53</p> <p>3 A. I don't remember. 14:14:54</p> <p>4 Q. Okay. You agree that Hsu and Franaszek are both 14:14:55</p> <p>5 directed at the problem of optimally compressing a 14:14:57</p> <p>6 collection of data blocks containing different types of 14:14:57</p> <p>7 data. Correct? 14:15:01</p> <p>8 A. Again, I would have -- I don't remember off the 14:15:02</p> <p>9 top of my head. It also depends what you mean by 14:15:04</p> <p>10 "optimally." 14:15:07</p> <p>11 Q. Do you agree that Hsu and Franaszek both 14:15:09</p> <p>12 recognize the significance of analyzing data blocks to 14:15:11</p> <p>13 determine their data type? 14:15:15</p> <p>14 A. Again, it kind of depends on these -- what these 14:15:17</p> <p>15 words mean, recognizing the significance of it. I would 14:15:20</p> <p>16 have to go check that, and show me -- show me where. 14:15:23</p> <p>17 Q. In your declarations you haven't contested that 14:15:30</p> <p>18 both Hsu and Franaszek recognize the significance of 14:15:35</p> <p>19 analyzing data blocks to determine their data type. 14:15:39</p> <p>20 Correct? 14:15:42</p> <p>21 A. I don't remember if I contested that or not. 14:15:43</p> <p>22 Q. Do you want to check? 14:15:48</p> <p>23 A. Sure. Is this No. 3 on the list? 14:15:50</p> <p>24 Q. Number 4. 14:16:01</p> <p>25 A. Oh, No. 4? 14:16:03</p>
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<p>1 portions of Hsu and Franaszek to arrive at the claimed 14:13:37</p> <p>2 invention. Right? 14:13:40</p> <p>3 A. Yes. 14:13:42</p> <p>4 Q. And then in Paragraph 151 you've identified some 14:13:43</p> <p>5 of the similarities that Oracle identified in its 14:13:47</p> <p>6 petition between the Hsu and Franaszek references. 14:13:56</p> <p>7 Right? 14:13:59</p> <p>8 A. Yes. 14:14:01</p> <p>9 Q. You -- looking at those, you agree that Hsu and 14:14:01</p> <p>10 Franaszek both concern the field of data compression. 14:14:05</p> <p>11 Correct? 14:14:09</p> <p>12 A. Yes. 14:14:11</p> <p>13 Q. And you agree that both Hsu and Franaszek teach 14:14:11</p> <p>14 systems that analyze and compress data in the form of 14:14:14</p> <p>15 data blocks. Correct? 14:14:17</p> <p>16 A. Yes. 14:14:17</p> <p>17 Q. You agree that Hsu and Franaszek both recognize 14:14:18</p> <p>18 that certain compression methods optimally compress 14:14:21</p> <p>19 certain but not all types of data. Correct? 14:14:28</p> <p>20 A. Well, I'm not sure I agree with that. I would 14:14:32</p> <p>21 have to go check if that's the case. 14:14:33</p> <p>22 Q. Okay. As you sit here, do you have any 14:14:37</p> <p>23 disagreement with that statement? 14:14:40</p> <p>24 A. I don't know one way or the other whether both 14:14:42</p> <p>25 of those are -- Hsu and Franaszek recognize or don't 14:14:45</p>	<p>1 I don't think -- I'm pretty sure I didn't 14:16:43</p> <p>2 actually contest these. I'm taking these as assertions 14:16:45</p> <p>3 by Oracle, and then I'm describing my opinions based on 14:16:45</p> <p>4 those assertions. 14:16:45</p> <p>5 Q. Okay. Number 6 is that both Franaszek and Hsu 14:16:46</p> <p>6 teach the use of dictionary use -- dictionary-based 14:16:47</p> <p>7 universal lossless compression algorithms. Do you see 14:16:50</p> <p>8 that? 14:16:54</p> <p>9 A. Yes, I do. 14:16:56</p> <p>10 Q. You may have touched on this before. But what 14:16:56</p> <p>11 is a lossless compression algorithm? 14:16:59</p> <p>12 A. A lossless compression algorithm is a 14:17:03</p> <p>13 compression algorithm for which the original input data 14:17:07</p> <p>14 can be completely recovered without any errors, given 14:17:11</p> <p>15 only knowledge of the output of the algorithm. 14:17:17</p> <p>16 Q. And if there is a one-bit difference in the 14:17:21</p> <p>17 reconstructed or decompressed data, is the -- is the 14:17:26</p> <p>18 compression algorithm still a lossless compression 14:17:31</p> <p>19 algorithm? 14:17:37</p> <p>20 A. If -- if that 1-bit error is just due to the 14:17:39</p> <p>21 algorithm itself and there's no external issues like 14:17:42</p> <p>22 channel noise or anything, then generally that would not 14:17:46</p> <p>23 be lossless. 14:17:49</p> <p>24 Q. When you say "generally that would not be 14:17:51</p> <p>25 lossless," is there any instance in which that would be 14:17:54</p>

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<p>1 considered lossless? 14:17:57</p> <p>2 A. You know, I didn't actually have to construe 14:18:13</p> <p>3 lossless compression algorithm here, and I don't think I 14:18:18</p> <p>4 have an opinion regarding that. But generally speaking, 14:18:20</p> <p>5 that would not be lossless unless I'm not considering 14:18:20</p> <p>6 some, you know, special case I'm just not thinking of 14:18:24</p> <p>7 right now or remembering. Maybe there's some weird 14:18:27</p> <p>8 situation, for some reason I'm not -- it's not coming 14:18:30</p> <p>9 into my head. But my instinct would be to say, no, 14:18:32</p> <p>10 that's not lossless. 14:18:35</p> <p>11 Q. And just, I think, just one or two more 14:18:38</p> <p>12 questions. Can we go back in your declaration for the 14:18:40</p> <p>13 '513 patent to page 16 and Paragraph 46? This is 14:18:46</p> <p>14 Exhibit 2. 14:18:51</p> <p>15 A. I'm sorry. What page? 14:19:01</p> <p>16 Q. I used a lot of numbers there. It's page 16 -- 14:19:04</p> <p>17 A. Okay. 14:19:08</p> <p>18 Q. -- of Exhibit 2. 14:19:09</p> <p>19 A. Oh, wait. Yeah. Okay. Yep. I'm there. 14:19:11</p> <p>20 Q. And you're just describing a portion of the 14:19:14</p> <p>21 written description of the '513 patent in the preceding 14:19:18</p> <p>22 paragraphs there. Feel free to review them. 14:19:24</p> <p>23 A. You're talking about 47 to 49? 14:19:30</p> <p>24 Q. I think I'm talking about, yeah, maybe 44 to 46. 14:19:34</p> <p>25 A. Oh, that's not on 16, then. 14:19:39</p>	<p>1 matching dictionary-type algorithm. There's a whole 14:39:56</p> <p>2 family of Lempel-Ziv algorithms. And the LZW basically 14:39:57</p> <p>3 builds up a dictionary of strings based on strings that 14:40:06</p> <p>4 it has encountered already. And then when it encounters 14:40:14</p> <p>5 new strings, it adds those to the dictionary and then 14:40:18</p> <p>6 just kind of keeps recurring on that theme. There's a 14:40:22</p> <p>7 lot more details to it, but that's the basically idea. 14:40:26</p> <p>8 Q. And what distinguishes the Lempel-Ziv-Welch 14:40:27</p> <p>9 algorithm from the preexisting Lempel-Ziv algorithm? 14:40:34</p> <p>10 A. So, let's see, I -- I don't remember all the 14:40:43</p> <p>11 details of all the algorithms exactly right now, but 14:40:44</p> <p>12 generally the -- what people call LZ77 is -- the main 14:40:48</p> <p>13 idea is to look at a previous block of data and have 14:40:52</p> <p>14 pointers that refer back to known string matches within 14:40:56</p> <p>15 that block; whereas, LZ78 is slightly different. It 14:41:00</p> <p>16 builds up a dictionary on the fly, and there's not like 14:41:07</p> <p>17 a block that it has to look at. It just looks back to 14:41:11</p> <p>18 whatever it's encountered before, and then it keeps 14:41:14</p> <p>19 adding new strings to a dictionary. And then the LZW -- 14:41:18</p> <p>20 I forgot the exact distinction. I think it has -- if I 14:41:23</p> <p>21 remember right, it's got two dictionaries. And one of 14:41:26</p> <p>22 them is filling up, and when it fills up, I think it 14:41:30</p> <p>23 swaps with the other dictionary. So I don't remember 14:41:33</p> <p>24 all the details off the top of my head. I have to 14:41:36</p> <p>25 periodically review that. 14:41:39</p>
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<p>1 Q. Sorry. Yeah, starting on page 15 -- 14:20:02</p> <p>2 A. Okay. 14:20:04</p> <p>3 Q. -- page -- Paragraph 46 is on page 16. 14:20:05</p> <p>4 A. Okay. 14:20:06</p> <p>5 Q. And in Paragraph 46 you say, "In this way a 14:20:06</p> <p>6 person of skill in the art would have understood that 14:20:08</p> <p>7 while content-dependent compression may provide benefits 14:20:11</p> <p>8 for some data types, it has limitation when applied to a 14:20:17</p> <p>9 variety of content." Correct? 14:20:19</p> <p>10 A. Yes. 14:20:20</p> <p>11 Q. And that's something that a person of skill in 14:20:20</p> <p>12 the art would have understood as of 2001. Correct? 14:20:23</p> <p>13 A. Yes. 14:20:26</p> <p>14 Q. Can we take a short break? 14:20:29</p> <p>15 A. Sure. 14:20:31</p> <p>16 Q. Thanks. 14:20:33</p> <p>17 THE VIDEOGRAPHER: We're off the record. The 14:20:34</p> <p>18 time is 2:20 p.m. 14:20:36</p> <p>19 (Off record) 14:20:38</p> <p>20 THE VIDEOGRAPHER: We're back on the record. 14:39:37</p> <p>21 The time is 2:39 p.m. 14:39:38</p> <p>22 BY MR. LANTIER: 14:39:41</p> <p>23 Q. Dr. Zeger, could you explain how the 14:39:42</p> <p>24 Lempel-Ziv-Welch algorithm works? 14:39:47</p> <p>25 A. In -- I mean, in broad terms it's string 14:39:54</p>	<p>1 Q. Are you more familiar with the LZ77 and LZ78 14:41:40</p> <p>2 algorithms than you are with the LZW? 14:41:45</p> <p>3 A. Well, I think I'm familiar with all of them. I 14:41:49</p> <p>4 just, you know, when I actually have to make decisions 14:41:51</p> <p>5 or opinions based on them and I go and, you know, get 14:41:53</p> <p>6 the exact details and review them, and there's so many 14:41:56</p> <p>7 different LZ variants. There's lots more than just 14:41:59</p> <p>8 that, that it's hard to keep track of which one's which. 14:42:02</p> <p>9 So when I need to make an opinion, I go in and I find 14:42:02</p> <p>10 the exact details of each one. 14:42:06</p> <p>11 Q. Now, we talked a little bit about the disclosure 14:42:08</p> <p>12 in the '513 patent of trying a number of encoding 14:42:11</p> <p>13 algorithms and then determining which one had the best 14:42:19</p> <p>14 compression. Do you remember that? 14:42:25</p> <p>15 A. Yes. 14:42:29</p> <p>16 Q. I want to ask you a question about trying -- 14:42:29</p> <p>17 about an operation in which one compression algorithm is 14:42:34</p> <p>18 applied. And a -- the result is analyzed to determine 14:42:39</p> <p>19 whether it -- it succeeded in compressing the data. Do 14:42:47</p> <p>20 you understand that hypothetical? 14:42:55</p> <p>21 A. I think so, but go ahead. I'll let you know if 14:42:57</p> <p>22 I don't. 14:43:00</p> <p>23 Q. Is the -- is the operation of trying a 14:43:01</p> <p>24 compression algorithm to see if it will compress a data 14:43:08</p> <p>25 block a form of analyzing the content of that data 14:43:14</p>

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<p>1 block? 14:43:21</p> <p>2 A. So when you're -- you're asking me about whether 14:43:26</p> <p>3 something is a form of analyzing the content, are you 14:43:29</p> <p>4 referring to in the context of the claim, the '513 14:43:32</p> <p>5 patent? 14:43:35</p> <p>6 Q. Yes. 14:43:37</p> <p>7 A. So, well, let's try to be more specific so I 14:43:39</p> <p>8 really get it right. Can we look at Claim 1 in '513? 14:43:42</p> <p>9 Q. Sure. 14:43:48</p> <p>10 A. So there's two different analyzing steps within 14:43:48</p> <p>11 that method. Should I look at -- does it matter which 14:43:51</p> <p>12 one you want me to look at? 14:43:54</p> <p>13 Q. I don't think it should matter, but if your 14:43:56</p> <p>14 answer would be different for the two steps, let me 14:44:00</p> <p>15 know. 14:44:03</p> <p>16 A. Okay. So the -- in let's say the first one, 14:44:03</p> <p>17 it's analyzing a plurality of data blocks to recognize 14:44:05</p> <p>18 when an appropriate content-independent compression 14:44:10</p> <p>19 algorithm is to be applied to the plurality of data 14:44:13</p> <p>20 blocks. And you're asking me if -- if this method looks 14:44:18</p> <p>21 at a data block and just returns a Boolean answer, yes 14:44:21</p> <p>22 or no, does it compress it or not, is that a form of 14:44:25</p> <p>23 analyzing? Is that what you're asking me? 14:44:28</p> <p>24 Q. Yeah. Is that a form of analyzing the content 14:44:32</p> <p>25 of that data block? 14:44:35</p>	<p>1 an opinion in these reports, so I can't really give you 14:46:59</p> <p>2 a definitive answer. But I -- you know, I don't see 14:47:03</p> <p>3 offhand a reason why I would exclude that, but I'm just 14:47:07</p> <p>4 not sure. I didn't do a full analysis. 14:47:11</p> <p>5 MR. LANTIER: Okay. I think we're finished. 14:47:15</p> <p>6 Thank you very much, Dr. Zeger. 14:47:17</p> <p>7 MR. MUTSCHELKNAUS: Just one second. 14:47:29</p> <p>8 THE VIDEOGRAPHER: We're off the record. The 14:47:33</p> <p>9 time is 2:47 p.m. 14:47:34</p> <p>10 (Off record) 14:47:35</p> <p>11 THE VIDEOGRAPHER: We're back on the record. 14:50:22</p> <p>12 The time is 2:50 p.m. 14:50:23</p> <p>13 MR. MUTSCHELKNAUS: Just a handful of questions 14:50:26</p> <p>14 for redirect. 14:50:28</p> <p>15 14:50:29</p> <p>16 EXAMINATION 14:50:29</p> <p>17 BY MR. MUTSCHELKNAUS: 14:50:30</p> <p>18 Q. Dr. Zeger, can you turn to Deposition Exhibit 2. 14:50:30</p> <p>19 That's the '513 -- your '513 declaration. Take a quick 14:50:37</p> <p>20 look at Paragraphs 44 through 47 again. Let me know 14:50:41</p> <p>21 when you're done. Forty-four through 46, sorry. Let me 14:50:45</p> <p>22 know when you're done. 14:50:50</p> <p>23 A. Okay. 14:51:15</p> <p>24 Q. So here you describe some drawbacks of applying 14:51:15</p> <p>25 content-dependent compression algorithms to a variety of 14:51:18</p>
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<p>1 A. Well, the claim language doesn't say analyze the 14:44:37</p> <p>2 content. It just says analyzing the blocks themselves. 14:44:42</p> <p>3 Q. Have you reviewed the Markman decision in the 14:44:47</p> <p>4 litigation between Oracle and Realtime? 14:44:55</p> <p>5 A. I probably have, but I'm not sure what the 14:44:59</p> <p>6 relevance is. 14:45:02</p> <p>7 Q. Okay. Well, then, is trying a compression 14:45:04</p> <p>8 algorithm to see if it will compress the data block a 14:45:09</p> <p>9 form of analyzing the data blocks to recognize when an 14:45:16</p> <p>10 appropriate content-independent compression algorithm is 14:45:22</p> <p>11 to be applied? 14:45:26</p> <p>12 A. I didn't have to specifically give an opinion on 14:45:51</p> <p>13 that in my report, and I don't think I have. But at 14:45:55</p> <p>14 this moment I don't particularly see a reason to exclude 14:46:01</p> <p>15 that. But I don't -- I haven't really thought about 14:46:04</p> <p>16 that carefully. 14:46:08</p> <p>17 Q. And with respect to the other analyzing step 14:46:18</p> <p>18 that you referred to, would trying a compression 14:46:24</p> <p>19 algorithm to see if it compressed the data block be a 14:46:29</p> <p>20 form of analyzing a data block for recognition of any 14:46:37</p> <p>21 characteristic, attribute, or parameter that is 14:46:43</p> <p>22 indicative of an appropriate content-dependent algorithm 14:46:47</p> <p>23 to apply to the data block? 14:46:51</p> <p>24 A. So the same kind of thing, I didn't -- that 14:46:53</p> <p>25 really didn't come up in my analysis, and I didn't offer 14:46:55</p>	<p>1 data types. Is that correct? 14:51:22</p> <p>2 A. Are you talking about on page 16, those three 14:51:25</p> <p>3 items listed? 14:51:27</p> <p>4 Q. Yep. 14:51:29</p> <p>5 A. Yes, I see those. 14:51:30</p> <p>6 Q. What do you cite to for the teaching of the 14:51:31</p> <p>7 drawbacks of applying content-dependent compression 14:51:34</p> <p>8 algorithms to a variety of data types -- of the 14:51:38</p> <p>9 drawbacks of applying content-dependent compression 14:51:41</p> <p>10 algorithms to a variety of data types? 14:51:45</p> <p>11 A. Let's see. I got trace it back. I believe it's 14:51:49</p> <p>12 Exhibit 11001, which is probably the '513 patent. I 14:51:52</p> <p>13 think it's Exhibit 7 in this proceedings now, in this 14:51:57</p> <p>14 deposition. 14:52:01</p> <p>15 Q. Other than the '513 patent, are you aware of any 14:52:02</p> <p>16 other teachings in the record for these three drawbacks 14:52:06</p> <p>17 listed on page 16? 14:52:10</p> <p>18 A. Sure. Yeah. You mean in terms -- 14:52:13</p> <p>19 Q. Other -- other than the '513 patent, are there 14:52:20</p> <p>20 any -- do you cite to any other teachings in the record 14:52:22</p> <p>21 for these drawbacks? 14:52:26</p> <p>22 A. For these three drawbacks, you mean? 14:52:27</p> <p>23 Q. Yeah. 14:52:29</p> <p>24 A. Oh. For these three drawbacks, I think that's 14:52:30</p> <p>25 the only thing I cite to. 14:52:32</p>

<p style="text-align: right;">Page 149</p> <p>1 Q. Okay. 14:52:34</p> <p>2 A. Yeah. 14:52:35</p> <p>3 Q. Can you turn to Deposition Exhibit 3, which 14:52:35</p> <p>4 is -- which is Hsu? 14:52:43</p> <p>5 A. Yes, I got that. 14:52:45</p> <p>6 Q. On the face of the document, do you see a date 14:52:48</p> <p>7 listed under -- underneath the title? 14:52:50</p> <p>8 A. Do you mean on the cover -- 14:52:54</p> <p>9 Q. The cover page, yep. 14:52:55</p> <p>10 A. Yes. It says "October 1995." 14:52:57</p> <p>11 Q. Did you offer any opinion as to whether Hsu was 14:53:00</p> <p>12 actually publicly available as of October 1995? 14:53:04</p> <p>13 A. No. I have no idea. 14:53:08</p> <p>14 Q. Have you offered any opinion as to whether Hsu 14:53:09</p> <p>15 was publicly available at all before the effective dates 14:53:12</p> <p>16 of the '513 or '992 patents? 14:53:17</p> <p>17 A. I really don't know. I have no idea. 14:53:20</p> <p>18 MR. MUTSCHELKNAUS: Okay. We have no further 14:53:23</p> <p>19 questions. 14:53:24</p> <p>20 MR. LANTIER: Okay. Just two questions. 14:53:25</p> <p>21 14:53:27</p> <p>22 FURTHER EXAMINATION 14:53:27</p> <p>23 BY MR. LANTIER: 14:53:27</p> <p>24 Q. Staying on Hsu, counsel for Realtime just 14:53:28</p> <p>25 pointed you to a date on the front of the document that 14:53:39</p>	<p style="text-align: right;">Page 151</p> <p>1 editor and various other -- you know, as an 14:55:05</p> <p>2 author/editor/reviewer, and a lot of times journals 14:55:09</p> <p>3 don't come out when they're printed, when they say they 14:55:13</p> <p>4 are. 14:55:17</p> <p>5 Q. Do you have any reason to doubt that this 14:55:17</p> <p>6 journal came out before the year 2000? 14:55:20</p> <p>7 A. I -- I just don't know. 14:55:23</p> <p>8 Q. So it's your opinion that -- that there's reason 14:55:25</p> <p>9 to doubt whether the -- the Hsu article was published 14:55:32</p> <p>10 before the year 2000? Is that correct? 14:55:37</p> <p>11 A. I just don't know. 14:55:39</p> <p>12 Q. But is that your opinion? 14:55:41</p> <p>13 A. My opinion is -- I mean, I can read the dates on 14:55:42</p> <p>14 here. But, you know, whether it came out or not, I have 14:55:45</p> <p>15 no evidence, nobody's shown that to me, nobody's asked 14:55:47</p> <p>16 me about that until right at this very moment now. So I 14:55:51</p> <p>17 just -- I just don't know. I'd be -- if I said one way 14:55:54</p> <p>18 or the other, I'd be offering information I don't really 14:55:57</p> <p>19 have. 14:55:59</p> <p>20 Q. There's no evidence that you see to suggest that 14:56:00</p> <p>21 the dates on the -- on the Hsu article are incorrect. 14:56:03</p> <p>22 Right? 14:56:06</p> <p>23 A. There's no evidence either way. I don't see 14:56:08</p> <p>24 any. 14:56:10</p> <p>25 MR. LANTIER: No further questions. 14:56:12</p>
<p style="text-align: right;">Page 150</p> <p>1 says "October 1995." Right? 14:53:44</p> <p>2 A. That's correct. 14:53:47</p> <p>3 Q. And that's the date that is on the face of this 14:53:47</p> <p>4 journal titled "Software Practice and Experience." 14:53:53</p> <p>5 Correct? 14:53:56</p> <p>6 A. Assuming that's called a face. I'm just looking 14:53:56</p> <p>7 at the very first page on Exhibit 3. If that's called 14:54:00</p> <p>8 the face, then yes. 14:54:04</p> <p>9 Q. And if you look down towards the bottom of the 14:54:05</p> <p>10 document, do you see that there's a -- another instance 14:54:09</p> <p>11 in which the year 1995 is set forth next to the SPEXBL 14:54:14</p> <p>12 number? 14:54:22</p> <p>13 A. I see that in parentheses it says "1995." 14:54:22</p> <p>14 Q. And on page 2 do you see that there's a copy 14:54:28</p> <p>15 right date of 1995 in the third paragraph from the 14:54:36</p> <p>16 bottom? 14:54:42</p> <p>17 A. Yes. I -- I see all these 1995s, but really 14:54:43</p> <p>18 don't know exactly when these things are available. I 14:54:47</p> <p>19 mean, I can read the text. 14:54:49</p> <p>20 Q. Looking at this document, do you have any reason 14:54:52</p> <p>21 to question whether the document was available to the 14:54:54</p> <p>22 public beginning in 1995? 14:54:57</p> <p>23 A. Yes, I do. 14:54:59</p> <p>24 Q. What's that? 14:55:01</p> <p>25 A. I've been involved in journal publications as an 14:55:01</p>	<p style="text-align: right;">Page 152</p> <p>1 THE VIDEOGRAPHER: This concludes today's 14:56:19</p> <p>2 deposition of Dr. Kenneth Zeger. Total number of media 14:56:20</p> <p>3 used was three. We're off the record. The time is 14:56:25</p> <p>4 2:56 p.m. 14:56:29</p> <p>5 (The deposition was concluded at 2:56 p.m.)</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

1 DECLARATION UNDER PENALTY OF PERJURY

2

3 I, KENNETH A. ZEGER, Ph.D., the witness herein,
 4 declare under penalty of perjury that I have read the
 5 foregoing in its entirety; and that the testimony
 6 contained therein, as corrected by me, is a true and
 7 accurate transcription of my testimony elicited at said
 8 time and place.

9

10 Executed this _____ day of _____ 2017, at
 11 _____,
 12 (City) (State)

13

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 KENNETH A. ZEGER, Ph.D.

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1 REPORTER'S CERTIFICATION

2

3 I, Denise Marlow, Certified Shorthand Reporter
 4 in and for the State of California, do hereby certify:

5

6 That the witness named in the foregoing
 7 deposition was, before the commencement of the
 8 deposition, duly administered an oath in accordance
 9 with the Code of Civil Procedure Section 2094; that
 10 the testimony and proceedings were reported
 11 stenographically by me and later transcribed through
 12 computer-aided transcription under my direction and
 13 supervision; that the foregoing is a true record of the
 14 testimony and proceedings taken at that time.

15

16 IN WITNESS WHEREOF, I have hereunto subscribed
 17 my name this 12th day of January, 2017.

18

19

20

<%signature%>

21

Denise Marlow, CSR No. 11631

22

23

24

25

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