

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

3  
4  
5 SERVICENOW, INC.,

6 Petitioner,

7 vs.

8 HEWLETT-PACKARD COMPANY,

9 Patent Owner.

Case

IPR2015-00717

Patent 7,027,411

-----

10  
11  
12  
13  
14 VIDEO DEPOSITION OF TAL LAVIAN, Ph.D.

15 Palo Alto, California

16 Monday, November 16, 2015

17  
18  
19  
20  
21  
22  
23  
24 REPORTED BY:

CYNTHIA MANNING, CSR No. 7645, CLR, CCRR

25 JOB NO. 99564

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

November 16, 2015  
9:16 a.m.

Deposition of TAL LAVIAN, Ph.D., taken on behalf of Patent Owner, at Cooley LLP, 3175 Hanover Street, Palo Alto, California, before Cynthia Manning, Certified Shorthand Reporter No. 7645, Certified LiveNote Reporter, California Certified Realtime Reporter.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

**A P P E A R A N C E S:**

Attorneys for Petitioner  
COOLEY  
3175 Hanover Street  
Palo Alto, CA 94304  
BY: ANDREW MACE, ESQ.

Attorneys for Patent Owner  
WILMERHALE  
60 State Street  
Boston, MA 02109  
BY: MONICA GREWAL, ESQ.

Also present:  
Dwayne Groth, Videographer

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

PALO ALTO, CALIFORNIA;  
MONDAY, NOVEMBER 16, 2015; 9:16 A.M.

THE VIDEOGRAPHER: Good morning.  
This is the start of Disc 1 of the deposition of Dr. Tal Lavian in the matter of ServiceNow, Incorporated, versus Hewlett-Packard Company, before the Patent Trial and Appeal Board. Case Number IPR2015-00717.

This deposition is being held at 3175 Hanover Street, in Palo Alto, California, on Monday, November 16th, 2015, at approximately 9:16 a.m.

My name is Dwayne Groth, from TSG Reporting, Incorporated, and I am the legal video specialist.

The court reporter is Cynthia Manning, in association with TSG Reporting.

Will all counsel please introduce yourselves for the record.

MS. GREWAL: Monica Grewal, from WilmerHale, representing the patent owner, Hewlett-Packard.

MR. MACE: Andrew Mace, with Cooley, for the petitioner, ServiceNow.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

THE VIDEOGRAPHER: Will the court reporter please swear in the witness.

TAL LAVIAN, Ph.D.,  
having been first duly sworn by the reporter,  
testified as follows:

THE VIDEOGRAPHER: You may proceed.

**EXAMINATION**

BY MS. GREWAL:

Q. Good morning. Please state your name --

A. Good morning.

Q. -- and address for the record.

A. Dr. Tal Lavian, 1640 Mariani Drive, Sunnyvale, California 94087.

Q. You understand you are under oath to testify truthfully?

A. Yes.

Q. I will be asking you some questions. If you do not understand my question, will you let me know?

A. Yes.

Q. Is there anything that would keep you from testifying accurately today?

1 A. No.  
 2 Q. Are you taking any medication that would  
 3 interfere with your ability to testify accurately?  
 4 A. No.  
 5 Q. What do you understand to be your role in  
 6 this IPR matter?  
 7 A. To be an expert witness in this case.  
 8 Q. And you can answer my questions  
 9 objectively; correct?  
 10 A. Yes.  
 11 Q. Can you please, Dr. Lavian, describe your  
 12 educational background?  
 13 A. Yes. I did my Ph.D. at U.C. Berkeley. I  
 14 did -- in computer science focusing on network  
 15 communications.  
 16 I did my master's at Tel Aviv University in  
 17 electrical engineering, and I did my bachelor in  
 18 Tel Aviv University in computer science.  
 19 Q. And what year did you get your Ph.D.?  
 20 A. 2006.  
 21 Q. Can you describe your area of expertise,  
 22 Dr. Lavian?  
 23 A. Network communications.  
 24 Q. And when you say "network communications,"  
 25 what do you mean?

1 before?  
 2 A. No.  
 3 Q. Have you worked for Cooley before this  
 4 particular matter?  
 5 A. I don't remember. I don't think so, but I  
 6 have to take a look at my -- I don't believe so.  
 7 I'm not -- I'm not sure.  
 8 Q. If it's possible, you can look that up at a  
 9 break, and we can return to that question.  
 10 A. I -- I -- I need to check. If you have  
 11 my -- I think that you have my old 26. I don't  
 12 believe that I worked for Cooley --  
 13 Q. Okay.  
 14 A. -- but I need to check.  
 15 Q. Okay.  
 16 A. I just want to make sure.  
 17 Q. Perhaps at a break or at the end, if it's  
 18 possible --  
 19 A. Yes.  
 20 Q. -- we can check and we can close the  
 21 question.  
 22 A. I believe it not, but I'm not sure.  
 23 Q. How many times have you been deposed?  
 24 A. I believe over 20, over 25, approximately  
 25 that amount.

1 A. Network communications include  
 2 telecommunications, wireless device -- devices,  
 3 protocols, the way that computers are communicating  
 4 between them, among them.  
 5 Q. Okay. You have been handed what has been  
 6 marked as Exhibit 1002. This is also ServiceNow's  
 7 Exhibit 1002 in the IPR proceeding.  
 8 Do you recognize this document?  
 9 A. Yes, that's my declaration.  
 10 Q. Starting at page 58, does your declaration  
 11 contain an accurate copy of your CV as of today?  
 12 A. Yes.  
 13 Q. I would like to direct your attention to  
 14 the section titled "Litigation Support Services."  
 15 A. Yes.  
 16 Q. Is this section accurate in stating that  
 17 you have been an expert witness in over 30 Federal  
 18 Court and ITC cases?  
 19 A. Or Federal Court -- basically, expert  
 20 witness in Federal Court, USPTO, and ITC cases,  
 21 overall, over 30 cases, yes.  
 22 Q. Okay. How were you retained in this  
 23 particular matter?  
 24 A. I believe that the lawyer called me.  
 25 Q. Okay. Have you worked for ServiceNow

1 Q. Have you ever testified at trial?  
 2 A. No.  
 3 Q. What percentage of your time --  
 4 A. Sorry. Yes, I testified in trial. Sorry.  
 5 Q. And how many times?  
 6 A. I testified in an ITC case once. I  
 7 testified in local court -- state court twice in the  
 8 same case. And I testified, instead of an  
 9 arbitrator, but I'm not sure that's -- it's a judge,  
 10 but not in front of a jury.  
 11 Q. So in one arbitration?  
 12 A. Yes.  
 13 Q. What percent of your time as principal  
 14 scientist of Telecom Net Consulting is spent as an  
 15 expert witness?  
 16 A. I would say about half of my time.  
 17 Q. And what percentage of time have you spent  
 18 with Telecom Net Consulting as compared with your  
 19 other professional endeavors? Let's begin with this  
 20 year, 2015.  
 21 A. I'm working quite a bit on my startups, so  
 22 I don't know how many -- how can I compare it.  
 23 Sometimes I'm working up to 2:00 a.m., 3:00 a.m.  
 24 So I -- I don't know. I am working quite a  
 25 bit on my startup.

1 Q. Can you give a rough approximation if --  
 2 just an order of magnitude? Would it be over  
 3 20 percent?  
 4 A. I -- I cannot estimate. There are times  
 5 that I am working on my startup 60, 70 hours a week,  
 6 and there are times that I am working on this case  
 7 30, 20 hours a week.  
 8 It depends on the week. It depends on the  
 9 project that I have.  
 10 Q. So it's hard for you to give a percentage  
 11 over --  
 12 A. About half and half.  
 13 Q. Half and half?  
 14 A. Half and half is working, but --  
 15 Q. Was this percentage split the same for the  
 16 past five years as well?  
 17 A. Sometimes more, sometime less, but  
 18 approximately it's this way, yes.  
 19 Q. The same approximate 50/50 percent time  
 20 spent on working as an expert witness and the rest  
 21 of your professional endeavors harkening back to  
 22 2006?  
 23 A. Sometimes more and sometimes less.  
 24 Sometimes I will do 70 percent on one side, and  
 25 sometimes I will do 60/70 percent the other side.

1 don't have money for myself. So I'm spending the  
 2 time; I'm not -- I'm paying myself the minimum that  
 3 is needed by law as an employee of myself, but I am  
 4 basically investing my time in the last five years  
 5 on my startup.  
 6 Q. And so if you have to give a percentage of  
 7 how much of your income is drawn from your expert  
 8 services, what would that be?  
 9 A. Most of it. Most of it.  
 10 Q. The majority of it?  
 11 A. Most of my time I spent is time not paid.  
 12 I am paying myself, I think, \$80,000 or \$60,000. I  
 13 don't know. It depends on the tax advisor, how much  
 14 he said I should pay to myself.  
 15 Q. So in preparing for your declaration,  
 16 Dr. Lavian, what materials did you consider?  
 17 A. I have it in my declaration, but, in  
 18 general, I considered the patent and the prior art  
 19 in the -- that I submitted in this patent.  
 20 Q. So if I could direct your attention to  
 21 paragraph 14.  
 22 Is that where you had --  
 23 A. Yes.  
 24 Q. -- articulated that which you had  
 25 considered?

1 It depends on the week.  
 2 Q. Okay. How much money have you earned as an  
 3 expert witness over the past 10 years? This is an  
 4 approximation.  
 5 A. I -- I don't know. I don't know. I need  
 6 to take a look at my -- at my taxes. I don't have  
 7 them in front of me.  
 8 Q. If we limit that question to just this past  
 9 year and the last cycle of taxes, would you have an  
 10 idea?  
 11 A. I would say that this year I earned about  
 12 250 or 200. I don't know. I have to take a look at  
 13 my -- at my taxes. I don't have them in front of me  
 14 right now.  
 15 Q. So we can say roughly 250.  
 16 And is that typical of the years before?  
 17 A. Year before, I believe I had more. I don't  
 18 have in front of me.  
 19 Q. And what percentage would you say -- if we  
 20 limit ourselves to this last cycle of taxes for the  
 21 year 2014, what percentage of your income would that  
 22 approximately 250K be?  
 23 A. My -- main of my work is working on my  
 24 startup, and my startup does not -- does not pay me.  
 25 So I am paying myself a limited amount, because I

1 So it is the -- the '411 patent and the two  
 2 prior art references?  
 3 A. Yes.  
 4 Q. Jones and Tonelli?  
 5 A. Yes.  
 6 Q. Did you look at the file history for the  
 7 '411 patent?  
 8 A. Yes.  
 9 Q. Does your declaration address anything that  
 10 happened during the prosecution or the file history  
 11 of the '411 patent?  
 12 A. No, I don't believe so.  
 13 Q. Do you consider the file history of the  
 14 '411 patent relevant to your analysis?  
 15 A. Yes, it's relevant.  
 16 Q. But in your declaration, you felt no need  
 17 to refer to it?  
 18 A. I didn't refer to it. I referred to the  
 19 patent itself.  
 20 Q. Before preparing your declaration, you  
 21 developed an understanding of the '411 patent;  
 22 correct?  
 23 A. Yes.  
 24 Q. And you still have an understanding of the  
 25 '411 patent; correct?



1 A. Yes.  
 2 Q. You have been handed what has been marked  
 3 as Exhibit 1001, which is also ServiceNow's  
 4 Exhibit 1001 in this IPR proceeding.  
 5 Do you recognize the document?  
 6 A. Yes, I recognize the patent '411.  
 7 Q. So it is okay if I refer to Exhibit 1001 as  
 8 the '411 patent?  
 9 A. It is here called '411.  
 10 Q. Is it your understanding that the Patent  
 11 Trial and Appeal Board has instituted an  
 12 inter partes review to determine if certain claims,  
 13 in particular Claim 1 and 3, of the '411 patent are  
 14 patentable?  
 15 A. Yes.  
 16 Q. Your opinions were based in part on the  
 17 meaning of the claims of the '411 patent; correct?  
 18 A. Yes.  
 19 Q. You also studied the patent specification;  
 20 correct?  
 21 A. Yes.  
 22 Q. Do you understand that the '411 patent  
 23 includes claims?  
 24 A. Yes.  
 25 Q. Do you understand that the '411 patent

1 includes a specification?  
 2 A. Yes.  
 3 Q. Do you understand that the '411 patent  
 4 includes a specification that contains an abstract?  
 5 A. Yes.  
 6 Q. Do you understand that the '411 patent  
 7 includes a specification that contains a background  
 8 section?  
 9 A. Yes.  
 10 Q. Do you understand that the '411 patent  
 11 includes a specification that has a summary of the  
 12 invention?  
 13 A. Yes.  
 14 Q. Do you understand that the '411 patent  
 15 includes a specification that has a summary of  
 16 drawings section?  
 17 A. Yes.  
 18 Q. Do you understand that the '411 patent has  
 19 Figures 1 through 20D?  
 20 A. Yes.  
 21 Q. Do you understand that the '411 patent  
 22 includes a section that has a detailed description  
 23 section?  
 24 A. Yes.  
 25 Q. Can you explain how the embodiment in the

1 patent works?  
 2 A. I'm not sure I understand the question.  
 3 What do you mean by this? Do you want me to explain  
 4 the patent?  
 5 Q. Yes.  
 6 A. In general, in a very high level, the '411  
 7 provide a method to design a network and to audit  
 8 the network.  
 9 Q. Can you explain how the patent describes  
 10 designing a network and then auditing the network?  
 11 A. Yes. In a high level, the patent describe  
 12 a mechanism when the user or the -- the designer of  
 13 the network -- the network, it means -- let's call  
 14 them the network administrator. It's an easier way  
 15 to call the person -- design the network, design the  
 16 layout, put all the devices that he think that  
 17 should be in the network, and work out the -- and  
 18 show differences in the network over time.  
 19 Q. The '411 patent discloses a topology  
 20 database; correct?  
 21 A. Yes.  
 22 Q. And I didn't mean to cut you off, if you  
 23 were still giving a higher level, general --  
 24 A. No --  
 25 Q. -- understanding.

1 A. You're asking high level. It's -- for high  
 2 level, it's fine.  
 3 Q. Okay. How does the '411 patent describe  
 4 the topology database?  
 5 A. The patent describe the topology database  
 6 in element 350. And basically, it's a database of  
 7 the topology. In Figure 7, the right, at the top is  
 8 the topology database.  
 9 Q. And what are the roles of the topology  
 10 database -- roles or functions that the topology  
 11 database provides?  
 12 A. In general, to have a repository of the  
 13 topology itself.  
 14 Q. Is there anything additionally that it  
 15 does?  
 16 A. In general, that's the high level  
 17 functionality of a database.  
 18 Q. The '411 patent discloses a tuple manager;  
 19 correct?  
 20 A. Yes.  
 21 Q. How does the '411 patent describe the tuple  
 22 manager?  
 23 A. In general, the '411 describe the tuple  
 24 manager as -- in general, the '411, in general, you  
 25 can see in Figure 7 describes the system of getting

1 the information and comparing the information to  
2 previous information.

3 One of them -- in high level, very high  
4 level, it's done by three main elements: The tuple  
5 manager, the connector calculator, and the topology  
6 converter.

7 In high level, tuple manager receive the  
8 information from the network. We can see, in high  
9 level, in Figure 8 that the two left elements, 902  
10 and 904, belongs to the tuple manager in Figure 7,  
11 element 300.

12 In more details, all of -- two of these,  
13 902 and 904, are elaborated in Figure 9, basically  
14 element 910, 912, 914, 916, 918, and 920, and  
15 basically receiving the information and gathering  
16 additional data.

17 Followed by this, you can see, in  
18 convert -- in Figure 7, the connection calculator,  
19 380. 380, it describe as -- Figure 8 also, as  
20 element now -- 906. And if you would like to see  
21 more elaboration of 906, it's in Figure 10. You can  
22 see them at 922, 924, 926, 928, 930, and 932.

23 Elaboration of this -- additional  
24 elaboration, I believe, you can see on figures -- I  
25 need to check, but I believe Figure 16 and above,

1 but I need to check exactly.

2 And it's end with the topology converter  
3 that you can see in detail in element -- in  
4 Figure 8, element 908. And elaboration of this, you  
5 can see in the last six -- basically, from  
6 Figure 17, 18A, 18B, 19, 20A, 20B, 20C, and 20D.

7 The information on the collabor -- topology  
8 converter is going back to the topology database  
9 element 350 in Figure 7.

10 Q. So if you parse that a little bit, going  
11 back to the tuple -- or tuple manager, what are the  
12 functions or roles of the tuple manager?

13 A. In general, the tuple manager receive the  
14 tuples and calculate the -- basically, do the data  
15 gathering and the tuple building phases.

16 In more specifically, element -- elements  
17 902 and 904 in Figure 8. And more specifically, it  
18 receive the start signal, looked at the existing  
19 devices, topology database, query the nodes, create  
20 the tuples, store the tuples in the neighbor  
21 database, and gather additional data as requested.

22 Q. The '411 patent discloses the neighbor data  
23 database; correct?

24 A. Yes.

25 Q. How does the '411 patent describe the

1 neighbor data database?

2 A. The neighbor database is element 310. You  
3 can take a look in Figure 7, and you can see  
4 elaboration of it in Figure 9, element 920, and  
5 basically gather additional data as requested from  
6 the neighbor database.

7 All the database -- it's a temporary  
8 database for the information that connected to the  
9 specific device.

10 Q. You called it a temporary database.

11 What does the neighbor data database store?

12 A. The neighbor database store information  
13 about the neighbors.

14 Q. Are the neighbors tuples?

15 A. It can be tuples, but it can be other  
16 things as well.

17 Q. Any other roles that the neighbor data  
18 database provides?

19 A. Not that I have on the top of my head.

20 Q. You had mentioned the connection  
21 calculator. I believe the reference number is 320,  
22 as you had discussed earlier.

23 How does -- what are the roles of this  
24 connection calculator?

25 A. You can see the connection calculator in

1 Figure 10 -- excuse -- it's in Figure 7, element  
2 320. You can see more elaboration on Figure 8,  
3 element 906. It's a tuple reduction phase.

4 More elaboration you can see in Figure 10,  
5 that it has the first weeding phase, infrastructure  
6 building phase, second weeding phase, noise  
7 reduction phase, look-for phase, construction (sic)  
8 phase.

9 And if we can take a look in more details,  
10 we can see that basically the main idea is to get  
11 less information to allow calculation of the  
12 information. The topology, it's complicated and the  
13 idea is to reduce the amount of data to get only the  
14 right, relevant information.

15 Q. You mentioned that the idea is to reduce  
16 the amount of data to get only the relevant  
17 information.

18 What is the input to the connection  
19 calculator?

20 A. As we can see, the input for connection  
21 calculator can be from different places. First of  
22 all, the main idea to take the tuple manager that  
23 can create a lot of information. Some of them are  
24 relevant to the specific calculation and some of  
25 them are not.

1 And, in general, the point is to weed the  
2 information that are not directly related to the  
3 calculations that is related to the specific one.  
4 And in order to do so, it's receive information,  
5 look -- doing lookup on the neighbor data for  
6 lookup -- you put in some information on the reduced  
7 topology information that will go later to the  
8 topology converter, that at the end of the day this  
9 information will go to the database.

10 The main point is that you generate --  
11 while you have a network, it generates a lot of  
12 information, but you need only relevant information.  
13 A lot of it is repetition.

14 Q. Dr. Lavian, you just mentioned the reduced  
15 topology relationships database.

16 How does the '411 patent describe the  
17 reduced topology relationships database?

18 A. Let me go specifically to the section.  
19 Basically element -- Figure 7, element 330, is the  
20 reduced topology database.

21 In general, it saves the information -- or  
22 it's database that take the information from the  
23 connection calculator and save the information that  
24 later go to the topology manager.

25 Specifically to your question, let me find

1 the specific elements that describe Figure 7.

2 I can see the element. It's -- the  
3 description of Figure 7. It's in '411, column 6,  
4 from about line 14 until line about 30.

5 More specifically, the description as it  
6 appear in the patent, it's about line 24.

7 "The connection calculator 320 reduces 906  
8 the tuple data and send it to the reduced  
9 topology relationship database 330."

10 Q. Thank you.

11 You've also mentioned the topology  
12 converter which the '411 patent discloses.

13 How does the '411 patent describe the  
14 topology converter?

15 A. I will continue to the same -- in the same  
16 passage that I just read to you. '411, column 6, a  
17 description of Figure 7. If you can take a look at  
18 line 26, it say that:

19 "The topology converter 340 then update 908  
20 the topology database 350 based on the new  
21 tuples sent to the reduced topology  
22 relationships database 330 by the  
23 connection calculator 320."

24 More elaboration -- end quotation. More  
25 elaboration we can see in element 908. And element

1 908 is in Figure 8, the last element. Basically,  
2 that's the topology updating phase.

3 Q. So the roles that the topology converter  
4 provides is in the paragraph you just stated,  
5 column 6, 26 through 29.

6 Any other roles or functions that it  
7 provides?

8 A. In a high-level, that's the key idea.

9 Q. Dr. Lavian, you have Exhibit 1001 in front  
10 of you.

11 Could you kindly turn to the claims,  
12 Claim 1 of the patent?

13 A. You're talking about the patent, yes?

14 Q. Yes, the '411 --

15 A. The patent '411 claims?

16 Q. -- please.

17 A. Yes.

18 Q. What is a list of existing tuples in the  
19 first limitation?

20 A. Creating the list -- the first limitation  
21 read, quotation:

22 "Creating a list of existing tuple --  
23 tuples from the existing topology  
24 representing model connection -- nodal  
25 connection of the network at a prior time."

1 Q. So is it a list -- is the list of existing  
2 tuples a list of tuples that already exists from a  
3 prior time?

4 A. The first one is creating. First time is  
5 creating the list of new ones.

6 Q. Once created, then a list of existing  
7 tuples in the first limitation is a list of tuples  
8 that exist from a prior time?

9 A. It's created -- always creating the list of  
10 new tuples. And when you create a new, the old one  
11 that were new are the old one. So you continuous --  
12 continuously building a new list. But the old  
13 one -- what used to be new, now are the old one.

14 Q. Okay. But if we draw a line in sand  
15 and start at T is equal to 0 here --

16 A. Uh-huh.

17 Q. -- if you look at the timing, the list of  
18 existing tuples in the first limitation, is the list  
19 of tuples that represent nodal connections of the  
20 network at a prior time?

21 A. It depends what you mean, putting a line in  
22 the sand right now. Creating a list of existing  
23 tuple is the create -- look at the existing tuple  
24 and create a list of what was before now, yes.

25 Q. Okay. So the list of existing tuples is a

1 list of tuples of what was before now, the current  
 2 time?  
 3 A. That's a reasonable way to look at this,  
 4 yes.  
 5 Q. Okay. That was your understanding when you  
 6 prepared your declaration, which is Exhibit 1002;  
 7 correct?  
 8 A. In general, we can see the differences  
 9 between the first element and the second element.  
 10 The first element create a list of existing tuples  
 11 from existing topology, and the second one create a  
 12 new list of plurality of tuples. So basically  
 13 before and after.  
 14 Q. And that understanding is reflected in your  
 15 analysis in your declaration, Exhibit 1002?  
 16 A. Yes.  
 17 Q. You started describing this, but what is "a  
 18 new list of a plurality of tuples" in the second  
 19 limitation?  
 20 A. Basically, it's very clear. Creating the  
 21 second element quotation:  
 22 "Creating a new list of plurality of tuples  
 23 for the topology of the network at the  
 24 current time."  
 25 Q. So the current time is later in time than

1 the prior time recited in the first limitation;  
 2 correct?  
 3 A. Yes.  
 4 Q. Other than the list of the first limitation  
 5 being created at a time earlier than the list in the  
 6 second limitation, are they the same?  
 7 MR. MACE: Object to form.  
 8 THE WITNESS: I'm not sure I understand  
 9 what you mean by this, "are they the same."  
 10 You're doing a list at one time and you are  
 11 doing another list at the same time, it might be you  
 12 will get different information.  
 13 BY MS. GREWAL:  
 14 Q. How is that information different?  
 15 A. For example, if you add device or you  
 16 delete device, add connection, the network didn't  
 17 responds -- the network didn't respond before --  
 18 until all kind of thing. It's not identical.  
 19 Q. Do the lists from the first and second  
 20 limitations have the same types of information?  
 21 A. In general, you -- both of them get  
 22 information from the device. And in general, both  
 23 of them are getting information about the devices  
 24 and the connections, but each one of them -- it's a  
 25 different time.

1 Q. This understanding is reflected in your  
 2 analysis in your declaration, which is Exhibit 1002;  
 3 correct?  
 4 A. Yes.  
 5 MR. MACE: Object to form.  
 6 BY MS. GREWAL:  
 7 Q. So that understanding about the lists in  
 8 terms of the information about the devices and  
 9 connections that you just mentioned, albeit at  
 10 different times, the first list reflects information  
 11 about the devices and connections at a prior time;  
 12 the second list in limitation two also provides  
 13 information about devices and connections but at a  
 14 current time; correct?  
 15 MR. MACE: Object to form.  
 16 THE WITNESS: I'm not sure I understand the  
 17 question. It's --  
 18 Can you please clarify the question?  
 19 BY MS. GREWAL:  
 20 Q. The information in the list of existing  
 21 tuples in the first limitation that is generated at  
 22 a prior time --  
 23 A. Okay.  
 24 Q. -- and the information of the new list of  
 25 plurality of tuples in the second limitation, which

1 is created at a current time -- that information in  
 2 both those lists are generally the same information  
 3 with regards to devices and connections; it's just  
 4 that those devices and connections are present at  
 5 different times; is that correct?  
 6 MR. MACE: Object to form.  
 7 THE WITNESS: I'm not sure I understand the  
 8 exact -- what you mean by your question.  
 9 But in general, the first limitation talks  
 10 about information in high level, the first at some  
 11 time; and the second limitation, the -- it is  
 12 related to information at a different time after.  
 13 BY MS. GREWAL:  
 14 Q. You had mentioned in general that the  
 15 information itself relates to devices and  
 16 connections.  
 17 Do you recall that?  
 18 A. In general, yes.  
 19 Q. And so both the lists have information  
 20 about devices and connections; is that correct?  
 21 MR. MACE: Object to form.  
 22 THE WITNESS: In a high level, I -- I would  
 23 say that, yes, both of them are related to  
 24 information, yes.  
 25 //

1 BY MS. GREWAL:

2 Q. We're just setting aside the difference,  
3 which is time; is that correct?

4 A. That's one way to look at this, yes.

5 Q. What is the "new tuples list that represent  
6 new nodal connections" in the third limitation,  
7 Dr. Lavian?

8 Still in Claim 1.

9 A. Can you please repeat the question?

10 Q. Sure.

11 What is the "new tuples list that represent  
12 new nodal connections" in the third limitation?

13 A. "Receiving new tuple list that represent  
14 the new nodal connections."

15 That's the new tuple list that represent  
16 the new nodal connections at the newer time.

17 Q. And what are the new nodal connections in  
18 the third limitation?

19 A. I'm -- I'm really not sure I understand  
20 what you're asking.

21 But basically, you have the information  
22 before and you have the information after, and it  
23 will continue in many times. So every time that the  
24 new -- new one -- so the new will be old for them.  
25 And the following one -- the time is going only one

1 direction. And every time that you will have new  
2 information, the previous information is the old  
3 information.

4 I'm not sure I understand your questions.

5 Q. Is the new tuples list of the third  
6 limitation different from the new list of a  
7 plurality of tuples from the second limitation?

8 A. Basically in the third limitation is the  
9 receiving state step. And the receiving step is  
10 preparing to prepare it for the last element of the  
11 comparing.

12 But the information of the second element,  
13 creating new list and receiving the new list --  
14 basically the receiving the new list -- receiving  
15 the information that it generated in the previous  
16 step. The time is going only one dimension, only  
17 forward.

18 Q. So the new tuples list of the third  
19 limitation is not different from the new list of the  
20 plurality of tuples from the second limitation?

21 A. I'm -- I'm not sure I understand the  
22 question.

23 Basically, the third -- the third -- the  
24 second element is creating a new list, and the third  
25 element is receiving a new tuple list.

1 So the purpose of the second one is to  
2 create the new list. The third is to receive --  
3 it's much easier to see that basically receiving new  
4 tuple list is for preparation for the compulsion of  
5 the last element.

6 In order to do the compulsion, you have to  
7 receive the new list. So the focus on the second  
8 you -- on the previous step is receiving; and the  
9 focus of the previous, in this case, the second  
10 element, is creating the new list.

11 Q. So setting aside that the second limitation  
12 creates a new list of plurality of tuples and the  
13 third limitation receives the new tuples list, if we  
14 focus on the lists of the second limitation and the  
15 third limitation, are they different or same?

16 A. I'm not sure I understand the question.

17 The second limitation states -- states:  
18 "Creating a new list of plurality of tuples  
19 for the topology of a network at the  
20 current time."

21 And later on, it's explain wherein and some  
22 information about them.

23 And the third element is receiving the new  
24 tuple list that represent new nodal connection --  
25 connections.

1 So basically, one of them is creating, the  
2 second is receiving in high level --

3 I'm not sure I understand your question.

4 Q. My question simply is: The creating and  
5 receiving steps of the second and third limitation,  
6 are they referring to the same list of tuples?

7 A. In general, you always create a new set --  
8 a new set of tuples, new information. And over  
9 time, you will have always new and new and new. And  
10 every time you have new ones. And in one of them,  
11 it's creating the new set, and the second -- the  
12 third one -- the third one is receiving the new set.  
13 The fourth one is create -- the compulsion on the --  
14 of the -- creating and -- the creating -- basically  
15 creating the current one and creating the previous  
16 ones.

17 But in all of them, you are talking about a  
18 set -- a list of tuples.

19 Q. So in the third limitation, the list of new  
20 tuples that is received, was that created in the  
21 second limitation?

22 A. Yes.

23 Q. So the list in the third limitation and the  
24 second limitation are the same?

25 A. In high level, in general, yes.

1 Q. Is the new tuples list of the fourth  
2 limitation the same as the new list of the second  
3 limitation?

4 A. The fourth limitation is comparing the list  
5 of existing tuple with the new tuples list  
6 identified -- to identify changes to the topology.

7 So the fourth limitation is doing  
8 comparison between the existing tuple and the new  
9 tuples.

10 Q. So is the new tuples list of the fourth  
11 limitation the same as the new list of the second  
12 limitation?

13 A. Basically, in order to get the comparing --  
14 comparing and getting the new tuple list, you have  
15 to receive the new tuple list in the second -- in  
16 the third limitation, receiving a new tuple list  
17 that represent a new nodal connections.

18 And in the previous element is the creating  
19 a new list of plurality of tuples for topology of  
20 the network at the current time with the description  
21 of wherein information about them.

22 Q. So it is your understanding that the new  
23 tuples list of the fourth limitation is the same as  
24 the new list in the second limitation -- the second  
25 creating limitation; correct?

1 of existing tuple with the new tuple list."

2 And we can see that the new tuple list is  
3 mentioned, a third limitation, receiving -- the  
4 receiving stage, "creating new tuple list that  
5 represent the new nodal connection."

6 And you can see that the previous one is,  
7 "creating a new list of plurality of tuple of full  
8 topology of the network at the current time."

9 BY MS. GREWAL:

10 Q. I was merely looking for you to --  
11 basically a yes or no answer.

12 I understand the second limitation to  
13 create a new list of the plurality of tuples, the  
14 third limitation recites receiving the new tuples  
15 list, and the fourth limitation recites comparing  
16 the list -- comparing with -- not focusing on the  
17 list of existing tuples, but comparing with the new  
18 tuples list.

19 So my question simply is: The new tuples  
20 list that is used in the comparison step, the fourth  
21 limitation, is the same or not as that which is  
22 generated or created in the second limitation?

23 MR. MACE: Object to form.

24 THE WITNESS: I'm really not sure I  
25 understand your question.

1 MR. MACE: Object to form.

2 THE WITNESS: I am reading -- I am reading  
3 specifically the -- to your question of the  
4 fourth -- you mentioned the fourth limitation.

5 And the fourth limitation is comparing the  
6 list of existing tuple with the new tuple list to  
7 identify changes of the topology.

8 Let's for one second ignore to identify the  
9 changes to topology.

10 It -- it state clearly -- it states,

11 "comparing the list of existing tuple with the new  
12 tuple list."

13 And the previous stage, it says, "receiving  
14 the new tuple list that represent the new nodal  
15 connections."

16 BY MS. GREWAL:

17 Q. Focusing only on the new tuples list in the  
18 last and fourth limitation, Dr. Lavian, is the new  
19 tuples list that's recited in the fourth limitation  
20 the same tuples list as was created in the second  
21 limitation?

22 A. The language --

23 MR. MACE: Object to form.

24 THE WITNESS: -- is very clear in the  
25 fourth limitation, as you asked, "comparing the list

1 The language states as follow:

2 "Creating the list of existing tuple with  
3 the new tuple list."

4 And the previous one we can see creating  
5 stage -- step:

6 Receiving a new tuple list that represent  
7 new nodal connections."

8 And we can see the state -- step -- second  
9 step:

10 "Creating a new list of plurality of tuples  
11 for topology of the network at the current  
12 time."

13 I'm not sure I understand your question.

14 BY MS. GREWAL:

15 Q. So your understanding is the new tuples  
16 list of the fourth limitation is the same list that  
17 is recited in the second limitation?

18 A. In a high level, yes.

19 The time is always moving forward.

20 Q. You mentioned that the time is always  
21 moving forward.

22 Are you suggesting the time has moved  
23 forward between the second limitation and the third  
24 limitation?

25 A. No.

1 Q. Time has not moved forward between the  
2 third limitation and the fourth limitation?

3 MR. MACE: Object to form.

4 THE WITNESS: I am -- I'm really not sure I  
5 understand the type of questions that you are  
6 asking. They are confusing, and I'm not sure what  
7 exactly you mean.

8 But definitely comparing it's after  
9 getting -- and receiving. So you have a time in the  
10 second limitation, and you compare always after you  
11 have the previous one. And, again, you will do the  
12 next one, you will compare again, but you will  
13 compare after you will receive.

14 The time always going one dimension, one  
15 direction.

16 BY MS. GREWAL:

17 Q. Is the new tuples list of the fourth  
18 limitation the same as the new tuples list of the  
19 third limitation?

20 A. The third limitation state:

21 "Receiving a new tuple list that represent  
22 new nodal connections."

23 And the fourth limitation says:

24 "Comparing the list of existing tuple with  
25 the new tuple list."

1 Q. If you focus just on the list itself of new  
2 tuples of the fourth limitation, is that the same as  
3 the new tuples list of the third limitation?

4 A. You said about the list.

5 In the fourth limitation, we have two list:  
6 One of them list of existing tuple and another list  
7 with the new tuple list.

8 So you have two of them, and you are doing,  
9 in the fourth one, comparison between the old and  
10 the new.

11 Q. So if I focus just on the new list -- the  
12 new tuples list, setting aside the existing tuples  
13 list of the comparison step, which is the fourth  
14 limitation, is the new tuples list of the fourth  
15 limitation the same as the new tuples list of the  
16 third limitation?

17 A. It's very hard to set aside any element of  
18 the claim, but in a very high level -- it's -- it's  
19 hard to say comparing the list of existing tuple  
20 with the new tuples list.

21 I just read the section. And what you  
22 suggest is to remove the list of existing tuples, so  
23 it's very hard for me to know what you mean by  
24 "removing."

25 But if you are looking only on the new

1 tuple list, it's the new tuple list from the  
2 previous sections that you receive. The previous  
3 section you receive, and the previous to the  
4 previous section is to create.

5 Q. Dr. Lavian, is it your testimony that, in  
6 the Jones patent, what you have identified as the  
7 new tuples list of this fourth limitation is the  
8 same as the new list of the second limitation?

9 A. I'm confused. I'm not sure that I  
10 understand your question.

11 Can you please explain what you mean?

12 Q. Sure.

13 Your declaration, 1002, exhibit in front of  
14 you.

15 A. Yes.

16 Q. If you could kindly refer to paragraphs 50.

17 A. Yes, I'm on paragraph 50.

18 Q. And you understand that paragraph 50 -- in  
19 paragraph 50, you're providing a mapping of the  
20 claims of the '411 patent to the -- to what Jones  
21 teaches; is that correct?

22 A. In paragraph 50, I am -- starting in  
23 paragraph 50 until paragraph -- until paragraph 61,  
24 I am referring to the mapping of this element.

25 Q. So is it your testimony that, in the Jones

1 patent, what you identify as the new tuples list of  
2 the fourth limitation is the same as the new list of  
3 the second limitation?

4 MR. MACE: Object to form.

5 THE WITNESS: In paragraph -- in my  
6 declaration, in paragraph 50, I refer to the new  
7 list of plurality of tuple at the current time.  
8 That's the element from the claim at the second  
9 dataset of Jones.

10 And, more specifically, I refer to Jones in  
11 column 2, line 12 until 15, and column 2, lines 22  
12 until 28.

13 More specifically, because you ask it so  
14 many times, the same question in different forms, I  
15 will read what Jones says from the patent in line --  
16 column 2, line 22 to 29, and I start the quotation:

17 "The present invention provides a method  
18 for providing a data set relating to the  
19 network by merging the first -- a first  
20 data set relating to the network at the  
21 first time and a second data set relating  
22 to the network at the second, later time,  
23 said first data set comparing (sic) data  
24 acquired by interrogation of the network  
25 and other data, and said second data set

1 comprising data acquired by interrogation  
 2 of the networks."  
 3 More specifically to your question, the  
 4 element is first dataset comprising data acquired by  
 5 interrogation, and the second data phase is the  
 6 second data related to the network at the second  
 7 later time. So basically you have receiving first  
 8 dataset at one time and receiving second data --  
 9 dataset at a second later time.

10 BY MS. GREWAL:

11 Q. So the second dataset at the second later  
 12 time, that is the same list as that which you have  
 13 identified in the fourth limitation in terms of the  
 14 Jones mapping?

15 So if you refer to paragraph 66,  
 16 Dr. Lavian. Paragraph 66 of your declaration  
 17 addresses the mapping for the Jones reference with  
 18 respect to the fourth limitation of Claim 1, which  
 19 is the comparing limitation; is that correct?

20 A. In my declaration, in paragraphs 65  
 21 until -- 65, 66, and 67, I am referring to the  
 22 comparing stage of element one -- of Claim 1, fourth  
 23 element, the comparing stage.

24 Q. Okay. So what you identify as the second  
 25 dataset in this fourth limitation, that is the same

1 as the second dataset of the -- of what you identify  
 2 in the second limitation as well; correct?

3 A. Basically, I referred to Jones element --  
 4 column 2, paragraph 22 until 35. And, more  
 5 specifically, I said that Jones disclose the fourth  
 6 limitation of existing tuple -- comparing with --  
 7 the existing tuple with the new tuple and basically  
 8 explained the following, start quotation:

9 "The present invention provides a method  
 10 for -- for providing a data set relating to  
 11 the network -- to a network by merging a  
 12 list of data set relating to the network at  
 13 the first time and a second data set  
 14 relating to the network at a second, later  
 15 time."

16 Q. So in the Jones patent, you identify the  
 17 second dataset to be the recited new tuples list of  
 18 the fourth limitation; is that correct?

19 A. Yes. The second dataset relating to the  
 20 network at the second later time. That's from  
 21 Jones, paragraphs -- column 2, line 22 until 35.

22 Q. And this is the same second dataset that  
 23 you identify as the recited new list of the second  
 24 limitation; is that correct?

25 A. Yes.

1 Q. Similarly, if we turn to your mapping, in  
 2 your declaration, with respect to the Tonelli  
 3 patent -- and I would refer you to paragraphs 86  
 4 onwards -- paragraph 86 and -- through 89 are  
 5 directed to your mapping of the second limitation of  
 6 Claim 1; is that correct?

7 A. Basically, starting in paragraph 86 until  
 8 in 93.

9 Q. That's correct.

10 So the -- what you identify as the new  
 11 tuples list of the second limitation is the same --  
 12 strike that.

13 Can you tell me first what you identify to  
 14 be the new tuples list that's required by the -- by  
 15 the second limitation in the Tonelli patent?

16 MR. MACE: Object to form.

17 THE WITNESS: Can you please clarify your  
 18 question?

19 BY MS. GREWAL:

20 Q. What -- what do you identify in the Tonelli  
 21 patent to be the new list of a plurality of tuples  
 22 at the current time?

23 A. In Tonelli, again, you have a mapping over  
 24 time, and always you have new time, and all -- the  
 25 previous one -- the previous dataset will be

1 information from the previous dataset, and the new  
 2 dataset will create the new data.

3 More specifically, if I can see Tonelli,  
 4 column 22, from line 5 until 10, I can see a  
 5 discussion about the audit of the network at the  
 6 current time.

7 And the net -- specifically, it says:  
 8 "As mentioned above, the network audit  
 9 software allow a user to compare the  
 10 network configuration discovered by the  
 11 audit software with previously generated  
 12 network configuration."

13 Q. If you move to the comparing limitation,  
 14 which appears starting in paragraph 97 of your  
 15 declaration, do you see that?

16 A. Yes.

17 Q. Is it your testimony that, in Tonelli, what  
 18 you identify as the new tuples list of the fourth  
 19 limitation is the same as the new list of the second  
 20 limitation we just discussed?

21 A. The last --

22 MR. MACE: Object to form.

23 THE WITNESS: The last element in my -- the  
 24 last element of Claim 1 basically recite:

25 "Comparing the list of existing tuple with



1 the new tuple list identify changes to the  
2 topology."  
3 Basically Claim Number 1, element D.  
4 And in paragraph 97 and 98 of my  
5 declaration, I'm referring to Tonelli, column 22,  
6 line 5 to 10, the previous section that I described  
7 and I read, and to Tonelli, column 22, line 17 and  
8 25.

9 And in -- generally, I can see that the  
10 network audit software allows a user to compare the  
11 network configuration discovered by audit software  
12 with a previously generated -- and again, I  
13 repeat -- a previously generated -- continue  
14 quotation -- "network configuration. The previously  
15 generated configuration may be generated by a prior  
16 audit."

17 BY MS. GREWAL:

18 Q. Dr. Lavian, I was asking about the new list  
19 of this fourth limitation.

20 If you could refer to paragraph 97 on page  
21 49 of your declaration.

22 A. Yes.

23 Q. The second sentence in paragraph 97 states:  
24 "As noted above, Tonelli describes a  
25 process in which the previous audit data

1 (the list of existing tuples) is compared  
2 with a new audit data (the new tuples list)  
3 to identify changes."

4 Is it your testimony that in Tonelli what  
5 you identify as the new tuples list, which is the  
6 new audit data of this fourth limitation, is the  
7 same as the new list of the second limitation?

8 MR. MACE: Object to form.

9 BY MS. GREWAL:

10 Q. That's my question.

11 A. It's not a complete question.

12 Is that the question?

13 Q. Is it your testimony that in Tonelli what  
14 you identify as the new tuples list of the fourth  
15 limitation -- is that the same as the new list of  
16 the second limitation?

17 MR. MACE: Object to form.

18 THE WITNESS: As I explained several times  
19 before, the second -- the first -- the first element  
20 on Claim 1 is doing the creating of the existing  
21 tuple, the second is creating a new list of tuple --  
22 tuples of topology of the network at the current  
23 time, the third limitation is receiving the new  
24 tuple, and the fourth one is comparing the list of  
25 the existing tuple of the -- with the new tuples.

1 So I'm not -- I'm really not sure that I  
2 understand your question.

3 BY MS. GREWAL:

4 Q. Focusing on the second limitation, which is  
5 the creating limitation, as we discussed, you've  
6 mapped a list that is described or identified in  
7 Tonelli to be the new list of the plurality of  
8 tuples at a current time; is that correct?

9 A. Basically --

10 MR. MACE: Object to form.

11 THE WITNESS: -- in paragraph 97 of my --  
12 97 and 98 of my declaration, I describe the creating  
13 a new list and comparing it to -- at the current  
14 time and comparing it to the old list that was done  
15 in the prior time. And that's the same list that  
16 was creating -- the second element -- creating a new  
17 list of plurality of tuple in the second element,  
18 and followed by receiving the new tuple that will go  
19 to the comparing element of the third -- of the  
20 fourth stage -- fourth element of the claim.

21 BY MS. GREWAL:

22 Q. And the new tuples list that you just  
23 explained in the comparing limitation is mapped to  
24 the new audit data that Tonelli describes; is that  
25 correct?

1 A. In paragraph 97, I describe information  
2 from prior time and the new time, in comparison  
3 from -- basically, the network audit software allow  
4 the user to compare the network configuration  
5 discovered by the audit software with a previously  
6 generated network configuration. The previously  
7 generated configuration may be generated by a prior  
8 audit.

9 Q. The new tuples list of the fourth  
10 limitation, what have -- strike that.

11 What have you mapped the new tuples list  
12 that is required by the fourth limitation in  
13 Tonelli? What is that particular dataset or data?

14 A. Basically, if I am going back to  
15 paragraph -- I explain it in paragraph 97 and 98.  
16 And more specifically, I discuss -- I got the  
17 quotation from Tonelli, paragraph -- it's not  
18 paragraph, sorry -- column 22, line 5 to 10, that  
19 discuss the audit at the current time and the audit  
20 at the previously generated audit and comparing  
21 between them.

22 And the comparison between the current  
23 audit or the result of the current audit with the  
24 results of the current audit will give information  
25 about new devices, new ports, new configurations,

1 new links. Basically will see the differences in  
2 topology, and these differences in topology is the  
3 outcome of the comparison.

4 Q. And do you call the results of the audit at  
5 a current time "new audit data" in paragraph 97?

6 A. The results of -- yes, you're right. The  
7 results of the new audit at the current time is the  
8 new audit data.

9 Q. And so my question simply is: This new --  
10 strike that.

11 The results of the new audit data of this  
12 fourth limitation, is that the same as the new audit  
13 data of the second limitation?

14 MR. MACE: Object to form.

15 THE WITNESS: I'm not sure I understand the  
16 line of questions.

17 But let's explain it in very simple term.  
18 What Tonelli suggested -- suggests is to do audit at  
19 the current time and to do continuation of audit  
20 over time many, many times.

21 Let's assume that they have a five  
22 minute -- just for simplicity, every hour, every  
23 minute, or every second. You have the current audit  
24 with the current data, and you have the following  
25 audit, the following data.

1 And what Tonelli does is comparing between  
2 the previous data and the new data and see  
3 differences in information. Differences in  
4 information can show new devices, old devices  
5 removed, new connections or connections removed, new  
6 information, information -- basically show the  
7 differences in topology.

8 BY MS. GREWAL:

9 Q. Again, my question is centered around -- I  
10 understand, and thank you for explaining the overall  
11 context of Tonelli.

12 I'm focused on the limitation Number 2,  
13 which is creating a new list, and the fourth  
14 limitation, which is the comparing the existing to  
15 the new list, but focusing really just on the  
16 identity of the new lists in the second limitation  
17 and the identity of the new list of the fourth  
18 limitation.

19 Is what you identify as the new tuples list  
20 of the fourth limitation the same as the new list of  
21 the second limitation?

22 A. In high level, this is the same type of  
23 information. You get information at one time and  
24 you get information at a later time. And you get a  
25 lot of information throughout this process, and

1 basically you compare the previous one to the new  
2 one.

3 Q. And if you look at paragraph 97 and direct  
4 your attention to the second line that I previously  
5 read, I'm merely confirming that that which you  
6 identify to be the new tuples list of Tonelli --

7 A. Where exactly you are reading? Can you  
8 please --

9 Q. So it's the last line on paragraph 97 on  
10 page 49. It begins:

11 "As noted above, Tonelli describes a  
12 process in which the previous audit data  
13 (the list of existing tuples) is compared  
14 with new audit data (the new tuples list)  
15 to identify changes."

16 My question is: You have mapped, in this  
17 last limitation of comparing, the new tuples list  
18 that's required by the claim to be the new audit  
19 data in Tonelli; is that correct?

20 A. Yes.

21 Q. And is that new audit data of Tonelli the  
22 same new list in the creating limitation, which is  
23 the second limitation?

24 A. Yes.

25 Q. Thank you.

1 MS. GREWAL: Have we gone over an hour?  
2 Sounds like it -- or seems like it.

3 MR. MACE: Take a break.

4 MS. GREWAL: Sorry, my apologies.

5 THE WITNESS: I'm available as long as you  
6 want.

7 MS. GREWAL: Would you care to take a  
8 break --

9 THE WITNESS: Fine, no problem.

10 MS. GREWAL: -- for five, ten, minutes?  
11 And then we --

12 THE WITNESS: I'm fine with it.

13 MS. GREWAL: I don't mean to be a hard  
14 taskmaster.

15 THE WITNESS: That's fine. I'm okay.

16 THE VIDEOGRAPHER: The time is 10:37.  
17 We're off the record.

18 (Recess taken)

19 THE VIDEOGRAPHER: The time is 10:55.  
20 We're on the record.

21 BY MS. GREWAL:

22 Q. Dr. Lavian -- sorry. Dr. Lavian, how many  
23 hours have you spent analyzing the '411 patent?

24 Let me start over.

25 Dr. Lavian, how many hours have you spent

1 analyzing the '411 patent to write your declaration?

2 A. I don't know. Many.

3 Q. Approximately over 25 hours?

4 A. Yes, easily.

5 Q. Over 50?

6 A. Approximately. I don't have in front of me  
7 my time sheets, but approximately.

8 Q. About 50 hours or thereabouts?

9 A. I don't know exactly. I work on several  
10 cases. I believe approximately, yes.

11 Q. Okay. Dr. Lavian, I want to discuss the  
12 components that are shown in figure -- in the  
13 figures starting back at Figure 7.

14 A. Of which patent?

15 Q. So please turn to Figure 7 of the '411  
16 patent.

17 A. Yes.

18 Q. Do you understand Figure 7 to be the block  
19 diagram of the system?

20 A. Yes.

21 MR. MACE: Object to form.

22 BY MS. GREWAL:

23 Q. Figure 7 of the '411 patent shows a  
24 topology database TOPODB 350; correct?

25 A. Yes.

1 Q. Could you please turn to column 6, lines 19  
2 through 20, of the '411 patent?

3 This section --

4 A. Which lines?

5 Q. Lines 19 through 20.

6 This section states --

7 A. Let me read this section.

8 Q. Sure.

9 A. (Witness reviewing document.)

10 Yes.

11 Q. So still referring to column 6, lines 19  
12 through 20, of the '411 patent, this section states  
13 that "The topology database 'topodb' 350 stores the  
14 current topology for use by the system"; correct?

15 A. That's what this states, yes.

16 Q. Figure 7 of the '411 patent also shows a  
17 topology converter, component 340; correct?

18 A. Yes.

19 Q. If you could turn to the summary of the  
20 invention, which is column 3, lines 9 through 12,  
21 which state:

22 "A topology database stores an existing  
23 topology of the network. A topology  
24 converter accesses the topology database  
25 and converts the existing topology into a

1 list of current tuples."

2 Is that correct?

3 A. That's what it states.

4 Q. If you could kindly turn to column 11,  
5 lines 16 through 18, of the '411 patent, this  
6 section states:

7 "The topology converter 340 converts" --

8 A. Just -- which line are you on?

9 Q. So column 11 --

10 A. Yes.

11 Q. -- lines 16 through 18.

12 A. Okay.

13 Q. This section states:

14 "The topology converter of" -- sorry.

15 "The topology converter 340 converts 934  
16 the topology into tuple lists, also  
17 referred to as the 'morph topo' phase 934."

18 Is that correct?

19 A. That's what it states, yes.

20 Q. So is it your understanding that the  
21 topology converter 340 converts the existing  
22 topology stored in the topology database 350 to  
23 provide a list of existing tuples?

24 A. It states the phases that you just read.

25 Take a look at Figure 8. In Figure 8, you

1 can see the stages of 902, 904, 906, and 909, and  
2 908. Basically it's data gathering phase, tuple  
3 building phase, tuple reduction phase, and topology  
4 update phase.

5 And as we discussed before, the first two  
6 left belongs to Figure 9, the second 906 --  
7 elaborate on the Figure 10, and the -- basically  
8 it -- just one second -- it states, "The topology  
9 converter 340 convert 934."

10 934 is from, I believe, Diagram 17. Let me  
11 go to Diagram 17, I believe.

12 Yes. In Diagram 17, we can see that the  
13 topology convert -- convert topology into tuple of  
14 list followed by 936, compare current list with the  
15 new list of -- and describe the identical tuples and  
16 938 take action in -- on changes topology.

17 So if I continue what you just said, that  
18 the topology convert -- "topology converter 340  
19 converts 934 the topology into tuple list, also  
20 referred as the 'morpho topo' phase 934." That's  
21 what I just explain in Diagram 17.

22 Q. And Dr. Lavian, you just stated that "the  
23 topology converter 340 converts" -- sorry, "convert  
24 934 the topology into tuple list, also refers as a  
25 morphed tuple phase 934."

1 The topology that is converted is the  
2 topology that is the existing topology in the  
3 topology database 350; is that correct?

4 MR. MACE: Object to form.

5 THE WITNESS: I'm not sure I understand  
6 what you are saying.

7 Basically, topology converter take the  
8 information from the reduced topology element 320  
9 that receive the information from the converter --  
10 connection calculator and takes this information,  
11 reduce the data, and put it back -- not back -- put  
12 it in the topology database 350.

13 BY MS. GREWAL:

14 Q. Dr. Lavian, my question related to the  
15 topology converter and its roles with respect to the  
16 lines that I mentioned in column 11, which was line  
17 16 through 18. And I'll read that again:

18 "The topology converter 340 converts 934  
19 the topology into tuples lists, also  
20 referred to as the 'morph topo' phase 934."

21 Is that correct?

22 A. You read correctly, yes.

23 Q. So is it your understanding that the  
24 topology converter, element 340, converts the  
25 existing topology in the topology database 350 to

1 provide a list of existing tuples?

2 MR. MACE: Object to form.

3 THE WITNESS: I think the language is very  
4 clear:

5 "The topology converter 350 refers -- 340  
6 converts 934 the topology into tuple list,  
7 also referred the 'morph topo' phase 934."

8 And as I mentioned, you can see the element  
9 934 in Figure 17. And Figure 17 gets from a  
10 converter topology into tuple list -- that's element  
11 934 -- going down to a compare current list with the  
12 new list and discard identical tuples -- that's  
13 936 -- and continues with the block take action on  
14 changes topology elements 938.

15 And that's the continuation of the  
16 discussion continuous to what you read in columns  
17 11, lines 18 to 25.

18 BY MS. GREWAL:

19 Q. Dr. Lavian, I'm just concentrating on the  
20 topology converter and step 934 that you are  
21 mentioning in Figure 17.

22 I was merely staying with column 11, line  
23 16 through 18, which stated:

24 "The topology converter in 340 converts 934  
25 the topology into tuple lists, also

1 referred to as the 'morph topo' phase 934."  
2 Correct?

3 A. You read it correctly, yes.

4 Q. Concentrating only on that portion of 17  
5 and the lines that I just read, is it your  
6 understanding that the topology converter 340  
7 converts the existing topology that is stored in the  
8 topology database 350 to provide a list of tuples at  
9 a prior time of the first limitation?

10 MR. MACE: Object to form.

11 THE WITNESS: I'm really not sure I  
12 understand your question.

13 Can you please elaborate or clarify what  
14 you mean by this?

15 BY MS. GREWAL:

16 Q. Sure.

17 Do you have the line 16 through 18 of  
18 column 11 in front of you?

19 A. Yes.

20 Q. I'm just trying to understand that  
21 particular portion --

22 A. Okay.

23 Q. -- line 16 through 18, which states:

24 "The topology converter converts 934 the  
25 topology into tuple lists, also referred to

1 as the 'morph topo' phase 934."

2 Is it your understanding that the topology  
3 converter 340 converts the existing topology in the  
4 topology database to provide a list of existing  
5 tuples that are referred to as "at the prior time"  
6 of the first limitation?

7 A. It states what it states.

8 MR. MACE: Object to form.

9 THE WITNESS: It states clearly, "The  
10 topology" -- it's one embodiment and exist one  
11 embodiment in the explanation of how the system  
12 works in Figure 17. It says:

13 "The topology converter 340 converts 934  
14 the topology into tuple list, also referred  
15 as the 'morph topo' phase -- phase 934."

16 And you can see a different depiction on  
17 Figure 7. Basically, the topology converter is  
18 connected to the topology database on the top, 350,  
19 and they connect to the 330, the reduced topology  
20 relationship -- basically, look up at the reduced  
21 relationship.

22 BY MS. GREWAL:

23 Q. Looking at Figure 7 and the bi-directional  
24 arrow between the topology database 350 and topology  
25 converter, do you understand the topology converter

1 accessing the stored existing topology in 350 to  
2 convert that existing topology into a tuples list?

3 A. This is one embodiment in the  
4 declaration -- in the description of Figure 17.  
5 It's referred to the element that related to  
6 Figure 7.

7 And, yes, I can see the tuple list, the  
8 double arrows between 350 and 340, and that's one  
9 embodiment, yes.

10 Q. How many embodiments are described in the  
11 '411 patent, Dr. Lavian?

12 A. I -- I didn't check. I didn't opine on  
13 this.

14 Q. If you turn your attention to column 3,  
15 line 42, it states that Figure 7 is a block diagram  
16 of the system; is that correct?

17 A. Which --

18 Q. Sorry, column 3 --

19 A. Okay.

20 Q. -- lines -- line 42, which reads:

21 "Figure 7 is a block diagram of the  
22 system."

23 A. Okay.

24 Q. Is there any other system that's described,  
25 other than the system of Figure 7, in this patent?

1 MR. MACE: Object to form.

2 THE WITNESS: I'm -- I am not sure what  
3 specifically you refer.

4 In high level, describe the invention,  
5 including many figures that related to the  
6 inventions. And in each one of them, you might have  
7 several other -- you may have a lot of information  
8 in all of them. That's basically 7 -- Diagram 7  
9 describe the system of -- of this patent.

10 BY MS. GREWAL:

11 Q. Right. There is no other system block  
12 diagram in this patent; is that correct?

13 A. I'm not sure. You have 7 -- you have about  
14 26, 27 diagrams on this diagram. Each one of them  
15 is referring to different things. But, in general,  
16 it's related to the concept that this patent  
17 describe to disclose.

18 Q. So if you look at Figures 8 through 20D,  
19 they all relate back to the components that are  
20 shown in Figure 7, which is the only block diagram  
21 of the system; is that correct?

22 MR. MACE: Object to form.

23 THE WITNESS: Yes. We discussed before  
24 that the other elements -- or the other figures, 8  
25 to 20D, are related back to Figure 7.

1 BY MS. GREWAL:

2 Q. So you would agree with me that the block  
3 diagram of the system shown in Figure 7 is the only  
4 embodiment that is described with respect to the  
5 invention of the '411 patent; is that correct?

6 A. I'm not sure that I understand.

7 MR. MACE: Object to form.

8 THE WITNESS: I didn't opine of this. I  
9 didn't look on elaboration, but I can see other  
10 diagrams in the picture -- other diagrams in other  
11 text in the specification.

12 In general, that's a key -- Diagram 17 --  
13 Diagram 7 describe, as the patent say, the block  
14 diagram of the system.

15 BY MS. GREWAL:

16 Q. And by the other figures that you were  
17 mentioning of diagrams or pictures, are you -- what  
18 figures are you looking at in particular?

19 A. Take a look in all the diagrams in the  
20 system. They describe the patent itself.

21 Q. Right. But all of the figures -- I --  
22 starting from Figure 8 to 20D, all refer back for  
23 further details to components that are described in  
24 the one and only block diagram of the system of the  
25 '411 patent; is that correct?

1 MR. MACE: Object to form.

2 THE WITNESS: Figures 8 to 20D elaborate in  
3 more details of Figure 7.

4 BY MS. GREWAL:

5 Q. Thank you.

6 So if I am concentrating again on your  
7 understanding with respect to the teachings of the  
8 line 16 through 18 of column 11, and concentrating  
9 only on those -- on that portion of column 11, is it  
10 your understanding that the topology converter 340  
11 converts the existing topology that is stored in the  
12 topology database 350 to provide a list of existing  
13 tuples?

14 A. The language that you said is:  
15 "The topology converter 340 converts 934  
16 the topology into tuple list, also referred  
17 as the 'morph topo' phrase -- phase 934."

18 And we've seen the element 340 in Figure  
19 4 -- in Figure 7 and element 934 in Figure 17.

20 Q. What is the topology that is mentioned in  
21 that sentence?

22 So, in particular, it states:

23 "The topology converter 340 converts 934  
24 the topology into tuple lists."

25 What topology is it referring to?

1 A. The topology you have the -- topology --  
2 two topologies; one of them is the topology of the  
3 database in element 350, and the second is the  
4 reduced topology in element 330.

5 Q. Okay. Figure 7 of the '411 patent shows a  
6 tuple manager 300; correct?

7 A. Yes.

8 Q. Please turn to column 6, line 16 through  
9 19, of the '411 patent.

10 A. Column -- line --

11 Q. Column 6, lines 16 through 19.

12 Do you know that --

13 A. Just let me read the paragraph.

14 Q. Sure.

15 A. (Witness reviewing document.)

16 Yes, what's your question?

17 Q. Looking at column 6, line 16 to 19, which  
18 states:

19 "A tuple manager 300, also referred to as a  
20 data miner 300, gathers 902 data from  
21 network nodes and builds 904 tuples to  
22 update the current topology."

23 This data is gathered at a current time;  
24 correct?

25 MR. MACE: Object to form.

1 THE WITNESS: I'm not sure I understand.  
2 You read correctly.

3 What do you mean "this data gathered at the  
4 current time"?

5 When -- every time that you are doing  
6 whatever you are doing, always the current time.  
7 Everything you are doing present, it's done the  
8 current time of the same present. Two minutes later  
9 is the past.

10 BY MS. GREWAL:

11 Q. Is the -- by "current time," I mean at a  
12 second time that is later in time than the existing  
13 time, which -- let's strike that.

14 Dr. Lavian, can you turn to your  
15 declaration, Exhibit 1002, in paragraph 24?

16 A. Which paragraph?

17 Q. 24.

18 Do you see in the middle -- let's see. I'm  
19 going to -- the first sentence begins -- are you  
20 at -- sorry, are you at paragraph 24?

21 A. Yes.

22 Q. It begins:

23 "The topology information returned from the  
24 first query may be stored in a database and  
25 used to create a list of tuples."

1 Can you explain what you mean by the  
2 first -- "returned from the first query"?

3 A. I'm referring to paragraph -- to the '411,  
4 paragraph -- not paragraph -- column 6, line 36 to  
5 39.

6 In line 36 to 39, I can see this  
7 information -- this information is tell the tuple  
8 manager 300 which devices or not are believed to  
9 exist in the system based on the node that were  
10 selected during the previously query.

11 So you have the previous query and you have  
12 the new query.

13 Q. Is that further -- is -- the two queries  
14 that you just mentioned, is that described in  
15 paragraph 23 immediately above what we just read?

16 In paragraph 23, the last line, you  
17 provide:

18 "In particular, the specification states  
19 that nodes on a computer network (i.e.,  
20 'electronic components') are queried at two  
21 different times so information about the  
22 layout of the network - i.e., the network  
23 topology - can be determined."

24 Did I read that correctly, sir?

25 A. Yes.

1 Q. So the two different times that you  
2 describe here in paragraph 23 and 24 include a time  
3 A and time B, right, time 1 and time 2?

4 A. Okay.

5 Q. Time 2 occurs later than time 1; is that  
6 correct?

7 A. Okay.

8 Q. I'm trying to just establish a temporal --  
9 some temporal language.

10 So time 1 -- can we call time 1 the  
11 existing time and time 2 a current time?

12 A. I'm not sure what you mean by "existing"  
13 and "current."

14 You have the time in the past and the time  
15 in the future, the prior time or the new time.  
16 That's the easiest to call it.

17 Q. So if you look at Claim 1 of the patent,  
18 '411 patent, which is Exhibit 1001.

19 Do you have that in front of you, sir?

20 A. Yes.

21 Q. See, the first limitation reads:

22 "Creating a list of existing tuples from an  
23 existing topology representing nodal  
24 connections of the network at a prior  
25 time."

1 A. Yes.  
 2 Q. Can we agree that that is a first time or a  
 3 prior time?  
 4 A. Yes, you call it current time. But here,  
 5 it's write "prior time." If you would like to call  
 6 it prior time, that's fine. That's okay.  
 7 MR. MACE: Object to form.  
 8 BY MS. GREWAL:  
 9 Q. Prior time is the time at which, according  
 10 to the first limitation, a list of existing tuples  
 11 from an existing topology is created; is that  
 12 correct?  
 13 A. I'm not sure I understand.  
 14 The claim language -- the element says:  
 15 "Creating a list of existing tuples from an  
 16 existing topology representing nodal  
 17 connections of a network of the prior  
 18 time."  
 19 Q. Right. Is it your understanding,  
 20 Dr. Lavian, that the existing topology recited in  
 21 limitation one represents nodal connections of a  
 22 network at a prior time?  
 23 A. That's what it says.  
 24 "Creating a list of existing tuples from an  
 25 existing topology representing nodal

1 connections of a network at the prior  
 2 time."  
 3 Yes, that what it says.  
 4 Q. Okay. The second limitation reads:  
 5 "Creating a new list of a plurality of  
 6 tuples for a topology of the network at a  
 7 current time."  
 8 A. Yes, you read it correctly.  
 9 Q. Is this current time later in time than the  
 10 prior time?  
 11 A. Yes.  
 12 Q. I would like our discussion -- when I say  
 13 "prior time" and "current time," I'm referring to  
 14 the times that are articulated in Claim 1.  
 15 A. Okay.  
 16 Q. So if you go back to column 6, lines 16  
 17 through 19, which reads:  
 18 "A tuple manager 300, also referred to as a  
 19 data miner 300, gathers 902 data" --  
 20 A. Just --  
 21 Q. Sorry.  
 22 A. Which line are you?  
 23 Q. Column 6, line 16 through 19 --  
 24 A. Yes.  
 25 Q. -- which begins:

1 "A tuple manager 300, also referred to as a  
 2 data miner 300, gathers 902 data from  
 3 network nodes and builds 905 (sic) tuples  
 4 to update the current topology."  
 5 This data is gathered at the -- at a  
 6 current time which is later than the existing time  
 7 of the first limitation; is that correct?  
 8 A. Let's start that we misread the language --  
 9 the sentence.  
 10 It's "nodes and builds 904," not 905.  
 11 And the language here is general, not  
 12 related to past or current or future.  
 13 "A tuple manager 300, also refers as a data  
 14 miner 300, gathers 902 data from the  
 15 network nodes and builds 904 tuple to  
 16 update the current topology."  
 17 Q. My apologies. I didn't mean to misread the  
 18 reference Number 904.  
 19 MS. GREWAL: We need to take a break to  
 20 change the tape. So why don't we come back and pick  
 21 it up.  
 22 THE VIDEOGRAPHER: This marks the end of  
 23 Disc 1, Volume I, of the deposition of Dr. Tal  
 24 Lavian.  
 25 The time is 11:32, and we're off the

1 record.  
 2 (Recess taken)  
 3 THE VIDEOGRAPHER: This marks the beginning  
 4 of Disc 2, Volume I, in the deposition of Dr. Tal  
 5 Lavian.  
 6 The time is 11:47. We're on the record.  
 7 BY MS. GREWAL:  
 8 Q. Dr. Lavian, shortly before the break, you  
 9 had mentioned that you were not sure what I meant by  
 10 "existing" and "current."  
 11 And you said, "You have the time in the  
 12 past and the time in the future, the prior time or  
 13 the new time."  
 14 Do you recall that, sir?  
 15 A. I remember, yes.  
 16 Q. With that in mind, the topology that is  
 17 stored in topology database "topodb" shown as  
 18 component 350 in Figure 7, does that topology that  
 19 is stored in "topodb" 350 topology of a prior time?  
 20 A. I think the best way to look at this is to  
 21 take a look at the exact claim language and to  
 22 distinguish between the claim language and the  
 23 description.  
 24 And what I mean by this, the claim language  
 25 is very clear:

1 "Creating a list of existing tuples from  
2 the existing topology representing nodal  
3 connection of a network at the prior time."

4 So I have to take a look at the exact  
5 language of the claim language compared to the  
6 Figure 7 that talks in general in present tense  
7 about what is done in general.

8 So I have to take a look on what I did,  
9 what I opined on Claim Number 1 -- in the specific  
10 claim language related to Claim Number 1.

11 Q. So what component, Dr. Lavian, creates a  
12 list of existing tuples from the existing topology  
13 representing nodal connection of the network at a  
14 prior time?

15 MR. MACE: Object to form.

16 THE WITNESS: You're referring to the  
17 specific claim element?

18 BY MS. GREWAL:

19 Q. Correct. I just reread limitation one.

20 And with respect to the components shown in  
21 Figure 7, what component creates a list of existing  
22 tuples from an existing topology representing nodal  
23 connections of a network at a prior time?

24 A. I'm not sure they can -- they can change  
25 the claim language. The claim language is very

1 clear. It says:

2 "Creating a new list of plurality of tuples  
3 of topology of the network at the current  
4 time."

5 The claim language does not say anything  
6 about Figure 7. It does not say anything about --  
7 when I did my analysis and when I opined, I opined  
8 on Claim 1 and its element.

9 Q. Dr. Lavian, I read the first limitation.  
10 And, for some reason, you have read the second  
11 limitation. I apologize if I was not clear.

12 Looking at limitation one of Claim 1, which  
13 reads:

14 "Creating a list of existing tuples from an  
15 existing topology representing nodal  
16 connections of the network at a prior  
17 time."

18 Do you see that, sir?

19 A. Yes.

20 Q. What component shown in Figure 7 creates a  
21 list of existing tuples from an existing topology  
22 representing nodal connections of a network at a  
23 prior time?

24 A. The claim element does not mention  
25 Figure 7. The claim element does not specifically

1 talk about any claim -- or any figure.

2 And when I did my analysis, I opined on  
3 Claim Number 1 as is with the specific language of  
4 the claim.

5 Q. So as you sit here just now, sir, you do  
6 not have an understanding of what component would  
7 create the list of existing tuples from an existing  
8 topology representing nodal connections of a network  
9 at a prior time?

10 A. I have an excellent --

11 MR. MACE: Object to form.

12 THE WITNESS: -- of what is it, and it's  
13 very simple. The language that I opined on, the  
14 exact language of the claim. And the exact language  
15 of the claim is:

16 "Current" --

17 "Creating a list of existing tuple from an  
18 existing topology representing a nodal  
19 connection of the network at a prior time."

20 And I opined on this language and not on  
21 any other language.

22 BY MS. GREWAL:

23 Q. So if you set Claim 1 aside and go back to  
24 column 11, line 16 through 18, of the '411 patent --  
25 and I'll read this again -- it states:

1 "The topology converter 340 converts 934  
2 the topology into tuple lists, also  
3 referred to as the 'morph topo' phase 934."  
4 Correct?

5 A. You read correctly, yes.

6 Q. So is it your understanding that the  
7 topology converter converts the topology that exists  
8 at a prior time to provide a list of tuples?

9 A. I opined on the claim language and --

10 MR. MACE: Object to form.

11 THE WITNESS: -- not on anything else.

12 And the claim language is very clear. And  
13 the language that you read is one line out of the  
14 specification that it's not the claim language.

15 And I didn't opine on this specific line.  
16 I didn't opine on any specific lines.

17 The language that you said, that "the  
18 topology converter 340 converts," "converts" is in  
19 the present tense. So basically, in general, it  
20 converts.

21 It does not say "converts in the past,"  
22 "converts the new -- converts the new tuple." It  
23 does not say any of the language of Claim Number 1.

24 And I didn't opine on this. I opined  
25 specifically on Claim Number 1.



1 BY MS. GREWAL:

2 Q. I understand you have --

3 We are not talking about Claim 1. I need  
4 you to set that aside.

5 I turned our attention back to column 11,  
6 line 16 through 18. We're discussing the  
7 specification of the '411 patent now.

8 A. Okay.

9 Q. And in looking at this, when it reads, "the  
10 topology converter converts the topology," what  
11 topology is this sentence referring to?

12 A. Not related to Claim Number 1, this is the  
13 description of Figure 17.

14 Q. I understand, but what is the topology? Is  
15 it a -- where is this topology stored?

16 A. The topology is stored in the topology  
17 database.

18 Q. And that topology that is stored in the  
19 topology database, does that represent topology at a  
20 prior time or at a new time?

21 A. The language of the passage -- the  
22 paragraph that you read to me, "the topology  
23 converter 340 converts, in general -- now, in  
24 general, not specifically to past, present, future.

25 "The topology into tuple lists, also refers

1 to as the 'morph topo' phase 934."

2 It does not say about past, future, or  
3 current. And this is not the claim language.

4 Q. I understand it's not the claim language.

5 We are discussing the Figure 7, which is  
6 the block diagram, and the only block diagram, of  
7 the system of the '411 patent.

8 Is that correct?

9 MR. MACE: Object to form.

10 THE WITNESS: Basically you're trying to  
11 correct -- to impose language of past and future,  
12 and you discussed about prior time or newer time or  
13 current data or previous data.

14 The two -- the one line that you read to me  
15 does not say "past," it does not say "future," it  
16 does not say "current," it does not say "prior  
17 time."

18 It say:

19 "The topology converter 340 converts" with  
20 S and N -- 904 the topology into tuple  
21 list, also referred to 'morpho' -- 'morph  
22 topo' phase 934."

23 It is in general. It does not say -- it  
24 does not say -- says in the past or the future,  
25 current or previous or -- it does not say.

1 BY MS. GREWAL:

2 Q. What is your understanding of line 16  
3 through 18 of column 11?

4 A. It's in general, the topology converter 340  
5 converts 934 topology into tuple list.

6 Q. And what is your understanding of what  
7 topology is being converted?

8 A. Basically we can see in Figure 7 that the  
9 database topology -- it's convert the topology  
10 database.

11 Q. Okay. And looking at the tuple manager  
12 component 300 and referring to column 6, line 16  
13 through 19, which states --

14 A. Yes.

15 Q. -- "A tuple manager 300, also referred to  
16 as a data miner 300, gathers 902 data from network  
17 nodes and builds 904 tuples to update the current  
18 topology."

19 What is your understanding of the sentence  
20 in column 6, line 16 through 19, that I just read?

21 MR. MACE: Object to form.

22 THE WITNESS: As it says, it said tuple  
23 manager 300 refer -- gather the data from the  
24 network nodes to build the tuples.

25 //

1 BY MS. GREWAL:

2 Q. What is your understanding of the latter  
3 part, where it says "gathers 902 data from network  
4 nodes and builds 904 tuples to update the current  
5 topology"?

6 A. Gather the information, update the current  
7 topology.

8 You have old topology and you have new  
9 topology, and you always element -- 300 tuple  
10 manager always receive information and always create  
11 the new topology and updates always the -- the  
12 topology, see what's new, see what's changed, see  
13 what's removed, and updates the database.

14 Q. So the tuple manager is creating a new  
15 topology and updating -- and the system updates the  
16 old topology; is that right?

17 A. That's not what I said.

18 MR. MACE: Object to form.

19 THE WITNESS: That's not what I said.

20 The tuple manager -- in general, Figure 7  
21 shows a system that gather information, update the  
22 information, see what's change -- what -- look at  
23 the changes in the topology and update the topology.

24 Element 3 -- 300 gather the information;  
25 and element 350 update -- receive the information of

1 updated -- the new topology; and new, it's always  
2 new over time.

3 Q. If you turn to Figure 8 of the '411 patent,  
4 Dr. Lavian, what does Figure 8 disclose?

5 A. Figure 8 disclose four element; 902, 904,  
6 906, and 908. And basically it disclose the data  
7 gathering phase, tuple building phase, tuple  
8 reduction phase, and topology updating phase.

9 Q. The tuple manager is responsible for the  
10 data gathering phase; correct?

11 A. Yes.

12 MR. MACE: Object to form.

13 BY MS. GREWAL:

14 Q. Do you see box 905 -- sorry, 905 labeled as  
15 "tuple building phase"?

16 A. Yes.

17 Q. The tuple manager is responsible for tuple  
18 building phase; correct?

19 A. Yes.

20 Q. Please turn to Figure 9 of the '411 patent.

21 A. Yes.

22 Q. Do you recognize Figure 9 of the '411  
23 patent?

24 A. Yes.

25 Q. What does Figure 9 disclose?

1 A. Figure 9 disclose the element in 910, 912,  
2 914, 916, 918, and 920. And basically it disclose  
3 the beginning of Figure 7.

4 So in Figure 7, you can see on the top a  
5 topology manager, that's element 300, and that's --  
6 starting with element 902 for Figure 2, that the  
7 gathering phase. Basically, you have receive start  
8 signal with basically element 910 looking up  
9 existing device in the topology database, query  
10 nodes, gather tuples, store tuples in neighbor  
11 database, and gather additional data as requested.

12 Q. Referring to box 916 of Figure 9, which is  
13 labeled "Create Tuples," in this operation, the  
14 tuple manager creates a new list of a plurality of  
15 tuples for the topology of the network; correct?

16 A. I don't understand what you're saying.  
17 That's not what it says.

18 Q. What does "create tuples" refer to, then?

19 A. Create tuples.

20 MR. MACE: Object to form.

21 BY MS. GREWAL:

22 Q. Is it the tuple manager that's creating the  
23 tuples?

24 A. In element 916, yes.

25 Q. And I'm referring specifically to box 916.

1 So in the box 916, the tuple manager  
2 creates a new list of tuples for the topology of the  
3 network; is that correct?

4 A. No. You're trying to take language from  
5 the claim language to the description, and I'm not  
6 sure that's the right way to go.

7 The description in Figure 7, 8, 9, 10, and  
8 the rest of the diagram describes, in general, the  
9 patent. It's not the claim language. It's, in  
10 general, said about create tuple. It does not talk  
11 here -- for example, does not say here the specific  
12 language that you are using from the claim language.  
13 General description.

14 Q. If you refer to paragraph -- sorry, to  
15 column 6, lines 51 to 53, do you understand the  
16 patent states:

17 "Based on this information, the tuple  
18 manager 300 builds 916 tuples and stores  
19 918 them in the 'neighbor data' database  
20 310"?

21 A. If that's what the language says, yes.

22 Q. Why does the tuple manager store tuples in  
23 the neighbor data database?

24 A. Because that's what it explains how it  
25 does. It explore -- save information database -- in

1 the database.

2 If you want to understand the network -- in  
3 networking, every network has -- every link has a  
4 neighbor.

5 And in order to understand the topology,  
6 you have to understand the neighbors and the  
7 relationships between them.

8 Q. What is the difference between the data  
9 stored in neighbor data database shown in Figure 7  
10 and the information stored in the topology database  
11 350 also of Figure 7?

12 MR. MACE: Object to form.

13 THE WITNESS: Topology database -- in  
14 general, topology database related to the topology  
15 itself.

16 Neighbor database related to -- in the  
17 process of getting the topology, for every device  
18 you can get information from many different ways,  
19 from routing table, switching table, SNMP, and many  
20 other agents. It can send you the information --  
21 send the device the information to gather the  
22 topology.

23 And you have to build. In the processing  
24 of building the topology, you have to take a look at  
25 all the information around to build a topology.

1 For example, in the neighbor database, you  
2 can have a lot of information many times by  
3 different agents or by different ports or different  
4 formats or different ways to present it.

5 In the topology database, it's the cleaned,  
6 final, current topology that include the topology,  
7 while the neighbor database does not include all the  
8 topology.

9 BY MS. GREWAL:

10 Q. What does the neighbor data database store?

11 A. The information about the data.

12 Q. What data, in particular, Dr. Lavian?

13 A. It does not disclose the specific, but I  
14 can give you example.

15 If you have a switch and the switch  
16 connected to some neighbors, the information that  
17 you gather from the networks -- from the other  
18 neighbors.

19 Q. If you refer to column 6, lines 51 to 53,  
20 it reads:

21 "Based on this information, the tuple  
22 manager 300 builds 916 tuples and stores  
23 918 them in the 'neighbor data' database  
24 310."

25 Do you understand the neighbor data

1 database to store tuples?

2 A. It can store also tuples, yes.

3 Q. Okay. You had previously described the  
4 tuple manager performing the operations described in  
5 Figure 9, in particular boxes 910 and 916.

6 Do you recall that, sir?

7 A. Yes.

8 Q. Referring to column 6, lines 33 through 39,  
9 which states:

10 "The tuple manager receives" --

11 A. 36? Just one --

12 Q. Sorry. Column 6, lines 33 to 39 --

13 A. Okay.

14 Q. -- which states:

15 "The tuple manager receives a 910 signal to  
16 gather tuple data" --

17 A. Wait a minute. You are on line 36?

18 Q. No, 33.

19 A. 33. Okay, yes.

20 Q. Beginning there, column 6, lines 33 --

21 A. Yes.

22 Q. -- to 39, that reads:

23 "The tuple manager receives a 910 signal to  
24 gather tuple data. The tuple manager then  
25 retrieves 912 node information of the

1 current topology stored in the topology  
2 database 350. This information tells the  
3 tuple manager 300 which devices or nodes  
4 are believed to exist in the system based  
5 on the nodes that were detected during a  
6 previous query."

7 Is that correct, sir?

8 A. You read correctly.

9 Q. Box 914 of Figure 9 is labeled as "Query  
10 Nodes"; correct?

11 A. Yes.

12 Q. In this operation, the tuple manager  
13 gathers information pertaining to the network at a  
14 current time; is that correct?

15 A. When you query nodes, always you query at  
16 current time.

17 Q. Okay. Do you understand column 6, lines 39  
18 to 40, that states:

19 "The tuple manager 300 then queries 914 the  
20 known nodes to gather the desired  
21 information"?

22 Do you understand that, sir?

23 A. Yes, you read it correctly.

24 Q. Okay. Referring to the lines below in  
25 column 6, just further down, in lines 40 through 51,

1 do you understand that portion of the specification  
2 to provide details regarding how the tuple manager  
3 gathers data?

4 A. Yes.

5 Q. And referring back to Figure 9, box 916,  
6 which is labeled as "Create Tuples," do you see  
7 that?

8 A. Yes.

9 Q. In this operation, the tuple manager  
10 creates a list of a plurality of tuples for a  
11 topology at that current time; is that correct?

12 A. That's not what it says. It says "create  
13 tuples."

14 Q. The operation of create tuples occurs after  
15 the operation query nodes of Figure 9; is that  
16 correct?

17 A. Yes.

18 Q. And you just taught us that the gathering  
19 of information pertaining to the network occurs at a  
20 current time; is that correct?

21 A. In general, when you're gathering  
22 information, all the time you are gathering at the  
23 time that you gather -- that you gather. One second  
24 later, it's the past. And if you will gather two  
25 seconds from now, it will be the new.

1 Q. And if you -- once gathered, if you convert  
2 that gathered information into a tuple, it  
3 represents, from a timing perspective, the data of  
4 that time which pertains to the time the data was  
5 gathered; is that correct?

6 MR. MACE: Object to form.

7 THE WITNESS: If that's what you did. If  
8 you create a tuple of the data, it will create a  
9 tuple of the same data.

10 BY MS. GREWAL:

11 Q. Turning now to column 6, line 53 to 56, a  
12 little further down, do you understand the patent  
13 notes that:

14 "Some nodes may have incomplete  
15 information. In this case, the partial  
16 information is assembled into a tuple and  
17 may be used as a 'hint' to determine its  
18 connectivity later, based on other  
19 connections."

20 Did I read that correctly?

21 A. Yes.

22 Q. Given your experience in network  
23 communication, can you explain why would the tuple  
24 manager store partial information?

25 MR. MACE: Object to form.

1 THE WITNESS: There can be many different  
2 reasons. You are asking all the communication --  
3 network communications in one question.

4 BY MS. GREWAL:

5 Q. Could you give me a few of those reasons as  
6 to why the tuple manager would store partial  
7 information that it assembles into a tuple?

8 A. Yes.

9 MR. MACE: Object to form.

10 THE WITNESS: For example, I disconnect the  
11 cable and connect it to a different place. Simple  
12 as it is. The device shutdown.

13 BY MS. GREWAL:

14 Q. So what is the benefit, Dr. Lavian, for  
15 storing this partial information?

16 A. For example, if you --

17 MR. MACE: Object to form.

18 THE WITNESS: -- have device and you have  
19 its name -- for example, you know device  
20 specifically MAC address, it's in building one,  
21 fourth floor, sixth room, 902, and the name of it --  
22 it is whatever name -- you have this information.  
23 You can save this information. And, for example, if  
24 someone disconnect the cable or just a power reboot,  
25 it will save whatever it has, partial information.

1 BY MS. GREWAL:

2 Q. Is there -- what is -- what is the benefit  
3 of storing this partial information?

4 A. I can give you one example, but there are  
5 many different examples.

6 Q. Sure.

7 A. For example, if I know that the device  
8 called something, switch 11, you want to save it as  
9 switch 11. Why to get the information again?

10 That's one example. There's many different  
11 other reasons to do it.

12 Q. Referring back to Figure 7 of the '411  
13 patent, it also shows what we have mentioned, a  
14 neighbor data database 310; correct?

15 A. Yes.

16 Q. Do you understand that column 6, lines 20  
17 through 22, states the following:

18 "The 'neighbor data' database 310 stores  
19 new tuple data built (sic) by the tuple  
20 manager."

21 MR. MACE: Object to form.

22 BY MS. GREWAL:

23 Q. Is that correct?

24 MR. MACE: Object to form.

25 THE WITNESS: You read it correctly.

1 MR. MACE: Object to form.

2 BY MS. GREWAL:

3 Q. Please turn again to Figure 9 of the '411  
4 patent. Box 918 is labeled as "Store tuples in  
5 'neighbor data' database"; correct?

6 A. In "neighbor database," yes.

7 Q. The tuples that are stored in the neighbor  
8 data database, are those created in the operation of  
9 box 916? Correct?

10 A. Just -- just to clarify, 918 says "store  
11 tuples in neighbor database," not in "neighbor data  
12 database."

13 Q. My apologies.

14 The tuples that are stored in the neighbor  
15 database, are those created in the operation of box  
16 916? Correct?

17 A. When I'm looking at Figure 9 --

18 MR. MACE: Object to form.

19 THE WITNESS: -- in general, Figure 9 show  
20 the process of a gathering -- the data gathering  
21 phase and include, in high level, the process of  
22 get -- getting the data.

23 This is a constant step. So always you  
24 gather information, and always you store  
25 information. Always you get information about them.

1 It's not something that start and ends. So all of  
2 the life of the device, it's constant. All of them  
3 are constant steps.

4 BY MS. GREWAL:

5 Q. Looking at the flowchart shown in Figure 9,  
6 the tuples that are stored in the neighbor database,  
7 are those that -- in particular step 918, are those  
8 that were created in the operation of box 916 that  
9 precedes box 918; is that correct?

10 A. That's the flow that shows in the diagram,  
11 Figure 9.

12 Q. Okay. The neighbor data database 310  
13 stores the list of tuples that represent the  
14 topology of the neighbor -- sorry -- of the network  
15 at a current time; correct?

16 A. I'm not sure I understand what you mean by  
17 "the current time," because generally it's not  
18 current and not future and not past.

19 It generates -- you -- the element 300  
20 receives constant stream of data from many, many  
21 different devices, and it create the information and  
22 save temporarily the data in the 310 database.

23 Q. The neighbor data database 310 stores a  
24 list of tuples that represent the topology of the  
25 network at a new time; correct?

1 A. It always get the information, and always  
2 you will have new, and always you will have past.

3 In general, each one the data, you have  
4 timestamp, and you say where this information is  
5 stored. So you can see past, current. It's  
6 always -- you have timestamp to each one of them.  
7 In general, that's what you are doing in the  
8 network -- in networking.

9 Q. Is it correct to say that the neighbor data  
10 database receives tuple data from the tuple manager  
11 300?

12 A. Sure.

13 Q. This means that the neighbor data database  
14 310, Figure 7, receives new tuple data from the  
15 tuple manager 300?

16 A. Always you will receive streams of them.

17 Q. Okay.

18 A. And each one of them will have timestamp.

19 Q. Figure 7 of '411 -- of the '411 patent also  
20 shows a connection calculator 320; correct?

21 A. Yes.

22 Q. Please turn to column 6, lines 22 to 24, of  
23 the '411 patent.

24 Do you understand that --

25 A. Let me read. Let me read.

1 Q. Sure.

2 A. (Witness reviewing document.)

3 Yes, what's your question?

4 Q. Do you understand that column 6, lines 22  
5 through 24, states:

6 "The connection calculator 320 processes  
7 the data in the neighbor data database 310  
8 to determine the new network topology"?

9 A. Yes.

10 Q. What does this mean?

11 A. It means they always -- you will get new  
12 information, and always you need to calculate the  
13 information and to see if there is differences in  
14 the network.

15 Q. So the connection calculator is receiving  
16 new information and calculates the information to  
17 see if there is a difference in the network?

18 A. It is very simple. I'm not sure I  
19 understand why you are asking so much -- all of  
20 these questions.

21 You receive the -- the 300 -- tuple manager  
22 receive stream of information, flux of information,  
23 all times. This information is saved in the  
24 neighbor database.

25 But here you have -- in the element 310,

1 you have a lot of information, not in -- not  
2 organized generally in -- topologies can be in many  
3 different forms of information. And a connection  
4 calculator look at all the information and generate  
5 a topology.

6 So, in general, see if there is a new  
7 connection, mark it; if there is a new port, mark  
8 it; if it's a new device, mark it; if it's the same  
9 device arrive five times, reduce it to five times  
10 and show only once.

11 That's the type of the information that's  
12 done in general in the network. That's a  
13 description of Figure 7.

14 Q. Again, turning to column 6, lines 22 to 24,  
15 that states:

16 "The connection calculator processes the  
17 data in the neighbor data database to  
18 determine the new network topology."

19 What does that involve?

20 MR. MACE: Object to form.

21 MS. GREWAL: I'll restate the question.

22 BY MS. GREWAL:

23 Q. What does the connection calculator do to  
24 process the data in the neighbor data database?

25 A. It says -- as it says:

1 "The connection calculator 320 processes  
2 the data in the neighbor data database 310  
3 to determine the new network topology."

4 Simply look at the information, see network  
5 topology.

6 I can give you one example. It's only one.

7 If the previous topology you had a  
8 connection and the new topology you don't have a  
9 connection, so you will update the topology to say  
10 this connection is not existed anymore.

11 Just -- I just give one example. Exactly  
12 the same.

13 If you have a connection that was not --  
14 not existed before and someone added cable from one  
15 switch to another switch, the device will recognize,  
16 you will get in the -- gathering information, you  
17 will get this information, get it -- get this  
18 information to the network data database, and the  
19 connection manager will realize, oh, I have a new  
20 connection and basically add the new connection.

21 So any change in topology the connection  
22 calculator will recognize and will add the topology.

23 Q. Which topology is the connection calculator  
24 adding to?

25 A. Topology of the network.

1 Q. And where does it store that information?

2 A. The topology of the network is stored in  
3 many different places. It start with the neighbor  
4 database. You have some information related to the  
5 topology.

6 In general, the claim topology is in the  
7 topology database. That's in the end of the day.

8 But in this process, you have a lot of  
9 information -- stream of information that you need  
10 to clean, calculate, and get the correct information  
11 and update if there are any changes.

12 Q. We were talking particularly, Dr. Lavian,  
13 about the connection calculator processing the data  
14 in the neighborhood -- neighbor data database to  
15 determine the new network topology.

16 My question is: Where does the connection  
17 calculator store the new network topology that it  
18 determines?

19 A. It stores the new network topology in the  
20 reduced topology in 320 -- in 330, sorry.

21 Q. Please turn to Figure 8 of the '411 patent.

22 Do you see box 906 labeled as the "Tuple  
23 Reduction Phase"?

24 A. Yes.

25 Q. The connection calculator is responsible

1 for the tuple reduction phase; correct?

2 A. Yes.

3 Q. What is left after this tuple reduction  
4 phase?

5 A. I'm not sure I understand what is left.

6 You have constant stream of information.  
7 All the time you are getting a lot of information.

8 Q. So once the connection calculator operates  
9 and provides a tuple reduction, what is the state of  
10 the data that is left?

11 A. Always receive information in tuple -- in  
12 300, always receive information. It always will  
13 save the new information. It always will clean the  
14 information, always look and see if the information  
15 is correct or not, and always reduce the information  
16 to get as clean as possible topology map, and save  
17 at the end of the day what believe the cleanest  
18 topology map in 350.

19 Q. So sticking with the -- what the connection  
20 calculator is doing -- sorry, the -- yeah, the  
21 connection calculator, you mentioned that it reduces  
22 the information -- you said, "It always will clean  
23 the information, always look and see if the  
24 information is correct or not, and always reduce the  
25 information to get as clean as possible topology

1 map, save at the end of the day -- save the cleanest  
2 topology map in 350."

3 Does the connection calculator store a  
4 reduced topology to 350?

5 A. Let's simplify it. It's very simple.

6 Let's assume that you have two devices and  
7 they are connected. When they are -- let's assume  
8 that I have only two devices in the network and they  
9 have only one connection between them.

10 The device -- while the device is  
11 connected, you have keep-alive messages. And  
12 keep-alive messages say, "I'm exist. I exist. I  
13 exist," sent periodically.

14 And while you get all this information,  
15 this can be, for example, information that get to  
16 the topology manager -- for example, one port of  
17 agent that can get information -- and this  
18 information say, "Oh, I know that switch number 5  
19 connect on port number 3 to switch number 11 on port  
20 number 5." I just gave one example.

21 And it's always sending information, "Here  
22 I am; that's my information. Here I am; that's my  
23 information. Here I am; that's my information."

24 And basically, this information is stored  
25 as keep-alive messages; constantly you know the

1 connection is connected.

2 If someone will connect -- disconnect the  
3 cable and move it to another port, from port 3 to  
4 port 11, the messages from port 3 will not be  
5 anymore connected, and the device -- one of the  
6 device says, "Oh, I'm not connected anymore to this  
7 connection," and the other device will say, "Oh, I'm  
8 not connected anymore to this connection." Both  
9 information -- you have two set of information that  
10 will get in the neighbor database.

11 In the same time, you will get a new port,  
12 who will say, "Oh, I am recognized on different  
13 port. I think they said port 11." And the other  
14 device will say, "Oh, I'm connected, and I think  
15 they said port 5."

16 So now, from these two pieces of  
17 information of a new connection, you can know what  
18 is the new connection. From previous two  
19 connections, that port 3 and port 5 are not anymore  
20 connected, you know it's not connected.

21 And basically, the connection calculator  
22 will take all this information and say, "Simple  
23 point. It was connected to port number 3, and the  
24 connection moved to port number 11."

25 That's the process. You will get a lot of

1 information, maybe thousands of pieces of  
2 information, just for this information. And most of  
3 the time, no changes. Because if no changes, it  
4 just converts -- it show, "Oh, it's the same  
5 information, same information, same information.  
6 Nothing change."

7 When you will have changes, you will get a  
8 lot of noise. What I mean by "noise," if we have  
9 only two ports -- and I intentionally said only two  
10 devices -- that you did only tiny change of moving  
11 Ethernet connection from one port to another port,  
12 immediately I just describe at least four separate  
13 messages. And each one of them will appear many  
14 times. And the connection calculator will do the  
15 simple connection -- simple understanding: Switch  
16 was changed from port 3 to port 11.

17 That's all. Simple as is.

18 Q. Okay.

19 A. Intentionally I give simple -- the  
20 simplest, I would say, option that you have only two  
21 devices. And all you have done is take one port and  
22 you switch to another port.

23 If you have network with thousands of  
24 devices and millions of datasets and some -- maybe  
25 billions of pieces of information constantly moving,

1 you have some device -- you need to do this simple  
2 understanding: I switch from this port number 3 to  
3 port 11.

4 And for this, you need some process to do  
5 this calculation.

6 Q. So the tuple reduction phase results in a  
7 list of tuples being reduced in size; is that  
8 correct?

9 A. I'm not sure if the tuple reduced in size.

10 You have a lot of information. It's not  
11 important.

12 Q. The box 906 is labeled "Tuple Reduction  
13 Phase"; is that correct, Dr. Lavian?

14 I'm sorry, I'm referring to Figure 8.

15 A. Yes.

16 Q. Is it fair to say that the tuple reduction  
17 phase results in a list of tuples being reduced in  
18 size?

19 A. I'm not sure if it's list of tuples reduced  
20 in size.

21 You can remove information that's not  
22 relevant. For example, if a switch is not anymore  
23 there, so all the information regarding this switch  
24 can be out of the system; or if the switch to move  
25 to another place, you will get all of this

1 information in a different location.

2 So basically, it reduce the noise. What I  
3 mean by "noise" -- and what's known -- noise is  
4 something -- it's not so important to the  
5 calculation of the specific port.

6 Q. So any removal of information will result  
7 in the list of tuples being reduced in size;  
8 correct?

9 MR. MACE: Object to form.

10 THE WITNESS: I'm not sure that it's list  
11 of reduced of size. You will have change of  
12 information.

13 For example, if you know that the port was  
14 connected to port number 3 and it's connected to  
15 port number 5, I'm not sure that you change the size  
16 of the list. It might be not. It might be  
17 increased of the size.

18 For example, if you went from switch with  
19 only two ports and you switch to switch with 20  
20 ports, it might be you will have increased the size.

21 So I don't know. It depends on the  
22 architecture, depend on the situation, depend on the  
23 specifics of the devices.

24 Q. This is the last question before we should  
25 probably break for lunch. You may have more stamina

1 than the rest in the room.

2 But what is the reason for the tuple  
3 reduction phase?

4 A. If you have a lot of information, not all  
5 the information are related.

6 I gave the example. If we switch -- just  
7 for clarification, it's one simple example.

8 If I have only two switches, and I was  
9 connected on port number 3 and move to port number  
10 5, I may get thousands of connections of keep-alive,  
11 keep-alive, keep-alive, keep-alive -- that can be  
12 every -- constantly, every second or every 5  
13 seconds.

14 And all of this information is not  
15 relevant. The only information you want to say,  
16 "Oh, you switched to port number 5," and that's the  
17 new information.

18 Q. Is it fair to say at least one example --  
19 or one reason for tuple reduction phase then would  
20 be to remove unnecessary information?

21 A. Yes, absolutely.

22 MS. GREWAL: Thank you. We should probably  
23 break for lunch.

24 THE VIDEOGRAPHER: The time is 12:38.  
25 We're off the record.

1 (Lunch recess taken)

2 //  
3 //

1 AFTERNOON SESSION

2  
3 THE VIDEOGRAPHER: The time is 1:28. We're  
4 on the record.

5 BY MS. GREWAL:

6 Q. Dr. Lavian, could you please turn back to  
7 Figure 7 of the '411 patent.

8 A. Yes.

9 Q. As shown in Figure 7, the connection  
10 calculator 320 also communicates with a tuple  
11 manager 300; correct?

12 A. Yes.

13 Q. Please turn to column 7, lines 12 through  
14 15, of the '411 patent.

15 A. (Witness reviewing document.)

16 Yes.

17 Q. Do you understand that column 7, lines 12  
18 to 15, state:

19 "If clarification of device  
20 connectivity" --

21 A. Which line?

22 Q. 12 onwards.

23 A. Okay.

24 Q. "If clarification of device connectivity is  
25 required, the connection calculator 320 performs a

1 'look for' phase 930 to ask the tuple manager 300 to  
2 gather additional data."

3 Do you understand the benefits provided by  
4 the look-for phase?

5 A. Yes.

6 Q. What are they?

7 A. It's not -- well, it's not mentioned here.  
8 But if you need more data, you need more data.

9 Q. Why would you need more data?

10 A. For example, if you want connectivity to  
11 other devices, one example.

12 Q. Are there any others?

13 A. If you need to know more information, you  
14 need to get more data.

15 Continue -- continue -- continuously in  
16 this paragraph, until paragraph 20 -- line 22, it  
17 talks for -- about shared media. And if you need to  
18 get information about other devices and shared  
19 media, you ask for another example. Sure. Another  
20 device added to the shared media and another device  
21 removed from the shared media, that's one example --  
22 or two examples.

23 Q. Please turn to column 10, lines 4 through  
24 6.

25 Column 10, lines 4 through 6, discusses



1 Figure 15.

2 Do you see that?

3 A. Let me read.

4 (Witness reviewing document.)

5 Yes.

6 Q. Column 10 states:

7 "Figure 15 shows a flow chart for the 'look  
8 for' phase 930. The purpose of this phase  
9 is to complete missing data for mhl  
10 tuples."

11 Can you explain why missing data needs to  
12 be completed for mhl tuples?

13 A. If you would take a look at the rest of the  
14 explanation, from line 6 to line 15, it gives  
15 several example that -- I will summarize them.

16 The device is quiet. And if the device is  
17 quiet, it went out of the FIFO, the first-in  
18 first-out, or that you don't have enough information  
19 in the memory and device is phased out. It's still  
20 connected, but it's no connection -- but no -- it's  
21 not active. So you need to have information it's  
22 still alive or not.

23 Q. Do you know any additional reasons why a  
24 connection calculator may need to obtain information  
25 from the tuple manager?

1 A. You give me one example of line 15, and in  
2 this specific you gave two examples.

3 One, it's not enough memory -- and  
4 basically it's the forwarding table. If you don't  
5 have enough memory in the forwarding table, the  
6 device will be forgotten after a time, but it's  
7 still connected; or the device is quiet, it's still  
8 connected.

9 That's the -- that's the explanation in  
10 this section. I believe you can think about many  
11 different reasons why to do this type of infor- --  
12 query.

13 Q. Looking at lines 12 through 14 of column  
14 10, it states:

15 "In the look for phase 930, the connection  
16 calculator" --

17 A. Just.

18 Q. Sorry.

19 A. 12?

20 Q. 12 through 14. Still on column 10.

21 "In the look for phase 930, the connection  
22 calculator 320 instructs the tuple manager  
23 300 to query specific nodes to retrieve the  
24 missing data."

25 What are the reasons to query specific

1 nodes to retrieve missing data?

2 A. I just gave you example that it states, two  
3 lines above in same section.

4 For example, if device is -- does not have  
5 an -- not have traffic but still connected, you want  
6 to ask, "Are you still alive or not?" One example.

7 Or if it went out of the FIFO, you don't  
8 have enough -- if you don't have enough memory, this  
9 passage say that it will be out of the list. And if  
10 out of the list, you want to say, "You are still  
11 there or not?"

12 Q. Dr. Lavian, would you kindly turn back to  
13 Figure 7 of the '411 patent. Figure 7 shows a  
14 reduced topology relationship -- relationships  
15 database 330; correct?

16 A. Yes.

17 Q. Please turn to column 6, lines 24 through  
18 26, of the '411 patent.

19 A. What lines?

20 Q. 24 through 26 of column 6.

21 A. Mm-hmm.

22 Q. Do you understand that column 6, lines 20  
23 (sic) through 26, states:

24 "The connection calculator 320 reduces 906  
25 the tuple data and sends it to the reduced

1 topology relationships database 330"?

2 A. That's what it says.

3 Q. Please turn to line 62 through 65, still of  
4 column 6.

5 A. (Witness reviewing document.)

6 Q. Do you understand that column 6, line 62  
7 through 65, states:

8 "After the data is gathered and the tuples  
9 are stored in the neighbor database 310,  
10 the connection calculator 320 processes the  
11 tuples to reduce them to relationships in  
12 the topology"?

13 A. That's what it says.

14 Q. So the connection calculator processes the  
15 data in the neighbor data database 310; correct?

16 A. Can you please repeat?

17 Q. The connection calculator processes the  
18 data in the neighbor data database 310; correct?

19 A. Yes.

20 Q. The neighbor data database stores a new  
21 list of tuples for the topology of the network;  
22 correct?

23 A. I'm not sure what you mean by "a new list  
24 of tuples."

25 Where you got it?

1 Q. Or a list of tuples which are new as  
2 compared to that which is stored in the existing  
3 database topodb 350?

4 MR. MACE: Object to form.

5 THE WITNESS: Always will -- it will  
6 process a new one. Always it will be new. Every  
7 new one will be new.

8 BY MS. GREWAL:

9 Q. So you agree that the neighbor data  
10 database stores these new lists of tuples in the --  
11 of the topology?

12 A. I'm not sure that I understand what you  
13 said.

14 MR. MACE: Object to form.

15 THE WITNESS: They basically said, after  
16 the data got there and the tuple are stored in the  
17 neighbor database 310, the connection calculator 310  
18 processes the tuple to reduce them to the  
19 relationship in the topology.

20 It's clear. It process them and put them  
21 in the database. And always you will have new one.

22 BY MS. GREWAL:

23 Q. The connection calculator processes the  
24 data from the neighbor data database to create a new  
25 tuples list; correct?

1 A. Every time that you create, you have a new  
2 tuple. Every time that you get, you have a new.  
3 Always you create new.

4 Q. The new tuples list provided by the  
5 connection calculator 320 is reduced in size as  
6 compared to the tuples list stored in the neighbor  
7 data database 310; correct?

8 A. That's not what it says.

9 MR. MACE: Object to form.

10 THE WITNESS: It does not talk about tuple  
11 list. It talk after the data got there and tuples,  
12 not tuple list.

13 Tuples are stored in the neighbor data base  
14 310. The connection calculator 320 processes the  
15 tuples, not the tuple list, to reduce them to a  
16 relationship in topology -- in the topology.

17 BY MS. GREWAL:

18 Q. So the new tuples provided by the  
19 connection calculator is reduced in size as compared  
20 to the tuples stored in the neighbor data database  
21 310; correct?

22 A. I'm not sure I understand what you're  
23 asking.

24 Q. Do you agree that there are tuples stored  
25 in the neighbor data database?

1 A. Yes.

2 Q. Do you also agree that there are tuples  
3 stored in the reduced topology relationships  
4 database?

5 A. Yes.

6 Q. So the tuples list provided by the  
7 connection calculator as stored in the reduced  
8 topology relationships database is reduced in size  
9 as compared to the tuples stored in the neighbor  
10 data database 310; correct?

11 A. No, that's not what it says here.

12 MR. MACE: Object to form.

13 THE WITNESS: It says, "After the data  
14 gather" --

15 Basically, you read me the passage in  
16 paragraph 6 -- column 6, paragraph -- starting on  
17 line 11.

18 I don't know where you got the topology  
19 list. It says about the tuples, not tuple list.

20 Gather the -- "data is gathered and the  
21 tuples are stored in the neighbor database 310."

22 It does not say "gather list."

23 BY MS. GREWAL:

24 Q. I -- my question does not use "list" in  
25 there.

1 I -- my question -- I'll read it out --  
2 says -- easier to just rephrase that so I can find  
3 my place again.

4 The new tuples stored in the reduced  
5 topology relationships database by the connection  
6 calculator 320 is reduced in size as compared to the  
7 tuples stored in the neighbor data database 310;  
8 correct?

9 A. No, I disagree.

10 Q. Why do you disagree?

11 A. Because you're making up, and you're  
12 putting things that's not correct.

13 Basically, it says reduce the information.  
14 It does not say about the reduced topology. I'm not  
15 sure where you got the information for the reduced  
16 topology.

17 You have a lot of information, and you  
18 reduce the information.

19 I'm not sure where you got it from this  
20 sentence.

21 Q. Dr. Lavian, can we re-look at column 6,  
22 line 62 through 65 --

23 A. Yes.

24 Q. -- which states:

25 "After the data is gathered and the tuples

1 are stored in the neighbor database 310,  
2 the connection calculator 320 processes the  
3 tuples to reduce them to relationships in  
4 the topology."

5 Do you see that, sir?

6 A. Yes.

7 Q. So the new tuples provided by the  
8 processing performed by the connection calculator  
9 320 is reduced in size as compared with the tuples  
10 stored in the neighbor data database 310; is that  
11 correct?

12 A. That's not what it says here.

13 Basically what it does, it takes the amount  
14 of information that you have, and you have  
15 redundancy in the information, redundancy of  
16 information in many different ways, and to get just  
17 the information that's needed, reduce the -- the  
18 information.

19 Q. Your answer states basically what it does.  
20 It takes the amount of information that you have,  
21 and you have redundancy in the information.

22 If I pause there, could you tell me what  
23 the "it" in your sentence is?

24 A. I'm not sure what is the "it" in my  
25 sentence is, but the entire process that you can see

1 here in this passage, it says:

2 "After the data is gathered and the tuples  
3 are stored in the neighbor -- the neighbor  
4 database 310, the connection calculator 320  
5 processes the tuples to reduce them to  
6 relationship in the topology."

7 So you have all the information, and from  
8 this information you create relationships.

9 Q. Are these relationships that you have  
10 created reduced in size as compared to the  
11 information in the neighbor database?

12 A. I'm not sure exactly I understand what you  
13 mean by this.

14 You have a lot of information received,  
15 constant stream of information. A lot of them are  
16 repetition. And you create the topology. The  
17 topology is basically different format of the  
18 information that shows the relationship within the  
19 devices.

20 So you reduce the amount of information to  
21 get a different format that -- of information that  
22 will be in the topology. It's clear. The tuple --  
23 basically it says -- it's very simple.

24 After the data is gathered and the tuples  
25 are stored in the neighbor database 310, the

1 connection calculator 320 processes the tuples to  
2 reduce them to relationship in the topology. So we  
3 change them to represent relationship in the  
4 topology.

5 To simplify, you have constant stream of  
6 information that are not relevant. If you know that  
7 this constant stream of information that I gave in  
8 the previous example is related to one connection,  
9 if you know that one connection is connected to  
10 another device, over this connection, you will get  
11 constant stream of information. But you are going  
12 to reduce it to the topology.

13 And that's exactly what this state -- the  
14 sentence you said:

15 "The connection calculator 320 processes  
16 the tuples to reduce them to relationship  
17 in topology."

18 Q. Prior to that, in column 6, lines 24  
19 through 26, the '411 patent states:

20 "The connection calculator 320 reduces 906  
21 the tuple data and sends it to the reduced  
22 topology relationships database 330."

23 Is that correct?

24 A. Again, which line you are reading? I am  
25 trying to following.

1 Q. Column 6 --

2 A. Yes.

3 Q. -- still there, but lines 24 through 26.

4 A. Okay.

5 Q. It states:

6 "The connection calculator 320 reduces 906  
7 the tuple data and sends it to the reduced  
8 topology relationships database."

9 Did I read that correctly?

10 A. Yes.

11 Q. So what is being reduced is the tuple data;  
12 is that correct, Dr. Lavian?

13 A. It says:

14 "The connection calculator 320 reduced 906  
15 the tuple data and send it to the reduced  
16 topology relationship database."

17 Q. Correct.

18 So is it your understanding that what's  
19 being reduced by the connection calculator 320 is  
20 tuple data?

21 A. Yes.

22 Q. And this tuple data was stored in the  
23 neighbor data database 310 before the connection  
24 calculator sourced it; is that correct?

25 A. Yes.

1 Q. And after the connection calculator  
2 processes the tuple data to reduce the tuple data,  
3 it stores its output to the relation -- reduced  
4 relationships database; is that correct?

5 MR. MACE: Object to form.

6 THE WITNESS: I'm not sure I understand the  
7 question.

8 BY MS. GREWAL:

9 Q. You had agreed with me that the tuple  
10 data -- that -- let me start again. I'm going  
11 to start over.

12 You had agreed with me that the tuple data  
13 was stored in the neighbor database before the  
14 connection calculator sourced it.

15 Do you recall that?

16 A. Yes. That's one way to get information  
17 sourced, yes.

18 Q. And you also have an understanding that the  
19 connection calculator processes tuple data to reduce  
20 the tuple data; correct?

21 A. To reduce the tuple data to a topology --  
22 yes, to topology relationship.

23 Q. It reduces the tuple data -- let me start  
24 again.

25 The connection calculator reduces the tuple

1 data.

2 Do you agree with that?

3 A. Yes.

4 Q. Once it reduces the tuple data, the  
5 connection calculator sends the reduced tuple data  
6 to the database labeled "Reduced Topology  
7 Relationships 330"; is that correct?

8 A. Yes.

9 Q. How does the reduced topology relationships  
10 stored in the reduced topology relationships  
11 database 330 improve on the list of tuples stored in  
12 the neighbor data database 310?

13 MR. MACE: Object to form.

14 THE WITNESS: I'm not sure I understand  
15 your question.

16 Can you please clarify?

17 BY MS. GREWAL:

18 Q. How does the reduced topology relationships  
19 that are stored in the reduced topology  
20 relationships database 330 improve on the list of  
21 tuples stored in the neighbor data database 310?

22 MR. MACE: Object to form.

23 THE WITNESS: I'm not sure that they  
24 mean -- what you mean by "improved on"?

25 It's different. One of them is collecting

1 one information; another one is a different  
2 collection.

3 I'm not sure what you mean by "improved  
4 on."

5 BY MS. GREWAL:

6 Q. What is the benefit of the topology -- or  
7 list of tuples stored in the reduced topology --  
8 sorry -- the reduced topology relationships  
9 database?

10 A. I'm not sure if you need any benefits. Why  
11 do you need benefits? What type of benefits you're  
12 talking about?

13 I'm not sure I understand your question.

14 Q. Why would the connection calculator process  
15 the data in the neighbor data database?

16 A. Because --

17 MR. MACE: Object to form.

18 THE WITNESS: Because it has a lot of  
19 information that need to calculate the information  
20 and get the information of the topology. It's  
21 different type of databases.

22 BY MS. GREWAL:

23 Q. How are the databases different?

24 A. Because the -- the one database is the  
25 topology database. The 310 is the topology

1 database. And the 310 -- and the 310 is the  
2 natural -- the neighbor data database. It's two  
3 different databases.

4 Q. I'm sorry, I don't think I understand that.

5 Could you just repeat why the database --  
6 in particular, the neighbor data database 310 and  
7 the reduced topology relationships database 330 are  
8 different?

9 A. Because the data -- myriad ways that they  
10 are different. But for the 310 is the neighbor data  
11 database, and the 330 is the topology relationship.  
12 It's not the same information.

13 Q. What is -- what do you mean by -- what is  
14 the neighbor database 310 storing?

15 A. All kind of information about the -- the  
16 neighbors.

17 Q. Can you provide a little bit more  
18 information about the neighbors?

19 What do you mean "neighbors"?

20 A. If you have device and you want to know the  
21 information about the device, all kind of  
22 information about devices -- how many ports it has,  
23 what time it was gathered, what port -- you can find  
24 a lot of information, thousands of sets of  
25 information that you can get about the neighbors.

1 Q. Does it store more than device information?

2 A. Absolutely.

3 Q. It stores tuple information as well;  
4 correct?

5 A. One example, yes.

6 Q. I was just trying to understand what you  
7 meant, because you said "all kind of information  
8 about the neighbors."

9 A. For example, the name -- I can give some  
10 examples to clarify. Just the name of the device,  
11 the MAC address of the device, the IP address of the  
12 device, the configuration, the type, the size, the  
13 location, space, all kind of information.

14 Example -- it can be, for example, the  
15 physical location. That's not related to the  
16 topology. Or the bandwidth, it's not related to the  
17 topology.

18 Q. And the reduced topology relationship  
19 database, that stores different information than the  
20 example you just provided?

21 MR. MACE: Object to form.

22 THE WITNESS: It's a different database.  
23 This is the reduced -- 310 is topology information.  
24 310 -- three -- 330 is topology information. 310 is  
25 the neighbor data information.

1 BY MS. GREWAL:

2 Q. The lists of -- or I'm sorry. The list of  
3 tuples stored in the neighbor data database 310 is  
4 created earlier in time than the tuples stored in  
5 the reduced topology relationship database 330; is  
6 that correct?

7 A. I'm not sure I understand the question.  
8 What do you mean by "earliest"? What is the list?  
9 I really don't understand your question.

10 Q. The connection calculator sources the tuple  
11 information from the neighbor data database; is that  
12 correct?

13 A. Yes.

14 Q. And that exists in time -- by that I mean,  
15 the information that the connection calculator  
16 sources from the neighbor data database exists  
17 earlier in time than the output of the connection  
18 calculator which would be stored in the reduced  
19 topology relationships database; is that correct?

20 A. It's not the same information. One of them  
21 is topology; one is the information database. It's  
22 not the same information.

23 Q. Setting aside it's not the same  
24 information, from a temporal standpoint, will the  
25 information that is stored in the neighbor data

1 database exist earlier in time than the information  
2 stored in the reduced topology relationships  
3 database?

4 MR. MACE: Object to form.

5 THE WITNESS: I'm not sure I understand  
6 your question.

7 You always have information gathered, and  
8 always you will get more information to the neighbor  
9 database, and always the same time you will have  
10 information gathered to the tuple manager, and  
11 always you will have information connect -- in the  
12 connection calculator, and always you will have  
13 information in the reduced topology, and always you  
14 will have information in topology converter, and  
15 always you will have information in the topology  
16 database.

17 What do you mean by "earlier time"?  
18 Earlier time to what?

19 BY MS. GREWAL:

20 Q. I'm comparing time with respect to the  
21 information that exists in the neighbor data  
22 database.

23 A. Give me example. What specific  
24 information?

25 Q. A -- device A -- the tuples -- the host

1 identifier MAC address port specification of device  
2 A in the neighbor data database.

3 Do you have that, sir?

4 A. Yes.

5 Q. That exists in time earlier than a  
6 processed version or reduced version of device A  
7 information as would be reduced by the connection  
8 calculator and stored then in the reduced topology  
9 relationships database?

10 A. It's depend on the time. It's timestamped.  
11 This will have timestamp. The 310, each element  
12 will have timestamp, and the topology will have  
13 timestamp. You might have information that's done  
14 before, other information done at the same time;  
15 other information can be after and vice versa.

16 I'm not sure I understand the question.  
17 You will have a lot of sets of information.

18 Q. But if you are -- if we are concentrating  
19 on a particular information about a device that  
20 currently is sitting only in the neighbor data  
21 database -- are you with me -- for device A?

22 A. If you have device A that you set in the  
23 specific time in the neighbor database, okay.

24 Q. Right.

25 And the specific information about device A

1 includes the host identifier, the interface  
2 information and port specification for device A.

3 A. This can be one information -- type of  
4 information, yes.

5 Q. The connection calculator sources that  
6 information about device A --

7 A. Okay.

8 Q. -- and reduces that information and stores  
9 it to 330, which is the reduced topology  
10 relationships database. The timestamp of device A,  
11 as it existed in neighbor data database, is earlier  
12 in time than the timestamp of the -- of device A as  
13 it exists later in reduced topology relationships  
14 database; is that correct?

15 A. It's your question. If you -- in your  
16 question, you said that it's done before, it's done  
17 before. It's your question. I'm not sure I  
18 understand you.

19 If, in your question, do you have data --  
20 some information prior time to some other  
21 information in the other data, it's done before.

22 So what is the question?

23 Q. The question is: If there is no other  
24 input into connection calculator about device A --  
25 Are you with me on that?

1 A. No.

2 Q. So device A information -- connection  
3 calculator only knows the host identifier, interface  
4 information, and port specification as it received  
5 it from the neighborhood data database.

6 A. I disagree.

7 Q. I'm giving you an example.

8 A. No. You said only information -- okay. If  
9 it has only this information?

10 Q. I'm -- I'm get -- I'm making it discrete.

11 A. Okay.

12 Q. I'm saying: Think of device A. We have  
13 stored in neighbor data database the host  
14 identifier, interface information, and port  
15 specification, for example, for device A stored in  
16 310 neighbor data database.

17 A. Okay.

18 Q. The connection calculator receives that  
19 information about device A. It receives no other  
20 information from the tuple manager. The only  
21 information connection calculator has about device A  
22 is that which it sourced from neighbor data  
23 database.

24 A. Okay.

25 Q. It processes -- "it" being the connection

1 calculator 320 -- processes the information about  
2 device A and provides that output with respect to  
3 device A and stores it in the reduced topology  
4 relationships database.

5 Does that make sense?

6 A. No.

7 Q. And why doesn't that make sense?

8 A. Because in order to create the topology,  
9 you have to get information from more than one  
10 device. If you have only one device and only  
11 information about device port and MAC address, for  
12 example, that identify something from this device,  
13 you don't have any information about the topology.

14 In order to have any connection, you need  
15 at least two devices and get information of at least  
16 two devices.

17 Q. Does a tuple have information for one  
18 device or two devices?

19 A. It depends what you want to do. It depends  
20 what you have in your mind and how exactly it's  
21 compared.

22 But if the -- a connection calculator, it  
23 has information only on one device, it has  
24 information on only one device. It's need to create  
25 the connection. You cannot get information for --

1 only from one device.

2 It needs to have connection. In order to  
3 create topology, you need at least to have  
4 counterpart to create the link.

5 Q. So is it your understanding, Dr. Lavian,  
6 that the top- -- the reduced topology relationships  
7 database 330 only stores topological information?

8 A. No.

9 Q. Okay. I'm going to add back to my example.

10 Remember the example that I was using that  
11 had device A information?

12 A. Yes.

13 Q. Let's make -- just further that example to  
14 add the fact that device A is connected to device B,  
15 and the neighborhood database also stores the host  
16 identifier, interface information, and the port  
17 specification of device B as well.

18 A. Okay.

19 Q. So we have two devices and a purported  
20 connection between. The connection calculator  
21 sources that information from the neighbor data  
22 database 310.

23 Are you with me so far?

24 A. Yes.

25 Q. It processes that information of the two

1 devices, A and B, and stores the resultant processed  
2 information in the reduced topology relationships  
3 database 330.

4 A. To simplify your question, if you go to  
5 310, two devices, and you have information about  
6 them, the connection calculator will make a  
7 connection, will understand the topology, and will  
8 put the topology in the topology database 320 --  
9 330.

10 Q. Okay. So your understanding is that the  
11 reduction that the connection calculator is  
12 providing generates a topology, and that's what's  
13 stored in the reduced relationships database 330?

14 MR. MACE: Object to form.

15 THE WITNESS: That was your question. This  
16 exactly what is your question.

17 BY MS. GREWAL:

18 Q. My question was: Data of devices A and B  
19 that's stored in the neighborhood data database is  
20 sourced by the connection calculator so it can  
21 process that data. The resultant output of the  
22 processing of the connection calculator -- that  
23 data -- the output data is then stored in the  
24 reduced topology relationships database.

25 A. Yes.

1 Q. The timestamp of what is stored in the  
2 reduced topology relationship -- relationships  
3 database with respect to device A and B data is  
4 going to be at a later date -- date stamp than -- or  
5 timestamp than the timestamp of device A and B as  
6 stored in the neighbor data database; is that  
7 correct?

8 A. I disagree.

9 Q. Why?

10 A. Simple. When you have a network, you  
11 always say what the timestamp of the time of  
12 measurement.

13 Q. Okay.

14 A. If it's -- you've done it three minutes  
15 later, but you will process the time of the  
16 measurement time.

17 Q. Okay. So the -- so the timestamp of  
18 devices A and B in the neighbor data database 310 is  
19 going to be the same timestamp for devices A and B  
20 in the reduced topology relationships database 330?

21 A. I think that you are mixing information  
22 here.

23 In the topology database, what -- I can  
24 tell you what makes sense in the industry, what is  
25 common in the industry.

1 So you have the calculate -- the time of  
2 collecting the information; you have the time of  
3 processing the information. In general, you will  
4 have timestamp of both.

5 Q. Okay. And what is -- what timestamp is  
6 stored in the reduced topology relationships  
7 database?

8 A. In general, in the industry, you will have  
9 the time that the information was collected for each  
10 one of them, and you will have the timestamp of the  
11 time that was calculated. In general, it would be  
12 close enough, but sometimes it can be after.

13 Q. Okay. You have Figure 7 in front of you,  
14 sir.

15 The topology converter 340 receives the  
16 reduced tuples list from the reduced topology  
17 relationships database 330; is that correct?

18 A. That's not what is specifically in the  
19 list. It's not talking the list.

20 Just to clarify, Figure 7 has a list -- an  
21 arrow between the reduced topology relationship to  
22 the topology converter.

23 It does not say anything about list in this  
24 table.

25 Q. So a dataset or data is different than a

1 list; is that correct?

2 MR. MACE: Object to form.

3 THE WITNESS: It depends. I'm not sure  
4 that I understand what is your question.

5 BY MS. GREWAL:

6 Q. My question is -- you take umbrage with the  
7 use of my word "list" -- what does list mean to you  
8 with respect to just a dataset?

9 A. I'm not sure I understand your question.

10 If I am looking at Figure 7, I don't see  
11 the word "list" at all.

12 So what do you mean by "list"?

13 Q. The topology converter 340 receives reduced  
14 tuples from the reduced --

15 A. Where do you read? Where do you read?

16 Q. I'm not reading from anywhere.

17 I'm looking at Figure 7 and asking if it's  
18 your understanding whether the topology converter  
19 340 receives the reduced tuples from the reduced  
20 topology relationships database 330. Is that  
21 correct?

22 A. It is gathering information from reduced  
23 topology relationship, yes.

24 Q. And the topology converter 340 does not  
25 receive the tuples that are stored in the neighbor

1 data database 310; is that correct?

2 MR. MACE: Object to form.

3 THE WITNESS: I'm not sure I understand  
4 your question. What do you mean by this?

5 BY MS. GREWAL:

6 Q. You have Figure 7 in front of you,  
7 Dr. Lavian?

8 A. Yes.

9 Q. I'm merely asking whether or not the  
10 topology converter 340 receives -- let me start that  
11 question over.

12 The topology converter 340 does not receive  
13 the tuples that are stored in the neighbor data  
14 database 310; correct?

15 MR. MACE: Object to form.

16 THE WITNESS: Diagram 7 shows -- Figure 7  
17 shows connection between element 330 to -- 340 does  
18 not show direct information -- direct connection  
19 between element 310 to 340.

20 BY MS. GREWAL:

21 Q. Thank you.

22 Please turn again to Figure 8 of '411.

23 Do you see the box 908 labeled as "Topology  
24 Updating Phase"?

25 A. Yes.

1 Q. The topology converter is responsible for  
2 the topology updating phase; correct?

3 A. Yes.

4 Q. What happens during the topology updating  
5 phase, Dr. Lavian?

6 A. You have updates to topology in several  
7 levels.

8 One of them, it's in the temporary reduced  
9 topology that basically connector -- calculator a  
10 convention -- a connection calculator do update to  
11 the topology -- to the use topology relationship  
12 database in 330.

13 And you can have other updates on 340 when  
14 it send information to 350. So always you have  
15 updates -- constant updates to the network, constant  
16 stream of information, and constant -- the constant  
17 updates of all the elements. The neighbor database  
18 have constant update, connection calculator constant  
19 update, reduced topology constant update, connect --  
20 topology converter constant update, and topology  
21 database constant update.

22 Always you get more information, and always  
23 you update. More likely, most times, it is same  
24 information. But if you have any changes, you will  
25 see the updates.

1 Q. And what are the benefits of the topology  
2 updating phase?

3 MR. MACE: Object to form.

4 THE WITNESS: I'm not sure I understand  
5 what you mean by this.

6 You want to update the information.

7 BY MS. GREWAL:

8 Q. And what is the benefit of the update --  
9 what is the benefit of working with updated  
10 information?

11 MR. MACE: Object to form.

12 THE WITNESS: The benefits of updating --  
13 working with updated information, to know what is  
14 the state of the topology of the network. If the  
15 network changed, you need to get the updated  
16 information to know if it changed.

17 BY MS. GREWAL:

18 Q. Dr. Lavian, could you please turn to column  
19 11, lines 18 through 23.

20 A. What line? 11 to --

21 Q. Column 11, 18 through 23.

22 A. Let me read it.

23 Q. Sure.

24 A. (Witness reviewing document.)

25 Yes.

1 Q. Column 11, lines 18 to 23, state:

2 "It then compares 936 the list from the  
3 topology currently stored in the topology  
4 database 350 with the new list generated by  
5 the connection calculator 320 and discards  
6 936 identical tuples in what is also  
7 referred to as the 'discard duplicates'  
8 phase 936."

9 "It" corresponds to the topology converter  
10 340; correct?

11 A. Can you please repeat -- what do you  
12 mean -- what is the question? What is the question?

13 Q. "It" corresponds to the topology converter  
14 340; correct?

15 I started reading from lines 18, that  
16 begins:

17 "It then compares 936 the list from the  
18 topology currently stored in the topology  
19 database with the new list generated by the  
20 connection calculator 320 and discards 936  
21 identical tuples in what is also referred  
22 to as the 'discard duplicates' phase 936."

23 "It" corresponds to the topology converter  
24 340; correct?

25 A. Yes.



1 Q. And the connection calculator 320 generates  
2 the tuples stored in the reduced topology  
3 relationship database 330; correct?

4 A. Can you please repeat?

5 Q. The connection calculator 320 generates the  
6 tuples stored in the reduced topology relationships  
7 database 330; correct?

8 A. Yes.

9 Q. Let's understand the details of how the  
10 reduction of the topology stored in the reduced  
11 topology relationship database happens.

12 Could you please turn to column 6, line 65  
13 through 67, of the '411 patent.

14 A. Again, line and column?

15 Q. Sure. Column 6, lines 65 through 67.

16 A. (Witness reviewing document.)

17 Yes.

18 Q. Do you understand that column 6, line 65  
19 through 67, states:

20 "Figure 10 shows a flow chart of the  
21 process of the connection calculator 320,  
22 as shown generally in the reduction step  
23 906."

24 Correct?

25 A. You read it correctly, yes.

1 Q. Please turn to column 6, line 67, through  
2 column 7, lines 3, of the '411 patent.

3 A. (Witness reviewing document.)

4 What's the question?

5 Q. Do you understand that column 6, line 67,  
6 through column 7, lines 3, states:

7 "The connection calculator 320 performs a  
8 first weeding phase 922 to identify  
9 singly-heard hosts to distinguish them from  
10 multi-heard hosts."

11 Correct?

12 A. Yes.

13 Q. Can you articulate a benefit provided by  
14 the first weeding process?

15 A. I'm not sure I understand what type of  
16 benefits you want to achieve from here, but you have  
17 shared media or not shared media, and you need to  
18 get the information direction connection or shared  
19 media.

20 Q. So with respect to shared media or direct  
21 connection, what is the benefit provided by the  
22 first weeding phase?

23 A. You don't want to have redundancy of the  
24 same information.

25 Q. Dr. Lavian, please turn to column 7, lines

1 29 to 35, of the '411 patent.

2 A. 29 to?

3 Q. 35.

4 It states --

5 A. Let me read it.

6 Q. Sure.

7 A. (Witness reviewing document.)

8 Yes, what's the question?

9 Q. Do you understand that column 7, lines 29  
10 to 35, states:

11 "The connection calculator 320 looks  
12 through the tuple list in the neighbor  
13 database 310, and for each tuple 402, the  
14 connection calculator 320 determines 404  
15 whether the tuple is a connector-to-host  
16 (conn-to-host) link tuple. If it is not a  
17 conn-to-host link, the connection  
18 calculator 320 concludes 418 that it is a  
19 conn-to-conn link and processes 402 the  
20 next tuple."

21 Is that correct?

22 A. You read it correctly.

23 Q. The connection calculator, therefore, makes  
24 a termination with respect to data in the neighbor  
25 database 310; correct?

1 A. Are you reading somewhere? I'm not sure.

2 Q. It's a question.

3 A. So what exactly is the question?

4 Q. The connection calculator, therefore, makes  
5 a determination with respect to the data in the  
6 neighbor data database 310; correct?

7 A. Yes.

8 Q. Their neighbor database 310 stores a list  
9 of current tuples; correct?

10 MR. MACE: Object to form.

11 THE WITNESS: It stores a lot of  
12 information about the neighbor data.

13 BY MS. GREWAL:

14 Q. The neighbor database 310 stores a list of  
15 current tuples; correct?

16 MR. MACE: Object to form.

17 THE WITNESS: It collect -- it stores  
18 information about -- in the neighbor datas include  
19 tuples, yes.

20 BY MS. GREWAL:

21 Q. More particularly, the neighbor data  
22 database 310 stores a list of tuples; correct?

23 A. It may, yes.

24 Q. The connection calculator 320, therefore,  
25 processes tuples in a list; correct?

1 A. I am confused with your question.  
 2 Can you please clarify your question?  
 3 Q. Sure.  
 4 The connection calculator 320, therefore --  
 5 A. Are you referring to specifically al  
 6 paragraph you are reading or something different?  
 7 Q. I had read the portions of column 7  
 8 starting at lines 29 to 35, and these are based on  
 9 that.  
 10 A. Okay.  
 11 Q. So if you want to review that again -- or I  
 12 can read that again -- you can see -- I'll read at  
 13 least the first sentence.  
 14 "The connection calculator 320 looks  
 15 through the tuple list in the neighbor  
 16 database 310, and for each tuple 402, the  
 17 connection calculator 320 determines  
 18 whether the tuple is a connector-to-host  
 19 (conn-to-host) link tuple."  
 20 Do you see that?  
 21 A. Yes.  
 22 Q. And you had just agreed with me that the  
 23 neighbor database 310 stores a list of tuples.  
 24 My next question is: The connection  
 25 calculator 320, therefore, processes tuples in the

1 list; correct?  
 2 A. No.  
 3 Q. The list stored in -- I'll start again.  
 4 The connection calculator 320, therefore,  
 5 processes tuples in the tuples lists stored in the  
 6 neighbor data database 320?  
 7 A. That's one example from the section that  
 8 you read, yes.  
 9 Q. Okay. Dr. Lavian, please turn to column 7,  
 10 60 -- line 60 to 61, of the '411 patent.  
 11 A. 60 to when?  
 12 Q. Just 60 to 61 --  
 13 A. Okay.  
 14 Q. -- which states:  
 15 "The first weeding process also attempts to  
 16 identify conflicts."  
 17 Correct?  
 18 A. Yes.  
 19 Q. Can you describe what type of conflict the  
 20 first weeding process attempts to identify?  
 21 A. The first weeding process is related to a  
 22 shared media. And conflict might be that you remove  
 23 a computer from one port and you put it in different  
 24 port.  
 25 For example, you have a specific MAC

1 address in port number 7, you don't hear the MAC on  
 2 port number 7; you hear them in port number 8 now.  
 3 That's an example of a conflict.  
 4 Many other examples existed. I just gave  
 5 one.  
 6 Q. Thank you.  
 7 So identifying conflicts among devices in a  
 8 network is important; correct?  
 9 MR. MACE: Object to form.  
 10 THE WITNESS: I'm not sure I understand  
 11 what you mean by "identifying a conflict." I'm not  
 12 sure what you ask.  
 13 What's your question?  
 14 BY MS. GREWAL:  
 15 Q. My question is: Taking also the example  
 16 that you just shared of, as you paraphrased, shared  
 17 media example, where the port had been changed and,  
 18 therefore, a conflict existed --  
 19 A. Okay.  
 20 Q. -- it's important to identify conflicts  
 21 among devices in a network such as the one example  
 22 you gave us; correct?  
 23 A. What do you mean by --  
 24 MR. MACE: Object to form.  
 25 THE WITNESS: -- "important"? Important to

1 what? To whom it's important?  
 2 BY MS. GREWAL:  
 3 Q. To the network topology, perhaps.  
 4 A. Some -- some are important and some not.  
 5 You can -- for example, if I switch my  
 6 computer from one point to another point, it might  
 7 not be important.  
 8 Important to whom? Might be --  
 9 BY MS. GREWAL:  
 10 Q. For the '411 patent, is that -- is  
 11 identifying conflicts among devices in a network  
 12 important or not?  
 13 MR. MACE: Object to form.  
 14 THE WITNESS: Define what you mean by  
 15 "important." Important to what?  
 16 If I switch connection from one port to  
 17 another port, I'm not sure if it is important --  
 18 important or not.  
 19 BY MS. GREWAL:  
 20 Q. Dr. Lavian, why would the first weeding  
 21 process attempt to identify conflicts?  
 22 A. If you are taking -- if you are taking, for  
 23 example -- if you know on the shared media that you  
 24 have four computers, and now you don't see one of  
 25 them, it's a conflict. You have on the list four,

Page 150

1 and now you can see only three. That's one example  
 2 to conflict.  
 3 Alternative conflict, that you know that  
 4 you have four, and now you can see the fifth, and  
 5 you want to check what the meaning of the conflict.  
 6 It might be moved from a different place.  
 7 For example -- I just gave one example, but  
 8 there are many different. In computer science and  
 9 network communications or network device, you can  
 10 have many events.  
 11 Q. And the '411 patent uses a first weeding  
 12 process to at least attempt to identify these; is  
 13 that correct?  
 14 MR. MACE: Object to form.  
 15 THE WITNESS: You're getting -- the '411  
 16 patent -- the specific section that you discussed  
 17 related specifically to -- let's put it this way.  
 18 In the section that you read, you  
 19 specifically referred to a shared media, and the  
 20 specific shared media -- the specific packet --  
 21 section that you mentioned talked about some changes  
 22 can be in the network.  
 23 Adding -- simple way to look at this is  
 24 adding or moving device. That's one example. Many  
 25 different ways you can take a look at this.

Page 152

1 singly-heard host, then a conflict arises  
 2 and the tuple is classified 410 as a  
 3 singly-heard conflict -- conflict link  
 4 (shcl) tuple to be resolved later."  
 5 What does it mean for the tuple to be  
 6 classified?  
 7 A. Basically, what I can see here, if other  
 8 connection hear the host in a single -- single-heard  
 9 host, then a conflict arised (sic) in the tuple  
 10 classified 410, a single-heard conflict.  
 11 So if it's single host, it's mean that it  
 12 is a direct connection. You cannot -- nobody else  
 13 should hear it, and this is a conflict.  
 14 Q. But what does it mean for a tuple to be  
 15 classified?  
 16 A. They class -- in this --  
 17 MR. MACE: Object to form.  
 18 THE WITNESS: -- patent, they classify the  
 19 type of the links.  
 20 And the main point is, if you have a switch  
 21 and you have a computer connected to the switch -- a  
 22 computer connected and you know it's only one  
 23 computer, it should be heard only one place. You  
 24 cannot hear it in two places. It means that you  
 25 have a problem. You have conflict need to be

Page 151

1 MS. GREWAL: Okay. I think we need to take  
 2 a break to change the tape.  
 3 THE VIDEOGRAPHER: This marks the end of  
 4 Disc 2, Volume I, in the deposition of Dr. Tal  
 5 Lavian.  
 6 The time is 2:37. We're off the record.  
 7 (Recess taken)  
 8 THE VIDEOGRAPHER: This marks the beginning  
 9 of Disc 3, Volume I, in the deposition of Dr. Tal  
 10 Lavian.  
 11 The time is 2:58. We're on the record.  
 12 BY MS. GREWAL:  
 13 Q. Dr. Lavian, just before the break we were  
 14 discussing line 61 through 66 of column 7.  
 15 Do you understand that column --  
 16 A. Let me go through.  
 17 Q. 61 through 66.  
 18 A. (Witness reviewing document.)  
 19 Yes.  
 20 Q. It states:  
 21 "If other connectors hear the hosts as a  
 22 singly-heard host" --  
 23 A. Where exactly are you reading?  
 24 Q. Column 7, line 61. It begins:  
 25 "If other connectors hear the host as a

Page 153

1 resolved. It's related to this port or this port.  
 2 BY MS. GREWAL:  
 3 Q. Could you please turn to lines 4 through 7  
 4 of the same column 7 of the '411 patent.  
 5 A. Yes.  
 6 Q. Do you understand that column 7, lines 4  
 7 through 7, state:  
 8 "The connection calculator 320 then  
 9 performs an infrastructure-building phase  
 10 924 to remove redundant  
 11 connector-to-connector links and to  
 12 complete the details for partial tuples  
 13 that are missing information."  
 14 Correct?  
 15 A. Yes.  
 16 Q. Can you articulate a benefit provided by  
 17 the infrastructure-building phase?  
 18 MR. MACE: Object to form.  
 19 THE WITNESS: I'm not sure what type of  
 20 benefits you want to make -- to get.  
 21 BY MS. GREWAL:  
 22 Q. Can you think of any benefit?  
 23 A. Yes. You want to get the correct data.  
 24 Q. Any other benefits?  
 25 A. If you have old devices that's not

1 connected, remove it.

2 Q. As discussed earlier, the connection  
3 calculator 320 receives information from the  
4 neighbor data database 310 shown in Figure 7;  
5 correct?

6 A. Is this a new question?

7 Q. It is.

8 A. So I'm looking at Figure 7.

9 What's the specific question?

10 Q. As discussed earlier, the connection  
11 calculator 320 receives information from the  
12 neighbor data database 310 shown in Figure 7;  
13 correct?

14 A. Yes.

15 Q. Because the connection calculator 320 needs  
16 to remove redundant connector-to-connector links,  
17 the tuple information received from the neighbor  
18 data database 310 has redundant information;  
19 correct?

20 A. Yes.

21 Q. Is -- is the -- sorry. Let me start again.

22 Is it, therefore, accurate to say that the  
23 infrastructure-building phase performed by the  
24 connection calculator 320 reduces information  
25 received from the neighbor data database 310?

1 MR. MACE: Object to form.

2 THE WITNESS: I don't see this stage in  
3 this pictures, but in general, connection calculator  
4 reduce the information. You have a lot of  
5 information in 310, and the connection calculator in  
6 general needs to get only the relevant information.

7 BY MS. GREWAL:

8 Q. Dr. Lavian, could you kindly turn to column  
9 8, lines 4 through 7, of the '411 patent?

10 A. Let me read it.

11 Q. Sure.

12 A. (Witness reviewing document.)

13 Yes. Your question?

14 Q. Do you understand that column 8, lines 4  
15 through 7, states:

16 "Figures 12a through d show a flow chart of  
17 the infrastructure building phase 924 of  
18 the connection calculator 320. The purpose  
19 of the infrastructure building phase 924 is  
20 to determine how the connectors are set up  
21 in the network."

22 Correct?

23 A. You read it correctly, yes.

24 Q. Is it your understanding that determining  
25 how connectors are set up in a network is important?

1 MR. MACE: Object to form.

2 THE WITNESS: I'm not sure I understand  
3 your question.

4 What do you mean by "is it important"?  
5 Important to what?

6 BY MS. GREWAL:

7 Q. Why would a system determine how the  
8 connectors are set up?

9 A. Because you want to create the topology.

10 Q. Are there any particular benefits of  
11 determining how the connectors are set up?

12 MR. MACE: Object to form.

13 THE WITNESS: Can you please explain to me  
14 what you mean by "benefits"?

15 You several times said "benefits."

16 It will not benefit me to reduce my weight.  
17 It's not related.

18 Benefit to what?

19 BY MS. GREWAL:

20 Q. The benefit of the invention of the '411  
21 patent.

22 A. Well, what do you mean by "benefit"?

23 Q. There's a particular reason the patent  
24 flowcharts take us through the difference phases.

25 Given your expertise, I'm looking to get

1 some guidance to see if there is a particular  
2 benefit of each and every one of the steps.

3 A. I'm not sure I understand what you mean by  
4 "benefit," but basically, as far as I can see here,  
5 is explanation how it's done. And the purpose of  
6 reducing the information in order to get the  
7 topology, that's all.

8 I'm not sure still I understand what type  
9 of benefits you're looking for.

10 Q. Could you please turn to line 7 through 13,  
11 still in column 8, of the '411 patent.

12 A. (Witness reviewing document.)

13 Is there any question on the table?

14 Q. Are you done reading? Sorry.

15 Do you understand that column 8, lines 7  
16 through 13, states:

17 "The first part of the infrastructure  
18 building phase 924 manufactures tuples  
19 based on the list of singly-heard host link  
20 tuples identified in the first weeding  
21 phase 922. The purpose is to identify the  
22 relationship between the connectors in the  
23 extra host link -- links tuples and the  
24 connectors directly connected to the  
25 singly-heard host."

1 Correct?  
 2 A. You read it correctly.  
 3 Q. Based on your experience, why is it -- or  
 4 what is the benefit to identify the relationships  
 5 between the connectors described in column 8, lines  
 6 7 to 13?  
 7 MR. MACE: Object to form.  
 8 THE WITNESS: I'm not sure I understand  
 9 what -- the question.  
 10 What is the question?  
 11 BY MS. GREWAL:  
 12 Q. Based on your experience, why would the  
 13 infrastructure building phase 924 identify the  
 14 relationships between the connectors in the extra  
 15 host links tuples and the connectors directly  
 16 connected to the singly-heard hosts?  
 17 A. Because you need to find the topology.  
 18 Q. Is the topology more accurate with this  
 19 level of identification?  
 20 A. I'm not sure I understand what you mean by  
 21 "accurate."  
 22 But if you have a host that's connected  
 23 directly, you want to find the connection. That's  
 24 the way to find it.  
 25 Q. Please turn to column 8, line 60 to 62, of

1 the '411 patent.  
 2 A. (Witness reviewing document.)  
 3 What is the question?  
 4 Q. Do you understand that column 8, line 60 to  
 5 62, states:  
 6 "After processing all of the conn1 tuples,  
 7 the connection calculator 320 processes 444  
 8 each conn1-to-conn2 links tuple to ensure  
 9 that they have complete port data."  
 10 Correct?  
 11 A. Yes.  
 12 Q. Is it accurate to say that the connection  
 13 calculator processes tuples?  
 14 A. Yes.  
 15 Q. And those tuples are received from the  
 16 neighbor data database 310 shown in Figure 7;  
 17 correct?  
 18 A. Including from it, yes.  
 19 (Reporter clarification)  
 20 THE WITNESS: Including from the 310.  
 21 BY MS. GREWAL:  
 22 Q. Is it accurate to say that the tuples  
 23 mentioned at column 8, line 60 to 62, may not have  
 24 complete data?  
 25 A. You're confusing me. In what line?

1 Q. We just read column 8, line 60 to 62. I'm  
 2 referring to the same lines.  
 3 So is it accurate to say that the tuples  
 4 mentioned at column 8, line 60 to 62, may not have  
 5 complete data?  
 6 A. What do you mean by "complete data"?  
 7 Q. Column 8, line 60 to 62, states:  
 8 "After processing all of the conn1 tuples,  
 9 the connection calculator processes 444  
 10 each conn1-to-conn2 links tuple to ensure  
 11 that they have complete port data."  
 12 A. Yes.  
 13 Q. My question, Dr. Lavian, is: Is it  
 14 accurate to say that the tuples mentioned in column  
 15 8, line 60 to 62, may not have complete data?  
 16 A. It may and may not. In some cases, it may  
 17 have all the tuples for all the ports. That's  
 18 one -- may be one list. In another list, you can  
 19 have not all the ports available or not all the  
 20 information.  
 21 I'm not sure I understand what is the  
 22 question.  
 23 Q. So -- that's merely my question.  
 24 So it is accurate to say that the tuples  
 25 mentioned at 8 -- column 8, line 60 to 62, may not

1 have complete data; correct?  
 2 MR. MACE: Object to form.  
 3 THE WITNESS: They may have the complete  
 4 data that they have, but not all the port data that  
 5 they needed.  
 6 BY MS. GREWAL:  
 7 Q. The tuples are, therefore, deficient at  
 8 least to some degree; correct?  
 9 A. What do you mean by "deficient at least at  
 10 some degree"?  
 11 Q. Column 8, line 60 to 62, mentions to ensure  
 12 that they have complete port data. The implication  
 13 is that, as you stated, there may be some tuples  
 14 that may not have complete port data.  
 15 A. It might be that you have information of  
 16 four ports and you have information only on three.  
 17 So it's not complete.  
 18 Q. That's correct. So the tuples are,  
 19 therefore, deficient, at least to some point;  
 20 correct?  
 21 MR. MACE: Object to form.  
 22 THE WITNESS: No, I'm not sure what you  
 23 mean by "the tuples are, therefore, deficient."  
 24 Deficient of what? What is the question?  
 25 //

1 BY MS. GREWAL:  
 2 Q. They're missing information for that fourth  
 3 port.  
 4 MR. MACE: Object to form.  
 5 THE WITNESS: It's possible.  
 6 BY MS. GREWAL:  
 7 Q. Okay.  
 8 A. It's possible they have information, and  
 9 it's possible not.  
 10 Q. That's fine.  
 11 Please turn now to column 8, line 67,  
 12 through column 9, lines 2, of the '411 patent.  
 13 A. (Witness reviewing document.)  
 14 Yes, what's your question?  
 15 Q. Do you understand column 8, line 67,  
 16 through column 9, lines 2, to state:  
 17 "If conn2 does hear the host, then the  
 18 connection calculator 320 completes the  
 19 missing port data for conn2."  
 20 Correct?  
 21 A. You read it correctly, yes.  
 22 Q. The connection calculator 320, therefore,  
 23 updates the tuple data; correct?  
 24 MR. MACE: Object to form.  
 25 THE WITNESS: I'm not sure I understand

1 what is the question.  
 2 BY MS. GREWAL:  
 3 Q. I'll repeat my question.  
 4 The connection calculator 320, therefore,  
 5 updates the tuple data; correct?  
 6 MR. MACE: Object to form.  
 7 THE WITNESS: Can you please ask a proper  
 8 question? I am little bit confused with the types  
 9 of the questions you are asking me. You are reading  
 10 a section, and I'm not sure what -- what is the  
 11 question?  
 12 BY MS. GREWAL:  
 13 Q. I just read the lines 67 on column 8  
 14 through column 9, lines 2, where it states:  
 15 "If conn2 does hear the host, then the  
 16 connection calculator 320 completes the  
 17 missing port data for connector conn2."  
 18 Correct?  
 19 A. You misread it. For conn2, yes.  
 20 Q. My question is: Based on what I just read,  
 21 the connection calculator 320, therefore, completes  
 22 the tuple data with respect to port data for conn2;  
 23 is that correct?  
 24 A. If it's missing information and it's hear  
 25 the information, it's completes the data, yes.

1 Q. Prior to the connection calculator 320  
 2 completing or providing the missing port data for  
 3 conn2, the conn2 data was deficient with respect to  
 4 the missing port data; correct?  
 5 A. I'm not sure I understand what you mean by  
 6 "deficient port data."  
 7 Basically, it's very simple, and you're  
 8 just adding complexity. And I don't understand the  
 9 question. That's basically not form a simple  
 10 question.  
 11 If you have data, that it does not existed  
 12 on one port and existed on different port -- it does  
 13 not exist on one port and another -- exist on a  
 14 different port. Why you are calling deficient?  
 15 Q. What --  
 16 A. It just move. It --  
 17 Q. What does the word "missing" to you,  
 18 Dr. Lavian?  
 19 A. If information is missing on one and it  
 20 exist on the other, you have to complete the  
 21 information. Say it's not on port number 5, it's on  
 22 port number 6.  
 23 Q. That's what I mean by "deficient." If it's  
 24 missing something, it completes it, and that's a  
 25 state of deficiency, when you miss something.

1 A. I disagree.  
 2 Q. But you do agree that the connection  
 3 calculator provides the missing information, based  
 4 on what I read with respect to column 8, line 67  
 5 through --  
 6 A. No, I disagree.  
 7 Q. And why do you disagree?  
 8 A. Because if it's not exist -- basically it  
 9 says very simple. You are making it up. If --  
 10 sorry about -- sorry.  
 11 It says:  
 12 "If connect -- If conn2 does not hear the  
 13 host, then the connector calculate -- the  
 14 connection calculator 320 completes the  
 15 missing port data for connection2."  
 16 It does not hear -- does not hear one --  
 17 hear on it different place, it's adding information.  
 18 It's very simple.  
 19 You have -- I will give simple example.  
 20 It does not hear something on port number 4  
 21 and you can hear it on port number 7, so it's not  
 22 deficiency. It just missing from port number 4 and  
 23 exist on port number 7, and just switch the  
 24 information. It's not any deficiency.  
 25 I'm not sure what deficiency you're talking

1 about.

2 Q. What does the word "missing" mean there?

3 A. If the information is not on one port and  
4 it existed on different port, it means that it's --  
5 basically, as it states, it does not hear the host  
6 on one port and it hear it on different port.

7 Q. The only port that is described in what I  
8 have just read is related to conn2. There is no  
9 swapping or -- the lines I read, which states:

10 "If conn2 does hear the host, then the  
11 connection calculator 320 completes the  
12 missing port data for conn2."

13 A. It is very simple. You have a connector  
14 2 --

15 Q. Uh-huh.

16 A. -- that it has two ports. And two ports --  
17 you don't hear the information on one port. You  
18 hear it on different port. So you know that the  
19 information move from one point to the other point.

20 If you will look at the continuation on the  
21 same passage related to picture -- Figure 6, you can  
22 see Figure 6 -- basically, it talks about, for  
23 example, element 171 that has connection to element  
24 172. It does not hear it on 162 until it get on  
25 161.

1 Simple as is. It does not hear it on one,  
2 hear it on the second, and complete the information.

3 Practical level, you have a guide in the  
4 wiring room, take the port, and switch the port --  
5 the different connections. That's all. You connect  
6 the connector -- take your laptop, you connect to  
7 this port, or you connect to different port.

8 Very simple. I'm not sure why the  
9 questions are not simple.

10 Q. So if you turn now to column 7, line 7  
11 through 10, of the '411 patent --

12 A. Column 7, lines?

13 Q. 7 through 10. And we are referring to  
14 Figure 10.

15 A. (Witness reviewing document.)

16 Yes, I read it.

17 Q. So you understand column 7, line 7 through  
18 10, states:

19 "Then,, the connection calculator 320  
20 performs a second weeding phase 926 to  
21 resolve conflicting reports of singly-heard  
22 hosts."

23 Correct?

24 A. You read it correctly.

25 Q. Can you articulate why a second weeding

1 phase is performed by the connection calculator?

2 A. Because that's the explanation in the  
3 patent.

4 Q. As someone with your experience, what would  
5 be the benefit to resolve the conflicting reports of  
6 singly-heard hosts?

7 A. In this specifically point -- specifically  
8 it says that singly-heard host refer to  
9 host-to-device connection directly to the connector.

10 Basically, in simple term, is your computer  
11 is connected directly to the port on this table;  
12 it's connected to a port 17 on switch-something on  
13 this wiring closet on this floor. So basically it's  
14 one connection, one-to-one. That's a single host.  
15 And basically, it's -- it will hear -- the switch  
16 will hear the switch in one point.

17 I'm not sure I understand what the  
18 complexity here, what's the issue here.

19 Q. Could you please turn to column 9, lines 19  
20 through 22, of the '411 patent.

21 A. Column 9?

22 Q. Column 9, lines 19 through 22.

23 A. (Witness reviewing document.)

24 Yes. What's the question?

25 Q. So column 9, line 19 through 22, states:

1 "Figure 13 then shows a flow chart of the  
2 second weeding phase 926. The purpose of  
3 the second weeding phase 926 is to attempt  
4 to resolve conflicts involving singly-heard  
5 hosts identified in the first weeding phase  
6 922."

7 Correct?

8 A. You read it correctly.

9 Q. Can you describe what types of conflicts  
10 are experienced by singly-heard hosts?

11 A. I explained it several times. You're  
12 asking the same question.

13 Q. Could you kindly answer my question --

14 A. Yes.

15 Q. -- Dr. Lavian?

16 A. If -- if you have connection that connected  
17 to one port and it's switched to another port, it  
18 will be heard on different port, and you have to  
19 resolve the conflict. The same port cannot be on  
20 two different -- if it's single, it cannot be on  
21 two.

22 If, for example it's appear on two, it's a  
23 problem. You need to find which of them is correct.  
24 That's one example.

25 Q. Further, in column 9, lines 24 to 27 --

1 A. What is the question?  
 2 Q. -- column 9, lines 24 to 27, states:  
 3 "The second weeding phase 926 reviews the  
 4 tuples created during the infrastructure  
 5 building-phase 924 involving the connector  
 6 and host in question and attempts to  
 7 disprove the reported conflict."  
 8 Based on your network experience, can you  
 9 explain why the connection calculator would disprove  
 10 the reported conflict?  
 11 A. Sure. It says the line above, that you  
 12 have two switches, for example, get that they hear  
 13 port -- one device. It cannot be. It can be here  
 14 or here. If both of them are single-headed (sic),  
 15 it's mean that there can be one. If you have two  
 16 conflicted information, one of them is old. One of  
 17 them is old, and one of them is not correct. You  
 18 need to check what is the actual topology, not was  
 19 the topology two minutes ago.  
 20 Q. If you could kindly turn to column 7, lines  
 21 10 to 12, and referring to Figure 10.  
 22 A. (Witness reviewing document.)  
 23 What is question -- what the question?  
 24 Q. So referring to lines 10 through 12 of  
 25 column 7, which states:

1 "The connection calculator 320 then  
 2 performs a noise reduction phase 928 to  
 3 remove redundant neighbor information for  
 4 connector-to-host links."  
 5 Can you articulate a benefit provided by  
 6 this noise reduction phase?  
 7 A. I'm not sure what you mean by "benefits."  
 8 Q. Why would the connection calculator perform  
 9 a noise reduction phase?  
 10 A. If you have a million information about one  
 11 device and you need only one information about the  
 12 device, why do you want the other million? You need  
 13 only one connection, that it's still connected.  
 14 Q. Can you explain what the neighbor --  
 15 redundant neighbor information would be?  
 16 A. If you have the same information appear,  
 17 for example, by the neighbors, it's appears -- the  
 18 switch will say which information appear on which  
 19 port, and you will see the other switches, if they  
 20 have the same information or not. If they have the  
 21 same information, they will remove it. If they  
 22 don't have, they will tell, "I don't have it."  
 23 That's the way to build a topology.  
 24 Q. Because the connection calculator 320 needs  
 25 to remove redundant neighbor information for

1 connector-to-host links, the tuple information  
 2 received from the neighbor data database 310 must  
 3 have redundant information; correct?  
 4 A. It is a lot of redundant information.  
 5 MR. MACE: Object to form.  
 6 BY MS. GREWAL:  
 7 Q. Is it, therefore, accurate to say that the  
 8 noise reduction phase performed by the connection  
 9 calculator 320 reduces information received from the  
 10 neighbor data database 310?  
 11 A. I'm not sure I understand the questions.  
 12 I'm not sure I understand the entire line of  
 13 questions that you're asking. It does not make  
 14 sense, the questions themselves.  
 15 Q. Do you have an answer for my question,  
 16 Dr. Lavian?  
 17 A. Yes, ask a reasonable question, I will be  
 18 happy to answer.  
 19 Q. My question, again, is: It is, therefore,  
 20 accurate to say that the noise reduction phase  
 21 performed by the connection calculator 320 reduces  
 22 information received from the neighbor data database  
 23 310?  
 24 MR. MACE: Object to form.  
 25 THE WITNESS: I am not sure I understand

1 the question. The question doesn't make sense.  
 2 BY MS. GREWAL:  
 3 Q. Based on your years of expertise in network  
 4 connectivity, you don't understand my question?  
 5 A. No, you don't have a good question -- you  
 6 don't have questions that I can understand it.  
 7 I explained the process very simple how  
 8 it's done. You're asking questions does not make  
 9 sense.  
 10 Q. Dr. Lavian, we're walking down the  
 11 flowchart of the connection calculator processing.  
 12 Do you understand --  
 13 A. No. You are jumping -- you are jumping  
 14 around the spec from one column to another column,  
 15 from one section to another section, taking places  
 16 from different diagrams, different places, and you  
 17 are asking questions that does not make sense.  
 18 I explained, in very simple terms, how it's  
 19 done. Connection -- connect to your computer to one  
 20 port -- if you move the port and you connect from  
 21 different room or connect -- now the switch will  
 22 say, "Oh, I know it does not exist anymore on this  
 23 port," and another switch will say, "Oh, I recognize  
 24 on this port."  
 25 And you have a lot of data available there.



1 Reduction of the information and getting the right  
2 topology, the new topology.

3 I have no idea what you are asking. Your  
4 questions don't make sense.

5 Q. Dr. Lavian -- sorry, are you finished?

6 A. Yes.

7 Q. I am walking down the flowchart of Figure  
8 10, and to -- to do that, I am looking at the  
9 specification and what it teaches about each of the  
10 steps. And I'm presenting coherently all the  
11 information the specification provides for each of  
12 the steps.

13 Whether we're jumping around or not does  
14 not detract from the fact that we are walking down  
15 the flowchart of Figure 10 and the process and the  
16 flow of what the connection calculator does, which  
17 may be simple to you, with your years of experience,  
18 but is not to us, which is why, having the benefit  
19 of you here, we are just walking through the process  
20 to understand why the connection calculator would go  
21 through all these steps.

22 And I apologize if you think I'm  
23 aggregating things, but I'm methodically going  
24 through this, and it's taking some time.

25 Please turn to column 9, lines 39 to 42, of

1 the '411 patent.

2 A. Now we are in different place, yes?

3 Q. Yes.

4 A. Where exactly?

5 Q. Column 9, lines 39 to 42.

6 A. (Witness reviewing document.)

7 Yes, what's the question?

8 Q. So lines 39 to 40 of column 9 state:

9 "Figure 14 shows a flow chart of the noise  
10 reduction phase 928."

11 I'm going to pause for a moment. We were  
12 just discussing, in Figure 10, the noise reduction  
13 phase 928.

14 Do you recall that?

15 A. Yes.

16 Q. So we are now talking about Figure 14 shows  
17 a flowchart of the noise reduction phase 928.

18 "The purpose of the noise reduction phase  
19 928 is to handle those connections in which  
20 a connector is not directly connected to a  
21 host or to another connector."

22 Correct?

23 A. Yes.

24 Q. Based on your network experience, can you  
25 explain why it's important to handle connections in

1 which a connector is not directly connected to a  
2 host or another connector?

3 MR. MACE: Object to form.

4 THE WITNESS: I'm not sure I understand the  
5 question.

6 BY MS. GREWAL:

7 Q. If you look at lines 39 to 42, it said:

8 "The purpose of noise reduction phase is to  
9 handle those connections in which a  
10 connector is not directly connected to a  
11 host or to another connector."

12 A. Yes.

13 Q. Why do -- why does the system of the '411  
14 patent need to handle connections in which a  
15 connector is not directly connected to a host or to  
16 another connector?

17 A. Because it might be connected indirectly.

18 Q. And it's important to track indirect  
19 connections?

20 A. What do you mean by "important"?

21 Q. Does the system of '411 need to track  
22 indirect connections?

23 A. I can see here explanation in the  
24 specification how it works, and it simply refer to  
25 different steps that they think -- the inventor

1 think are important. They simply said how they --  
2 the flowchart work, not more than this.

3 Important to what?

4 Q. Important to identifying and updating a  
5 network topology?

6 A. That's one option that might be important,  
7 yes. If you want to update one network topology,  
8 you have to do many different steps and many  
9 different ways to get information and to calculate  
10 the informations -- the information.

11 Q. Could you kindly turn to lines 42 to 49 of  
12 column 9?

13 A. (Witness reviewing document.)

14 Yes.

15 Q. Do you understand that column 9, lines 42  
16 to 49, state:

17 "For example, networking technology may  
18 employ shared media connections between  
19 connectors, rather than dedicated media  
20 connectors. With a shared media  
21 connection, the entries in the forwarding  
22 tables for connectors attached to the  
23 shared media connection will include every  
24 node accessing the shared media connection  
25 and may not present a useful or accurate

1 representation of the nodal connection."  
 2 Correct?  
 3 A. Yes.  
 4 Q. Thus, the noise reduction phase helps  
 5 provide a more accurate representation of the nodal  
 6 connections; correct?  
 7 A. That can be one example, yes.  
 8 Let me simplify it. It seems that you are  
 9 asking questions, but not asking the right question.  
 10 In simple term, what is meant here is hub,  
 11 hub compared to switch. In switch, you have  
 12 connection one-to-one. In hub, you don't have  
 13 connection one-to-one. You have one connection --  
 14 everyone-to-everyone.  
 15 And in order to know, you don't have the  
 16 information. And this step is discussing the steps  
 17 that related to hub or shared media. Everybody is  
 18 listening to everybody and not one-to-one. So you  
 19 will have the same information on many different  
 20 ports.  
 21 You are simply not asking the right  
 22 questions.  
 23 Q. Turning now to the last step of Figure 10,  
 24 could you please turn to column 7, line 15 through  
 25 17?

1 A. Column 7 -- it's another place, yes?  
 2 Q. Yeah, going back to -- we just finished --  
 3 A. We're jumping to column 7? Line?  
 4 Q. Lines 15 to 17.  
 5 A. Let me read it.  
 6 (Witness reviewing document.)  
 7 What is the question?  
 8 Q. So do you understand column 7, lines 15 to  
 9 17, that states: "The tuple data" -- let me start  
 10 again. Sorry.  
 11 Do you understand that column 7, lines 15  
 12 through 17, states:  
 13 "The tuple data is then consolidated 932  
 14 into segment and network containment  
 15 relationships."  
 16 Correct?  
 17 A. Yes. You read it correctly.  
 18 Q. So based on your network experience, what  
 19 does it mean to consolidate tuple data into segment  
 20 and network containment relationships?  
 21 A. You get the information and make sense of  
 22 the information. If you have information belongs to  
 23 one segment, you put it in the same segment. If you  
 24 have another information related to a different  
 25 segment, you put in a different segment.

1 Q. And network containment relationships, what  
 2 does that mean?  
 3 A. If you have relationship between, for  
 4 example, a hub and you know which -- which devices  
 5 are on the same hub, you have to know the  
 6 information, the relationship between them.  
 7 Q. Okay.  
 8 A. You didn't ask the right question. The  
 9 question -- the simple way that in hub, one device  
 10 is talking and everybody is listening. And the  
 11 right device that who is listening know where to --  
 12 to get the information.  
 13 Q. Okay. If you could kindly turn to line 17  
 14 through 20, further down on column 7, it states:  
 15 "The connection calculator 320 may also" --  
 16 A. Wait a minute.  
 17 Q. Sorry.  
 18 A. Which lines?  
 19 Q. 17. We were earlier at 15 to 17. Just  
 20 reading further --  
 21 A. Okay.  
 22 Q. -- 17 through 20.  
 23 A. Okay.  
 24 Q. So line 17 through 20 of column 7 states:  
 25 "The connection calculator 320 may also tag

1 redundant tuples to indicate the relevance  
 2 to actual connectivity. These redundant  
 3 tuples may still provide hints to  
 4 connectivity of other tuples."  
 5 Correct?  
 6 A. You read it correctly.  
 7 Q. What is your understanding of a redundant  
 8 tuple?  
 9 A. You will get the same type of information  
 10 many times, more than once.  
 11 Q. Do you know why the connection calculator  
 12 may tag redundant tuples?  
 13 A. For example, if the same information  
 14 existed from two connections. If you have one  
 15 device that says, "I'm connected then to --  
 16 device A, saying, "I'm connected to device B," and  
 17 device B saying, "I'm connected to device A," you  
 18 know that both of them are the same. It's  
 19 redundant. It's the same information. You have it  
 20 from different places.  
 21 I gave -- just gave very simple example.  
 22 There are many others.  
 23 Q. Is it useful for redundant tuples to  
 24 provide hints to connectivity of other tuples?  
 25 A. That's -- I'm not sure what you meant by

1 this, but it will give you some information.  
 2 Q. And that information is helpful to updating  
 3 the topology?  
 4 A. For example, yes.  
 5 Example, if you have device with two port  
 6 and you know that one port is connected to one  
 7 device and the other port you don't know what is  
 8 connected, you know it's not connected to the one  
 9 port. It's -- maybe it's connected to another port.  
 10 That's a hint. Example. There are many other  
 11 examples.  
 12 Q. Okay. Thank you.  
 13 Turning to column 10, lines 34 to 37.  
 14 A. We're jumping to a new topic, yes?  
 15 Q. We are still discussing the connection  
 16 calculator, Dr. Lavian.  
 17 A. Okay. Column 10?  
 18 Q. Lines 34 to 37.  
 19 A. Let me read them.  
 20 Q. Sure.  
 21 A. (Witness reviewing document.)  
 22 Yes, what's the question?  
 23 Q. Lines 34 to 37 of column 10 states:  
 24 "The connection calculator 330 process  
 25 described above collects the tuple

1 information from the tuple manager 300,  
 2 builds tuples new tuples and removes  
 3 redundant or unnecessary tuples to produce  
 4 the new topology."  
 5 Correct?  
 6 A. Yes, you read it correctly.  
 7 Q. What is your understanding of the phrase  
 8 "builds new tuples"?  
 9 A. Simple as is, build new tuples.  
 10 Q. And this is the process we discussed  
 11 earlier, that the connection calculator sources  
 12 information from the neighbor database, processes  
 13 it, and builds new tuples?  
 14 A. That's -- that's what it does --  
 15 Q. Okay.  
 16 A. -- build new tuples.  
 17 Q. In the last phrase of the line 37, where it  
 18 says "new topology," what is your understanding of  
 19 the "new topology"?  
 20 MR. MACE: Object to form.  
 21 THE WITNESS: Can you please clarify your  
 22 question?  
 23 BY MS. GREWAL:  
 24 Q. If you look at lines 34 to 37, it states  
 25 what the connection calculator process described

1 above does, and it lists that it builds new tuples,  
 2 it removes redundant or unnecessary tuples to  
 3 produce the new topology.  
 4 A. It is very simple, and I think that I  
 5 explained many times. If you build a new tuple and  
 6 basically connect -- that device A is connected to  
 7 device B, you now know that there is a new topology.  
 8 Device is connected to device B, or device A is not  
 9 connected anymore to device B. So it's a new  
 10 topology. They are not connected. Or device A  
 11 connected to device B, but not on port C, put on  
 12 port, say, 4.  
 13 So the new tuples, the changed tuples, the  
 14 updated tuples will result in new topology, and that  
 15 what the process -- of the connection calculator  
 16 process the tuples to understand the topology.  
 17 Q. Okay. Thank you.  
 18 A. It is extremely simple. Everything very  
 19 complicated language. It's very simple. You can  
 20 summarize all of these passages: Get connected from  
 21 one point to another point and detect changes.  
 22 That's all.  
 23 Q. Dr. Lavian, could you kindly turn to lines  
 24 44 through 46 of column 10, just a little further  
 25 down.

1 A. 44.  
 2 Q. Through 46, which states:  
 3 "Using the process of the connection  
 4 calculator" -- I think that's a typo. It  
 5 should be 320 -- "tuples marked as  
 6 non-essential may be removed from the new  
 7 topology to save space and to simplify the  
 8 topology."  
 9 Correct?  
 10 A. You read it correctly.  
 11 Q. So removing tuples will reduce the amount  
 12 of tuples in the new topology; correct?  
 13 A. That's one example, yes.  
 14 Q. And based on your network experience, was  
 15 saving space important at the time of the invention  
 16 in October 2000?  
 17 MR. MACE: Object to form.  
 18 THE WITNESS: I'm not sure I understand the  
 19 question.  
 20 What do you mean by this? Important to  
 21 what?  
 22 BY MS. GREWAL:  
 23 Q. For networks and for topologies.  
 24 A. It depends.  
 25 MR. MACE: Object to form.

1 BY MS. GREWAL:

2 Q. What does it depend on?

3 A. If you save two bits and you have two  
4 gigabytes of information, is it important, no.

5 If information -- if you have the room,  
6 maybe yes; if you don't have the room, maybe not.  
7 If it's add complexity, maybe yes; if not add  
8 complexity, maybe not. If you need the information,  
9 maybe yes; if you don't have the information, maybe  
10 not.

11 It's depends on the implementation. It  
12 depends on many different things.

13 I'm not sure I understand what you mean --  
14 the question, "What is important?"

15 Important to what?

16 Q. Was there benefit from saving space, at the  
17 time of the invention, in networks in particular for  
18 identifying and updating topologies?

19 A. In some places it can benefit, and  
20 sometimes it cannot be benefit.

21 Q. And at what times will it not benefit to  
22 save space?

23 A. For example, in other computation and you  
24 don't have time for computation, why do you want to  
25 do it? Why not let it do time-out. So it depends.

1 Q. The last clause of the last phrase says,  
2 after "to save space," "to simply" --

3 A. Which line are you?

4 Q. Sorry. 46, where it says:

5 "The new topology" --

6 A. Just one --

7 Q. I can read the whole sentence again.

8 "Using the process of the connection  
9 calculator, tuples marked as non-essential  
10 may be removed from the new topology to  
11 save space and to simply the topology."

12 I think there is a typo there. It should  
13 probably be "simplify the topology."

14 Do you agree?

15 A. It's two typos. That's one of them, yes.

16 Q. Would simplifying the topology help in  
17 identifying and updating topologies?

18 A. It depends.

19 Q. On what?

20 A. On many different thing. It depend on the  
21 cost of the device, on the ports, on the  
22 availability, on the processing, on the time, if you  
23 need it at all.

24 It depends on many different things.

25 Q. Dr. Lavian, could you turn to Claim 1,

1 please.

2 Claim 1 recites:

3 "Receiving new tuples list that represent  
4 new nodal connections" --

5 A. Which element?

6 Q. In the third limitation, sorry.

7 A. Okay.

8 Q. And in the fourth limitation, it states:

9 "Comparing the list of existing tuples with  
10 the new tuples list to identify changes to  
11 the topology."

12 Do you understand the tuples received by  
13 the reduced topology relationships database 330 to  
14 be an example in the patent of the claimed new  
15 tuples list?

16 A. This is not part of the claim language.

17 Q. I'm looking at limitation three and  
18 limitation four of Claim 1.

19 A. Yes.

20 Q. And I'm asking whether the tuples received  
21 by the reduced topology relationship database 330 is  
22 an example in the patent of the claimed new tuples  
23 list.

24 A. I'm not sure I understand what you are  
25 saying.

1 Here we have the claim language.

2 Q. Correct. I'm pointing to --

3 A. And before you jumped around back and  
4 forth, back and forth many times, all around the  
5 specification.

6 I am not sure I understand how it's  
7 related.

8 Q. So in your experience with network  
9 communications and having read the patent, do you  
10 understand whether the tuples received at the  
11 reduced topology relationship database 330 of Figure  
12 7 that we've been discussing is an example of the  
13 claimed new tuples list?

14 A. I am not sure, and I didn't analyze this.  
15 I don't have an opinion on this. I analyzed the  
16 claim by itself, and I didn't analyze this type of  
17 question.

18 Q. Okay.

19 A. I don't have an opinion on this.

20 MS. GREWAL: All right. We've been going  
21 for more than an hour. We should probably take a  
22 break.

23 THE WITNESS: Okay.

24 MS. GREWAL: Thank you.

25 THE VIDEOGRAPHER: The time is 4:04. We're

1 off the record.  
 2 (Recess taken)  
 3 THE VIDEOGRAPHER: The time is 4:27. We're  
 4 on the record.  
 5 BY MS. GREWAL:  
 6 Q. Dr. Lavian, could you kindly turn to  
 7 Exhibit 1002, which is your declaration.  
 8 A. Yes.  
 9 Q. In particular, could you please turn to  
 10 paragraph 24 of your declaration.  
 11 A. Yes.  
 12 Q. The first sentence states:  
 13 "The topology information returned from the  
 14 first query may be stored in a database  
 15 and" -- sorry, parenthetically you have a  
 16 cite to '411, column 6, lines 36 to 39 --  
 17 "and used to create a list of 'tuples'  
 18 (i.e., a 'collection of assorted data')  
 19 that represent the nodal connections of the  
 20 network topology at the time of that first  
 21 query."  
 22 Do you see this?  
 23 A. Yes.  
 24 Q. Where is the topology information returned  
 25 from the first query stored?

1 A. If we're looking at diagram -- Figure 7,  
 2 element 300 tuple manager gather the information and  
 3 save the information in the local database.  
 4 Q. So which -- could you tell -- looking at  
 5 Figure 7, which is the database you're referring to?  
 6 A. So -- in this specific example, it save  
 7 some of the information in the neighbor database.  
 8 Q. So the topology information returned from  
 9 the first query in an example may be stored in the  
 10 neighbor data database?  
 11 A. Temporarily, yes.  
 12 Q. Okay.  
 13 A. It will be stored in all of them. It will  
 14 be stored initially in the neighbor database. It  
 15 will go to the connection calculator to do some  
 16 calculation of it. It will get the topology in 320  
 17 there in redundant -- the use topology will go to  
 18 the topology converter -- converter 340 and will end  
 19 up in -- stored in the topology database. So it  
 20 will be in different places.  
 21 Q. Okay. Still referring to the line -- the  
 22 first sentence we read in paragraph 24 of your  
 23 declaration, what component, for example, creates  
 24 the list of tuples that relate the nodal connections  
 25 of the network topology at the first query?

1 A. So basically, the -- the tuple manager 300  
 2 receive a lot of information from all the devices,  
 3 calculate the information in the connection  
 4 calculator if needed, and, more importantly, save  
 5 the information to the neighbor databases that  
 6 basically get several information interaction with  
 7 the connection calculator.  
 8 Q. So, sorry, I didn't -- what is the  
 9 component that provides an example of the component  
 10 in Figure 7 that creates the list of tuples that  
 11 represent the nodal connections of the network  
 12 topology at the first query mentioned in your  
 13 paragraph 24, line -- first sentence?  
 14 A. My sentence says:  
 15 "The topology information returned from the  
 16 first query may be stored in the database."  
 17 Basically, if you will take a look on my --  
 18 on the patent in '411 --  
 19 Q. Uh-huh.  
 20 A. -- you can see more information between --  
 21 in column 6, lines 36, 39, and use to create a list  
 22 of tuples. Basically, it's collection of assorted  
 23 data that represent the nodal connections of the  
 24 network topology at the time of the first query.  
 25 I referenced several places the abstract,

1 column 3, lines 3 to -- 9 to 12; column 4, 23-24;  
 2 and column 6, 34-39.  
 3 Q. And so an example of that particular -- of  
 4 a component that creates the list of tuples that  
 5 represent nodal connections of the network topology  
 6 at the first query would be a tuple manager?  
 7 A. I'm not sure I understand what the question  
 8 is.  
 9 Q. I'm merely trying to understand what  
 10 component, for example, in Figure 7, you were  
 11 thinking of when you wrote:  
 12 "...and used to create a list of tuples  
 13 that represent the nodal connections of the  
 14 network topology at the time of the first  
 15 query."  
 16 When you are providing the cites in the  
 17 abstract, that lists all -- pretty much the  
 18 components in Figure 7, column 3, lines 9 through  
 19 12, talk about, "A topology database" --  
 20 A. Let me go there.  
 21 Q. "A topology database stores an existing  
 22 topology of a network. A topology converter  
 23 accesses the topology database and converts the  
 24 existing topology into a list of current tuples."  
 25 That's 12.

1 So my question was: What is an example of  
2 a component that you -- you understood to create the  
3 list of tuples that represent the nodal connections  
4 of the network topology at the first query in your  
5 paragraph 24?

6 A. You just read it. "A topology data" --  
7 basically, it's column 3 -- at column 3, line 9.

8 "A topology database stores an existing  
9 topology of a network. A topology -- a  
10 converter access -- accesses the topology  
11 database and converts the existing topology  
12 into list of the current tuples."

13 Q. Okay. So the database that you mention in  
14 the first sentence of paragraph 24, that say, "The  
15 topology information returned from the first query  
16 may be stored in a database," is that database the  
17 topology -- the topodb 350?

18 A. It can be, for example.

19 Q. Okay. And, for example, the topology  
20 converter, then, is -- then creates the list of  
21 tuples that represent the nodal connection of the  
22 network topology at the first query?

23 A. Another example.

24 Q. Okay. The second sentence of paragraph 24  
25 states:

1 "The topology information returned from the  
2 second, later, query is used to create a  
3 new list of 'tuples' that, likewise,  
4 represents the nodal connections of the  
5 topology but at that later time."

6 Do you see this?

7 A. Yes.

8 Q. What component were you understanding, for  
9 example, looking at Figure 7, to create the new list  
10 of tuples that represent the nodal connections of  
11 the topology from the second query?

12 A. The descriptions that I gave here in the  
13 abstract in column 3, line 12, 4 -- 23-24; column 6,  
14 39-39; and looking at the -- for the old -- for the  
15 previous queries.

16 And looking at the new queries, it create  
17 the list of tuples on column 6, 39 to 53, I mention  
18 generally the process of the entire patent, what is  
19 done, without getting into the specifics of every  
20 element.

21 We discussed in the last eight hours, I  
22 believe -- or seven hours, the details of how it's  
23 done, but here it's from the abstract in the higher  
24 level, not specifically on a specific element.

25 I didn't mention in this section the

1 details. I discussed with them -- with you in the  
2 last several hours.

3 Q. So if I rely on the exemplar portion of  
4 '411 that you cite in paragraph 24 with respect to  
5 the second sentence, am I correct in stating that  
6 you rely on column 6, lines 39 to 53?

7 A. No, that's not correct.

8 Basically, what I said, that I tried to  
9 summarize the entire invention to several  
10 paragraphs. And basically I summarized, in a simple  
11 way, all the specification in paragraph -- my  
12 paragraph 23, 24. And I tried to do it in a short,  
13 reasonable, easy-to-understand language, to  
14 summarize the entire paragraph to two -- to two  
15 paragraphs.

16 Q. And looking at the summary of the entire  
17 patent that you provided in paragraphs 23, 24, and  
18 25, I'm asking particularly with respect to the  
19 second sentence we were just reading of paragraph  
20 24, where you state:

21 "The topology information returned from the  
22 second, later, query is used to create a  
23 new list of 'tuples' that, likewise,  
24 represent the nodal connections of the  
25 topology but at that later time."

1 You cite only to column 6, lines 39 to 53;  
2 is that correct?

3 A. In this case, I cite one. It appeared  
4 throughout the specification. I cannot refer  
5 specific -- all the specification. I referred to  
6 specific lines.

7 Q. And so if you look at column 6, lines 39 to  
8 53, it refers to the tuple manager then creating a  
9 new list of tuples, as an example; is that correct?

10 A. It's referred to Figure 9 -- an explanation  
11 of Figure 9, yes.

12 Q. But particularly, those sentence -- the  
13 sentences that are covered by column 6, lines 39 to  
14 53, of the '411 patent only discuss the tuple  
15 manager 300 receiving -- and, you're right, it's a  
16 description of Figure 9 -- but it is what the tuple  
17 manager is doing to create a new list of tuples that  
18 represent the nodal connections of the topology at  
19 the later time; is that correct?

20 A. No, it's not correct. It's -- show Figure  
21 9, discuss of -- also show method in Figure 8. It  
22 discuss also the database 350. It discuss many  
23 different things.

24 In general, a quick summary of the  
25 information, including the tuple manager, yes.

1 Q. If I read line 39 through 53, it begins  
 2 with:  
 3 "The tuple manager 300 then queries 914 the  
 4 known nodes to gather the desired  
 5 information. For example, the connectors  
 6 may maintain forwarding tables that store  
 7 connectivity data used to perform the  
 8 connectors' ordinary functions, such as  
 9 switching. Other devices may allow the  
 10 system to perform queries to gather  
 11 information about the flow of network  
 12 traffic. This data identifies the devices  
 13 heard by a connector and the port on which  
 14 the device was heard. The tuple manager  
 15 300 gathers this data by accessing  
 16 forwarding tables and other information  
 17 sources for the nodes to determine such  
 18 information as their physical address,  
 19 interface information, and the port from  
 20 which they 'hear' the other devices. Based  
 21 on this information, the tuple manager  
 22 builds 916 tuples and stores 918 them in  
 23 the 'neighbor data' database 310."  
 24 That's the end of the -- of line 53.  
 25 A. Yes.

1 Q. So the only -- at least in the one example,  
 2 the only example you've provided with respect to the  
 3 topology information being returned from the second,  
 4 later query that is used to create a new list of  
 5 tuples, is -- for this particular cite, the tuple  
 6 manager is the only component that's mentioned: is  
 7 that correct?  
 8 A. No, that's incorrect.  
 9 Q. What component is mentioned, other than the  
 10 tuple manager in column 6, lines 39 to 53?  
 11 A. You misread the section. You can see, in  
 12 very similar language, I'll expand the complicated  
 13 language. It's not complicated at all.  
 14 You have switches; the switches has tables.  
 15 You have routers; the routers have forwarding  
 16 tables. You have other devices like hubs that has  
 17 connections, and you need to know all the  
 18 information.  
 19 It's received the information from the  
 20 query in the tuple manager. If you don't see it in  
 21 here as 300, and basically all of this information  
 22 is received from the device itself.  
 23 The queries from the devices get in the  
 24 connection a calculator calculate the information  
 25 based on the information received from there.

1 So if even it's not says the element  
 2 itself, it says that it's routing table,  
 3 forwarding table, shared media, and the ports.  
 4 Q. So the tuple manager queries 914 the known  
 5 nodes to gather the desired information; correct?  
 6 A. Yes.  
 7 Q. And:  
 8 "For example, the connectors may maintain  
 9 forwarding tables that store connectivity  
 10 data to perform the connectors' ordinary  
 11 functions, such as switching. Other  
 12 devices allow the system to perform queries  
 13 to gather information about the flow. This  
 14 data identifies the devices heard by a  
 15 connector and the port on which the device  
 16 was heard. The tuple manager gathers this  
 17 data by accessing forwarding tables and  
 18 other information sources for the nodes to  
 19 determine such information as their  
 20 physical address, interface information,  
 21 and the port from which they 'hear' other  
 22 devices. Based on this information, the  
 23 tuple manager 300 builds 916 tuples and  
 24 stores 918 them in the 'neighbor data'  
 25 database 310."

1 With respect to Figure 7 and the lines that  
 2 I have read, which are the only lines and column --  
 3 in column 6 that you referred to -- and I'm speaking  
 4 only about the second sentence in paragraph 24 --  
 5 the only component in Figure 7 that is mentioned is  
 6 the tuple manager 300 --  
 7 A. Yes.  
 8 Q. -- doing the data gathering, et cetera.  
 9 Did you see any other -- did I miss  
 10 anything?  
 11 MR. MACE: Object to form.  
 12 THE WITNESS: There are two elements in  
 13 this. The data gathering information is done in the  
 14 300, getting the tuples is done also in 300, and  
 15 saving the data to 310.  
 16 BY MS. GREWAL:  
 17 Q. Is also done by 300; correct?  
 18 A. It's saved to 310.  
 19 Q. Correct. But the saving is done by the  
 20 tuple manager 300?  
 21 A. I'm not sure what you mean by "done."  
 22 The saving -- the saving -- the tuple  
 23 manager send the information --  
 24 Q. Correct.  
 25 A. -- to the database, and the database itself

1 save -- saves the information.

2 Q. Right. But it is the tuple -- as you  
3 state, it's the tuple manager that sends the data  
4 that it gathers. And -- and once it creates tuples  
5 and stores -- and that's what it's doing. It's  
6 storing the tuple data in the neighbor data  
7 database?

8 A. Yes.

9 Q. Okay. So if you turn to the last paragraph  
10 of your summary of the '411 patent, paragraph 25 of  
11 your declaration, the first sentence states:

12 "Once the two lists of 'tuples' are  
13 available, they can be compared to  
14 determine the changes (if any) to the  
15 topology that occurred since the creation  
16 of the first set of tuples."

17 Do you see that?

18 A. Yes.

19 Q. By the "two lists of tuples," you refer to  
20 the list of tuples from the first query and the list  
21 of tuples that are stored in the neighbor data  
22 database 310; correct?

23 A. I'm not sure I understand your question.

24 You have the two queries, one in the prior  
25 time, one in the current time, and you compare

1 between both of them.

2 Q. And where are the two lists of tuples  
3 stored?

4 A. In the neighbor database.

5 MR. MACE: Object to form.

6 BY MS. GREWAL:

7 Q. Both of the -- both of the -- both the list  
8 of tuples from the first query and the list of  
9 tuples that are stored in the -- in response to the  
10 second query, they are both stored in the neighbor  
11 data database?

12 MR. MACE: Object to form.

13 THE WITNESS: I'm not sure what  
14 specifically you're asking.

15 But you get the previous -- the previous  
16 query -- get the information of the previous query,  
17 and create the tuples related to this query. And  
18 you get the new query. And the new query, you get  
19 new information, and you compare between the old and  
20 the new.

21 BY MS. GREWAL:

22 Q. Dr. Lavian. I'm just trying to understand  
23 your paragraphs 24 and 25.

24 You are using the terminology "first query"  
25 and "second query" --

1 A. Yes.

2 Q. -- which occurs at a later time.

3 We just established that -- the second  
4 sentence of column 24 that began:

5 "The topology information returned from the  
6 second, later, query is used to create a  
7 new list of 'tuples' that, likewise,  
8 represent the nodal connections of the  
9 topology but at that later time," used  
10 component tuple manager, and it stored the  
11 results of the effort of the tuple manager  
12 into the neighbor data database."

13 Correct?

14 MR. MACE: Object to form.

15 BY MS. GREWAL:

16 Q. We just did that with respect to column 6,  
17 lines 33 to 53.

18 A. I'm not sure I understand -- I -- your  
19 questions.

20 I gave a very high-level summary of the  
21 entire patent, just the highlight -- the highlights  
22 of what is the patent itself. I didn't mention the  
23 details of any of them in these sections.

24 So what exactly is your question?

25 Q. You have given us citations to the patent

1 as examples, as you were saying, for what -- where  
2 to go look for in the patent for what the particular  
3 sentence stands for; correct?

4 A. In high level, yes.

5 Q. So we just spent some time going through  
6 the two sentences that make up paragraph 24.

7 Do you agree with me?

8 A. Yes.

9 Q. The first sentence that has -- that deals  
10 with:

11 "The topology information returned from the  
12 first query may be stored in a database and  
13 used to create a list of 'tuples' that  
14 represent the nodal connections of the  
15 network topology at the time of that first  
16 query."

17 Do you see that?

18 A. Yes.

19 Q. Looking at, for example, one of your  
20 citations, column 3, lines 9 through 12, only  
21 provide a disclosure for topology database that  
22 stores an existing topology of the network and  
23 further states:

24 "A topology converter accesses the topology  
25 database and converts the existing topology



1 into a list of current tuples."

2 That is a citation that you've provided to  
3 support your first sentence of paragraph 24; is that  
4 correct?

5 A. Yes.

6 Q. Okay. So relying on that, an example of  
7 the topology information returned from the first  
8 query may be stored in a database and used to create  
9 a list of tuples would involve the topology  
10 converter as a component -- and I'm reading back to  
11 the citation that you have provided -- accessing the  
12 topology database -- so the topology database is an  
13 example of the -- a database that you have in your  
14 first sentence of column 24.

15 Is that fair to say?

16 MR. MACE: Object to form.

17 THE WITNESS: In a very high level, yes.

18 BY MS. GREWAL:

19 Q. Okay. So if I go further down to paragraph  
20 25, one of the lists is then stored in the topology  
21 database or it's used -- or topology converter has  
22 accessed it?

23 I'm just look -- I'm just trying to  
24 understand, in the examples -- the high-level  
25 examples that you have set up in your first query

1 and your second query, what are the components that  
2 you have referred to?

3 A. I -- I got in the high level, the abstract.  
4 And basically in the abstract I discussed it. I  
5 discussed it in the paragraph that you just  
6 mentioned, in column 3, paragraph A, lines 9 through  
7 12. I continued in paragraph 4 at lines 23-24.

8 And in paragraph 23-24, I basically said:  
9 "As used herein, the term 'tuple' refers to  
10 any collection of assorted data. Tuples  
11 may be used to track information about  
12 network topology by storing data from  
13 network nodes."

14 And I continued with column 6, paragraph 34  
15 to 39. And column 6, 34 to 39, state:

16 "The tuple manager 300 receives 910 a  
17 signal to gather data -- the tuple data.  
18 The tuple manager 300 then retrieves 912  
19 nodes -- node information of the current  
20 topology stored in the topology database  
21 350."

22 In general, I talked about the process in a  
23 very high level, just in a few words to understand  
24 the high level of the specification. I tried to  
25 summarize the entire -- I don't know. I have here

1 50 pages, including the -- I don't know how many  
2 pages we have here -- but long spec and diagrams  
3 into three paragraphs.

4 So that's the way that I found it, is  
5 reasonable to show it. This is a very high-level  
6 description.

7 Q. And staying at that high level, I'm just  
8 trying to understand one of the examples you had in  
9 mind when you analyzed and drafted your declaration.

10 Help me understand column -- paragraph 25.  
11 Sorry. "Once the two lists of 'tuples' are  
12 available," the two lists being one created as a  
13 result of the first query and the second created at  
14 a second later query."

15 Is that correct?

16 A. That's one way to say, yes.

17 Q. Is there another way to say that?

18 A. At one time and a different time. There  
19 does not need to be a query, if you ask information  
20 at one time and you get a same -- different  
21 information after two minutes.

22 For example, you get information one  
23 switch, and later you got it from different switch.  
24 Get it from one port and get that different  
25 information from a different port. You get

1 literally thousands, if not millions, of pieces of  
2 information every microseconds -- every microsecond.  
3 And you get a lot of information.

4 And the comparison here, I tried to paint  
5 very high level picture. And basically what I said,  
6 in a very high level, get the information as it was  
7 in the past and as it's currently, or prior time or  
8 new time, and compare between the two.

9 Q. So by "the two lists of 'tuples'" in your  
10 paragraph 25, you refer to the list of tuples from  
11 the first query and the list of tuples that are  
12 stored in the neighbor data database 310; correct?

13 A. One example to take a look at this, yes,  
14 prior time and current time.

15 Q. Okay. And in the second sentence of  
16 paragraph 25, you state:

17 "In order to identify the changes to the  
18 network topology, a 'topology converter'  
19 340 receives the list of new tuples,  
20 compares the two lists of tuples to  
21 identify changes."

22 Correct?

23 A. Yes.

24 Q. Is it your understanding, after reviewing  
25 the '411 patent, that the topology converter 340

1 receives the list of tuples that are stored in the  
2 neighbor data database 310?

3 A. I'm confused. I'm not sure I understand  
4 your question.

5 Q. We just read the second sentence of  
6 paragraph 25, which stated:

7 "In order to identify the changes to the  
8 network topology, a 'topology converter'  
9 340 receives the list of new tuples,  
10 compares the two lists of tuples to  
11 identify changes."

12 Did I read that correctly?

13 A. Yes.

14 Q. So is it your understanding that the  
15 topology converter 340 receives the list of tuples  
16 that are stored in the neighbor data database 310?

17 A. That's -- basically, I think that you're  
18 misrepresenting what I said.

19 If you will take a look at the topology  
20 converter, the topology converter take a look at  
21 the -- all data that saves in the tuple database and  
22 the new data in the 330 reduced topology, and  
23 convert the two lists.

24 This information was before in some form in  
25 the connection calculator. The connection

1 calculator created the information from the neighbor  
2 database, and the same information may be in a  
3 different format or different form received by the  
4 tuple manager.

5 In general, at the end of the day, it's get  
6 to the level of two sets of tuples, and you compare  
7 port number 5 existed here or not, and that's the  
8 comparison.

9 Q. And so can you please tell me what are the  
10 two sets of databases that the topology converter  
11 340 receives data from to do the comparison?

12 A. In the specific --

13 MR. MACE: Object to form.

14 THE WITNESS: In the specific -- in diagram  
15 7 specifically, the topology converter take a look  
16 on the old information and topology database and  
17 look at the new information, and compare between  
18 them and see what are the differences; in very high  
19 level, see what's new and update what's needed to be  
20 updated.

21 Finally, it's very simple. That's the  
22 basics.

23 BY MS. GREWAL:

24 Q. And there is a third database, the neighbor  
25 data database, that the topology converter does not

1 get input directly from; correct?

2 A. Figure 7 shows, in a very high level, the  
3 concept, at a very high level.

4 In Figure 7, I can see connection directly  
5 to the topology database, and I can see information  
6 to the reduced -- the topology relationships. And  
7 on Figure 7, I can see the comparison between both.

8 But the data that received into the reduced  
9 topology database received from the connection  
10 calculator -- and it's received -- it's get the  
11 calculation from the neighbor database and make  
12 query for additional information by the look-for  
13 information to get other information it didn't have.

14 But in general, it is the same information,  
15 didn't form or different formats.

16 Q. But would you agree with me that Figure 7  
17 generally has three databases: The TOPODB database,  
18 the neighbor data database, and the reduced topology  
19 relationships database; correct?

20 A. In a very high level. It depend what you  
21 mean by "database." If you are looking in database  
22 this way, you can think about this as a database.  
23 You can look at the topology converter itself, that  
24 it has its database, because it's compare between  
25 two -- two lists, so it's needs to some have form of

1 comparison.

2 Exactly the same the connection calculator.  
3 Connection calculator needs to get information from  
4 different places so it has its own local database.  
5 In this case, the database it's any sort of  
6 information that you need to compare or calculate.  
7 Exactly the tuple manager.

8 So you are very limited. Yes, you can  
9 see -- if you are looking on the shape of database  
10 as formal database, yes, it's might be a way. But  
11 anyway, when any comparison of any calculation, you  
12 need to have a local database.

13 Q. We had previously marked Jones as -- let's  
14 see -- well, actually, Jones was already previously  
15 marked as Exhibit 1003, which I think I have here.  
16 Sorry.

17 And this Exhibit 1003 also is a ServiceNow  
18 exhibit in the IPR proceedings.

19 Dr. Lavian, did you find any of the prior  
20 art that you have described in your declaration?

21 A. No, I didn't find it myself. I got them.

22 Q. Had you heard of the Jones reference before  
23 your work on this matter?

24 A. No.

25 Q. So you have been handed what has been as

1 Exhibit 1003, which is also, as I said, ServiceNow's  
2 Exhibit 1003 in this IPR proceeding.

3 Do you recognize this document?

4 A. I received from the lawyer the patent '327  
5 Jones -- the Jones patent.

6 Q. If -- if you can kindly turn to paragraph  
7 65 of your declaration.

8 In paragraph 65, you start discussing the  
9 final limitation of Claim 1 that you label as 1d;  
10 correct?

11 A. Yes.

12 Q. The first sentence of the next paragraph 66  
13 of your declaration continues to discuss limitation  
14 1d and states:

15 "Jones discloses this limitation because it  
16 describes a process in which the first data  
17 set (the 'list of existing tuples') is  
18 compared with the second data set (the 'new  
19 tuples list')."

20 Correct?

21 A. You read it correctly.

22 Q. You are, therefore, equating the first  
23 dataset in Jones to the claimed list of existing  
24 tuples and the second dataset in Jones to the  
25 claimed new tuples list; correct?

1 A. I'm not sure I understand the question.

2 Q. Referring to the first sentence of  
3 paragraph 66 --

4 A. Yes.

5 Q. -- that reads:

6 "Jones discloses this limitation because it  
7 is describes a process in which the first  
8 data set," after which you have open  
9 parens, (the 'list of existing tuples') is  
10 compared with the second data set (the  
11 'first (sic) tuples list')."

12 Correct?

13 MR. MACE: Object to form.

14 THE WITNESS: "The 'new tuple list.'"

15 BY MS. GREWAL:

16 Q. Correct.

17 A. You send "the first." It's not "the  
18 first." It's "the new tuple list."

19 Q. My apologies. "The 'new tuples list.'"

20 A. Yes.

21 Q. And my question is: You are mapping the  
22 first dataset taught in Jones to the claimed list of  
23 existing tuples; correct?

24 A. Yes.

25 Q. And you are mapping the second dataset in

1 Jones to the claimed new tuples list; correct?

2 A. Yes.

3 Q. Can you please turn to paragraph 50 of your  
4 declaration.

5 The first sentence states:

6 "The 'new list of a plurality of tuples at  
7 a current time' in Jones is the 'second  
8 data set.'"

9 Correct?

10 A. Yes.

11 Q. You are, therefore, saying that the second  
12 dataset in Jones provides the claimed new list of  
13 plurality of tuples and the claimed new tuples list;  
14 correct?

15 A. I'm not sure I understand the question.

16 What is the question?

17 Q. Do you have Claim 1 in front of you,  
18 Dr. Lavian?

19 A. Yes, I have Claim 1 open in front of me.

20 Q. I'm merely trying to follow what you have  
21 stated here.

22 You are, therefore, saying that the second  
23 dataset in Jones provides the new list of a  
24 plurality of tuples in the second limitation and the  
25 claimed new tuples list; correct?

1 A. Yes.

2 Q. Is it accurate to say that Jones discloses  
3 only two lists, the first dataset and a second  
4 dataset?

5 A. I didn't opine of only two or not only two.  
6 That was not my -- my opinion.

7 Q. In your declaration, do you --

8 A. I refer to the first -- I map -- I did a  
9 map between the new list and the old list. The new  
10 list related -- the new list of plurality of tuples  
11 in the current time is a second data list.

12 So basically I did the previous and the  
13 current. Simple as is.

14 Q. In your read of Jones, did you find any  
15 additional lists beyond the first dataset and the  
16 second dataset?

17 A. You have the third and the fourth and the  
18 fifth and the second. And every time that you will  
19 measure, you will get all time new datasets. The  
20 time is going only one dimension.

21 Q. That Jones actually discloses?

22 A. Discloses the previous and the new. And  
23 the next time you will do the new, it will be the  
24 new, new. And the next time you will do another  
25 five minutes, it will be new, new, new. In ten

1 minutes it, will be new, new, new, new. So will  
2 have long -- all time you will have new information.  
3 And every time, you will have old and new.

4 Q. Could you refer me where in Jones it talks  
5 about the generation of a third list and a fourth  
6 list?

7 A. It does not need to refer to a third and  
8 the fourth. It will say at one time and the second  
9 time, the previous and current.

10 And in two seconds, what is current will be  
11 previous.

12 Q. In paragraph 50, looking at what you have  
13 mapped, below the first sentence, you have a  
14 paragraph from Jones; is that correct?

15 A. Yes. Let me read it.

16 Q. Please.

17 A. (Witness reviewing document.)

18 Yes, I read it.

19 Q. Is it accurate, Dr. Lavian, to say that  
20 Jones discloses only two lists, the first dataset  
21 and the second dataset, as articulated in your  
22 declaration?

23 A. No.

24 Q. And why not?

25 A. Because time is going always. You have the

1 first time and the second time, later time. And if  
2 you'll take another one, meaning it will be another  
3 second time, and take another one minute, it will be  
4 another set of time. So you will have all time more  
5 and more data, and always you will have future and  
6 past. If you measure every one second, so it means  
7 that every one second you will have more  
8 information.

9 Q. And where in your declaration do you have  
10 that documented?

11 A. I can read, and I can see the specific  
12 of -- of the paragraphs that you just mentioned.

13 "The present invention provides a method  
14 for providing a data set relating to the  
15 network by merging first data set related  
16 to the network at the first time and a  
17 second data set related to the network at  
18 the second, later, time. The first data  
19 set comprises data acquired by  
20 interrogation of the network of -- and  
21 other data, said second data set comprising  
22 data acquired by interrogation of the  
23 network."

24 You have the previous dataset, and you have  
25 the next dataset at the second, later time. And one

1 second again -- another one second, it will be  
2 another second. And the third minute, it will be  
3 another data. So time is not stopping. It does  
4 not -- time is going always, always ticking.

5 Q. The latter part that you just mentioned is  
6 not documented in your declaration; right?

7 You stopped at:

8 "Said second data set comprising data  
9 acquired by interrogation of the network."

10 My question merely asked: Where in your  
11 declaration do you document these additional  
12 datasets that could be generated because time  
13 continues ticking?

14 Can you point me where in your declaration  
15 you have that documented?

16 A. I think that it's clear the time is always  
17 ticking, and always you're looking to past and  
18 current, past and current, past and current. And  
19 always you're comparing between the past to -- the  
20 old and the new.

21 Q. Correct.

22 A. But the time is always moving, and the  
23 network always changes.

24 Q. So at any time the comparison is always  
25 being done with respect to two lists, is what you're

1 saying; is that correct?

2 A. In a high level, it's -- it talks about  
3 comparison between the old list and new list, yes.

4 Q. Does Jones create a reduced list of tuples,  
5 Dr. Lavian?

6 MR. MACE: Object to form.

7 THE WITNESS: I'm not sure I understand  
8 what is the question that your are asking.

9 I didn't opine on this. It's not part of  
10 the claim language.

11 BY MS. GREWAL:

12 Q. Do you know one way or the other whether  
13 Jones creates a reduced list of tuples similar to  
14 the operation of the connection calculator we  
15 have --

16 A. I didn't --

17 MR. MACE: Object to form.

18 THE WITNESS: -- opine on this. It's not  
19 part of the claim language.

20 BY MS. GREWAL:

21 Q. You have not provided an opinion regarding  
22 the processing of the second dataset in Jones in  
23 your declaration; is that correct?

24 A. What do you mean by this?

25 MR. MACE: Object to form.

1 THE WITNESS: I'm not sure I understand the  
 2 question.  
 3 BY MS. GREWAL:  
 4 Q. Your declaration discloses only two lists,  
 5 the first dataset and a second dataset; that is  
 6 correct?  
 7 A. Yes.  
 8 Q. So you have not provided an opinion  
 9 regarding whether the second dataset is processed  
 10 further to generate a reduced dataset; is that  
 11 correct?  
 12 MR. MACE: Object to form.  
 13 THE WITNESS: I -- I'm not sure I  
 14 understand the question.  
 15 I simply looked at the claim language, and  
 16 I mapped the claim language to Jones -- I mapped  
 17 Jones to the claim language.  
 18 BY MS. GREWAL:  
 19 Q. And in your declaration, you have not  
 20 provided any opinion regarding the processing of the  
 21 second data set; correct?  
 22 MR. MACE: Object to form.  
 23 THE WITNESS: What do you mean "processing  
 24 of the second dataset"?  
 25 Can you show me claim element that you

1 mean? I'm not sure I understand the question.  
 2 BY MS. GREWAL:  
 3 Q. I'm not asking you for what's in the claim.  
 4 I'm asking you: When you analyze and  
 5 provided your mapping and relevant description to  
 6 Jones, you did not provide any opinion as to whether  
 7 or not Jones provides a reduced list that could be  
 8 generated from the second dataset; is that correct?  
 9 MR. MACE: Object to form.  
 10 THE WITNESS: I'm not sure I understand the  
 11 question.  
 12 BY MS. GREWAL:  
 13 Q. It's a yes-or-no question.  
 14 A. No, it's not a yes-or-no question.  
 15 Q. In your declaration, you have not provided  
 16 an opinion regarding the processing of Jones's  
 17 second dataset; is that correct, Dr. Lavian?  
 18 A. Where do you mean --  
 19 MR. MACE: Object to form.  
 20 THE WITNESS: -- processing second dataset?  
 21 Where do you see in the claim processing datasets?  
 22 BY MS. GREWAL:  
 23 Q. I'm not asking what's in the claim. I'm  
 24 asking about what's in your declaration.  
 25 Looking at your declaration, which is

1 Exhibit 1002, can you point me to any place in your  
 2 declaration where you have provided an opinion as to  
 3 the existence of processing of the second dataset?  
 4 A. Basically in --  
 5 MR. MACE: Object to form.  
 6 THE WITNESS: -- in my declaration, I refer  
 7 specifically to the point that you referred in the  
 8 last element, the third -- the element of creating  
 9 new list of plurality of tuples for topology of the  
 10 network in the current time.  
 11 And I reference the new list, and I mapped  
 12 the new list plurality of tuple in the current time  
 13 to the second list of the current time -- of a  
 14 second dataset, and this is processing.  
 15 What do you mean by "processing"?  
 16 If you are doing mapping, you are doing  
 17 processing.  
 18 What do you mean by "processing"?  
 19 MS. GREWAL: We need to change the tape, so  
 20 I'm going to let --  
 21 THE VIDEOGRAPHER: This marks the end of  
 22 Disc 3, Volume I, in the deposition of Dr. Tal  
 23 Lavian.  
 24 The time is 5:20, and we're off the record.  
 25 (Recess taken)

1 THE VIDEOGRAPHER: The time is 5:33.  
 2 This is the beginning of Disc 4, Volume I,  
 3 in the deposition of Dr. Tal Lavian.  
 4 The time is 5:33. We're on the record.  
 5 BY MS. GREWAL:  
 6 Q. Dr. Lavian, before we broke to change the  
 7 tape for a break, you had asked, "What do you mean  
 8 by 'processing'? If you are doing mapping, you are  
 9 doing processing. What do you mean by  
 10 'processing'?"  
 11 Do you recall that, sir?  
 12 A. Yes.  
 13 Q. Going back to your question, the processing  
 14 that I was referring to would be processing that is  
 15 performed on the second dataset to generate another  
 16 list, such as, for example, with respect to Figure 7  
 17 that you have in front of you, the processing that  
 18 the connection calculator is taught to provide in  
 19 the specification of the '411 with respect to  
 20 generating the reduced topology that's stored in the  
 21 reduced topology database.  
 22 A. So what is the question?  
 23 Q. So my question was: You have not provided  
 24 an opinion in your declaration regarding processing  
 25 or the generation of reduced list of tuples;

1 correct?  
 2 MR. MACE: Object to form.  
 3 THE WITNESS: What specifically is the  
 4 question?  
 5 BY MS. GREWAL:  
 6 Q. Does Jones create a reduced list of tuples?  
 7 A. Absolutely.  
 8 MR. MACE: Object.  
 9 BY MS. GREWAL:  
 10 Q. Where does it create a reduced list of  
 11 tuples?  
 12 A. Any seconds that you send information --  
 13 both of the patents are doing exactly the same  
 14 idea -- in general, the exactly same idea, same  
 15 concept.  
 16 When you have devices on the network, they  
 17 generate -- they generate millions of datasets all  
 18 time, constantly. And definitely if you have  
 19 millions of datasets, you have to reduce the  
 20 information.  
 21 So always, when you are creating the tuple,  
 22 you are processing to create the datasets.  
 23 Q. Where in your declaration do you provide an  
 24 opinion regarding the generation of a reduced list  
 25 of tuples?

1 MR. MACE: Object to form.  
 2 THE WITNESS: The Jones -- Jones  
 3 discussed -- described receiving the information and  
 4 creating the datasets that reflects the topology.  
 5 In order to reflect the topology, you are  
 6 getting millions of datasets. It's can be every  
 7 microsecond. And at some point, you don't need all  
 8 this information.  
 9 I gave the example a few times that if you  
 10 have one connection connected to this port and you  
 11 decide to take your computer and connect it to  
 12 another port in different room, you will get in  
 13 between millions of lines of connections.  
 14 For example, if the information is sent by  
 15 ping or by keep-alive -- usually keep-alive, it's  
 16 once every second. Say, "Hey, I'm here. Hey, I'm  
 17 here. Hey, I'm here," and that's all.  
 18 All of this information is not important.  
 19 All of this information is reduced to only changes.  
 20 So that's the key point of -- of Jones, to  
 21 manage network datasets to comparing by  
 22 interrogation of the network.  
 23 Q. Dr. Lavian, where in your declaration have  
 24 you provided a teaching of a reduced list of tuples  
 25 with respect to Jones?

1 A. I'm not specific -- I'm not -- I don't  
 2 remember specifically where exactly in my  
 3 declaration, but I can say that that's the key point  
 4 of Jones, is to create information based on the -- a  
 5 lot of information that you're receiving from the  
 6 network and get the topology.  
 7 Topology is very limited. Or there is many  
 8 orders of magnitude smaller than the amount of  
 9 information network management is sending.  
 10 Q. So, Dr. Lavian, as we sit here today, you  
 11 cannot point to any paragraph in your declaration  
 12 that provides a teaching of a reduced list of tuples  
 13 with respect to the Jones reference; is that  
 14 correct?  
 15 A. No, it's not correct.  
 16 Q. Can you --  
 17 A. For example --  
 18 Q. -- please point me to where you provide  
 19 that?  
 20 A. Yes. For example, if -- I referenced in  
 21 my -- in my declaration, I reference to column 1 --  
 22 to Jones column 1, line 42 until 50. And if I  
 23 see -- I can start with two lines above.  
 24 "At its simplest, and where the device is a  
 25 'managed' device, this interrogation uses a

1 known protocol, such as SNMP protocol, of  
 2 so-called 'agent' that -- for each device  
 3 and stored the device unique MAC address,  
 4 data returning of the type of the device  
 5 and the MAC address of the devices which  
 6 are connected to the ports directly,  
 7 indirectly."  
 8 This is a lot of information, huge amount  
 9 of information, constant flood of information that  
 10 can be millions of pieces of information throughout  
 11 the day. And some of them are every microsecond,  
 12 every second.  
 13 And topology is only a fraction of it about  
 14 the data. So even if nothing changed, this section  
 15 talks about constant sending SNMP request that  
 16 gather information. And definitely this section  
 17 talk about reduce the information.  
 18 Q. Okay. In column 1, lines 42 of 50, in  
 19 Jones, can you point to -- point to me to where the  
 20 word "reduced" is used?  
 21 A. No need to get the reduced. It's very  
 22 clear that SNMP get a lot of information from every  
 23 device, and not all of this information is, in the  
 24 end of the day, in the topology itself, in the  
 25 topology map.

1 The topology map is just the status, the  
2 physical or logical representation of the network.  
3 But in order to get it, you are getting constant  
4 information from all devices. So definitely this is  
5 reduced.

6 Q. Dr. Lavian, do you have the Tonelli  
7 reference that's marked Exhibit 1004 with you?

8 A. Yes, I have it.

9 Q. This exhibit is also ServiceNow's -- I'm  
10 losing track of these, sorry. This Exhibit 1004 is  
11 also ServiceNow's Exhibit 1004 in the IPR  
12 proceeding.

13 Do you recognize this document?

14 A. Yes.

15 Q. You will understand me when I refer to this  
16 patent as the Tonelli patent; correct?

17 A. Yes.

18 Q. Can you please turn to your declaration at  
19 paragraph 97, please?

20 A. Yes.

21 Q. In paragraph 97, you start discussing the  
22 final limitation of Claim 1 that you label 1d;  
23 correct?

24 A. Yes.

25 Q. Paragraph 97 states:

1 "Tonelli describes a process in which the  
2 previous audit data" --

3 A. Where exactly you are reading?

4 Okay. The two lines at the top -- no, the  
5 bottom. Okay.

6 Q. Right. So:

7 "Tonelli describes a process in which the  
8 previous audit data (the 'list of existing  
9 tuples') is compared with the new audit  
10 data (the 'new tuples list') to identify  
11 changes."

12 Correct?

13 A. Yes.

14 Q. You are, therefore, mapping the previous  
15 audit data in Tonelli to the claimed list of  
16 existing tuples; is that correct?

17 A. Yes.

18 Q. You're also mapping the new audit data in  
19 Tonelli to the claimed new tuples list; correct?

20 A. Yes.

21 Q. Can you kindly turn to paragraph 86 of your  
22 declaration?

23 A. Yes.

24 Q. The first sentence of paragraph 86 of your  
25 declaration states:

1 "The new list of a plurality of tuples at a  
2 current time in Tonelli is audit data  
3 produced as a result of a later audit of  
4 the network."  
5 Correct?

6 A. Yes.

7 Q. In Tonelli, the result of a later audit of  
8 the network is the new audit data; correct?

9 A. Yes.

10 Q. You are, therefore, saying that the new  
11 audit data in Tonelli is both the claimed new  
12 list --

13 A. You're reading -- I'm not sure where  
14 exactly you are reading.

15 You're reading somewhere?

16 Q. It's my question.

17 A. Okay.

18 Q. I'm just -- you may want to have Claim 1,  
19 again, open, if that helps you, of the '411 patent.

20 And keeping in mind what we just read in  
21 paragraphs 86 of your declaration.

22 You are, therefore, saying that the new  
23 audit data in Tonelli is both the new list of a  
24 plurality of tuples in the second limitation and the  
25 claimed new tuples list in the third and fourth

1 limitation; correct?

2 A. That's my mapping, yes.

3 Q. Does Tonelli create a reduced list of  
4 tuples?

5 A. Absolutely.

6 Q. Is that reduced list of tuples that Tonelli  
7 creates compared to a list of existing tuples?

8 A. I --

9 MR. MACE: Object to form.

10 THE WITNESS: I -- I give the map -- I give  
11 the definition of "tuples." And basically you get a  
12 lot of information -- huge amount of information,  
13 and you compare between the two datasets of  
14 information in previous time. That's all. Simple  
15 as is.

16 BY MS. GREWAL:

17 Q. Do you document a reduced list of tuples  
18 that Tonelli describes in your declaration,  
19 Dr. Lavian?

20 A. The patent -- the whole purpose of getting  
21 the information -- and the patent is talking -- this  
22 is very long patent. I don't know how many pages it  
23 has, but the main idea of the Tonelli patent is to  
24 find the topology of the network based on the  
25 information received from the network.

1 You get -- as I mentioned before, you can  
2 receive information every microsecond or every  
3 millisecond something -- I mean every second. And  
4 if you are doing with routing, it might be even --  
5 it depends on the protocol -- minute. And if you  
6 will go with RIP, it might be few minutes.

7 (Reporter clarification)

8 THE WITNESS: RIP, R-I-P, protocol.

9 It depends on the routing protocol. It  
10 depends on the switching protocol. It depend on  
11 many different things but you will get a lot of  
12 information, and basically millions of pieces of  
13 information.

14 Topology does not need all of these  
15 millions of information. And the whole purpose of  
16 building a topology is to take the information from  
17 many different devices in many different forms and  
18 reduce it to the topology itself.

19 The size -- I'm not sure if you can compare  
20 the size, but it's millions of pieces of  
21 information. It can be, for example, every  
22 microsecond of milliseconds, and comparing to table  
23 that can say, "Oh, it's connected from Point A to  
24 Point B." That's all.

25 //

1 BY MS. GREWAL:

2 Q. Doctor --

3 A. So it's absolutely reducing.

4 Q. Dr. Lavian, have you provided an opinion  
5 regarding the processing of the new audit data in  
6 Tonelli in your declaration?

7 MR. MACE: Object to form.

8 THE WITNESS: I'm not sure what is the --  
9 what is the question?

10 BY MS. GREWAL:

11 Q. Can you point me to any place in your  
12 declaration where you document the new audit data of  
13 Tonelli being processed?

14 MR. MACE: Object to form.

15 THE WITNESS: Yes, for example, I refer --  
16 I mentioned in my declaration specifically reference  
17 of -- to the summary in column 2, between line 24 to  
18 line 30.

19 BY MS. GREWAL:

20 Q. Can you please let me know which paragraph  
21 in your declaration you're referring to?

22 A. I can go back. Basically, I know, because  
23 if I mark it in my -- it's -- I can go and see where  
24 is the summary. I can go and check. I don't know  
25 exactly. I just marked wherever I -- it's somewhere

1 in my declaration. I referred to this paragraph.

2 Q. So you're looking at Tonelli?

3 A. I am looking at Tonelli, and I can see that  
4 I marked for myself -- that I marked, in my  
5 declaration, between line 24 to line 30.

6 Q. Sorry, of which column?

7 A. Column second -- column 2, the summary.

8 Q. So column 2, lines 24 to 30, of Tonelli  
9 states:

10 "In one aspect, the invention provides a  
11 softly implemented method for auditing a  
12 network by using more than one soft probes  
13 to discover topology, host and interface  
14 information on devices in the network. The  
15 auditing includes gathering the data with  
16 soft probes that include a Simple Network  
17 Management Protocol probe and a Novell IPX  
18 probe."

19 How does this document the processing of  
20 the new audit data to generate a reduced list?

21 A. It's clearly said. In one aspect of the  
22 invention provide the software implementation method  
23 of auditing network by using more than one soft  
24 probe to discover the topology. And it gives  
25 several example of probes, like SNMP, IPX, HP Open

1 View, Microsoft SMS, and IBM SNA, and other probes.

2 This generates tons of information,  
3 constant flux of information, constant; every  
4 microsecond, every millisecond, might be every  
5 second, and some of them every second or minutes.

6 But this information, it's getting to --  
7 get the topology to discover the topology.

8 In order to discover the topology --  
9 topology is very simple information. Port A is  
10 connected to port B. That's all. Topology is  
11 something very simple. A is connected to B over  
12 this link. But you have flux of information by the  
13 auditing software. For example here, four separate  
14 protocols or tools that basically -- SNMP, IPX, HP  
15 Open View, SMS, and SNA -- to get flux of  
16 information that, in the end of the day, will say,  
17 "Your computer is connected to this switch on port  
18 number 5."

19 Q. Dr. Lavian --

20 A. So this is reduced -- substantially reduced  
21 millions of time reduced.

22 Q. Dr. Lavian, at best, this discusses the  
23 reduction so you generate your new audit data; is  
24 that correct?

25 A. I'm not sure I understand the question.



1 Q. Strike that.  
 2 I'm going to -- going back to my prior  
 3 question, you have not provided an opinion regarding  
 4 the processing of the second dataset, which in  
 5 Tonelli is your new data -- new audit data in your  
 6 declaration; is that correct?  
 7 A. I clearly say that auditing the network by  
 8 using more than one soft probe to discover topology.  
 9 And this is the process, discover the  
 10 topology. You reduce the amount of information by  
 11 millions of times. Not by hundreds, not by  
 12 thousands, by millions of times you reduced.  
 13 Q. What process -- I'm going to strike that  
 14 question.  
 15 Dr. Lavian, I'm going to ask the court  
 16 reporter to hand you Exhibit 2001, which we  
 17 previously marked.  
 18 (Deposition Exhibit 2001 was marked for  
 19 identification)  
 20 BY MS. GREWAL:  
 21 Q. So Exhibit 2001 is an amendment and request  
 22 for reconsideration from the file history of the  
 23 '411 patent.  
 24 Do you recognize the Exhibit 2001,  
 25 Dr. Lavian?

1 A. It looks like a document -- a part of the  
 2 file history of the patent.  
 3 Q. In this October 2004 amendment, the  
 4 applicant amended Claim 1; correct?  
 5 A. Yes.  
 6 Q. You're referring to page 2, Dr. Lavian?  
 7 A. Yes.  
 8 Q. In Claim 1, the first limitation refers to  
 9 creating a plurality of tuples; correct?  
 10 A. Yes.  
 11 Q. In Claim 1, the second limitation recites  
 12 receiving new tuples that represent new nodal  
 13 connections; correct?  
 14 A. Yes.  
 15 Q. The second limitation is a distinct step  
 16 from the first limitation; correct?  
 17 A. I didn't opine of this.  
 18 MR. MACE: Object.  
 19 THE WITNESS: It looks like this, yes. I'm  
 20 not sure. I didn't opine to -- on this.  
 21 BY MS. GREWAL:  
 22 Q. You do agree that the second limitation is  
 23 a separate step from the first limitation; correct?  
 24 A. It is a separate step, yes.  
 25 Q. The second limitation provides the

1 antecedent basis for the new tuple of the third  
 2 limitation; correct?  
 3 A. What specifically you mean by this?  
 4 Q. Referring to the last -- the third  
 5 limitation of Claim 1, do you see the term "the new  
 6 tuples"?  
 7 A. Yes.  
 8 Q. So my question is, the second limitation,  
 9 which is the receiving limitation above this -- the  
 10 second limitation provides the antecedent basis for  
 11 the new tuple of the third limitation; correct?  
 12 A. I didn't analyze this. And it looks like  
 13 this way, but I didn't opine on this. I didn't  
 14 analyze this. It looks like that this is the case.  
 15 Q. Okay. Did you review the file history --  
 16 A. Yes.  
 17 Q. -- for the '411?  
 18 A. Yes.  
 19 Q. And we are discussing the amendments that  
 20 were made to Claim 1, which is the claim -- at least  
 21 one of the two claims that you have opined on in  
 22 your declaration; correct?  
 23 A. Yes.  
 24 Q. Okay. So the third limitation in the claim  
 25 as it appears --

1 A. Let me look at the patent. I want to see.  
 2 Yes.  
 3 Q. So the third limitation in the claim as it  
 4 appears in Exhibit 2001 refers to the new tuples  
 5 from the second limitation; correct?  
 6 A. I -- I'm not sure. I have here only one  
 7 page from one of his action in front of me and not  
 8 the entire file history.  
 9 In order to opine on it, I will need time  
 10 to review the entire file history and not to look on  
 11 one page and see one claim amendment. I need to  
 12 analyze. I need time to see the differences between  
 13 the claims and the final claims as allowed.  
 14 I -- I didn't analyze it. I need the time  
 15 to analyze the specific question that you ask.  
 16 It looks like the current -- it looks like  
 17 additional state, at least one, with additional  
 18 Office Action, because it's not the same. I can see  
 19 the language. The end of the question, in the file  
 20 and the current that you just gave me, it's not the  
 21 same.  
 22 Q. I understand that, Dr. Lavian. I'm only  
 23 asking my questions based on this Office Action. We  
 24 will go to the next one as well.  
 25 I'm asking you to refer to the amendment of

1 Claim 1 on page 2 of Exhibit 2001 and nothing more.  
2 I can give you the whole file history, but  
3 I am asking my particular questions with respect to  
4 the amendment that was filed during the prosecution  
5 of the application that was issued as the '411  
6 patent.

7 Referring back to just Exhibit 2001, so the  
8 third limitation in the claim as it appears in  
9 Exhibit 2001 --

10 A. Exhibit 2001 is the '411 patent?

11 Q. No, sorry. It is the amendment --

12 A. Oh, the amendment, okay.

13 Q. Correct.

14 So the third limitation in the claim, as it  
15 appears in Exhibit 2001, refers to the new tuples  
16 from the second limitation; correct?

17 A. I need to analyze, because I -- I can see  
18 that this claim amendment you -- they -- the  
19 applicant submit a new information, and I cannot --  
20 I didn't opine on it, and I cannot do analysis on  
21 the fly. It will not be professional to do it on  
22 the spot. I need the time to do this analysis.

23 Q. Had you not reviewed the file history, sir?

24 A. I reviewed the file history, but the file  
25 history -- it's more than this. I need to see what

1 before, what after. I didn't opine on this specific  
2 one.

3 Q. We are going to go through the next  
4 amendment as well. I can give you the file history,  
5 but I'm going to ask you to concentrate on my  
6 questions with respect to this amendment.

7 MS. GREWAL: Would you kindly mark that  
8 2003.

9 (Deposition Exhibit 2003 was marked for  
10 identification)

11 BY MS. GREWAL:

12 Q. Since you asked for the full file history,  
13 Dr. Lavian, the full file history has been marked  
14 Exhibit 2003. However, I am referring to Exhibit  
15 2001, which is a part of the larger file history,  
16 Exhibit 2003.

17 A. I have in front of me a big pile of the  
18 file history that I don't know if it's a 1,000 pages  
19 or 2,000 pages. I'm not sure if I can opine. It  
20 wouldn't be reasonable for me to opine anything on  
21 the fly. I need to really spend the time and to see  
22 what is in, why is it changed.

23 It's long history of many documentation. I  
24 cannot make this type of a decisions on the fly. I  
25 cannot review now 2,000 pages. I'm not sure if it's

1 1,000 or 2,000, but it's a big pile of pages that  
2 you just handed to me.

3 Q. I'm not asking you to review it.

4 You have studied the file history  
5 previously, right?

6 I am merely talking about -- how many  
7 amendments were there to the file history in the  
8 file history to Claim 1?

9 A. I don't remember.

10 Q. Right. We're focusing -- there were only  
11 two, and we're looking at those papers from there.

12 I'm not asking you to analyze. I'm asking  
13 you to review the claims with me.

14 A. And what you would like me to do?

15 Q. I'm just asking my questions. I'm  
16 asking --

17 A. I will answer any questions you will answer  
18 (sic).

19 Q. Back to the pending question, which was:  
20 The plurality of tuples from the first limitation of  
21 Exhibit 2001 are different from the new tuples of  
22 the second limitation; correct?

23 A. I don't know.

24 MR. MACE: Object to form.

25 THE WITNESS: I need to analyze. I cannot

1 do it on the fly.

2 BY MS. GREWAL:

3 Q. You do not have an opinion about the file  
4 history in your declaration; is that correct,  
5 Dr. Lavian?

6 A. In my declaration, I didn't opine on the  
7 file history.

8 Q. And why is that?

9 A. Because I had enough information that I  
10 needed in the information that I needed. I opined  
11 on what I think is important.

12 Q. You did not think that the file history was  
13 important?

14 A. File history is important, but that's not  
15 what my case. My -- what I wanted to show, prior  
16 art and review each and every limitation. And I  
17 have done this.

18 Q. Would you agree with me that the file  
19 history can inform you as to what the -- what  
20 Claim 1 teaches?

21 A. Absolutely.

22 Q. But you chose not to look at the file  
23 history or opine as to the prosecution of Claim 1 --  
24 the amendments of Claim 1 that resulted in the  
25 issued Claim 1 that you were mapping to Jones and

1 Tonelli?  
 2 MR. MACE: Object to form.  
 3 THE WITNESS: I'm not sure I understand  
 4 your question.  
 5 I reviewed it, and I think it's important,  
 6 but it was not important for me to -- in my  
 7 analysis.  
 8 BY MS. GREWAL:  
 9 Q. Since we've marked 2003, the court reporter  
 10 will hand you Exhibit 2002, which is the second  
 11 amendment to Claim 1.  
 12 (Deposition Exhibit 2002 was marked for  
 13 identification)  
 14 BY MS. GREWAL:  
 15 Q. In particular, Exhibit 2002 is the April  
 16 2005 amendment and response filed with the Patent  
 17 Office during the prosecution of the application  
 18 that issued as the '411 patent.  
 19 Do you recognize this April 2005 amendment  
 20 and response of Exhibit 2002, Dr. Lavian?  
 21 A. Yes.  
 22 Q. In this April 2005 amendment, the applicant  
 23 further amended Claim 1; correct?  
 24 A. Yes.  
 25 Q. The applicant added a new first limitation

1 before what was the first limitation; correct?  
 2 MR. MACE: Object to form.  
 3 THE WITNESS: Can you please repeat?  
 4 BY MS. GREWAL:  
 5 Q. Sure.  
 6 The applicant added a new first limitation  
 7 before what was the first limitation; correct?  
 8 MR. MACE: Object to form.  
 9 THE WITNESS: I'm not sure I understand  
 10 your question, but if I -- I believe that I can  
 11 interpret your question that basically adding the  
 12 creating list of existing tuple from the existing  
 13 topology presenting nodal connection in network or  
 14 a -- network at the prior time, that's the new claim  
 15 element. It now is the first element.  
 16 BY MS. GREWAL:  
 17 Q. That is correct, which was added by this  
 18 amendment; correct?  
 19 A. Yes.  
 20 Q. And this new first limitation refers to a  
 21 list of existing tuples; correct?  
 22 A. It states, "Creating a list of existing  
 23 tuples."  
 24 Q. Okay. And what becomes the second  
 25 limitation of Claim 1 had been the first limitation

1 in the October 2004 amendment we were reviewing,  
 2 which was Exhibit 2001; correct?  
 3 MR. MACE: Object to form.  
 4 THE WITNESS: I'm not sure I understand  
 5 your question.  
 6 BY MS. GREWAL:  
 7 Q. What becomes the second limitation of Claim  
 8 1 in this amendment of Exhibit 2002 had been the  
 9 first limitation in the prior exhibit that we were  
 10 reviewing, the October 2004 Exhibit 2001?  
 11 MR. MACE: Object to form.  
 12 THE WITNESS: Some form of revision of it.  
 13 BY MS. GREWAL:  
 14 Q. Correct.  
 15 And the second limitation of the April 2005  
 16 version of Claim 1, which is in Exhibit 2002, is  
 17 amended to change "a plurality of tuples" to "a new  
 18 list of a plurality of tuples," correct, along with  
 19 other changes?  
 20 A. Yes.  
 21 Q. The changes to the second limitation  
 22 differentiate the list of tuples in the second  
 23 limitation from the list of existing tuples from the  
 24 first limitation; correct?  
 25 A. I'm not sure I understand your question. I

1 didn't opine on this, and I don't have an opinion on  
 2 this.  
 3 I cannot answer without seeing the Office  
 4 Action that the examiner say -- sent before. I  
 5 don't know what -- if they discuss it before. I  
 6 don't know if they had an interview between them  
 7 before, between the examiner and the applicant. I  
 8 don't have any information.  
 9 I cannot answer, and I don't have any  
 10 opinion without really reviewing the material. It  
 11 would be unprofessional for me to opine on this now.  
 12 What I can see is just to see if it's -- I  
 13 can see the language change. Yes, I can see the  
 14 language change. That's all I can see. Nothing  
 15 more than this.  
 16 Q. Dr. Lavian, do you know if there was a  
 17 interview with the examiner when you reviewed the  
 18 file history?  
 19 A. I -- I don't remember.  
 20 Q. If you compare -- we are looking just at  
 21 the amendments to Claim 1.  
 22 There were two amendments. I provided the  
 23 two amendments and the entire file history. I'm  
 24 merely asking you to look at these two amendments  
 25 and answer these questions.

1 A. I don't have an opinion. I didn't opine,  
2 and I don't know, top of my head -- this was almost  
3 one year ago. And I didn't provide any opinion  
4 regarding the file history, and I didn't provide --  
5 I don't have in front of me any information about  
6 previous -- the actual Office Action and what was  
7 said in the Office Action. And I don't know any  
8 information currently when I am sitting.

9 If I will have the time and I will analyze  
10 it, I will be able to provide an opinion.  
11 Currently, that's not the question that I was asked  
12 in my declaration.

13 In my declaration, I was asked to opine  
14 regarding Claim 1 and claim 3, and map them -- and  
15 opine about prior art related to them.

16 Q. And to better understand Claim 1 and Claim  
17 3, you did not think it important to review the file  
18 history that provides some understanding of what  
19 Claim 1 teaches?

20 MR. MACE: Object to form.

21 THE WITNESS: I reviewed -- I reviewed the  
22 file history.

23 BY MS. GREWAL:

24 Q. So did you or did you not analyze the file  
25 history?

1 A. I reviewed the file history. I analyzed  
2 the file history. It was about a year ago -- almost  
3 a year ago. I didn't opine on it.

4 Q. Okay. So, Dr. Lavian, what did you do  
5 today to prepare -- sorry.

6 What did you do to prepare for today's  
7 deposition?

8 A. I reviewed the material.

9 Q. And what material?

10 A. I have reviewed my declaration. I reviewed  
11 the patents. I -- I worked with the attorney. I  
12 discussed the material.

13 Basically, I did a preparation for a  
14 deposition.

15 Q. And in your preparation for today's  
16 deposition, you did not review the file history?

17 A. For today's deposition, I didn't. I did it  
18 a year ago.

19 Q. So you mentioned you worked with the  
20 attorney.

21 Is -- is the attorney Mr. Mace?

22 A. Andrew Mace, yes.

23 Q. Okay. And how long did you -- when you  
24 said "work," is that an in-person meeting with --

25 A. We had several in-person meetings, yes.

1 Q. Okay. For approximately how long, if you  
2 have to aggregate over the several meetings?

3 A. The meetings with Andrew Mace was several  
4 meetings, each one of them for a few hours.

5 Q. So about 10 hours or thereabouts?

6 A. Approximately.

7 Q. Okay. Did you have any telephonic  
8 discussions --

9 A. Yes.

10 Q. -- with Mr. Mace as well?

11 A. Yes.

12 Q. And about how long were those telephonic  
13 discussions with Mr. Mace to prepare for your  
14 declaration -- for your deposition?

15 A. I don't remember. We -- in the last few  
16 weeks, I reviewed the material back and forth.

17 Actually, it's more than the last few  
18 weeks. As soon as I got the information a few  
19 months ago, I just reviewed the material.

20 Q. Have you ever designed a network topology,  
21 Dr. Lavian?

22 A. Absolutely.

23 Q. And you have used a system to identify and  
24 update a topology in your work experience?

25 A. Absolutely.

1 Q. Dr. Lavian, can you turn to your  
2 declaration, Exhibit 1002, in particular to page 59.

3 A. Which paragraph?

4 Q. Page 59, under "Accomplishments."

5 MR. MACE: Page 59.

6 BY MS. GREWAL:

7 Q. Not paragraph, sorry, page 59.

8 A. Page 59. Yes.

9 Q. Your CV indicates that you have prosecuted  
10 over 50 patent applications pro se in front of the  
11 USPTO; correct?

12 A. Yes.

13 Q. So you're familiar with responding to  
14 Office Actions; correct?

15 A. Yes.

16 Q. Have you ever responded to a rejection in  
17 an Office Action?

18 A. Yes.

19 Q. Have you responded to a rejection by making  
20 amendments in an Office Action?

21 A. Yes.

22 Q. And you consider the file history an  
23 important part of understanding the claims of a  
24 patent?

25 A. Absolutely.

1 Q. Yet you did not opine about the prosecution  
 2 of Claim 1 in its file history; is that correct?  
 3 MR. MACE: Object to form.  
 4 THE WITNESS: I didn't think it's important  
 5 in this case to what I needed to do.  
 6 There is 2000 pages. I didn't opine on  
 7 many different things. There are many different  
 8 information.  
 9 I think it's -- file history is very  
 10 important. I reviewed it carefully. And I wrote my  
 11 declaration.  
 12 I didn't think, and I still don't think,  
 13 that I -- I don't have an opinion specifically to  
 14 the file history that related to what I wanted to do  
 15 in my -- in my declaration.  
 16 BY MS. GREWAL:  
 17 Q. So you could understand Claim 1 and Claim 3  
 18 without analyzing the amendments to Claim --  
 19 A. That's not what I said.  
 20 Q. -- 1?  
 21 Do you think the review of the amendments  
 22 in a file history are important to understanding the  
 23 claim of the claim language?  
 24 A. Absolutely. Absolutely.  
 25 Q. And you did not provide the analysis in

1 your declaration?  
 2 A. I analyzed it. I reviewed it. I have  
 3 limitation of what I can do in my declaration.  
 4 I can -- if I would like to put all the  
 5 information, it can be a thousand pages of  
 6 declaration.  
 7 I didn't think it is relevant to what I  
 8 wanted to show. If I -- if I -- if I would think  
 9 that it is important, I would put it. I didn't  
 10 think it's important.  
 11 It is very important to analyze the claim  
 12 history. Claim language is very important. File  
 13 history is very important.  
 14 I chose not to put it in my declaration  
 15 because it's not important to what I have done.  
 16 Q. And why is it --  
 17 (Pause in the proceedings.)  
 18 BY MS. GREWAL:  
 19 Q. And why is it important to analyze the file  
 20 history?  
 21 A. File history is very important to  
 22 understand the claim language, the claim limitation,  
 23 the scope of the patent. File history in general is  
 24 a very important tool. To understand the claims,  
 25 you have to see -- to look at a file history.

1 Q. But you did not provide any opinion as to  
 2 your understanding of the claims with respect to a  
 3 review of the file history; is that correct?  
 4 A. I didn't --  
 5 MR. MACE: Object.  
 6 THE WITNESS: -- opine on the file history  
 7 specific.  
 8 I didn't opine on many different things as  
 9 well.  
 10 MS. GREWAL: Okay. I have no further  
 11 questions, Dr. Lavian. Thank you for your time.  
 12 THE WITNESS: Thank you very much.  
 13 MR. MACE: I have no questions.  
 14 THE VIDEOGRAPHER: This marks the end of  
 15 Disc 4, Volume I, and ends today's deposition of  
 16 Dr. Tal Lavian.  
 17 The time is 6:22. We're off the record.  
 18 (Time noted: 6:22 p.m.)  
 19  
 20  
 21  
 22  
 23  
 24  
 25

1 DECLARATION UNDER PENALTY OF PERJURY  
 2  
 3 I, TAL LAVIAN, Ph.D., do hereby certify under  
 4 penalty of perjury that I have read the foregoing  
 5 transcript of my deposition taken on November 16,  
 6 2015; that I have made such corrections as appear  
 7 noted herein in ink, initialed by me; that my  
 8 testimony as contained herein, as corrected, is true  
 9 and correct.  
 10  
 11 DATED this \_\_\_\_\_ day of \_\_\_\_\_  
 12 2015, at \_\_\_\_\_, California.  
 13  
 14  
 15  
 16 \_\_\_\_\_  
 17 TAL LAVIAN, Ph.D.  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25

1 STATE OF CALIFORNIA )  
 2 :ss  
 3 COUNTY OF SAN MATEO )  
 4 I, CYNTHIA MANNING, a Certified Shorthand  
 5 Reporter of the State of California, do hereby  
 6 certify:

7 That the foregoing proceedings were taken  
 8 before me at the time and place herein set forth;  
 9 that any witnesses in the foregoing proceedings,  
 10 prior to testifying, were placed under oath; that a  
 11 verbatim record of the proceedings was made by me  
 12 using machine shorthand which was thereafter  
 13 transcribed under my direction; further, that the  
 14 foregoing is an accurate transcription thereof.

15 I further certify that I am neither  
 16 financially interested in the action, nor a relative  
 17 or employee of any attorney of any of the parties.

18  
 19 IN WITNESS WHEREOF, I have subscribed my  
 20 name this 16th day of November 2015.

21  
 22 \_\_\_\_\_  
 23 CYNTHIA MANNING, CSR No. 7645, CCRR, CLR  
 24  
 25

I N D E X

1  
 2  
 3 MONDAY, NOVEMBER 16, 2015  
 4 DEPOSITION OF TAL LAVIAN, Ph.D.

5 EXAMINATION PAGE  
 6 BY MS. GREWAL 5  
 7 AFTERNOON SESSION 108  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25

1 I N D E X (Continued)  
 2 DEPOSITION EXHIBITS  
 3 NUMBER PAGE  
 4  
 5 Exhibit 2001 Amendment and Request For 238  
 6 Reconsideration, Serial  
 7 No. 09/703,942  
 8  
 9 Exhibit 2002 Response To Final 246  
 10 Office Action, Serial  
 11 No. 09/703,942  
 12  
 13 Exhibit 2003 File History 243  
 14  
 15 \* \* \*  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25

1 NAME OF CASE:  
 2 DATE OF DEPOSITION:  
 3 NAME OF WITNESS:  
 4 Reason Codes:  
 5 1. To clarify the record.  
 6 2. To conform to the facts.  
 7 3. To correct transcription errors.  
 8 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 9 From \_\_\_\_\_ to \_\_\_\_\_  
 10 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 11 From \_\_\_\_\_ to \_\_\_\_\_  
 12 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 13 From \_\_\_\_\_ to \_\_\_\_\_  
 14 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 15 From \_\_\_\_\_ to \_\_\_\_\_  
 16 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 17 From \_\_\_\_\_ to \_\_\_\_\_  
 18 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 19 From \_\_\_\_\_ to \_\_\_\_\_  
 20 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 21 From \_\_\_\_\_ to \_\_\_\_\_  
 22 Page \_\_\_\_\_ Line \_\_\_\_\_ Reason \_\_\_\_\_  
 23 From \_\_\_\_\_ to \_\_\_\_\_  
 24  
 25

A				
<b>\$60,000 (1)</b>	<b>add (8)</b>	<b>allow (5)</b>	184:9	143:13 153:16 167:25
12:12	27:15,16 98:20,22	21:11 45:9 49:3 198:9	<b>anyway (1)</b>	171:5
<b>\$80,000 (1)</b>	133:9,14 186:7,7	200:12	213:11	<b>articulated (3)</b>
12:12	<b>added (5)</b>	<b>allowed (1)</b>	<b>apologies (4)</b>	12:24 71:14 218:21
<b>a.m (5)</b>	98:14 109:20 246:25	241:13	53:4 72:17 93:13	<b>aside (7)</b>
2:4 4:2,13 9:23,23	247:6,17	<b>allows (1)</b>	215:19	30:2 32:11 39:12,17
<b>ability (1)</b>	<b>adding (6)</b>	46:10	<b>apologize (2)</b>	76:23 78:4 127:23
6:3	98:24 150:23,24	<b>Alternative (1)</b>	75:11 174:22	<b>asked (6)</b>
<b>able (1)</b>	164:8 165:17	150:3	<b>Appeal (3)</b>	35:25 220:10 225:7
250:10	247:11	<b>Alto (5)</b>	1:2 4:9 14:11	243:12 250:11,13
<b>absolutely (11)</b>	<b>additional (12)</b>	1:15 2:10 3:7 4:1,12	<b>appear (6)</b>	<b>asking (36)</b>
106:21 126:2 226:7	18:16,23 19:21 20:5	<b>amended (3)</b>	23:6 103:13 169:22	5:20 17:1 30:20 38:6
233:5 235:3 245:21	83:11 109:2 110:23	239:4 246:23 248:17	171:16,18 257:6	46:18 91:2 96:19
252:22,25 253:25	212:12 217:15	<b>amendment (18)</b>	<b>appeared (1)</b>	115:23 137:17
254:24,24	220:11 241:17,17	238:21 239:3 241:11	197:3	138:9 163:9 169:12
<b>abstract (7)</b>	<b>additionally (1)</b>	241:25 242:4,11,12	<b>appears (6)</b>	172:13 173:8,17
15:4 192:25 193:17	17:14	242:18 243:4,6	45:14 171:17 240:25	174:3 178:9,9,21
195:13,23 207:3,4	<b>address (12)</b>	246:11,16,19,22	241:4 242:8,15	188:20 196:18
<b>access (1)</b>	5:14 13:9 91:20	247:18 248:1,8	<b>applicant (6)</b>	203:14 221:8 223:3
194:10	126:11,11 129:1	260:5	239:4 242:19 246:22	223:4,23,24 241:23
<b>accessed (1)</b>	132:11 148:1	<b>amendments (10)</b>	246:25 247:6 249:7	241:25 242:3 244:3
206:22	198:18 200:20	240:19 244:7 245:24	<b>application (2)</b>	244:12,12,15,16
<b>accesses (4)</b>	229:3,5	249:21,22,23,24	242:5 246:17	249:24
55:24 193:23 194:10	<b>addresses (1)</b>	253:20 254:18,21	<b>applications (1)</b>	<b>aspect (2)</b>
205:24	42:17	<b>amount (12)</b>	253:10	236:10,21
<b>accessing (5)</b>	<b>administrator (1)</b>	8:25 11:25 21:13,16	<b>approximate (1)</b>	<b>assembled (1)</b>
62:1 177:24 198:15	16:14	118:13,20 119:20	10:19	90:16
200:17 206:11	<b>advisor (1)</b>	185:11 228:8 229:8	<b>approximately (10)</b>	<b>assembles (1)</b>
<b>Accomplishments (1)</b>	12:13	233:12 238:10	4:13 8:24 10:18 11:22	91:7
253:4	<b>AFTERNOON (2)</b>	<b>analysis (9)</b>	54:3,6,7,10 252:1,6	<b>association (1)</b>
<b>accurate (17)</b>	108:1 259:8	13:14 26:15 28:2 75:7	<b>approximation (2)</b>	4:18
7:11,16 154:22	<b>agent (2)</b>	76:2 242:20,22	10:1 11:4	<b>assorted (3)</b>
158:18,21 159:12	101:17 229:2	246:7 254:25	<b>April (4)</b>	190:18 192:22 207:10
159:22 160:3,14,24	<b>agents (2)</b>	<b>analyze (15)</b>	246:15,19,22 248:15	<b>assume (3)</b>
172:7,20 177:25	85:20 86:3	189:14,16 223:4	<b>arbitration (1)</b>	50:21 101:6,7
178:5 217:2 218:19	<b>aggregate (1)</b>	240:12,14 241:12	9:11	<b>attached (1)</b>
258:14	252:2	241:14,15 242:17	<b>arbitrator (1)</b>	177:22
<b>accurately (2)</b>	<b>aggregating (1)</b>	244:12,25 250:9,24	9:9	<b>attempt (3)</b>
5:25 6:3	174:23	255:11,19	<b>architecture (1)</b>	149:21 150:12 169:3
<b>achieve (1)</b>	<b>ago (6)</b>	<b>analyzed (4)</b>	105:22	<b>attempts (3)</b>
143:16	170:19 250:3 251:2,3	189:15 208:9 251:1	<b>area (1)</b>	147:15,20 170:6
<b>acquired (6)</b>	251:18 252:19	255:2	6:21	<b>attention (5)</b>
41:24 42:1,4 219:19	<b>agree (12)</b>	<b>analyzing (3)</b>	<b>arised (1)</b>	7:13 12:20 52:4 62:14
219:22 220:9	64:2 70:2 114:9	53:23 54:1 254:18	152:9	78:5
<b>action (12)</b>	115:24 116:2 123:2	<b>Andrew (4)</b>	<b>arises (1)</b>	<b>attorney (4)</b>
57:16 59:13 241:7,18	165:2 187:14 205:7	3:8 4:24 251:22 252:3	152:1	251:11,20,21 258:17
241:23 249:4 250:6	212:16 239:22	<b>answer (11)</b>	<b>arrive (1)</b>	<b>Attorneys (2)</b>
250:7 253:17,20	245:18	6:8 36:11 118:19	97:9	3:4,11
258:16 260:10	<b>agreed (3)</b>	169:13 172:15,18	<b>arrow (2)</b>	<b>audit (50)</b>
<b>Actions (1)</b>	122:9,12 146:22	244:17,17 249:3,9	61:24 136:21	16:7 45:5,8,11 46:10
253:14	<b>al (1)</b>	249:25	<b>arrows (1)</b>	46:11,16,25 47:2,6
<b>active (1)</b>	146:5	<b>antedecedent (2)</b>	62:8	48:24 49:3,5,8,19
110:21	<b>albeit (1)</b>	240:1,10	<b>art (5)</b>	49:19,20,23,23,24
<b>actual (3)</b>	28:9	<b>anymore (8)</b>	12:18 13:2 213:20	50:4,5,7,8,11,12,18
170:18 181:2 250:6	<b>alive (2)</b>	98:10 102:5,6,8,19	245:16 250:15	50:19,23,25 52:12
	110:22 112:6	104:22 173:22	<b>articulate (4)</b>	52:14,18,21 231:2,8

231:9,15,18 232:2,3 232:7,8,11,23 235:5 235:12 236:20 237:23 238:5	26:12,20 30:21 31:8 31:14,23 32:3 33:1 33:14 34:13 36:11 42:7 43:3,7 44:7 45:24 46:3 48:9 49:3,14 50:1 51:6 52:1 57:2,7 58:7 61:17,20 63:8 77:19 79:10 80:8 82:6 83:2,7,8 98:20 101:24 102:21 105:2 111:4 114:15 116:15 117:13 118:13,19 119:17 119:23 139:9 152:7 157:4 164:7,9 165:8 166:5,22 168:10,13 168:15 184:6 192:1 192:6,17,22 194:7 196:8,10 199:21 207:4,8 209:5 210:17 217:12 224:4 233:11 234:12 235:22 237:14 247:11 251:13	156:18,20,22 157:2 157:4 158:4 168:5 171:5 174:18 186:16,19,20,21	184:5	122:14,19,25 123:5 124:14 127:10,15 127:18 128:12 129:8 130:5,24 131:3,18,21 132:1 132:22 133:20 134:6,11,20,22 139:9,10,18 141:5 141:20 142:1,5,21 143:7 144:11,14,18 144:23 145:4,24 146:4,14,17,25 147:4 153:8 154:3 154:11,15,24 155:3 155:5,18 159:7,13 160:9 162:18,22 163:4,16,21 164:1 165:3,14 166:11 167:19 168:1 170:9 171:1,8,24 172:9,21 173:11 174:16,20 180:15,25 181:11 182:16,24 183:11 183:25 184:15 185:4 187:9 191:15 192:4,7 199:24 210:25 211:1 212:10 213:2,3 221:14 225:18
<b>auditing (6)</b> 16:10 236:11,15,23 237:13 238:7	<b>auditing (6)</b> 16:10 236:11,15,23 237:13 238:7	<b>benefits (14)</b> 109:3 124:10,11,11 140:1,12 143:16 153:20,24 156:10 156:14,15 157:9 171:7	<b>building (14)</b> 19:15 21:6 25:12 57:3 82:7,15,18 85:24 91:20 155:17,19 157:18 158:13 234:16	<b>building-phase (1)</b> 170:5
<b>availability (1)</b> 187:22	<b>availability (1)</b> 187:22	<b>Berkeley (1)</b> 6:13	<b>building-phase (1)</b> 170:5	<b>built (1)</b> 92:19
<b>available (5)</b> 53:5 160:19 173:25 202:13 208:12	<b>available (5)</b> 53:5 160:19 173:25 202:13 208:12	<b>best (2)</b> 73:20 237:22	<b>builds (14)</b> 66:21 72:3,10,15 80:17 81:4 84:18 86:22 183:2,8,13 184:1 198:22 200:23	<b>built (1)</b> 92:19
<b>Aviv (2)</b> 6:16,18	<b>Aviv (2)</b> 6:16,18	<b>better (1)</b> 250:16	<b>built (1)</b> 92:19	
<b>B</b>	<b>B</b>	<b>beyond (1)</b> 217:15	<b>C</b>	
<b>B (18)</b> 69:3 133:14,17 134:1 134:18 135:3,5,18 135:19 181:16,17 184:7,8,9,11 234:24 237:10,11	<b>B (18)</b> 69:3 133:14,17 134:1 134:18 135:3,5,18 135:19 181:16,17 184:7,8,9,11 234:24 237:10,11	<b>bi-directional (1)</b> 61:23	<b>C (2)</b> 3:1 184:11	<b>California (9)</b> 1:15 2:10,12 4:1,12 5:16 257:12 258:1,5
<b>bachelor (1)</b> 6:17	<b>bachelor (1)</b> 6:17	<b>big (2)</b> 243:17 244:1	<b>CA (1)</b> 3:7	<b>call (7)</b> 16:13,15 50:4 69:10 69:16 70:4,5
<b>back (29)</b> 10:21 19:8,11 49:14 54:13 58:11,11 63:19,25 64:22 71:16 72:20 76:23 78:5 89:5 92:12 108:6 112:12 133:9 179:2 189:3,4 206:10 225:13 235:22 238:2 242:7 244:19 252:16	<b>back (29)</b> 10:21 19:8,11 49:14 54:13 58:11,11 63:19,25 64:22 71:16 72:20 76:23 78:5 89:5 92:12 108:6 112:12 133:9 179:2 189:3,4 206:10 225:13 235:22 238:2 242:7 244:19 252:16	<b>billions (1)</b> 103:25	<b>cable (4)</b> 91:11,24 98:14 102:3	<b>called (4)</b> 7:24 14:9 20:10 92:8
<b>background (2)</b> 6:12 15:7	<b>background (2)</b> 6:12 15:7	<b>bit (5)</b> 9:21,25 19:10 125:17 163:8	<b>calculate (10)</b> 19:14 96:12 99:10 124:19 136:1 165:13 177:9 192:3 199:24 213:6	<b>calling (1)</b> 164:14
<b>bandwidth (1)</b> 126:16	<b>bandwidth (1)</b> 126:16	<b>bits (1)</b> 186:3	<b>calculated (1)</b> 136:11	<b>care (1)</b> 53:7
<b>base (1)</b> 115:13	<b>base (1)</b> 115:13	<b>block (11)</b> 54:18 59:13 62:15,21 63:11,20 64:2,13,24 79:6,6	<b>calculates (1)</b> 96:16	<b>carefully (1)</b> 254:10
<b>based (24)</b> 14:16 23:20 68:9 84:17 86:21 88:4 90:18 146:8 157:19 158:3,12 163:20 165:3 170:8 173:3 175:24 179:18 185:14 198:20 199:25 200:22 228:4 233:24 241:23	<b>based (24)</b> 14:16 23:20 68:9 84:17 86:21 88:4 90:18 146:8 157:19 158:3,12 163:20 165:3 170:8 173:3 175:24 179:18 185:14 198:20 199:25 200:22 228:4 233:24 241:23	<b>Board (3)</b> 1:2 4:9 14:11	<b>calculation (7)</b> 21:11,24 104:5 105:5 191:16 212:11 213:11	<b>case (14)</b> 1:5 4:10 6:7 9:6,8 10:6 32:9 90:15 197:3 213:5 240:14 245:15 254:5 261:1
<b>basically (91)</b> 7:19 12:4 17:6 18:13 18:15 19:5,14 20:5 21:10 22:19 24:1	<b>basically (91)</b> 7:19 12:4 17:6 18:13 18:15 19:5,14 20:5 21:10 22:19 24:1	<b>bottom (1)</b> 231:5	<b>calculations (1)</b> 22:3	<b>cases (5)</b> 7:18,20,21 54:10 160:16
		<b>box (14)</b> 82:14 83:12,25 84:1 88:9 89:5 93:4,9,15 94:8,9 99:22 104:12 138:23	<b>calculator (150)</b> 18:5,18 20:21,24,25 21:19,21 22:23 23:7 23:23 58:10 95:20 96:6,15 97:4,16,23 98:1,22,23 99:13,17 99:25 100:8,20,21 101:3 102:21 103:14 108:10,25 110:24 111:16,22 112:24 113:10,14 113:17 114:17,23 115:5,14,19 116:7 117:6 118:2,8 119:4 120:1,15,20 121:6 121:14,19,24 122:1	<b>centered (1)</b> 51:9
		<b>boxes (1)</b> 87:5	<b>centered (1)</b> 51:9	<b>certain (1)</b>
		<b>break (12)</b> 8:9,17 53:3,8 72:19 73:8 105:25 106:23 151:2,13 189:22 225:7		
		<b>broke (1)</b> 225:6		
		<b>build (7)</b> 80:24 85:23,25 171:23 183:9,16		



14:12	77:9,12,14,23,25	26:20 35:24 59:4	159:4,23 160:1,4,7	141:2,17 209:20
<b>Certified (4)</b>	78:3,12 79:3,4 84:5	73:25 75:1,11 77:12	160:14,25 161:11	210:10
2:11,12,12 258:4	84:9,12 99:6 187:25	114:20 119:22	162:11,12,15,16	<b>comparing (35)</b>
<b>certify (3)</b>	188:2,16,18 189:1	220:16 229:22	163:13,14 165:4	18:1 31:11 34:4,13,14
257:3 258:6,15	189:16 214:9	<b>clearly (4)</b>	167:10,12,17	35:5,11,25 36:15,16
<b>cetera (1)</b>	216:17,19 221:10	35:10 61:9 236:21	168:19,21,22,25	36:17 38:8,24 39:19
201:8	221:19 222:15,16	238:7	169:25 170:2,20,25	41:23 42:19,22,23
<b>change (15)</b>	222:17,25 223:3,21	<b>close (2)</b>	173:14,14 174:25	43:6 45:13,25 47:24
72:20 74:24 81:22	223:23 230:22	8:20 136:12	175:5,8 177:12,15	48:13,14,19,23
98:21 103:6,10	232:18 239:4,8,11	<b>closet (1)</b>	178:24 179:1,3,8,11	49:20 51:1,14 52:17
105:11,15 120:3	240:5,20,20,24	168:13	180:14,24 182:13	128:20 188:9
151:2 224:19 225:6	241:3,11 242:1,8,14	<b>CLR (2)</b>	182:17,23 184:24	220:19 227:21
248:17 249:13,14	242:18 244:8	1:24 258:23	190:16 192:21	234:22
<b>changed (8)</b>	245:20,23,24,25	<b>Codes (1)</b>	193:1,1,2,18 194:7	<b>comparison (15)</b>
81:12 103:16 140:15	246:11,23 247:14	261:4	194:7 195:13,13,17	34:8 36:20 39:9,13
140:16 148:17	247:25 248:7,16	<b>coherently (1)</b>	196:6 197:1,7,13	49:2,22 50:3 209:4
184:13 229:14	249:21 250:14,14	174:10	199:10 201:2,3	211:8,11 212:7
243:22	250:16,16,19 254:2	<b>collabor (1)</b>	204:4,16 205:20	213:1,11 220:24
<b>changes (27)</b>	254:17,17,18,23,23	19:7	206:14 207:6,14,15	221:3
34:6 35:7,9 46:1 47:3	255:11,12,22,22	<b>collect (1)</b>	208:10 228:21,22	<b>complete (16)</b>
52:15 57:16 59:14	<b>claimed (14)</b>	145:17	229:18 235:17	47:11 110:9 153:12
81:23 99:11 103:3,3	188:14,22 189:13	<b>collected (1)</b>	236:6,7,7,8	159:9,24 160:5,6,11
103:7 139:24	214:23,25 215:22	136:9	<b>columns (1)</b>	160:15 161:1,3,12
150:21 184:21	216:1,12,13,25	<b>collecting (2)</b>	59:16	161:14,17 164:20
188:10 202:14	231:15,19 232:11	123:25 136:2	<b>come (1)</b>	167:2
209:17,21 210:7,11	232:25	<b>collection (4)</b>	72:20	<b>completed (1)</b>
220:23 227:19	<b>claims (13)</b>	124:2 190:18 192:22	<b>common (1)</b>	110:12
231:11 248:19,21	14:12,17,23 24:11,15	207:10	135:25	<b>completes (7)</b>
<b>chart (5)</b>	40:20 240:21	<b>collects (1)</b>	<b>communicates (1)</b>	162:18 163:16,21,25
110:7 142:20 155:16	241:13,13 244:13	182:25	108:10	164:24 165:14
169:1 175:9	253:23 255:24	<b>column (168)</b>	<b>communicating (1)</b>	166:11
<b>check (9)</b>	256:2	23:3,16 24:5 41:11,11	7:3	<b>completing (1)</b>
8:10,14,20 18:25 19:1	<b>clarification (5)</b>	41:16 43:4,21 45:4	<b>communication (2)</b>	164:2
62:12 150:5 170:18	106:7 108:19,24	46:5,7 49:18 55:1	90:23 91:2	<b>complexity (4)</b>
235:24	159:19 234:7	55:11,20 56:4,9	<b>communications (7)</b>	164:8 168:18 186:7,8
<b>chose (2)</b>	<b>clarify (10)</b>	58:16 59:22 60:18	6:15,23,24 7:1 91:3	<b>complicated (4)</b>
245:22 255:14	28:18 44:17 60:13	62:14,18 65:8,9	150:9 189:9	21:12 184:19 199:12
<b>citation (2)</b>	93:10 123:16	66:8,10,11,17 68:4	<b>Company (2)</b>	199:13
206:2,11	126:10 136:20	71:16,23 76:24 78:5	1:8 4:9	<b>component (19)</b>
<b>citations (2)</b>	146:2 183:21 261:5	80:3,12,20 84:15	<b>compare (20)</b>	55:17 73:18 74:11,21
204:25 205:20	<b>class (1)</b>	86:19 87:8,12,20	9:22 38:10,12,13 45:9	75:20 76:6 80:12
<b>cite (5)</b>	152:16	88:17,25 90:11	46:10 49:4 52:1	191:23 192:9,9
190:16 196:4 197:1,3	<b>classified (4)</b>	92:16 95:22 96:4	57:14 59:11 202:25	193:4,10 194:2
199:5	152:2,6,10,15	97:14 108:13,17	203:19 209:8 211:6	195:8 199:6,9 201:5
<b>cites (1)</b>	<b>classify (1)</b>	109:23,25 110:6	211:17 212:24	204:10 206:10
193:16	152:18	111:13,20 112:17	213:6 233:13	<b>components (7)</b>
<b>claim (110)</b>	<b>clause (1)</b>	112:20,22 113:4,6	234:19 249:20	54:12 63:19 64:23
14:13 24:12 30:8	187:1	116:16 117:21	<b>compared (18)</b>	68:20 74:20 193:18
39:18 41:8 42:18,22	<b>clean (5)</b>	120:18 121:1	9:18 47:1 52:13 74:5	207:1
44:6 45:24 46:3	99:10 100:13,16,22	140:18,21 141:1	114:2 115:6,19	<b>comprises (1)</b>
47:20 48:20 52:18	100:25	142:12,14,15,18	116:9 117:6 118:9	219:19
69:17 70:14 71:14	<b>cleaned (1)</b>	143:1,2,5,6,25	119:10 132:21	<b>comprising (4)</b>
73:21,22,24 74:5,9	86:5	144:9 146:7 147:9	178:11 202:13	42:1,4 219:21 220:8
74:10,10,17,25,25	<b>cleanest (2)</b>	151:14,15,24 153:4	214:18 215:10	<b>compulsion (3)</b>
75:5,8,12,24,25	100:17 101:1	153:6 155:8,14	231:9 233:7	32:4,6 33:13
76:1,3,4,14,15,23	<b>clear (11)</b>	157:11,15 158:5,25	<b>compares (4)</b>	<b>computation (2)</b>

186:23,24 <b>computer (13)</b> 6:14,18 68:19 147:23 149:6 150:8 152:21 152:22,23 168:10 173:19 227:11 237:17 <b>computers (2)</b> 7:3 149:24 <b>concentrate (1)</b> 243:5 <b>concentrating (5)</b> 59:19 60:4 65:6,8 129:18 <b>concept (3)</b> 63:16 212:3 226:15 <b>concludes (1)</b> 144:18 <b>configuration (9)</b> 45:10,12 46:11,14,15 49:4,6,7 126:12 <b>configurations (1)</b> 49:25 <b>confirming (1)</b> 52:5 <b>conflict (19)</b> 147:19,22 148:3,11 148:18 149:25 150:2,3,5 152:1,3,3 152:9,10,13,25 169:19 170:7,10 <b>conflicted (1)</b> 170:16 <b>conflicting (2)</b> 167:21 168:5 <b>conflicts (7)</b> 147:16 148:7,20 149:11,21 169:4,9 <b>conform (1)</b> 261:6 <b>confused (4)</b> 40:9 146:1 163:8 210:3 <b>confusing (2)</b> 38:6 159:25 <b>conn-to-conn (1)</b> 144:19 <b>conn-to-host (3)</b> 144:16,17 146:19 <b>conn1 (2)</b> 159:6 160:8 <b>conn1-to-conn2 (2)</b> 159:8 160:10 <b>conn2 (12)</b> 162:17,19 163:15,17 163:19,22 164:3,3	165:12 166:8,10,12 <b>connect (15)</b> 61:19 91:11 101:19 102:2 128:11 139:19 165:12 167:5,6,7 173:19,20 173:21 184:6 227:11 <b>connected (56)</b> 20:8 61:18 86:16 101:7,11 102:1,5,6 102:8,14,20,20,23 105:14,14 106:9 110:20 111:7,8 112:5 120:9 133:14 152:21,22 154:1 157:24 158:16,22 168:11,12 169:16 171:13 175:20 176:1,10,15,17 181:15,16,17 182:6 182:8,8,9 184:6,8,9 184:10,11,20 227:10 229:6 234:23 237:10,11 237:17 <b>connection (207)</b> 18:18 20:20,24,25 21:18,20 22:23 23:7 23:23 24:24,25 27:16 32:24 36:5 58:10 74:3,13 76:19 95:20 96:6,15 97:3 97:7,16,23 98:1,8,9 98:10,13,19,20,20 98:21,23 99:13,16 99:25 100:8,19,21 101:3,9 102:1,7,8 102:17,18,21,24 103:11,14,15 108:9 108:25 110:20,24 111:15,21 112:24 113:10,14,17 114:17,23 115:5,14 115:19 116:7 117:5 118:2,8 119:4 120:1 120:8,9,10,15,20 121:6,14,19,23 122:1,14,19,25 123:5 124:14 127:10,15,17 128:12 129:7 130:5 130:24 131:2,18,21 131:25 132:14,22 132:25 133:2,20,20 134:6,7,11,20,22	138:17,18 139:10 139:18 141:5,20 142:1,5,21 143:7,18 143:21 144:11,14 144:17,23 145:4,24 146:4,14,17,24 147:4 149:16 152:8 152:12 153:8 154:2 154:10,15,24 155:3 155:5,18 158:23 159:7,12 160:9 162:18,22 163:4,16 163:21 164:1 165:2 165:14 166:11,23 167:19 168:1,9,14 169:16 170:9 171:1 171:8,13,24 172:8 172:21 173:11,19 174:16,20 177:21 177:23,24 178:1,12 178:13,13 180:15 180:25 181:11 182:15,24 183:11 183:25 184:15 185:3 187:8 191:15 192:3,7 194:21 199:24 210:25,25 212:4,9 213:2,3 221:14 225:18 227:10 247:13 <b>connection2 (1)</b> 165:15 <b>connections (59)</b> 25:19 27:24 28:9,11 28:13 29:3,4,16,20 30:6,12,14,16,17 32:25 34:17 35:15 37:7 38:22 51:5,5 69:24 70:17,21 71:1 74:23 75:16,22 76:8 90:19 102:19 106:10 167:5 175:19,25 176:9,14 176:19,22 177:18 178:6 181:14 188:4 190:19 191:24 192:11,23 193:5,13 194:3 195:4,10 196:24 197:18 199:17 204:8 205:14 227:13 239:13 <b>connectivity (10)</b> 90:18 108:20,24 109:10 173:4 181:2 181:4,24 198:7	200:9 <b>connector (18)</b> 18:5 139:9 163:17 165:13 166:13 167:6 168:9 170:5 175:20,21 176:1,2 176:10,11,15,16 198:13 200:15 <b>connector-to-conne...</b> 153:11 154:16 <b>connector-to-host (4)</b> 144:15 146:18 171:4 172:1 <b>connectors (18)</b> 151:21,25 155:20,25 156:8,11 157:22,24 158:5,14,15 177:19 177:20,22 198:5,8 200:8,10 <b>consider (3)</b> 12:16 13:13 253:22 <b>considered (2)</b> 12:18,25 <b>consolidate (1)</b> 179:19 <b>consolidated (1)</b> 179:13 <b>constant (23)</b> 93:23 94:2,3,20 100:6 119:15 120:5,7,11 139:15,15,16,16,18 139:18,19,20,21 229:9,15 230:3 237:3,3 <b>constantly (4)</b> 101:25 103:25 106:12 226:18 <b>construction (1)</b> 21:7 <b>Consulting (2)</b> 9:14,18 <b>contain (1)</b> 7:11 <b>contained (1)</b> 257:8 <b>containment (3)</b> 179:14,20 180:1 <b>contains (2)</b> 15:4,7 <b>context (1)</b> 51:11 <b>continuation (3)</b> 50:19 59:15 166:20 <b>continue (6)</b> 23:15 30:23 46:13 57:17 109:15,15	<b>continued (3)</b> 207:7,14 260:1 <b>continues (3)</b> 59:13 214:13 220:13 <b>continuous (2)</b> 25:11 59:16 <b>continuously (2)</b> 25:12 109:15 <b>convent (1)</b> 57:18 <b>convention (1)</b> 139:10 <b>convert (9)</b> 18:18 57:9,13,13,23 62:2 80:9 90:1 210:23 <b>converted (2)</b> 58:1 80:7 <b>converter (74)</b> 18:6 19:2,8 22:8 23:12,14,19 24:3 55:17,24 56:7,14,15 56:21 57:9,18,23 58:7,9,15,18,24 59:5,10,20,24 60:6 60:24 61:3,13,17,25 61:25 65:10,15,23 77:1,7,18 78:10,23 79:19 80:4 128:14 136:15,22 137:13 137:18,24 138:10 138:12 139:1,20 141:9,13,23 191:18 191:18 193:22 194:10,20 205:24 206:10,21 209:18 209:25 210:8,15,20 210:20 211:10,15 211:25 212:23 <b>converts (33)</b> 55:25 56:7,15,21 57:19,23 58:18,24 59:6,24 60:7,24 61:3,13 65:11,15,23 77:1,7,18,18,20,21 77:22,22 78:10,23 79:19 80:5 103:4 193:23 194:11 205:25 <b>Cooley (5)</b> 2:9 3:5 4:24 8:3,12 <b>copy (1)</b> 7:11 <b>correct (240)</b> 6:9 13:22,25 14:17,20 16:20 17:19 19:23
---	--	--	--	---

26:7 27:2 28:3,14 29:5,20 30:3 34:25 40:21 42:19 43:2,18 43:24 44:6,9 48:8 48:25 52:19 54:24 55:14,17 56:2,18 58:3,21 60:2 62:16 63:12,21 64:5,25 66:6,24 69:6 70:12 72:7 74:19 77:4 79:8,11 82:10,18 83:15 84:3 88:7,10 88:14 89:11,16,20 90:5 92:14,23 93:5 93:9,16 94:9,15,25 95:9,20 99:10 100:1 100:15,24 104:8,13 105:8 108:11 112:15 113:15,18 113:22 114:25 115:7,21 116:10 117:8,12 118:11 120:23 121:12,17 121:24 122:4,20 123:7 126:4 127:6 127:12,19 130:14 135:7 136:17 137:1 137:21 138:1,14 139:2 141:10,14,24 142:3,7,24 143:11 144:21,25 145:6,9 145:15,22,25 147:1 147:17 148:8,22 150:13 153:14,23 154:5,13,19 155:22 158:1 159:10,17 161:1,8,18,20 162:20,23 163:5,18 163:23 164:4 167:23 169:7,23 170:17 172:3 175:22 178:2,6 179:16 181:5 183:5 185:9,12 189:2 196:5,7 197:2,9,19 197:20 199:7 200:5 201:17,19,24 202:22 204:13 205:3 206:4 208:15 209:12,22 212:1,19 214:10,20,25 215:12,16,23 216:1 216:9,14,25 218:14 220:21 221:1,23 222:6,11,21 223:8 223:17 226:1	228:14,15 230:16 230:23 231:12,16 231:19 232:5,8 233:1 237:24 238:6 239:4,9,13,16,23 240:2,11,22 241:5 242:13,16 244:22 245:4 246:23 247:1 247:7,17,18,21 248:2,14,18,24 253:11,14 254:2 256:3 257:9 261:7 <b>corrected (1)</b> 257:8 <b>corrections (1)</b> 257:6 <b>correctly (24)</b> 58:22 60:3 67:2 68:24 71:8 77:5 88:8,23 90:20 92:25 121:9 142:25 144:22 155:23 158:2 162:21 167:24 169:8 179:17 181:6 183:6 185:10 210:12 214:21 <b>corresponds (3)</b> 141:9,13,23 <b>cost (1)</b> 187:21 <b>counsel (1)</b> 4:19 <b>counterpart (1)</b> 133:4 <b>COUNTY (1)</b> 258:3 <b>court (9)</b> 4:17 5:1 7:18,19,20 9:7,7 238:15 246:9 <b>covered (1)</b> 197:13 <b>create (56)</b> 19:19 21:23 25:10,23 25:24 26:10,11 32:2 33:7,13 36:13 40:4 45:2 67:25 76:7 81:10 83:13,18,19 84:10 89:6,12,14 90:8,8 94:21 114:24 115:1,3 119:8,16 132:8,24 133:3,4 156:9 190:17 192:21 193:12 194:2 195:2,9,16 196:22 197:17 199:4 203:17 204:6	205:13 206:8 221:4 226:6,10,22 228:4 233:3 <b>created (17)</b> 25:6,9 27:5 29:1 33:20 35:20 36:22 70:11 93:8,15 94:8 119:10 127:4 170:4 208:12,13 211:1 <b>creates (14)</b> 32:12 74:11,21 75:20 83:14 84:2 89:10 191:23 192:10 193:4 194:20 202:4 221:13 233:7 <b>creation (51)</b> 24:20,22 25:4,5,9,22 26:20,22 31:13,24 32:10,18 33:1,4,11 33:14,14,15,15 34:18,25 36:4,7 37:2,4,10 47:20,21 48:5,12,16,16 51:13 52:22 69:22 70:15 70:24 71:5 74:1 75:2,14 76:17 81:14 83:22 197:8 224:8 226:21 227:4 239:9 247:12,22 <b>creation (1)</b> 202:15 <b>CSR (2)</b> 1:24 258:23 <b>current (87)</b> 26:1,24,25 28:14 29:1 32:20 33:15 34:20 36:8 37:11 41:7 44:22 45:6 47:22 48:8,13 49:19,22,23 49:24 50:5,7,19,23 50:24 55:14 56:1 57:14 59:11 66:22 66:23 67:4,6,8,11 69:11,13 70:4 71:7 71:9,13 72:4,6,12 72:16 73:10 75:3 76:16 79:3,13,16,25 80:17 81:4,6 86:6 88:1,14,16 89:11,20 94:15,17,18 95:5 145:9,15 193:24 194:12 202:25 206:1 207:19 209:14 216:7 217:11,13 218:9,10 220:18,18,18	224:10,12,13 232:2 241:16,20 <b>currently (6)</b> 129:20 141:3,18 209:7 250:8,11 <b>cut (1)</b> 16:22 <b>CV (2)</b> 7:11 253:9 <b>cycle (2)</b> 11:9,20 <b>Cynthia (5)</b> 1:24 2:10 4:17 258:4 258:23 <hr/> <b>D</b> <hr/> <b>d (4)</b> 46:3 155:16 259:1 260:1 <b>data (313)</b> 18:16 19:14,21,22 20:1,5,11,17 21:13 21:16 22:5 23:8 41:18,20,21,23,23 41:25,25 42:1,4,5,6 42:8 43:10,12,13 45:2 46:25 47:2,6 48:24 49:13 50:5,8 50:11,13,24,25 51:2 51:2 52:12,14,19,21 57:2 58:11 66:20,20 66:23 67:3 71:19,19 72:2,2,5,13,14 79:13,13 80:16,16 80:23 81:3 82:6,10 83:11 84:19,23 85:8 85:9 86:10,11,12,23 86:25 87:16,24 89:3 90:3,4,8,9 92:14,18 92:19 93:5,8,11,20 93:22 94:12,20,22 94:23 95:3,9,10,13 95:14 96:7,7 97:17 97:17,24,24 98:2,2 98:18 99:13,14 100:10 109:2,8,8,9 109:14 110:9,11 111:24 112:1,25 113:8,15,15,18,18 113:20 114:9,16,24 114:24 115:7,11,13 115:20,25 116:10 116:13,20 117:7,25 118:10 119:2,24 120:21 121:7,11,15 121:20,22,23 122:2	122:2,10,12,19,20 122:21,23 123:1,4,5 123:12,21 124:15 124:15 125:2,6,9,10 126:25 127:3,11,16 127:25 128:21 129:2,20 130:11,19 130:21 131:5,13,16 131:22 133:21 134:18,19,21,23,23 135:3,6,18 136:25 138:1,13 144:24 145:5,6,12,21 147:6 153:23 154:4,12,18 154:25 159:9,16,24 160:5,6,11,15 161:1 161:4,4,12,14 162:19,23 163:5,17 163:22,22,25 164:2 164:3,4,6,11 165:15 166:12 172:2,10,22 173:25 179:9,13,19 190:18 191:10 192:23 194:6 198:7 198:12,15,23 200:10,14,17,24 201:8,13,15 202:3,6 202:6,21 203:11 204:12 207:10,12 207:17,17 209:12 210:2,16,21,22 211:11,25 212:8,18 214:16,18 215:8,10 216:8 217:11 219:5 219:14,15,17,18,19 219:21,21,22 220:3 220:8,8 222:21 229:4,14 231:2,8,10 231:15,18 232:2,8 232:11,23 235:5,12 236:15,20 237:23 238:5,5 <b>database (270)</b> 16:20 17:4,5,6,8,10 17:11,17 19:8,19,21 19:23 20:1,2,6,7,8 20:10,11,12,18 22:9 22:15,17,20,22 23:9 23:20,22 54:24 55:13,22,24 56:22 58:3,12,25 60:8 61:4,18,24 65:12 66:3 67:24 73:17 78:17,19 80:9,10 81:13 83:9,11 84:19 84:23,25 85:1,9,10
--	--	--	--	--

85:13,14,16 86:1,5 86:7,10,23 87:1 88:2 92:14,18 93:5 93:6,8,11,12,15 94:6,12,22,23 95:10 95:13 96:7,24 97:17 97:24 98:2,18 99:4 99:7,14 102:10 112:15 113:1,9,15 113:18,20 114:3,10 114:17,21,24 115:7 115:20,25 116:4,8 116:10,21 117:5,7 118:1,10 119:4,11 119:25 120:22 121:8,16,23 122:4 122:13 123:6,11,12 123:20,21 124:9,15 124:24,25 125:1,2,5 125:6,7,11,14 126:19,22 127:3,5 127:11,16,19,21 128:1,3,9,16,22 129:2,9,21,23 130:10,11,14 131:5 131:13,16,23 132:4 133:7,15,22 134:3,8 134:13,19,24 135:3 135:6,18,20,23 136:7,17 137:20 138:1,14 139:12,17 139:21 141:4,19 142:3,7,11 144:13 144:25 145:6,8,14 145:22 146:16,23 147:6 154:4,12,18 154:25 159:16 172:2,10,22 183:12 188:13,21 189:11 190:14 191:3,5,7,10 191:14,19 192:16 193:19,21,23 194:8 194:11,13,16,16 197:22 198:23 200:25 201:25,25 202:7,22 203:4,11 204:12 205:12,21 205:25 206:8,12,12 206:13,21 207:20 209:12 210:2,16,21 211:2,16,24,25 212:5,9,11,17,18,19 212:21,21,22,24 213:4,5,9,10,12 225:21	124:21,23 125:3 192:5 211:10 212:17 <b>datas (1)</b> 145:18 <b>dataset (43)</b> 41:9 42:4,8,9,11,25 43:1,17,19,22 44:25 45:1,2 49:13 136:25 137:8 214:23,24 215:22,25 216:12 216:23 217:3,4,15 217:16 218:20,21 219:24,25 221:22 222:5,5,9,10,24 223:8,17,20 224:3 224:14 225:15 238:4 <b>datasets (11)</b> 103:24 217:19 220:12 223:21 226:17,19 226:22 227:4,6,21 233:13 <b>date (3)</b> 135:4,4 261:2 <b>DATED (1)</b> 257:11 <b>day (10)</b> 22:8 99:7 100:17 101:1 211:5 229:11 229:24 237:16 257:11 258:20 <b>deals (1)</b> 205:9 <b>decide (1)</b> 227:11 <b>decisions (1)</b> 243:24 <b>declaration (78)</b> 7:9,10 12:15,17 13:9 13:16,20 26:6,15 28:2 40:13 41:6 42:16,20 44:2 45:15 46:5,21 48:12 54:1 62:4 67:15 190:7,10 191:23 202:11 208:9 213:20 214:7 214:13 216:4 217:7 218:22 219:9 220:6 220:11,14 221:23 222:4,19 223:15,24 223:25 224:2,6 225:24 226:23 227:23 228:3,11,21 230:18 231:22,25 232:21 233:18	235:6,12,16,21 236:1,5 238:6 240:22 245:4,6 250:12,13 251:10 252:14 253:2 254:11,15 255:1,3,6 255:14 257:1 <b>dedicated (1)</b> 177:19 <b>deficiency (4)</b> 164:25 165:22,24,25 <b>deficient (9)</b> 161:7,9,19,23,24 164:3,6,14,23 <b>Define (1)</b> 149:14 <b>definitely (4)</b> 38:8 226:18 229:16 230:4 <b>definition (1)</b> 233:11 <b>degree (2)</b> 161:8,10 <b>delete (1)</b> 27:16 <b>depend (7)</b> 105:22,22 129:10 186:2 187:20 212:20 234:10 <b>depends (18)</b> 10:8,8 11:1 12:13 25:21 105:21 132:19,19 137:3 185:24 186:11,12 186:25 187:18,24 234:5,9,10 <b>depiction (1)</b> 61:16 <b>deposed (1)</b> 8:23 <b>deposition (23)</b> 1:14 2:8 4:7,11 72:23 73:4 151:4,9 224:22 225:3 238:18 243:9 246:12 251:7,14,16 251:17 252:14 256:15 257:5 259:4 260:2 261:2 <b>describe (24)</b> 6:11,21 16:11 17:3,5 17:21,23 18:19 19:25 22:16 23:1,13 48:12 49:1 57:15 63:4,9,17 64:13,20 69:2 103:12 147:19 169:9	<b>described (15)</b> 46:6 48:6 62:10,24 64:4,23 68:14 87:3 87:4 158:5 166:7 182:25 183:25 213:20 227:3 <b>describes (11)</b> 16:9 17:25 46:24 48:24 52:11 84:8 214:16 215:7 231:1 231:7 233:18 <b>describing (1)</b> 26:17 <b>description (15)</b> 15:22 23:3,5,17 34:20 62:4 73:23 78:13 84:5,7,13 97:13 197:16 208:6 223:5 <b>descriptions (1)</b> 195:12 <b>design (3)</b> 16:7,15,15 <b>designed (1)</b> 252:20 <b>designer (1)</b> 16:12 <b>designing (1)</b> 16:10 <b>desired (3)</b> 88:20 198:4 200:5 <b>detail (1)</b> 19:3 <b>detailed (1)</b> 15:22 <b>details (10)</b> 18:12 21:9 64:23 65:3 89:2 142:9 153:12 195:22 196:1 204:23 <b>detect (1)</b> 184:21 <b>detected (1)</b> 88:5 <b>determination (1)</b> 145:5 <b>determine (11)</b> 14:12 90:17 96:8 97:18 98:3 99:15 155:20 156:7 198:17 200:19 202:14 <b>determined (1)</b> 68:23 <b>determines (3)</b> 99:18 144:14 146:17 <b>determining (2)</b>	155:24 156:11 <b>detract (1)</b> 174:14 <b>developed (1)</b> 13:21 <b>device (104)</b> 7:2 20:9 27:15,16,22 83:9 85:17,21 91:12 91:18,19 92:7 94:2 97:8,9 98:15 101:10 101:10 102:5,6,7,14 104:1 108:19,24 109:20,20 110:16 110:16,19 111:6,7 112:4 120:10 125:20,21 126:1,10 126:11,12 128:25 129:1,6,19,21,22,25 130:2,6,10,12,24 131:2,12,15,19,21 132:2,3,10,10,11,12 132:18,23,24 133:1 133:11,14,14,17 135:3,5 150:9 170:13 171:11,12 180:9,11 181:15,16 181:16,17,17 182:5 182:7 184:6,7,8,8,8 184:9,10,11 187:21 198:14 199:22 200:15 228:24,25 229:2,3,4,23 <b>devices (55)</b> 7:2 16:16 19:19 27:23 28:8,11,13 29:3,4 29:15,20 49:25 51:4 51:4 68:8 88:3 94:21 101:6,8 103:10,21,24 105:23 109:11,18 119:19 125:22 132:15,16,18 133:19 134:1,5,18 135:18,19 148:7,21 149:11 153:25 180:4 192:2 198:9 198:12,20 199:16 199:23 200:12,14 200:22 226:16 229:5 230:4 234:17 236:14 <b>devise (1)</b> 150:24 <b>diagram (23)</b> 54:19 57:10,11,12,21 62:15,21 63:8,12,14
--	--	--	--	--

63:20 64:3,12,13,14 64:24 79:6,6 84:8 94:10 138:16 191:1 211:14 <b>diagrams (7)</b> 63:14 64:10,10,17,19 173:16 208:2 <b>difference (4)</b> 30:2 85:8 96:17 156:24 <b>differences (10)</b> 16:18 26:8 50:1,2 51:3,3,7 96:13 211:18 241:12 <b>different (91)</b> 21:21 27:12,14,25 28:10 29:5,12 31:6 31:19 32:15 41:14 61:16 63:15 68:21 69:1 85:18 86:3,3,3 86:4 91:1,11 92:5 92:10 94:21 97:3 99:3 102:12 105:1 111:11 118:16 119:17,21 123:25 124:1,21,23 125:3,8 125:10 126:19,22 136:25 146:6 147:23 150:6,8,25 164:12,14 165:17 166:4,6,18 167:5,7 169:18,20 173:16 173:16,21 175:2 176:25 177:8,9 178:19 179:24,25 181:20 186:12 187:20,24 191:20 197:23 208:18,20 208:23,24,25 211:3 211:3 212:15 213:4 227:12 234:11,17 234:17 244:21 254:7,7 256:8 <b>differentiate (1)</b> 248:22 <b>dimension (3)</b> 31:16 38:14 217:20 <b>direct (7)</b> 7:13 12:20 52:3 138:18,18 143:20 152:12 <b>directed (1)</b> 44:5 <b>direction (4)</b> 31:1 38:15 143:18 258:13	<b>directly (13)</b> 22:2 157:24 158:15 158:23 168:9,11 175:20 176:1,10,15 212:1,4 229:6 <b>disagree (7)</b> 117:9,10 131:6 135:8 165:1,6,7 <b>Disc (8)</b> 4:6 72:23 73:4 151:4 151:9 224:22 225:2 256:15 <b>discard (3)</b> 59:12 141:7,22 <b>discards (2)</b> 141:5,20 <b>disclose (9)</b> 43:5 63:17 82:4,5,6 82:25 83:1,2 86:13 <b>discloses (11)</b> 16:19 17:18 19:22 23:12 214:15 215:6 217:2,21,22 218:20 222:4 <b>disclosure (1)</b> 205:21 <b>disconnect (3)</b> 91:10,24 102:2 <b>discover (6)</b> 236:13,24 237:7,8 238:8,9 <b>discovered (3)</b> 45:10 46:11 49:5 <b>discrete (1)</b> 131:10 <b>discuss (9)</b> 49:16,19 54:11 197:14,21,22,22 214:13 249:5 <b>discussed (16)</b> 20:22 45:20 48:5 57:5 63:23 79:12 150:16 154:2,10 183:10 195:21 196:1 207:4 207:5 227:3 251:12 <b>discusses (2)</b> 109:25 237:22 <b>discussing (10)</b> 78:6 79:5 151:14 175:12 178:16 182:15 189:12 214:8 230:21 240:19 <b>discussion (3)</b> 45:5 59:16 71:12 <b>discussions (2)</b>	252:8,13 <b>disprove (2)</b> 170:7,9 <b>distinct (1)</b> 239:15 <b>distinguish (2)</b> 73:22 143:9 <b>Doctor (1)</b> 235:2 <b>document (32)</b> 7:8 14:5 55:9 66:15 96:2 108:15 110:4 113:5 140:24 142:16 143:3 144:7 151:18 155:12 157:12 159:2 162:13 167:15 168:23 170:22 175:6 177:13 179:6 182:21 214:3 218:17 220:11 230:13 233:17 235:12 236:19 239:1 <b>documentation (1)</b> 243:23 <b>documented (3)</b> 219:10 220:6,15 <b>doing (20)</b> 22:5 27:10,11 34:7 39:8 47:20 67:5,6,7 95:7 100:20 197:17 201:8 202:5 224:16 224:16 225:8,9 226:13 234:4 <b>double (1)</b> 62:8 <b>Dr (86)</b> 4:7 5:15 6:11,22 12:16 22:14 24:9 30:7 35:18 40:5 42:16 46:18 53:22 53:22,25 54:11 57:22 58:14 59:19 62:11 67:14 70:20 72:23 73:4,8 74:11 75:9 82:4 86:12 91:14 99:12 104:13 108:6 112:12 117:21 121:12 133:5 138:7 139:5 140:18 143:25 147:9 149:20 151:4 151:9,13 155:8 160:13 164:18 169:15 172:16	173:10 174:5 182:16 184:23 187:25 190:6 203:22 213:19 216:18 218:19 221:5 223:17 224:22 225:3,6 227:23 228:10 230:6 233:19 235:4 237:19,22 238:15 238:25 239:6 241:22 243:13 245:5 246:20 249:16 251:4 252:21 253:1 256:11,16 <b>drafted (1)</b> 208:9 <b>draw (1)</b> 25:14 <b>drawings (1)</b> 15:16 <b>drawn (1)</b> 12:7 <b>Drive (1)</b> 5:15 <b>duly (1)</b> 5:5 <b>duplicates (2)</b> 141:7,22 <b>Dwayne (1)</b> 3:19 <b>Dwyane (1)</b> 4:14	6:12 <b>effort (1)</b> 204:11 <b>eight (1)</b> 195:21 <b>elaborate (3)</b> 57:7 60:13 65:2 <b>elaborated (1)</b> 18:13 <b>elaboration (10)</b> 18:21,23,24 19:4 20:4 21:2,4 23:24,25 64:9 <b>electrical (1)</b> 6:17 <b>electronic (1)</b> 68:20 <b>element (85)</b> 17:6 18:11,14,20 19:3 19:4,9,16 20:2,4 21:1,3 22:19,19 23:2,25,25 24:1 26:9,9,10,21 31:10 31:12,24,25 32:5,10 32:23 34:18 39:17 40:24 41:8 42:4,22 42:23 43:3 45:23,24 46:3 47:19 48:16,17 48:19,20 58:8,24 59:8,10 62:5 65:18 65:19 66:3,4 70:14 74:17 75:8,24,25 81:9,24,25 82:5 83:1,5,6,8,24 94:19 96:25 129:11 138:17,19 166:23 166:23 188:5 191:2 195:20,24 200:1 222:25 224:8,8 247:15,15 <b>elements (8)</b> 18:4,9 19:16 23:1 59:14 63:24 139:17 201:12 <b>embodiment (6)</b> 15:25 61:10,11 62:3,9 64:4 <b>embodiments (1)</b> 62:10 <b>employ (1)</b> 177:18 <b>employee (2)</b> 12:3 258:17 <b>endeavors (2)</b> 9:19 10:21 <b>ends (2)</b>
<b>E</b>				
<b>E (4)</b> 3:1,1 259:1 260:1				
<b>earlier (13)</b> 20:22 27:5 127:4,17 128:1,17,18 129:5 130:11 154:2,10 180:19 183:11				
<b>earliest (1)</b> 127:8				
<b>earned (2)</b> 11:2,11				
<b>easier (3)</b> 16:14 32:3 117:2				
<b>easiest (1)</b> 69:16				
<b>easily (1)</b> 54:4				
<b>easy-to-understand...</b> 196:13				
<b>educational (1)</b>				

94:1 256:15 <b>engineering (1)</b> 6:17 <b>ensure (3)</b> 159:8 160:10 161:11 <b>entire (11)</b> 118:25 172:12 195:18 196:9,14,16 204:21 207:25 241:8,10 249:23 <b>entries (1)</b> 177:21 <b>equal (1)</b> 25:15 <b>equating (1)</b> 214:22 <b>errors (1)</b> 261:7 <b>ESQ (2)</b> 3:8,15 <b>establish (1)</b> 69:8 <b>established (1)</b> 204:3 <b>estimate (1)</b> 10:4 <b>et (1)</b> 201:8 <b>Ethernet (1)</b> 103:11 <b>events (1)</b> 150:10 <b>everybody (3)</b> 178:17,18 180:10 <b>everyone-to-everyo...</b> 178:14 <b>exact (5)</b> 29:8 73:21 74:4 76:14 76:14 <b>exactly (21)</b> 19:1 38:7 52:7 54:9 98:11 119:12 120:13 132:20 134:16 145:3 151:23 175:4 204:24 213:2,7 226:13,14 228:2 231:3 232:14 235:25 <b>EXAMINATION (2)</b> 5:10 259:6 <b>examiner (3)</b> 249:4,7,17 <b>example (105)</b> 27:15 84:11 86:1,14 91:10,16,19,23 92:4	92:7,10 98:6,11 101:15,16,20 104:22 105:13,18 106:6,7,18 109:10 109:11,19,21 110:15 111:1 112:2 112:4,6 120:8 126:5 126:9,14,14,20 128:23 131:7,15 132:12 133:9,10,13 147:7,25 148:3,15 148:17,21 149:5,23 150:1,7,7,24 165:19 166:23 169:22,24 170:12 171:17 177:17 178:7 180:4 181:13,21 182:4,5 182:10 185:13 186:23 188:14,22 189:12 191:6,9,23 192:9 193:3,10 194:1,18,19,23 195:9 197:9 198:5 199:1,2 200:8 205:19 206:6,13 208:22 209:13 225:16 227:9,14 228:17,20 234:21 235:15 236:25 237:13 <b>examples (10)</b> 92:5 109:22 111:2 126:10 148:4 182:11 205:1 206:24,25 208:8 <b>excellent (1)</b> 76:10 <b>excuse (1)</b> 21:1 <b>exemplar (1)</b> 196:3 <b>exhibit (51)</b> 7:6,7 14:3,4,7 24:9 26:6,15 28:2 40:13 67:15 69:18 190:7 213:15,17,18 214:1 214:2 224:1 230:7,9 230:10,11 238:16 238:18,21,24 241:4 242:1,7,9,10,15 243:9,14,14,16 244:21 246:10,12 246:15,20 248:2,8,9 248:10,16 253:2 260:5,9,13 <b>EXHIBITS (1)</b>	260:2 <b>exist (14)</b> 25:8 61:10 68:9 88:4 101:12,12,13 128:1 164:13,13,20 165:8 165:23 173:22 <b>existed (10)</b> 98:10,14 130:11 148:4,18 164:11,12 166:4 181:14 211:7 <b>existence (1)</b> 224:3 <b>existing (96)</b> 19:18 24:18,22,23 25:1,6,18,22,23,25 26:10,11 28:20 34:5 34:8 35:6,11 36:1 36:17 37:2 38:24 39:6,12,19,22 43:6 43:7 45:25 47:1,20 47:25 51:14 52:13 55:22,25 56:21,23 58:2,25 59:1 60:7 61:3,4 62:1,2 65:11 65:12 67:12 69:11 69:12,22,23 70:10 70:11,15,16,20,24 70:25 72:6 73:10 74:1,2,12,12,21,22 75:14,15,21,21 76:7 76:7,17,18 83:9 114:2 188:9 193:21 193:24 194:8,11 205:22,25 214:17 214:23 215:9,23 231:8,16 233:7 247:12,12,21,22 248:23 <b>exists (7)</b> 25:2 77:7 127:14,16 128:21 129:5 130:13 <b>expand (1)</b> 199:12 <b>experience (11)</b> 90:22 158:3,12 168:4 170:8 174:17 175:24 179:18 185:14 189:8 252:24 <b>experienced (1)</b> 169:10 <b>expert (7)</b> 6:7 7:17,19 9:15 10:20 11:3 12:7 <b>expertise (3)</b>	6:21 156:25 173:3 <b>explain (15)</b> 15:25 16:3,9 32:21 40:11 49:15 50:17 57:21 68:1 90:23 110:11 156:13 170:9 171:14 175:25 <b>explained (7)</b> 43:8 47:18 48:23 169:11 173:7,18 184:5 <b>explaining (1)</b> 51:10 <b>explains (1)</b> 84:24 <b>explanation (7)</b> 61:11 110:14 111:9 157:5 168:2 176:23 197:10 <b>explore (1)</b> 84:25 <b>extra (2)</b> 157:23 158:14 <b>extremely (1)</b> 184:18 <hr/> <b>F</b> <hr/> <b>fact (2)</b> 133:14 174:14 <b>facts (1)</b> 261:6 <b>fair (3)</b> 104:16 106:18 206:15 <b>familiar (1)</b> 253:13 <b>far (2)</b> 133:23 157:4 <b>Federal (3)</b> 7:17,19,20 <b>felt (1)</b> 13:16 <b>FIFO (2)</b> 110:17 112:7 <b>fifth (2)</b> 150:4 217:18 <b>figure (142)</b> 17:7,25 18:9,10,13,18 18:19,21,25 19:4,6 19:9,17 20:3,4 21:1 21:1,2,4 22:19 23:1 23:3,17 24:1 54:12 54:13,15,18,23 55:16 56:25,25 57:6 57:7 59:9,9,21 61:12,17,23 62:4,6	62:15,21,25 63:20 63:25 64:3,22 65:3 65:18,19,19 66:5 73:18 74:6,21 75:6 75:20,25 76:1 78:13 79:5 80:8 81:20 82:3,4,5,20,22,25 83:1,3,4,6,12 84:7 85:9,11 87:5 88:9 89:5,15 92:12 93:3 93:17,19 94:5,11 95:14,19 97:13 99:21 104:14 108:7 108:9 110:1,7 112:13,13 136:13 136:20 137:10,17 138:6,16,22 142:20 154:4,8,12 159:16 166:21,22 167:14 169:1 170:21 174:7 174:15 175:9,12,16 178:23 189:11 191:1,5 192:10 193:10,18 195:9 197:10,11,16,20,21 201:1,5 212:2,4,7 212:16 225:16 <b>figures (11)</b> 15:19 18:24 54:13 63:5,18,24 64:16,18 64:21 65:2 155:16 <b>file (49)</b> 13:6,10,13 238:22 239:2 240:15 241:8 241:10,19 242:2,23 242:24,24 243:4,12 243:13,15,18 244:4 244:7,8 245:3,7,12 245:14,18,22 249:18,23 250:4,17 250:22,24 251:1,2 251:16 253:22 254:2,9,14,22 255:12,19,21,23,25 256:3,6 260:13 <b>filed (2)</b> 242:4 246:16 <b>final (5)</b> 86:6 214:9 230:22 241:13 260:9 <b>Finally (1)</b> 211:21 <b>financially (1)</b> 258:16 <b>find (11)</b> 22:25 117:2 125:23
---	--	---	--	--

158:17,23,24 169:23 213:19,21 217:14 233:24	<b>flowchart (6)</b> 94:5 173:11 174:7,15 175:17 177:2	164:9 172:5,24 176:3 183:20 185:17,25 201:11 203:5,12 204:14 206:16 210:24 211:3,13 212:15,25 215:13 221:6,17,25 222:12,22 223:9,19 224:5 226:2 227:1 233:9 235:7,14 244:24 246:2 247:2 247:8 248:3,11,12 250:20 254:3	216:17,19 225:17 241:7 243:17 250:5 253:10	72:11 74:6,7 77:19 78:23,24 79:23 80:4 81:20 84:8,10,13 85:14 89:21 93:19 95:3,7 97:6,12 99:6 136:3,8,11 155:3,6 197:24 207:22 211:5 212:14 226:14 255:23	
<b>fine (6)</b> 17:2 53:9,12,15 70:6 162:10	<b>flowcharts (1)</b> 156:24	<b>formal (1)</b> 213:10	<b>full (3)</b> 36:7 243:12,13	<b>generally (7)</b> 29:2 46:9 94:17 97:2 142:22 195:18 212:17	
<b>finished (2)</b> 174:5 179:2	<b>flux (4)</b> 96:22 237:3,12,15	<b>format (3)</b> 119:17,21 211:3	<b>functionality (1)</b> 17:17	<b>generate (8)</b> 22:10 97:4 222:10 225:15 226:17,17 236:20 237:23	
<b>first (117)</b> 5:5 21:5,21 24:19,20 25:4,4,7,18 26:9,10 27:1,4,19 28:10,21 29:9,10 41:19,19,21 41:23 42:4,7 43:13 44:13 47:19,19 57:5 60:9 61:6 67:19,24 68:2,2 69:21 70:2 70:10 72:7 75:9 143:8,14,22 146:13 147:15,20,21 149:20 150:11 157:17,20 169:5 190:12,14,20,25 191:9,22,25 192:12 192:13,16,24 193:6 193:14 194:4,14,15 194:22 202:11,16 202:20 203:8,24 205:9,12,15 206:3,7 206:14,25 208:13 209:11 214:12,16 214:22 215:2,7,11 215:17,18,22 216:5 217:3,8,15 218:13 218:20 219:1,15,16 219:18 222:5 231:24 239:8,16,23 244:20 246:25 247:1,6,7,15,20,25 248:9,24	<b>fly (4)</b> 242:21 243:21,24 245:1	<b>formats (2)</b> 86:4 212:15	<b>functions (5)</b> 17:10 19:12 24:6 198:8 200:11	<b>generated (16)</b> 28:21 31:15 36:22 45:11 46:12,13,15 46:15 49:6,7,7,20 141:4,19 220:12 223:8	
<b>first-in (1)</b> 110:17	<b>focus (5)</b> 32:7,9,14 39:1,11	<b>form (119)</b> 27:7 28:5,15 29:6,21 35:1,23 36:23 38:3 41:4 44:16 45:22 47:8,17 48:10 50:14 54:21 58:4 59:2 60:10 61:8 63:1,22 64:7 65:1 66:25 70:7 74:15 76:11 77:10 79:9 80:21 81:18 82:12 83:20 85:12 90:6,25 91:9 91:17 92:21,24 93:1 93:18 97:20 105:9 114:4,14 115:9 116:12 122:5 123:13,22 124:17 126:21 128:4 134:14 137:2 138:2 138:15 140:3,11 145:10,16 148:9,24 149:13 150:14 152:17 153:18 155:1 156:1,12 158:7 161:2,21 162:4,24 163:6	<b>forth (4)</b> 189:4,4 252:16 258:8	<b>further (16)</b> 64:23 68:13 88:25 90:12 133:13 169:25 180:14,20 184:24 205:23 206:19 222:10 246:23 256:10 258:13,15	<b>generates (6)</b> 22:11 94:19 134:12 142:1,5 237:2
<b>first-out (1)</b> 110:18	<b>focused (1)</b> 51:12	<b>forwarding (9)</b> 111:4,5 177:21 198:6 198:16 199:15 200:3,9,17	<b>future (10)</b> 69:15 72:12 73:12 78:24 79:2,11,15,24 94:18 219:5	<b>generating (1)</b> 225:20	
<b>five (7)</b> 10:16 12:4 50:21 53:10 97:9,9 217:25	<b>follow (2)</b> 37:1 216:20	<b>found (1)</b> 208:4	<b>gather (28)</b> 19:21 20:5 80:23 81:6 81:21,24 83:10,11 85:21 86:17 87:16 87:24 88:20 89:23 89:23,24 93:24 109:2 116:14,20,22 191:2 198:4,10 200:5,13 207:17 229:16	<b>generation (3)</b> 218:5 225:25 226:24	
<b>flood (1)</b> 229:9	<b>followed (3)</b> 18:17 48:18 57:14	<b>four (8)</b> 82:5 103:12 149:24 149:25 150:4 161:16 188:18 237:13	<b>gathered (14)</b> 66:23 67:3 72:5 90:1 90:2,5 113:8 116:20 117:25 119:2,24 125:23 128:7,10	<b>getting (15)</b> 17:25 27:23 34:14 38:9 85:17 93:22 100:7 150:15 174:1 195:19 201:14 227:6 230:3 233:20 237:6	
<b>floor (2)</b> 91:21 168:13	<b>following (6)</b> 30:25 43:8 50:24,25 92:17 120:25	<b>fourth (51)</b> 33:13 34:1,4,7,10,23 35:4,4,5,18,19,25 36:15,20 37:16 38:2 38:17,23 39:2,5,9 39:13,14 40:7 41:2 42:13,18,22,25 43:5 43:18 45:18 46:19 47:6,14,24 48:20,20 49:9,12 50:12 51:13 51:17,20 91:21 162:2 188:8 217:17 218:5,8 232:25	<b>gathering (16)</b> 18:15 19:15 57:2 82:7 82:10 83:7 89:18,21 89:22 93:20,20 98:16 137:22 201:8 201:13 236:15	<b>gigabytes (1)</b> 186:4	
<b>flow (9)</b> 94:10 110:7 142:20 155:16 169:1 174:16 175:9 198:11 200:13	<b>follows (1)</b> 111:6	<b>fraction (1)</b> 229:13	<b>gathers (11)</b> 66:20 71:19 72:2,14 80:16 81:3 88:13 89:3 198:15 200:16 202:4	<b>give (19)</b> 10:1,10 12:6 49:24 86:14 91:5 92:4 98:6,11 103:19 111:1 126:9 128:23 165:19 182:1 233:10,10 242:2 243:4	
	<b>form (119)</b> 27:7 28:5,15 29:6,21 35:1,23 36:23 38:3 41:4 44:16 45:22 47:8,17 48:10 50:14 54:21 58:4 59:2 60:10 61:8 63:1,22 64:7 65:1 66:25 70:7 74:15 76:11 77:10 79:9 80:21 81:18 82:12 83:20 85:12 90:6,25 91:9 91:17 92:21,24 93:1 93:18 97:20 105:9 114:4,14 115:9 116:12 122:5 123:13,22 124:17 126:21 128:4 134:14 137:2 138:2 138:15 140:3,11 145:10,16 148:9,24 149:13 150:14 152:17 153:18 155:1 156:1,12 158:7 161:2,21 162:4,24 163:6	<b>front (18)</b> 9:10 11:7,13,18 24:9 40:13 54:6 60:18 69:19 136:13 138:6	<b>general (52)</b> 12:18 16:6,23 17:12 17:16,23,24,24 19:13 22:1,21 26:8 27:21,22 29:9,14,18 33:7,25 63:15 64:12	<b>gives (2)</b> 110:14 236:24	

84:6 134:4 151:16 174:20 191:15,17 193:20 205:2 206:19 234:6 235:22,23,24 241:24 243:3 <b>going (29)</b> 19:8,10 30:25 31:16 38:14 49:14 59:11 67:19 120:11 122:10 133:9 135:4 135:19 174:23 175:11 179:2 189:20 205:5 217:20 218:25 220:4 224:20 225:13 238:2,2,13 238:15 243:3,5 <b>good (4)</b> 4:5 5:12,13 173:5 <b>Grewal (142)</b> 3:15 4:21,21 5:11 27:13 28:6,19 29:13 30:1 35:16 36:9 37:14 38:16 42:10 44:19 46:17 47:9 48:3,21 51:8 53:1,4 53:7,10,13,21 54:22 58:13 59:18 60:15 61:22 63:10 64:1,15 65:4 67:10 70:8 72:19 73:7 74:18 76:22 78:1 80:1 81:1 82:13 83:21 86:9 90:10 91:4,13 92:1,22 93:2 94:4 97:21,22 106:22 108:5 114:8,22 115:17 116:23 122:8 123:17 124:5 124:22 127:1 128:19 134:17 137:5 138:5,20 140:7,17 145:13,20 148:14 149:2,9,19 151:1,12 153:2,21 155:7 156:6,19 158:11 159:21 161:6 162:1,6 163:2 163:12 172:6 173:2 176:6 183:23 185:22 186:1 189:20,24 190:5 201:16 203:6,21 204:15 206:18 211:23 215:15	221:11,20 222:3,18 223:2,12,22 224:19 225:5 226:5,9 233:16 235:1,10,19 238:20 239:21 243:7,11 245:2 246:8,14 247:4,16 248:6,13 250:23 253:6 254:16 255:18 256:10 259:7 <b>Groth (2)</b> 3:19 4:14 <b>guidance (1)</b> 157:1 <b>guide (1)</b> 167:3 <hr/> <b>H</b> <hr/> <b>half (7)</b> 9:16 10:12,12,13,13 10:14,14 <b>hand (2)</b> 238:16 246:10 <b>handed (4)</b> 7:5 14:2 213:25 244:2 <b>handle (4)</b> 175:19,25 176:9,14 <b>Hanover (3)</b> 2:9 3:6 4:12 <b>happened (1)</b> 13:10 <b>happens (2)</b> 139:4 142:11 <b>happy (1)</b> 172:18 <b>hard (5)</b> 10:10 39:17,19,23 53:13 <b>harkening (1)</b> 10:21 <b>head (2)</b> 20:19 250:2 <b>hear (29)</b> 148:1,2 151:21,25 152:8,13,24 162:17 163:15,24 165:12 165:16,16,17,20,21 166:5,6,10,17,18,24 167:1,2 168:15,16 170:12 198:20 200:21 <b>heard (7)</b> 152:23 169:18 198:13 198:14 200:14,16 213:22	<b>held (1)</b> 4:11 <b>help (2)</b> 187:16 208:10 <b>helpful (1)</b> 182:2 <b>helps (2)</b> 178:4 232:19 <b>Hewlett-Packard (3)</b> 1:8 4:8,23 <b>Hey (3)</b> 227:16,16,17 <b>high (31)</b> 16:6,11 17:1,1,16 18:3,3,7,8 29:10,22 33:2,25 37:18 39:18 51:22 63:4 93:21 205:4 206:17 207:3 207:23,24 208:7 209:5,6 211:18 212:2,3,20 221:2 <b>high-level (4)</b> 24:8 204:20 206:24 208:5 <b>higher (2)</b> 16:23 195:23 <b>highlight (1)</b> 204:21 <b>highlights (1)</b> 204:21 <b>hint (2)</b> 90:17 182:10 <b>hints (2)</b> 181:3,24 <b>history (50)</b> 13:6,10,13 238:22 239:2 240:15 241:8 241:10 242:2,23,24 242:25 243:4,12,13 243:15,18,23 244:4 244:7,8 245:4,7,12 245:14,19,23 249:18,23 250:4,18 250:22,25 251:1,2 251:16 253:22 254:2,9,14,22 255:12,13,20,21,23 255:25 256:3,6 260:13 <b>host (29)</b> 128:25 130:1 131:3 131:13 133:15 151:22,25 152:1,8,9 152:11 157:19,23 157:25 158:15,22 162:17 163:15	165:13 166:5,10 168:8,14 170:6 175:21 176:2,11,15 236:13 <b>host-to-device (1)</b> 168:9 <b>hosts (8)</b> 143:9,10 151:21 158:16 167:22 168:6 169:5,10 <b>hour (3)</b> 50:22 53:1 189:21 <b>hours (11)</b> 10:5,7 53:23,25 54:3 54:8 195:21,22 196:2 252:4,5 <b>HP (2)</b> 236:25 237:14 <b>hub (7)</b> 178:10,11,12,17 180:4,5,9 <b>hubs (1)</b> 199:16 <b>huge (2)</b> 229:8 233:12 <b>hundreds (1)</b> 238:11 <hr/> <b>I</b> <hr/> <b>i.e (3)</b> 68:19,22 190:18 <b>IBM (1)</b> 237:1 <b>idea (10)</b> 11:10 21:10,13,15,22 24:8 174:3 226:14 226:14 233:23 <b>identical (5)</b> 27:18 57:15 59:12 141:6,21 <b>identification (4)</b> 158:19 238:19 243:10 246:13 <b>identified (6)</b> 34:6 40:6 42:13 48:6 157:20 169:5 <b>identifier (5)</b> 129:1 130:1 131:3,14 133:16 <b>identifies (2)</b> 198:12 200:14 <b>identify (36)</b> 34:6 35:7,8 41:1 42:24 43:1,16,23 44:10,13,20 45:18 46:1 47:3,5,14	51:19 52:6,15 132:12 143:8 147:16,20 148:20 149:21 150:12 157:21 158:4,13 188:10 209:17,21 210:7,11 231:10 252:23 <b>identifying (6)</b> 148:7,11 149:11 177:4 186:18 187:17 <b>identity (2)</b> 51:16,17 <b>ignore (1)</b> 35:8 <b>immediately (2)</b> 68:15 103:12 <b>implementation (2)</b> 186:11 236:22 <b>implemented (1)</b> 236:11 <b>implication (1)</b> 161:12 <b>important (50)</b> 104:11 105:4 148:8 148:20,25,25 149:1 149:4,7,8,12,15,15 149:17,18 155:25 156:4,5 175:25 176:18,20 177:1,3,4 177:6 185:15,20 186:4,14,15 227:18 245:11,13,14 246:5 246:6 250:17 253:23 254:4,10,22 255:9,10,11,12,13 255:15,19,21,24 <b>importantly (1)</b> 192:4 <b>impose (1)</b> 79:11 <b>improve (2)</b> 123:11,20 <b>improved (2)</b> 123:24 124:3 <b>in-person (2)</b> 251:24,25 <b>include (8)</b> 7:1 69:2 86:6,7 93:21 145:18 177:23 236:16 <b>includes (9)</b> 14:23 15:1,4,7,11,15 15:22 130:1 236:15 <b>including (5)</b>
--	--	---	--	---



63:5 159:18,20 197:25 208:1 <b>income (2)</b> 11:21 12:7 <b>incomplete (1)</b> 90:14 <b>Incorporated (2)</b> 4:8,15 <b>incorrect (1)</b> 199:8 <b>increased (2)</b> 105:17,20 <b>indicate (1)</b> 181:1 <b>indicates (1)</b> 253:9 <b>indirect (2)</b> 176:18,22 <b>indirectly (2)</b> 176:17 229:7 <b>industry (3)</b> 135:24,25 136:8 <b>infor (1)</b> 111:11 <b>inform (1)</b> 245:19 <b>information (469)</b> 18:1,1,2,8,15 19:7 20:8,12 21:11,12,14 21:17,23 22:2,4,6,7 22:9,12,12,21,22,23 27:12,14,20,22,23 28:8,10,13,20,24 29:1,2,10,12,15,19 29:24 30:21,22 31:2 31:2,3,12,15 32:22 33:8 34:21 45:1 49:1,24 51:3,4,6,6 51:23,23,24,25 58:8 58:9,10 63:7 67:23 68:7,7,21 81:6,10 81:21,22,24,25 84:17,25 85:10,18 85:20,21,25 86:2,11 86:16,21 87:25 88:2 88:13,21 89:19,22 90:2,15,16,24 91:7 91:15,22,23,25 92:3 92:9 93:24,25,25 94:21 95:1,4 96:12 96:13,16,16,22,22 96:23 97:1,3,4,11 98:4,16,17,18 99:1 99:4,9,9,10 100:6,7 100:11,12,13,14,14 100:15,22,23,24,25	101:14,15,17,18,21 101:22,23,23,24 102:9,9,17,22 103:1 103:2,2,5,5,5,25 104:10,21,23 105:1 105:6,12 106:4,5,14 106:15,17,20 109:13,18 110:18 110:21,24 117:13 117:15,17,18 118:14,15,16,17,18 118:20,21 119:7,8 119:11,14,15,18,20 119:21 120:6,7,11 122:16 124:1,19,19 124:20 125:12,15 125:18,21,22,24,25 126:1,3,7,13,19,23 126:24,25 127:11 127:15,20,21,22,24 127:25 128:1,7,8,10 128:11,13,14,15,21 128:24 129:7,13,14 129:15,17,19,25 130:2,3,4,6,8,20,21 131:2,4,8,9,14,19 131:20,21 132:1,9 132:11,13,15,17,23 132:24,25 133:7,11 133:16,21,25 134:2 134:5 135:21 136:2 136:3,9 137:22 138:18 139:14,16 139:22,24 140:6,10 140:13,16 143:18 143:24 145:12,18 153:13 154:3,11,17 154:18,24 155:4,5,6 157:6 160:20 161:15,16 162:2,8 163:24,25 164:19 164:21 165:3,17,24 166:3,17,19 167:2 170:16 171:3,10,11 171:15,16,18,20,21 171:25 172:1,3,4,9 172:22 174:1,11 177:9,10 178:16,19 179:21,22,22,24 180:6,12 181:9,13 181:19 182:1,2 183:1,12 186:4,5,8 186:9 190:13,24 191:2,3,7,8 192:2,3 192:5,6,15,20 194:15 195:1	196:21 197:25 198:5,11,16,18,19 198:21 199:3,18,19 199:21,24,25 200:5 200:13,18,19,20,22 201:13,23 202:1 203:16,19 204:5 205:11 206:7 207:11,19 208:19 208:21,22,25 209:2 209:3,6 210:24 211:1,2,16,17 212:5 212:12,13,13,14 213:3,6 218:2 219:8 226:12,20 227:3,8 227:14,18,19 228:4 228:5,9 229:8,9,9 229:10,16,17,22,23 230:4 233:12,12,14 233:21,25 234:2,12 234:13,15,16,21 236:14 237:2,3,6,9 237:12,16 238:10 242:19 245:9,10 249:8 250:5,8 252:18 254:8 255:5 <b>informations (1)</b> 177:10 <b>infrastructure (6)</b> 21:5 155:17,19 157:17 158:13 170:4 <b>infrastructure-buil...</b> 153:9,17 154:23 <b>initialed (1)</b> 257:7 <b>initially (1)</b> 191:14 <b>ink (1)</b> 257:7 <b>input (4)</b> 21:18,20 130:24 212:1 <b>instituted (1)</b> 14:11 <b>instructs (1)</b> 111:22 <b>intentionally (2)</b> 103:9,19 <b>inter (1)</b> 14:12 <b>interaction (1)</b> 192:6 <b>interested (1)</b> 258:16 <b>interface (7)</b>	130:1 131:3,14 133:16 198:19 200:20 236:13 <b>interfere (1)</b> 6:3 <b>interpret (1)</b> 247:11 <b>interrogation (8)</b> 41:24 42:1,5 219:20 219:22 220:9 227:22 228:25 <b>interview (2)</b> 249:6,17 <b>introduce (1)</b> 4:19 <b>invention (13)</b> 15:12 41:17 43:9 55:20 63:4 64:5 156:20 185:15 186:17 196:9 219:13 236:10,22 <b>inventions (1)</b> 63:6 <b>inventor (1)</b> 176:25 <b>investing (1)</b> 12:4 <b>involve (2)</b> 97:19 206:9 <b>involving (2)</b> 169:4 170:5 <b>IP (1)</b> 126:11 <b>IPR (6)</b> 6:6 7:7 14:4 213:18 214:2 230:11 <b>IPR2015-00717 (2)</b> 1:6 4:10 <b>IPX (3)</b> 236:17,25 237:14 <b>issue (1)</b> 168:18 <b>issued (3)</b> 242:5 245:25 246:18 <b>ITC (3)</b> 7:18,20 9:6	215:22 216:1,7,12 216:23 217:2,14,21 218:4,14,20 221:4 221:13,22 222:16 222:17 223:6,7 226:6 227:2,2,20,25 228:4,13,22 229:19 245:25 <b>Jones's (1)</b> 223:16 <b>judge (1)</b> 9:9 <b>jumped (1)</b> 189:3 <b>jumping (5)</b> 173:13,13 174:13 179:3 182:14 <b>jury (1)</b> 9:10
<b>K</b>				
				<b>keep (1)</b> 5:24 <b>keep-alive (9)</b> 101:11,12,25 106:10 106:11,11,11 227:15,15 <b>keeping (1)</b> 232:20 <b>key (4)</b> 24:8 64:12 227:20 228:3 <b>kind (5)</b> 27:18 125:15,21 126:7,13 <b>kindly (14)</b> 24:11 40:16 56:4 112:12 155:8 169:13 170:20 177:11 180:13 184:23 190:6 214:6 231:21 243:7 <b>know (57)</b> 5:22 9:22,24 11:5,5 11:12 12:13 39:23 54:2,9 66:12 91:19 92:7 101:18,25 102:17,20 105:13 105:21 109:13 110:23 116:18 120:6,9 125:20 140:13,16 149:23 150:3 152:22 166:18 173:22 178:15 180:4,5,11 181:11,18 182:6,7,8
<b>J</b>				
			<b>JOB (1)</b> 1:25 <b>Jones (50)</b> 13:4 40:6,20,25 41:9 41:10,15 42:14,17 43:3,5,16,21 213:13 213:14,22 214:5,5 214:15,23,24 215:6	

184:7 199:17 207:25 208:1 221:12 233:22 235:20,22,24 243:18 244:23 249:5,6,16 250:2,7 <b>known (5)</b> 88:20 105:3 198:4 200:4 229:1 <b>knows (1)</b> 131:3	160:13 164:18 169:15 172:16 173:10 174:5 182:16 184:23 187:25 190:6 203:22 213:19 216:18 218:19 221:5 223:17 224:23 225:3,6 227:23 228:10 230:6 233:19 235:4 237:19,22 238:15 238:25 239:6 241:22 243:13 245:5 246:20 249:16 251:4 252:21 253:1 256:11,16 257:3,16 259:4	26:19 27:1,4,6 28:12,21,25 29:9,11 30:6,12,18 31:6,7,8 31:19,20 32:11,13 32:14,15,17 33:5,19 33:21,23,24 34:2,3 34:4,7,11,12,16,23 34:24,25 35:4,5,18 35:19,21,25 36:3,12 36:14,15,21,22 37:16,17,23,24 38:2 38:2,10,18,19,20,23 39:2,3,5,14,15,16 40:7,8 41:2,3 42:13 42:18,19,25 43:2,6 43:18,24 44:5,11,15 45:13,19,20 46:19 47:6,7,15,16,23 48:4,5,23 49:10,12 50:12,13 51:12,14 51:16,18,20,21 52:17,22,23 60:9 61:6 69:21 70:10,21 71:4 72:7 74:19 75:9,11,12 188:6,8 188:17,18 214:9,13 214:15 215:6 216:24 230:22 232:24 233:1 239:8 239:11,15,16,22,23 239:25 240:2,5,8,9 240:10,11,24 241:3 241:5 242:8,14,16 244:20,22 245:16 246:25 247:1,6,7,20 247:25,25 248:7,9 248:15,21,23,24 255:3,22	116:17 117:22 120:24 140:20 142:12,14,18 143:1 143:5 147:10 151:14,24 157:10 158:25 159:4,23,25 160:1,4,7,15,25 161:11 162:11,15 165:4 167:10,17 168:25 170:11 172:12 178:24 179:3 180:13,24 183:17 187:3 191:21 192:13 194:7 195:13 198:1 198:24 228:22 235:17,18 236:5,5 261:8,10,12,14,16 261:18,20,22 <b>lines (102)</b> 41:11 55:1,4,5,11,20 56:5,11 58:16 59:17 60:5 62:20 66:11 71:16 77:16 84:15 86:19 87:8,12,20 88:17,24,25 92:16 95:22 96:4 97:14 108:13,17 109:23 109:25 111:13 112:3,17,19,22 120:18 121:3 140:19 141:1,15 142:15 143:2,6,25 144:9 146:8 153:3,6 155:9,14 157:15 158:5 160:2 162:12 162:16 163:13,14 166:9 167:12 168:19,22 169:25 170:2,20,24 174:25 175:5,8 176:7 177:11,15 179:4,8 179:11 180:18 182:13,18,23 183:24 184:23 190:16 192:21 193:1,18 196:6 197:1,6,7,13 199:10 201:1,2 204:17 205:20 207:6,7 227:13 228:23 229:18 231:4 236:8 <b>link (10)</b> 85:3 133:4 144:16,17 144:19 146:19 152:3 157:19,23	237:12 <b>links (10)</b> 50:1 152:19 153:11 154:16 157:23 158:15 159:8 160:10 171:4 172:1 <b>list (347)</b> 24:18,20,22 25:1,1,2 25:5,6,7,9,12,17,18 25:22,24,25 26:1,10 26:12,18,22 27:4,5 27:10,11 28:10,12 28:20,24 30:5,11,13 30:15 31:5,6,13,13 31:14,18,19,24,25 32:2,4,7,10,12,13 32:18,24 33:6,18,19 33:23 34:1,2,4,5,10 34:11,14,15,16,19 34:23,24 35:6,6,11 35:12,14,17,19,20 35:25 36:1,2,4,7,13 36:15,16,17,18,20 37:2,3,6,10,16,16 38:17,18,21,24,25 39:1,3,4,5,6,6,7,11 39:12,13,14,15,19 39:20,22 40:1,1,7,8 41:1,2,7 42:12 43:12,17,23 44:11 44:14,21 45:18,19 45:25 46:1,15 47:1 47:2,5,7,14,15,21 47:24 48:6,7,13,14 48:15,17,22 49:9,11 51:13,15,17,19,20 52:6,13,14,17,22 56:1,23 57:14,14,15 57:19,24 59:1,6,10 59:11,12 60:8 61:4 61:14 62:2,7 65:12 65:16 67:25 69:22 70:10,15,24 71:5 74:1,12,21 75:2,14 75:21 76:7,17 77:8 79:21 80:5 83:14 84:2 89:10 94:13,24 104:7,17,19 105:7 105:10,16 112:9,10 113:21,23 114:1,25 115:4,6,11,12,15 116:6,19,19,22,24 123:11,20 124:7 127:2,8 136:16,19 136:19,20,23 137:1 137:7,7,11,12 141:2
<b>L</b>				
<b>label (2)</b> 214:9 230:22				
<b>labeled (9)</b> 82:14 83:13 88:9 89:6 93:4 99:22 104:12 123:6 138:23				
<b>language (56)</b> 35:22 37:1 59:3 65:14 69:9 70:14 72:8,11 73:21,22,24 74:5,5 74:10,25,25 75:5 76:3,13,14,14,20,21 77:9,12,13,14,17,23 78:21 79:3,4,11 84:4,5,9,12,12,21 184:19 188:16 189:1 196:13 199:12,13 221:10 221:19 222:15,16 222:17 241:19 249:13,14 254:23 255:12,22	<b>law (1)</b> 12:3 <b>lawyer (2)</b> 7:24 214:4 <b>layout (2)</b> 16:16 68:22 <b>left (5)</b> 18:9 57:6 100:3,5,10 <b>legal (1)</b> 4:15 <b>let's (15)</b> 9:19 16:13 35:8 50:17 50:21 67:13,18 72:8 101:5,6,7 133:13 142:9 150:17 213:13			
<b>laptop (1)</b> 167:6	<b>level (36)</b> 16:6,11,23 17:1,2,16 18:3,4,7,9 29:10,22 33:2,25 37:18 39:18 51:22 63:4 93:21 158:19 167:3 195:24 205:4 206:17 207:3,23,24 208:7 209:5,6 211:6 211:19 212:2,3,20 221:2	<b>limitations (1)</b> 27:20 <b>limited (3)</b> 11:25 213:8 228:7 <b>line (106)</b> 23:4,4,6,18 25:14,21 41:11,15,16 43:21 45:4 46:6,7 49:18 50:16 52:4,9 56:8 58:16 59:22 60:17 60:23 62:15,20 65:8 66:8,10,17 68:4,6 68:16 71:22,23 76:24 77:13,15 78:6 79:14 80:2,12,20 87:17 90:11 108:21 109:16 110:14,14 111:1 113:3,6		
<b>larger (1)</b> 243:15				
<b>Lavian (92)</b> 1:14 2:8 4:7 5:4,15 6:11,22 12:16 22:14 24:9 30:7 35:18 40:5 42:16 46:18 53:22,22,25 54:11 57:22 58:14 59:19 62:11 67:14 70:20 72:24 73:5,8 74:11 75:9 82:4 86:12 91:14 99:12 104:13 108:6 112:12 117:21 121:12 133:5 138:7 139:5 140:18 143:25 147:9 149:20 151:5 151:10,13 155:8	<b>levels (1)</b> 139:7 <b>life (1)</b> 94:2 <b>likewise (3)</b> 195:3 196:23 204:7 <b>limit (2)</b> 11:8,20 <b>limitation (170)</b> 24:19,20 25:7,18			

141:4,17,19 144:12 145:8,14,22,25 146:15,23 147:1,3 149:25 157:19 160:18,18 188:3,9 188:10,15,23 189:13 190:17 191:24 192:10,21 193:4,12,24 194:3 194:12,20 195:3,9 195:17 196:23 197:9,17 199:4 202:20,20 203:7,8 204:7 205:13 206:1 206:9 209:10,11,19 210:1,9,15 214:17 214:19,23,25 215:9 215:11,14,18,19,22 216:1,6,12,13,23,25 217:9,9,10,10,11 218:5,6 221:3,3,4 221:13 223:7 224:9 224:11,12,13 225:16,25 226:6,10 226:24 227:24 228:12 231:8,10,15 231:19 232:1,12,23 232:25 233:3,6,7,17 236:20 247:12,21 247:22 248:18,22 248:23	2:9 <b>local (4)</b> 9:7 191:3 213:4,12 <b>location (3)</b> 105:1 126:13,15 <b>logical (1)</b> 230:2 <b>long (8)</b> 53:5 208:2 218:2 233:22 243:23 251:23 252:1,12 <b>look (55)</b> 8:6,8 11:6,12 13:6 20:3 21:9 22:5 23:17 25:17,23 26:3 30:4 52:3 56:25 61:20 63:18 64:9,19 69:17 73:20,21 74:4 74:8 81:22 85:24 97:4 98:4 100:14,23 109:1 110:7,13 111:15,21 150:23 150:25 166:20 176:7 183:24 192:17 197:7 205:2 206:23 209:13 210:19,20 211:15 211:17 212:23 241:1,10 245:22 249:24 255:25 <b>look-for (3)</b> 21:7 109:4 212:12 <b>looked (2)</b> 19:18 222:15 <b>looking (35)</b> 36:10 39:25 61:23 64:18 66:17 75:12 78:9 80:11 83:8 93:17 94:5 111:13 137:10,17 154:8 156:25 157:9 174:8 188:17 191:1,4 195:9,14,16 196:16 205:19 212:21 213:9 218:12 220:17 223:25 236:2,3 244:11 249:20 <b>looks (8)</b> 144:11 146:14 239:1 239:19 240:12,14 241:16,16 <b>lookup (2)</b> 22:5,6 <b>losing (1)</b> 230:10	<b>lot (30)</b> 21:23 22:11,13 51:25 63:7 86:2 97:1 99:8 100:7 102:25 103:8 104:10 106:4 117:17 119:14,15 124:18 125:24 129:17 145:11 155:4 172:4 173:25 192:2 209:3 228:5 229:8,22 233:12 234:11 <b>lunch (3)</b> 105:25 106:23 107:1	<b>M</b> <b>MA (1)</b> 3:14 <b>MAC (8)</b> 91:20 126:11 129:1 132:11 147:25 148:1 229:3,5 <b>Mace (127)</b> 3:8 4:24,24 27:7 28:5 28:15 29:6,21 35:1 35:23 36:23 38:3 41:4 44:16 45:22 47:8,17 48:10 50:14 53:3 54:21 58:4 59:2 60:10 61:8 63:1,22 64:7 65:1 66:25 70:7 74:15 76:11 77:10 79:9 80:21 81:18 82:12 83:20 85:12 90:6,25 91:9,17 92:21,24 93:1,18 97:20 105:9 114:4,14 115:9 116:12 122:5 123:13,22 124:17 126:21 128:4 134:14 137:2 138:2 138:15 140:3,11 145:10,16 148:9,24 149:13 150:14 152:17 153:18 155:1 156:1,12 158:7 161:2,21 162:4,24 163:6 172:5,24 176:3 183:20 185:17,25 201:11 203:5,12 204:14 206:16 211:13 215:13 221:6,17,25 222:12 222:22 223:9,19	224:5 226:2,8 227:1 233:9 235:7,14 239:18 244:24 246:2 247:2,8 248:3 248:11 250:20 251:21,22 252:3,10 252:13 253:5 254:3 256:5,13 <b>machine (1)</b> 258:12 <b>magnitude (2)</b> 10:2 228:8 <b>main (7)</b> 11:23 18:4 21:10,22 22:10 152:20 233:23 <b>maintain (2)</b> 198:6 200:8 <b>majority (1)</b> 12:10 <b>making (4)</b> 117:11 131:10 165:9 253:19 <b>manage (1)</b> 227:21 <b>managed (1)</b> 228:25 <b>management (2)</b> 228:9 236:17 <b>manager (83)</b> 17:18,22,24 18:5,7,10 19:11,12,13 21:22 22:24 66:6,19 68:8 71:18 72:1,13 80:11 80:15,23 81:10,14 81:20 82:9,17 83:5 83:14,22 84:1,18,22 86:22 87:4,10,15,23 87:24 88:3,12,19 89:2,9 90:24 91:6 92:20 95:10,15 96:21 98:19 101:16 108:11 109:1 110:25 111:22 128:10 131:20 183:1 191:2 192:1 193:6 197:8,15,17 197:25 198:3,14,21 199:6,10,20 200:4 200:16,23 201:6,20 201:23 202:3 204:10,11 207:16 207:18 211:4 213:7 <b>Manning (5)</b> 1:24 2:11 4:17 258:4 258:23	<b>manufactures (1)</b> 157:18 <b>map (10)</b> 100:16,18 101:1,2 217:8,9 229:25 230:1 233:10 250:14 <b>mapped (8)</b> 48:6,23 49:11 52:16 218:13 222:16,16 224:11 <b>mapping (16)</b> 40:19,24 42:14,17 44:1,5,23 215:21,25 223:5 224:16 225:8 231:14,18 233:2 245:25 <b>Mariani (1)</b> 5:15 <b>mark (5)</b> 97:7,7,8 235:23 243:7 <b>marked (16)</b> 7:6 14:2 185:5 187:9 213:13,15 230:7 235:25 236:4,4 238:17,18 243:9,13 246:9,12 <b>marks (6)</b> 72:22 73:3 151:3,8 224:21 256:14 <b>master's (1)</b> 6:16 <b>MATEO (1)</b> 258:3 <b>material (6)</b> 249:10 251:8,9,12 252:16,19 <b>materials (1)</b> 12:16 <b>matter (5)</b> 4:7 6:6 7:23 8:4 213:23 <b>mean (72)</b> 6:25 16:3,22 25:21 27:9 29:8 38:7 39:23 40:11 53:13 60:14 67:3,11 68:1 69:12 72:17 73:24 94:16 96:10 103:8 105:3 113:23 119:13 123:24,24 124:3 125:13,19 127:8,14 128:17 137:7,12 138:4 140:5 141:12 148:11,23 149:14
---	--	---	---	---	---

152:5,11,14 156:4 156:14,22 157:3 158:20 160:6 161:9 161:23 164:5,23 166:2 170:15 171:7 176:20 179:19 180:2 185:20 186:13 201:21 212:21 221:24 222:23 223:1,18 224:15,18 225:7,9 234:3 240:3 <b>meaning (3)</b> 14:17 150:5 219:2 <b>means (6)</b> 16:13 95:13 96:11 152:24 166:4 219:6 <b>meant (4)</b> 73:9 126:7 178:10 181:25 <b>measure (2)</b> 217:19 219:6 <b>measurement (2)</b> 135:12,16 <b>mechanism (1)</b> 16:12 <b>media (20)</b> 109:17,19,20,21 143:17,17,19,20 147:22 148:17 149:23 150:19,20 177:18,19,20,23,24 178:17 200:3 <b>medication (1)</b> 6:2 <b>meeting (1)</b> 251:24 <b>meetings (4)</b> 251:25 252:2,3,4 <b>memory (4)</b> 110:19 111:3,5 112:8 <b>mention (5)</b> 75:24 194:13 195:17 195:25 204:22 <b>mentioned (33)</b> 20:20 21:15 22:14 23:11 28:9 29:14 35:4 36:3 37:20 45:8 58:16 59:8 65:20 68:14 73:9 92:13 100:21 109:7 150:21 159:23 160:4,14,25 192:12 199:6,9 201:5 207:6 219:12 220:5 234:1 235:16 251:19	<b>mentioning (2)</b> 59:21 64:17 <b>mentions (1)</b> 161:11 <b>merely (10)</b> 36:10 52:5 59:22 138:9 160:23 193:9 216:20 220:10 244:6 249:24 <b>merging (3)</b> 41:19 43:11 219:15 <b>messages (5)</b> 101:11,12,25 102:4 103:13 <b>method (7)</b> 16:7 41:17 43:9 197:21 219:13 236:11,22 <b>methodically (1)</b> 174:23 <b>mhhl (2)</b> 110:9,12 <b>microsecond (6)</b> 209:2 227:7 229:11 234:2,22 237:4 <b>microseconds (1)</b> 209:2 <b>Microsoft (1)</b> 237:1 <b>middle (1)</b> 67:18 <b>million (2)</b> 171:10,12 <b>millions (13)</b> 103:24 209:1 226:17 226:19 227:6,13 229:10 234:12,15 234:20 237:21 238:11,12 <b>millisecond (2)</b> 234:3 237:4 <b>milliseconds (1)</b> 234:22 <b>mind (4)</b> 73:16 132:20 208:9 232:20 <b>miner (5)</b> 66:20 71:19 72:2,14 80:16 <b>minimum (1)</b> 12:2 <b>minute (7)</b> 50:22,23 87:17 180:16 219:3 220:2 234:5 <b>minutes (9)</b>	53:10 67:8 135:14 170:19 208:21 217:25 218:1 234:6 237:5 <b>misread (4)</b> 72:8,17 163:19 199:11 <b>misrepresenting (1)</b> 210:18 <b>missing (19)</b> 110:9,11 111:24 112:1 153:13 162:2 162:19 163:17,24 164:2,4,17,19,24 165:3,15,22 166:2 166:12 <b>mixing (1)</b> 135:21 <b>Mm-hmm (1)</b> 112:21 <b>model (1)</b> 24:24 <b>moment (1)</b> 175:11 <b>Monday (4)</b> 1:16 4:2,12 259:3 <b>money (2)</b> 11:2 12:1 <b>Monica (2)</b> 3:15 4:21 <b>months (1)</b> 252:19 <b>morning (3)</b> 4:5 5:12,13 <b>morph (10)</b> 56:17 58:20 59:7 60:1 61:1,15 65:17 77:3 79:1,21 <b>morphed (1)</b> 57:25 <b>morpho (2)</b> 57:20 79:21 <b>move (7)</b> 45:13 102:3 104:24 106:9 164:16 166:19 173:20 <b>moved (4)</b> 37:22 38:1 102:24 150:6 <b>moving (6)</b> 37:19,21 103:10,25 150:24 220:22 <b>multi-heard (1)</b> 143:10 <b>myriad (1)</b> 125:9	<b>N</b> <b>N (4)</b> 3:1 79:20 259:1 260:1 <b>name (10)</b> 4:14 5:12 91:19,21,22 126:9,10 258:20 261:1,3 <b>natural (1)</b> 125:2 <b>need (58)</b> 8:10,14 11:5 13:16 18:25 19:1 22:12 72:19 78:3 96:12 99:9 104:1,4 109:8 109:8,9,13,14,17 110:21,24 124:10 124:11,19 132:14 132:24 133:3 140:15 143:17 151:1 152:25 158:17 169:23 170:18 171:11,12 176:14,21 186:8 187:23 199:17 208:19 213:6,12 218:7 224:19 227:7 229:21 234:14 241:9,11,12,14 242:17,22,25 243:21 244:25 <b>needed (8)</b> 12:3 118:17 161:5 192:4 211:19 245:10,10 254:5 <b>needs (7)</b> 110:11 133:2 154:15 155:6 171:24 212:25 213:3 <b>neighbor (133)</b> 19:20,22 20:1,2,6,11 20:12,17 22:5 83:10 84:19,23 85:4,9,16 86:1,7,10,23,25 92:14,18 93:5,6,7 93:11,11,14 94:6,12 94:14,23 95:9,13 96:7,24 97:17,24 98:2 99:3,14 102:10 113:9,15,18,20 114:9,17,24 115:6 115:13,20,25 116:9 116:21 117:7 118:1 118:10 119:3,3,11 119:25 121:23 122:13 123:12,21 124:15 125:2,6,10	125:14 126:25 127:3,11,16,25 128:8,21 129:2,20 129:23 130:11 131:13,16,22 133:21 135:6,18 137:25 138:13 139:17 144:12,24 145:6,8,12,14,18,21 146:15,23 147:6 154:4,12,17,25 159:16 171:3,14,15 171:25 172:2,10,22 183:12 191:7,10,14 192:5 198:23 200:24 202:6,21 203:4,10 204:12 209:12 210:2,16 211:1,24 212:11,18 <b>neighborhood (4)</b> 99:14 131:5 133:15 134:19 <b>neighbors (11)</b> 20:13,14 85:6 86:16 86:18 125:16,18,19 125:25 126:8 171:17 <b>neither (1)</b> 258:15 <b>net (3)</b> 9:14,18 45:7 <b>network (163)</b> 6:14,23,24 7:1 16:7,8 16:10,10 13,13,14 16:15,17,18 18:8 22:11 24:25 25:20 26:23 27:16,17 32:19 34:20 36:8 37:11 41:19,20,22 41:24 42:6 43:11,11 43:12,14,20 45:5,8 45:10,12 46:10,11 46:14 47:22 49:3,4 49:6 55:23 66:21 68:19,22,22 69:24 70:17,22 71:1,6 72:3,15 74:3,13,23 75:3,16,22 76:8,19 80:16,24 81:3 83:15 84:3 85:2,3 88:13 89:19 90:22 91:3 94:14,25 95:8 96:8 96:14,17 97:12,18 98:3,4,18,25 99:2 99:15,17,19 101:8 103:23 113:21
---	--	---	--	---

135:10 139:15 140:14,15 148:8,21 149:3,11 150:9,9,22 155:21,25 170:8 173:3 175:24 177:5 177:7 179:14,18,20 180:1 185:14 189:8 190:20 191:25 192:11,24 193:5,14 193:22 194:4,9,22 198:11 205:15,22 207:12,13 209:18 210:8 219:15,16,17 219:20,23 220:9,23 224:10 226:16 227:21,22 228:6,9 230:2 232:4,8 233:24,25 236:12 236:14,16,23 238:7 247:13,14 252:20	52:14,14,17,18,21 52:22 57:15 59:12 68:12 69:15 71:5 73:13 75:2 77:22,22 78:20 81:8,11,12,14 82:1,1,2 83:14 84:2 89:25 92:19 94:25 95:2,14 96:8,11,16 97:6,7,8,18 98:3,8 98:19,20 99:15,17 99:19 100:13 102:11,17,18 106:17 113:20,23 114:1,6,6,7,7,10,21 114:24 115:1,2,3,4 115:18 117:4 118:7 141:4,19 154:6 174:2 182:14 183:2 183:4,8,9,13,16,18 183:19 184:1,3,5,7 184:9,13,14 185:6 185:12 187:5,10 188:3,4,10,14,22 189:13 195:3,9,16 196:23 197:9,17 199:4 203:18,18,19 203:20 204:7 209:8 209:19 210:9,22 211:17,19 214:18 214:25 215:14,18 215:19 216:1,6,12 216:13,23,25 217:9 217:9,10,19,22,23 217:24,24,25,25,25 218:1,1,1,1,2,3 220:20 221:3 224:9 224:11,12 231:9,10 231:18,19 232:1,8 232:10,11,22,23,25 235:5,12 236:20 237:23 238:5,5 239:12,12 240:1,5 240:11 241:4 242:15,19 244:21 246:25 247:6,14,20 248:17	190:19 191:24 192:11,23 193:5,13 194:3,21 195:4,10 196:24 197:18 204:8 205:14 239:12 247:13 <b>node (4)</b> 68:9 87:25 177:24 207:19 <b>nodes (25)</b> 19:19 66:21 68:19 72:3,10,15 80:17,24 81:4 83:10 88:3,5 88:10,15,20 89:15 90:14 111:23 112:1 198:4,17 200:5,18 207:13,19 <b>noise (17)</b> 21:6 103:8,8 105:2,3 105:3 171:2,6,9 172:8,20 175:9,12 175:17,18 176:8 178:4 <b>non-essential (2)</b> 185:6 187:9 <b>noted (4)</b> 46:24 52:11 256:18 257:7 <b>notes (1)</b> 90:13 <b>Novell (1)</b> 236:17 <b>November (7)</b> 1:16 2:3 4:2,13 257:5 258:20 259:3 <b>number (35)</b> 4:10 20:21 46:3 51:12 72:18 74:9,10 76:3 77:23,25 78:12 101:18,19,19,20 102:23,24 104:2 105:14,15 106:9,9 106:16 148:1,2,2 164:21,22 165:20 165:21,22,23 211:7 237:18 260:3	60:10 61:8 63:1,22 64:7 65:1 66:25 70:7 74:15 76:11 77:10 79:9 80:21 81:18 82:12 83:20 85:12 90:6,25 91:9 91:17 92:21,24 93:1 93:18 97:20 105:9 114:4,14 115:9 116:12 122:5 123:13,22 124:17 126:21 128:4 134:14 137:2 138:2 138:15 140:3,11 145:10,16 148:9,24 149:13 150:14 152:17 153:18 155:1 156:1,12 158:7 161:2,21 162:4,24 163:6 172:5,24 176:3 183:20 185:17,25 201:11 203:5,12 204:14 206:16 211:13 215:13 221:6,17,25 222:12 222:22 223:9,19 224:5 226:2,8 227:1 233:9 235:7,14 239:18 244:24 246:2 247:2,8 248:3 248:11 250:20 254:3 256:5 <b>objectively (1)</b> 6:9 <b>obtain (1)</b> 110:24 <b>occurred (1)</b> 202:15 <b>occurs (4)</b> 69:5 89:14,19 204:2 <b>October (4)</b> 185:16 239:3 248:1 248:10 <b>Office (11)</b> 1:1 241:18,23 246:17 249:3 250:6,7 253:14,17,20 260:10 <b>oh (12)</b> 98:19 101:18 102:6,7 102:12,14 103:4 106:16 173:22,23 234:23 242:12 <b>okay (89)</b> 7:5,22,25 8:13,15	11:2 14:7 17:3 25:14,25 26:5 28:23 42:24 53:15 54:11 56:12 60:22 62:19 62:23 66:5 69:4,7 70:6 71:4,15 78:8 80:11 87:3,13,19 88:17,24 94:12 95:17 103:18 108:23 121:4 129:23 130:7 131:8 131:11,17,24 133:9 133:18 134:10 135:13,17 136:5,13 146:10 147:9,13 148:19 151:1 162:7 180:7,13,21,23 182:12,17 183:15 184:17 188:7 189:18,23 191:12 191:21 194:13,19 194:24 202:9 206:6 206:19 209:15 229:18 231:4,5 232:17 240:15,24 242:12 247:24 251:4,23 252:1,7 256:10 <b>old (22)</b> 8:11 25:10,11,12,13 30:24 31:2 39:9 48:14 51:4 81:8,16 153:25 170:16,17 195:14 203:19 211:16 217:9 218:3 220:20 221:3 <b>once (11)</b> 9:6 25:6 90:1 97:10 100:8 123:4 181:10 202:4,12 208:11 227:16 <b>one-to-one (4)</b> 168:14 178:12,13,18 <b>ones (3)</b> 25:5 33:10,16 <b>onwards (2)</b> 44:4 108:22 <b>open (5)</b> 215:8 216:19 232:19 236:25 237:15 <b>operates (1)</b> 100:8 <b>operation (9)</b> 83:13 88:12 89:9,14 89:15 93:8,15 94:8 221:14
<b>networking (3)</b> 85:3 95:8 177:17 <b>networks (4)</b> 42:2 86:17 185:23 186:17 <b>new (338)</b> 23:20 25:5,10,10,11 25:12,13 26:12,18 26:22 28:24 30:5,6 30:11,12,13,14,15 30:16,17,24,24,24 31:1,5,6,13,13,14 31:18,19,24,25 32:2 32:3,7,10,12,13,18 32:23,24 33:7,8,8,9 33:9,9,10,11,12,19 34:1,2,5,8,10,11,14 34:15,16,17,19,22 34:24 35:6,11,14,14 35:17,18 36:1,2,4,5 36:7,13,14,17,19 37:3,6,7,10,15 38:17,18,21,22,25 39:1,3,7,10,11,12 39:14,15,20,25 40:1 40:7,8 41:1,2,6 43:7 43:17,23 44:10,14 44:21,24 45:1,2,18 45:19 46:1,18 47:2 47:2,5,6,7,14,15,21 47:23,25 48:7,13,16 48:18,22,24 49:2,9 49:11,25,25,25 50:1 50:5,7,8,9,11,12 51:2,4,5,5,13,15,16 51:17,19,20 52:1,6	<b>newer (2)</b> 30:16 79:12 <b>nodal (43)</b> 24:24 25:19 30:6,12 30:14,16,17 32:24 34:17 35:14 36:5 37:7 38:22 69:23 70:16,21,25 74:2,13 74:22 75:15,22 76:8 76:18 178:1,5 188:4	<b>oath (2)</b> 5:17 258:10 <b>Object (116)</b> 27:7 28:5,15 29:6,21 35:1,23 36:23 38:3 41:4 44:16 45:22 47:8,17 48:10 50:14 54:21 58:4 59:2	<b>O</b>	

<p><b>operations (1)</b> 87:4</p> <p><b>opine (28)</b> 62:12 64:8 77:15,16 77:24 217:5 221:9 221:18 239:17,20 240:13 241:9 242:20 243:1,19,20 245:6,23 249:1,11 250:1,13,15 251:3 254:1,6 256:6,8</p> <p><b>opined (10)</b> 74:9 75:7,7 76:2,13 76:20 77:9,24 240:21 245:10</p> <p><b>opinion (21)</b> 189:15,19 217:6 221:21 222:8,20 223:6,16 224:2 225:24 226:24 235:4 238:3 245:3 249:1,10 250:1,3,10 254:13 256:1</p> <p><b>opinions (1)</b> 14:16</p> <p><b>option (2)</b> 103:20 177:6</p> <p><b>order (16)</b> 10:2 22:4 32:6 34:13 85:5 132:8,14 133:2 157:6 178:15 209:17 210:7 227:5 230:3 237:8 241:9</p> <p><b>orders (1)</b> 228:8</p> <p><b>ordinary (2)</b> 198:8 200:10</p> <p><b>organized (1)</b> 97:2</p> <p><b>outcome (1)</b> 50:3</p> <p><b>output (5)</b> 122:3 127:17 132:2 134:21,23</p> <p><b>overall (2)</b> 7:21 51:10</p> <p><b>owner (4)</b> 1:9 2:9 3:11 4:22</p> <hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <p><b>P (2)</b> 3:1,1</p> <p><b>p.m (1)</b> 256:18</p> <p><b>packet (1)</b> 150:20</p>	<p><b>page (22)</b> 7:10 46:20 52:10 239:6 241:7,11 242:1 253:2,4,5,7,8 259:6 260:3 261:8 261:10,12,14,16,18 261:20,22</p> <p><b>pages (9)</b> 208:1,2 233:22 243:18,19,25 244:1 254:6 255:5</p> <p><b>paid (1)</b> 12:11</p> <p><b>paint (1)</b> 209:4</p> <p><b>Palo (5)</b> 1:15 2:10 3:7 4:1,12</p> <p><b>papers (1)</b> 244:11</p> <p><b>paragraph (89)</b> 12:21 24:4 40:17,18 40:19,22,23,23,23 41:5,6 42:15,16 43:4 44:4,7 45:14 46:4,20,23 48:11 49:1,15,15,17,18 50:5 52:3,9 66:13 67:15,16,20 68:3,4 68:4,15,16 69:2 78:22 84:14 109:16 109:16 116:16,16 146:6 190:10 191:22 192:13 194:5,14,24 196:4 196:11,12,14,19 201:4 202:9,10 205:6 206:3,19 207:5,6,7,8,14 208:10 209:10,16 210:6 214:6,8,12 215:3 216:3 218:12 218:14 228:11 230:19,21,25 231:21,24 235:20 236:1 253:3,7</p> <p><b>paragraphs (11)</b> 40:16 42:20 43:21 44:3 196:10,15,17 203:23 208:3 219:12 232:21</p> <p><b>paraphrased (1)</b> 148:16</p> <p><b>parens (1)</b> 215:9</p> <p><b>parenthetically (1)</b> 190:15</p>	<p><b>parse (1)</b> 19:10</p> <p><b>part (10)</b> 14:16 81:3 157:17 188:16 220:5 221:9 221:19 239:1 243:15 253:23</p> <p><b>partes (1)</b> 14:12</p> <p><b>partial (7)</b> 90:15,24 91:6,15,25 92:3 153:12</p> <p><b>particular (24)</b> 7:23 8:4 14:13 49:13 60:21 64:18 65:22 68:18 86:12 87:5 94:7 125:6 129:19 156:10,23 157:1 186:17 190:9 193:3 199:5 205:2 242:3 246:15 253:2</p> <p><b>particularly (4)</b> 99:12 145:21 196:18 197:12</p> <p><b>parties (1)</b> 258:17</p> <p><b>passage (6)</b> 23:16 78:21 112:9 116:15 119:1 166:21</p> <p><b>passages (1)</b> 184:20</p> <p><b>patent (150)</b> 1:1,2,6,9 2:9 3:11 4:9 4:22 12:18,19 13:1 13:7,11,14,19,21,25 14:6,8,10,13,17,19 14:22,25 15:3,6,10 15:14,18,21 16:1,4 16:9,11,19 17:3,5 17:18,21 19:22,25 22:16 23:6,12,13 24:12,13,15 40:6,20 41:1,15 43:16 44:3 44:15,21 53:23 54:1 54:14,16,23 55:2,12 55:16 56:5 62:11,25 63:9,12,16 64:5,13 64:20,25 66:5,9 69:17,18 76:24 78:7 79:7 82:3,20,23 84:9,16 90:12 92:13 93:4 95:19,23 99:21 108:7,14 112:13,18 120:19 142:13 143:2 144:1 147:10</p>	<p>149:10 150:11,16 152:18 153:4 155:9 156:21,23 157:11 159:1 162:12 167:11 168:3,20 175:1 176:14 188:14,22 189:9 192:18 195:18 196:17 197:14 202:10 204:21,22 204:25 205:2 209:25 214:4,5 230:16,16 232:19 233:20,21,22,23 238:23 239:2 241:1 242:6,10 246:16,18 253:10,24 255:23</p> <p><b>patentable (1)</b> 14:14</p> <p><b>patents (2)</b> 226:13 251:11</p> <p><b>pause (3)</b> 118:22 175:11 255:17</p> <p><b>pay (2)</b> 11:24 12:14</p> <p><b>paying (3)</b> 11:25 12:2,12</p> <p><b>penalty (2)</b> 257:1,4</p> <p><b>pending (1)</b> 244:19</p> <p><b>percent (5)</b> 9:13 10:3,19,24,25</p> <p><b>percentage (7)</b> 9:3,17 10:10,15 11:19 11:21 12:6</p> <p><b>perform (5)</b> 171:8 198:7,10 200:10,12</p> <p><b>performed (6)</b> 118:8 154:23 168:1 172:8,21 225:15</p> <p><b>performing (1)</b> 87:4</p> <p><b>performs (5)</b> 108:25 143:7 153:9 167:20 171:2</p> <p><b>periodically (1)</b> 101:13</p> <p><b>perjury (2)</b> 257:1,4</p> <p><b>person (1)</b> 16:15</p> <p><b>perspective (1)</b> 90:3</p> <p><b>pertaining (2)</b> 88:13 89:19</p>	<p><b>pertains (1)</b> 90:4</p> <p><b>petitioner (3)</b> 1:6 3:4 4:25</p> <p><b>Ph.D (8)</b> 1:14 2:8 5:4 6:13,19 257:3,16 259:4</p> <p><b>phase (82)</b> 21:3,5,6,6,7,7,8 24:2 42:5 56:17 57:2,3,3 57:4,20,25 58:20 59:7 60:1 61:1,15 61:15 65:17 77:3 79:1,22 82:7,7,8,8 82:10,15,18 83:7 93:21 99:23 100:1,4 104:6,13,17 106:3 106:19 109:1,4 110:8,8 111:15,21 138:24 139:2,5 140:2 141:8,22 143:8,22 153:9,17 154:23 155:17,19 157:18,21 158:13 167:20 168:1 169:2 169:3,5 170:3 171:2 171:6,9 172:8,20 175:10,13,17,18 176:8 178:4</p> <p><b>phased (1)</b> 110:19</p> <p><b>phases (3)</b> 19:15 56:24 156:24</p> <p><b>phrase (4)</b> 65:17 183:7,17 187:1</p> <p><b>physical (4)</b> 126:15 198:18 200:20 230:2</p> <p><b>pick (1)</b> 72:20</p> <p><b>picture (3)</b> 64:10 166:21 209:5</p> <p><b>pictures (2)</b> 64:17 155:3</p> <p><b>pieces (7)</b> 102:16 103:1,25 209:1 229:10 234:12,20</p> <p><b>pile (2)</b> 243:17 244:1</p> <p><b>ping (1)</b> 227:15</p> <p><b>place (11)</b> 91:11 104:25 117:3 150:6 152:23</p>
--	--	--	---	--

165:17 175:2 179:1 224:1 235:11 258:8	103:16,16,21,22 104:2,3 105:5,13,14 105:15 106:9,9,16 125:23 129:1 130:2 131:4,14 132:11 133:16 147:23,24 148:1,2,2,17 149:16 149:17 153:1,1 159:9 160:11 161:4 161:12,14 162:3,19 163:17,22 164:2,4,6 164:12,12,13,14,21 164:22 165:15,20 165:21,22,23 166:3 166:4,6,6,7,12,17 166:18 167:4,4,7,7 168:11,12 169:17 169:17,18,19 170:13 171:19 173:20,20,23,24 182:5,6,7,9,9 184:11,12 198:13 198:19 200:15,21 208:24,25 211:7 227:10,12 237:9,10 237:17	67:7,8 74:6 77:19 78:24 86:4 177:25 219:13	<b>proceed (1)</b> 5:8	10:9
<b>placed (1)</b> 258:10	<b>presenting (2)</b> 174:10 247:13	<b>presenting (2)</b> 174:10 247:13	<b>proceeding (4)</b> 7:7 14:4 214:2 230:12	<b>proper (1)</b> 163:7
<b>places (10)</b> 21:21 99:3 152:24 173:15,16 181:20 186:19 191:20 192:25 213:4	<b>pretty (1)</b> 193:17	<b>previous (44)</b> 18:2 31:2,15 32:8,9 33:15 34:18 35:13 36:6 37:4 38:11 40:2,2,3,4 44:25,25 45:1 46:6,25 51:2 52:1,12 68:11 79:13 79:25 88:6 98:7 102:18 120:8 195:15 203:15,15 203:16 217:12,22 218:9,11 219:24 231:2,8,14 233:14 250:6	<b>proceedings (5)</b> 213:18 255:17 258:7 258:9,11	<b>prosecuted (1)</b> 253:9
<b>please (54)</b> 4:19 5:2,12 6:11 24:16 28:18 30:9 40:11 44:17 52:8 54:15 55:1 60:13 66:8 82:20 93:3 95:22 99:21 108:6 108:13 109:23 112:17 113:3,16 123:16 138:22 140:18 141:11 142:4,12 143:1,25 146:2 147:9 153:3 156:13 157:10 158:25 162:11 163:7 168:19 174:25 178:24 183:21 188:1 190:9 211:9 216:3 218:16 228:18 230:18,19 235:20 247:3	<b>previous (14)</b> 45:11 46:12,13,14 49:5,6,20 52:4 68:10 87:3 213:13 213:14 238:17 244:5	<b>processed (4)</b> 129:6 134:1 222:9 235:13	<b>process (41)</b> 46:25 51:25 52:12 85:17 93:20,21 97:24 99:8 102:25 104:4 114:6,20 118:25 124:14 134:21 135:15 142:21 143:14 147:15,20,21 149:21 150:12 173:7 174:15,19 182:24 183:10,25 184:15,16 185:3 187:8 195:18 207:22 214:16 215:7 231:1,7 238:9 238:13	<b>prosecution (5)</b> 13:10 242:4 245:23 246:17 254:1
<b>plurality (32)</b> 26:12,18,22 28:25 31:7,20 32:12,18 34:19 36:7,13 37:10 41:7 44:21 48:7,17 71:5 75:2 83:14 89:10 216:6,13,24 217:10 224:9,12 232:1,24 239:9 244:20 248:17,18	<b>portion (5)</b> 60:4,21 65:9 89:1 196:3	<b>principally (14)</b> 45:11 46:12,13,14 49:5,6,20 52:4 68:10 87:3 213:13 213:14 238:17 244:5	<b>processes (26)</b> 96:6 97:16 98:1 113:10,14,17 114:18,23 115:14 118:2 119:5 120:1 120:15 122:2,19 131:25 132:1 133:25 144:19 145:25 146:25 147:5 159:7,13 160:9 183:12	<b>protocol (7)</b> 229:1,1 234:5,8,9,10 236:17
<b>point (26)</b> 22:1,10 102:23 149:6 149:6 152:20 161:19 166:19,19 168:7,16 184:21,21 220:14 224:1,7 227:7,20 228:3,11 228:18 229:19,19 234:23,24 235:11	<b>portions (1)</b> 146:7	<b>prior (52)</b> 12:18 13:2 24:25 25:3 25:8,20 27:1 28:11 28:22 46:15 48:15 49:2,7 60:9 61:5 69:15,24 70:3,5,6,9 70:17,22 71:1,10,13 73:12,19 74:3,14,23 75:16,23 76:9,19 77:8 78:20 79:12,16 120:18 130:20 164:1 202:24 209:7 209:14 213:19 238:2 245:15 247:14 248:9 250:15 258:10	<b>processing (31)</b> 85:23 99:13 118:8 134:22 136:3 159:6 160:8 173:11 187:22 221:22 222:20,23 223:16 223:20,21 224:3,14 224:15,17,18 225:8 225:9,10,13,14,17 225:24 226:22 235:5 236:19 238:4	<b>provided (25)</b> 109:3 115:4,18 116:6 118:7 126:20 143:13,21 153:16 171:5 196:17 199:2 206:2,11 221:21 222:8,20 223:5,15 224:2 225:23 227:24 235:4 238:3 249:22
<b>pointing (1)</b> 189:2	<b>ports (15)</b> 49:25 86:3 103:9 105:19,20 125:22 160:17,19 161:16 166:16,16 178:20 187:21 200:3 229:6	<b>pro (1)</b> 253:10	<b>produces (2)</b> 183:3 184:3	<b>provides (21)</b> 17:11 20:18 24:4,7 28:12 41:17 43:9 100:9 132:2 165:3 174:11 192:9 216:12,23 219:13 223:7 228:12 236:10 239:25 240:10 250:18
<b>port (114)</b> 97:7 101:16,19,19 102:3,3,4,4,11,13 102:13,15,19,19,23 102:24 103:11,11	<b>power (1)</b> 91:24	<b>probably (4)</b> 105:25 106:22 187:13 189:21	<b>produced (1)</b> 232:3	<b>put (14)</b> 16:16 22:6 58:11,11 114:20 134:8
	<b>Practical (1)</b> 167:3	<b>problem (3)</b> 53:9 152:25 169:23	<b>professional (3)</b> 9:19 10:21 242:21	
	<b>precedes (1)</b> 94:9		<b>project (1)</b>	
	<b>preparation (3)</b> 32:4 251:13,15			
	<b>prepare (4)</b> 31:10 251:5,6 252:13			
	<b>prepared (1)</b> 26:6			
	<b>preparing (2)</b> 12:15 13:20			
	<b>present (12)</b> 3:18 29:4 41:17 43:9			

147:23 150:17 179:23,25 184:11 255:4,9,14 <b>putting (2)</b> 25:21 117:12	160:13,22,23 161:24 162:14 163:1,3,8,11,20 164:9,10 168:24 169:12,13 170:1,6 170:23,23 172:15 172:17,19 173:1,1,4 173:5 175:7 176:5 178:9 179:7 180:8,9 182:22 183:22 185:19 186:14 189:17 193:7 194:1 202:23 204:24 210:4 215:1,21 216:15,16 220:10 221:8 222:2,14 223:1,11,13,14 225:13,22,23 226:4 232:16 235:9 237:25 238:3,14 240:8 241:15,19 244:19 246:4 247:10,11 248:5,25 250:11	67:2 68:15,24 71:8 75:9,10 76:25 77:5 77:13 78:22 79:14 80:20 88:8,23 90:20 92:25 95:25,25 110:3 116:15 117:1 121:9 137:15,15 140:22 142:25 144:5,22 146:7,12 146:12 147:8 150:18 155:10,23 158:2 160:1 162:21 163:13,20 165:4 166:8,9 167:16,24 169:8 179:5,17 181:6 182:19 183:6 185:10 187:7 189:9 191:22 194:6 198:1 201:2 210:5,12 214:21 217:14 218:15,18 219:11 232:20 257:4 <b>reading (18)</b> 35:2,2 52:7 120:24 137:16 141:15 145:1 146:6 151:23 157:14 163:9 180:20 196:19 206:10 231:3 232:13,14,15 <b>reads (9)</b> 62:20 69:21 71:4,17 75:13 78:9 86:20 87:22 215:5 <b>realize (1)</b> 98:19 <b>really (9)</b> 30:19 36:24 38:4 48:1 51:15 60:11 127:9 243:21 249:10 <b>Realtime (1)</b> 2:13 <b>reason (13)</b> 75:10 106:2,19 156:23 261:4,8,10 261:12,14,16,18,20 261:22 <b>reasonable (5)</b> 26:3 172:17 196:13 208:5 243:20 <b>reasons (6)</b> 91:2,5 92:11 110:23 111:11,25 <b>reboot (1)</b> 91:24 <b>recall (6)</b>	29:17 73:14 87:6 122:15 175:14 225:11 <b>receive (23)</b> 18:7 19:13,18 22:4 32:2,7 34:15 38:13 40:2,3 58:9 81:10 81:25 83:7 95:16 96:21,22 100:11,12 137:25 138:12 192:2 234:2 <b>received (21)</b> 33:20 119:14 131:4 154:17,25 159:15 172:2,9,22 188:12 188:20 189:10 199:19,22,25 211:3 212:8,9,10 214:4 233:25 <b>receives (21)</b> 32:13 87:10,15,23 94:20 95:10,14 131:18,19 136:15 137:13,19 138:10 154:3,11 207:16 209:19 210:1,9,15 211:11 <b>receiving (34)</b> 18:15 30:13 31:9,9,10 31:13,14,14,25 32:3 32:8,23 33:2,5,12 34:16 35:13 36:3,4 36:14 37:6 38:9,21 42:7,8 47:23 48:18 96:15 188:3 197:15 227:3 228:5 239:12 240:9 <b>recess (6)</b> 53:18 73:2 107:1 151:7 190:2 224:25 <b>recite (1)</b> 45:24 <b>recited (6)</b> 27:1 35:19 37:17 43:17,23 70:20 <b>recites (4)</b> 36:14,15 188:2 239:11 <b>recognize (11)</b> 7:8 14:5,6 82:22 98:15,22 173:23 214:3 230:13 238:24 246:19 <b>recognized (1)</b> 102:12 <b>reconsideration (2)</b>	238:22 260:6 <b>record (17)</b> 4:20 5:14 53:17,20 73:1,6 106:25 108:4 151:6,11 190:1,4 224:24 225:4 256:17 258:11 261:5 <b>reduce (29)</b> 21:13,15 58:11 97:9 100:15,24 105:2 113:11 114:18 115:15 117:13,18 118:3,17 119:5,20 120:2,12,16 122:2 122:19,21 155:4 156:16 185:11 226:19 229:17 234:18 238:10 <b>reduced (110)</b> 22:6,14,17,20 23:8,21 58:8 61:19,20 66:4 99:20 101:4 104:7,9 104:17,19 105:7,11 112:14,25 115:5,19 116:3,7,8 117:4,6 117:14,15 118:9 119:10 120:21 121:7,11,14,15,19 122:3 123:5,6,9,10 123:18,19 124:7,8 125:7 126:18,23 127:5,18 128:2,13 129:6,7,8 130:9,13 132:3 133:6 134:2 134:13,24 135:2,20 136:6,16,16,21 137:13,14,19,19,22 139:8,19 142:2,6,10 188:13,21 189:11 210:22 212:6,8,18 221:4,13 222:10 223:7 225:20,21,25 226:6,10,24 227:19 227:24 228:12 229:20,21 230:5 233:3,6,17 236:20 237:20,20,21 238:12 <b>reduces (12)</b> 23:7 100:21 112:24 120:20 121:6 122:23,25 123:4 130:8 154:24 172:9 172:21 <b>reducing (2)</b>
<b>Q</b>				
<b>queried (1)</b> 68:20				
<b>queries (10)</b> 68:13 88:19 195:15 195:16 198:3,10 199:23 200:4,12 202:24				
<b>query (54)</b> 19:19 67:24 68:2,10 68:11,12 83:9 88:6 88:9,15,15 89:15 111:12,23,25 190:14,21,25 191:9 191:25 192:12,16 192:24 193:6,15 194:4,15,22 195:2 195:11 196:22 199:4,20 202:20 203:8,10,16,16,17 203:18,18,24,25 204:6 205:12,16 206:8,25 207:1 208:13,14,19 209:11 212:12	250:11 <b>questions (26)</b> 5:20 6:8 31:4 38:5 50:16 96:20 163:9 167:9 172:11,13,14 173:6,8,17 174:4 178:9,22 204:19 241:23 242:3 243:6 244:15,17 249:25 256:11,13	<b>reading (18)</b> 35:2,2 52:7 120:24 137:16 141:15 145:1 146:6 151:23 157:14 163:9 180:20 196:19 206:10 231:3 232:13,14,15 <b>reads (9)</b> 62:20 69:21 71:4,17 75:13 78:9 86:20 87:22 215:5 <b>realize (1)</b> 98:19 <b>really (9)</b> 30:19 36:24 38:4 48:1 51:15 60:11 127:9 243:21 249:10 <b>Realtime (1)</b> 2:13 <b>reason (13)</b> 75:10 106:2,19 156:23 261:4,8,10 261:12,14,16,18,20 261:22 <b>reasonable (5)</b> 26:3 172:17 196:13 208:5 243:20 <b>reasons (6)</b> 91:2,5 92:11 110:23 111:11,25 <b>reboot (1)</b> 91:24 <b>recall (6)</b>	29:17 73:14 87:6 122:15 175:14 225:11 <b>receive (23)</b> 18:7 19:13,18 22:4 32:2,7 34:15 38:13 40:2,3 58:9 81:10 81:25 83:7 95:16 96:21,22 100:11,12 137:25 138:12 192:2 234:2 <b>received (21)</b> 33:20 119:14 131:4 154:17,25 159:15 172:2,9,22 188:12 188:20 189:10 199:19,22,25 211:3 212:8,9,10 214:4 233:25 <b>receives (21)</b> 32:13 87:10,15,23 94:20 95:10,14 131:18,19 136:15 137:13,19 138:10 154:3,11 207:16 209:19 210:1,9,15 211:11 <b>receiving (34)</b> 18:15 30:13 31:9,9,10 31:13,14,14,25 32:3 32:8,23 33:2,5,12 34:16 35:13 36:3,4 36:14 37:6 38:9,21 42:7,8 47:23 48:18 96:15 188:3 197:15 227:3 228:5 239:12 240:9 <b>recess (6)</b> 53:18 73:2 107:1 151:7 190:2 224:25 <b>recite (1)</b> 45:24 <b>recited (6)</b> 27:1 35:19 37:17 43:17,23 70:20 <b>recites (4)</b> 36:14,15 188:2 239:11 <b>recognize (11)</b> 7:8 14:5,6 82:22 98:15,22 173:23 214:3 230:13 238:24 246:19 <b>recognized (1)</b> 102:12 <b>reconsideration (2)</b>	
<b>question (153)</b> 5:21 8:9,21 11:8 16:2 22:25 28:17,18 29:8 30:9 31:22 32:16 33:3,4 35:3 36:19 36:25 37:13 40:10 41:14 42:3 44:18 47:10,11,12 48:2 50:9 51:9 52:16 58:14 60:12 66:16 91:3 96:3 97:21 99:16 105:24 116:24 117:1 122:7 123:15 124:13 127:7,9 128:6 129:16 130:15,16 130:17,19,22,23 134:4,15,16,18 137:4,6,9 138:4,11 141:12,12 143:4 144:8 145:2,3 146:1 146:2,24 148:13,15 154:6,9 155:13 156:3 157:13 158:9 158:10 159:3	<b>quiet (3)</b> 110:16,17 111:7 <b>quite (2)</b> 9:21,24 <b>quotation (7)</b> 23:24 24:21 26:21 41:16 43:8 46:14 49:17	<b>reads (9)</b> 62:20 69:21 71:4,17 75:13 78:9 86:20 87:22 215:5 <b>realize (1)</b> 98:19 <b>really (9)</b> 30:19 36:24 38:4 48:1 51:15 60:11 127:9 243:21 249:10 <b>Realtime (1)</b> 2:13 <b>reason (13)</b> 75:10 106:2,19 156:23 261:4,8,10 261:12,14,16,18,20 261:22 <b>reasonable (5)</b> 26:3 172:17 196:13 208:5 243:20 <b>reasons (6)</b> 91:2,5 92:11 110:23 111:11,25 <b>reboot (1)</b> 91:24 <b>recall (6)</b>	238:22 260:6 <b>record (17)</b> 4:20 5:14 53:17,20 73:1,6 106:25 108:4 151:6,11 190:1,4 224:24 225:4 256:17 258:11 261:5 <b>reduce (29)</b> 21:13,15 58:11 97:9 100:15,24 105:2 113:11 114:18 115:15 117:13,18 118:3,17 119:5,20 120:2,12,16 122:2 122:19,21 155:4 156:16 185:11 226:19 229:17 234:18 238:10 <b>reduced (110)</b> 22:6,14,17,20 23:8,21 58:8 61:19,20 66:4 99:20 101:4 104:7,9 104:17,19 105:7,11 112:14,25 115:5,19 116:3,7,8 117:4,6 117:14,15 118:9 119:10 120:21 121:7,11,14,15,19 122:3 123:5,6,9,10 123:18,19 124:7,8 125:7 126:18,23 127:5,18 128:2,13 129:6,7,8 130:9,13 132:3 133:6 134:2 134:13,24 135:2,20 136:6,16,16,21 137:13,14,19,19,22 139:8,19 142:2,6,10 188:13,21 189:11 210:22 212:6,8,18 221:4,13 222:10 223:7 225:20,21,25 226:6,10,24 227:19 227:24 228:12 229:20,21 230:5 233:3,6,17 236:20 237:20,20,21 238:12 <b>reduces (12)</b> 23:7 100:21 112:24 120:20 121:6 122:23,25 123:4 130:8 154:24 172:9 172:21 <b>reducing (2)</b>	
	<b>R</b>			
	<b>R (1)</b> 3:1			
	<b>R-I-P (1)</b> 234:8			
	<b>re-look (1)</b> 117:21			
	<b>read (81)</b> 23:16 24:21 39:21 41:15 46:7 52:5 55:7 56:24 58:17,22 59:16 60:3,5 66:13			



157:6 235:3 <b>reduction (29)</b> 21:3,7 57:3 82:8 99:23 100:1,3,9 104:6,12,16 106:3 106:19 134:11 142:10,22 171:2,6,9 172:8,20 174:1 175:10,12,17,18 176:8 178:4 237:23 <b>redundancy (4)</b> 118:15,15,21 143:23 <b>redundant (17)</b> 153:10 154:16,18 171:3,15,25 172:3,4 181:1,2,7,12,19,23 183:3 184:2 191:17 <b>refer (27)</b> 13:17,18 14:7 40:16 41:6,10 42:15 44:3 46:20 63:3 64:22 80:23 83:18 84:14 86:19 168:8 176:24 197:4 202:19 209:10 217:8 218:4 218:7 224:6 230:15 235:15 241:25 <b>reference (9)</b> 20:21 42:17 72:18 213:22 224:11 228:13,21 230:7 235:16 <b>referenced (2)</b> 192:25 228:20 <b>references (1)</b> 13:2 <b>referred (27)</b> 13:18 43:3 56:17 57:20 58:20 59:7 60:1,25 61:5,14 62:5 65:16 66:19 71:18 72:1 77:3 79:21 80:15 141:7 141:21 150:19 197:5,10 201:3 207:2 224:7 236:1 <b>referring (33)</b> 33:6 40:24 42:21 46:5 55:11 63:15 65:25 68:3 71:13 74:16 78:11 80:12 83:12 83:25 87:8 88:24 89:5 92:12 104:14 146:5 160:2 167:13 170:21,24 191:5,21 215:2 225:14	235:21 239:6 240:4 242:7 243:14 <b>refers (10)</b> 57:24 59:5 72:13 78:25 197:8 207:9 239:8 241:4 242:15 247:20 <b>reflect (1)</b> 227:5 <b>reflected (2)</b> 26:14 28:1 <b>reflects (2)</b> 28:10 227:4 <b>regarding (12)</b> 89:2 104:23 221:21 222:9,20 223:16 225:24 226:24 235:5 238:3 250:4 250:14 <b>regards (1)</b> 29:3 <b>rejection (2)</b> 253:16,19 <b>relate (2)</b> 63:19 191:24 <b>related (35)</b> 22:2,3 29:12,23 42:6 58:14 62:5 63:5,16 63:25 72:12 74:10 78:12 85:14,16 99:4 106:5 120:8 126:15 126:16 147:21 150:17 153:1 156:17 166:8,21 178:17 179:24 189:7 203:17 217:10 219:15,17 250:15 254:14 <b>relates (1)</b> 29:15 <b>relating (8)</b> 41:18,20,21 43:10,12 43:14,19 219:14 <b>relation (1)</b> 122:3 <b>relationship (27)</b> 23:9 61:20,21 112:14 114:19 115:16 119:6,18 120:2,3,16 121:16 122:22 125:11 126:18 127:5 135:2 136:21 137:23 139:11 142:3,11 157:22 180:3,6 188:21 189:11	<b>relationships (47)</b> 22:15,17 23:22 85:7 112:14 113:1,11 116:3,8 117:5 118:3 119:8,9 120:22 121:8 122:4 123:7,9 123:10,18,20 124:8 125:7 127:19 128:2 129:9 130:10,13 132:4 133:6 134:2 134:13,24 135:2,20 136:6,17 137:20 142:6 158:4,14 179:15,20 180:1 188:13 212:6,19 <b>relative (1)</b> 258:16 <b>relevance (1)</b> 181:1 <b>relevant (12)</b> 13:14,15 21:14,16,24 22:12 104:22 106:15 120:6 155:6 223:5 255:7 <b>rely (2)</b> 196:3,6 <b>relying (1)</b> 206:6 <b>remember (7)</b> 8:5 73:15 133:10 228:2 244:9 249:19 252:15 <b>remove (1)</b> 105:6 <b>remove (10)</b> 39:22 104:21 106:20 147:22 153:10 154:1,16 171:3,21 171:25 <b>removed (6)</b> 51:5,5 81:13 109:21 185:6 187:10 <b>removes (2)</b> 183:2 184:2 <b>removing (2)</b> 39:24 185:11 <b>repeat (8)</b> 30:9 46:13 113:16 125:5 141:11 142:4 163:3 247:3 <b>repetition (2)</b> 22:13 119:16 <b>rephrase (1)</b> 117:2 <b>reported (3)</b> 1:24 170:7,10	<b>reporter (11)</b> 2:11,12,13 4:17 5:1,5 159:19 234:7 238:16 246:9 258:5 <b>Reporting (2)</b> 4:15,18 <b>reports (2)</b> 167:21 168:5 <b>repository (1)</b> 17:12 <b>represent (29)</b> 25:19 30:5,11,13,15 32:24 34:17 35:14 36:5 37:6 38:21 78:19 94:13,24 120:3 188:3 190:19 192:11,23 193:5,13 194:3,21 195:10 196:24 197:18 204:8 205:14 239:12 <b>representation (3)</b> 178:1,5 230:2 <b>representing (12)</b> 4:22 24:24 69:23 70:16,25 74:2,13,22 75:15,22 76:8,18 <b>represents (3)</b> 70:21 90:3 195:4 <b>request (3)</b> 229:15 238:21 260:5 <b>requested (3)</b> 19:21 20:5 83:11 <b>required (4)</b> 44:14 49:12 52:18 108:25 <b>reread (1)</b> 74:19 <b>resolve (4)</b> 167:21 168:5 169:4 169:19 <b>resolved (2)</b> 152:4 153:1 <b>respect (29)</b> 42:18 44:2 58:15 64:4 65:7 74:20 128:20 132:2 135:3 137:8 143:20 144:24 145:5 163:22 164:3 165:4 196:4,18 199:2 201:1 204:16 220:25 225:16,19 227:25 228:13 242:3 243:6 256:2 <b>respond (1)</b> 27:17	<b>responded (2)</b> 253:16,19 <b>responding (1)</b> 253:13 <b>responds (1)</b> 27:17 <b>response (4)</b> 203:9 246:16,20 260:9 <b>responsible (4)</b> 82:9,17 99:25 139:1 <b>rest (4)</b> 10:20 84:8 106:1 110:13 <b>restatement (1)</b> 97:21 <b>result (6)</b> 49:23 105:6 184:14 208:13 232:3,7 <b>resultant (2)</b> 134:1,21 <b>resulted (1)</b> 245:24 <b>results (8)</b> 49:24 50:4,6,7,11 104:6,17 204:11 <b>retained (1)</b> 7:22 <b>retrieve (2)</b> 111:23 112:1 <b>retrieves (2)</b> 87:25 207:18 <b>return (1)</b> 8:9 <b>returned (13)</b> 67:23 68:2 190:13,24 191:8 192:15 194:15 195:1 196:21 199:3 204:5 205:11 206:7 <b>returning (1)</b> 229:4 <b>review (12)</b> 14:12 146:11 240:15 241:10 243:25 244:3,13 245:16 250:17 251:16 254:21 256:3 <b>reviewed (14)</b> 242:23,24 246:5 249:17 250:21,21 251:1,8,10,10 252:16,19 254:10 255:2 <b>reviewing (27)</b> 55:9 66:15 96:2
---	--	---	---	--

108:15 110:4 113:5 140:24 142:16 143:3 144:7 151:18 155:12 157:12 159:2 162:13 167:15 168:23 170:22 175:6 177:13 179:6 182:21 209:24 218:17 248:1,10 249:10	187:2,11 191:3,6 192:4 202:1 <b>saved (2)</b> 96:23 201:18 <b>saves (3)</b> 22:21 202:1 210:21 <b>saving (6)</b> 185:15 186:16 201:15 201:19,22,22 <b>saying (12)</b> 58:6 83:16 131:12 181:16,17 188:25 205:1 216:11,22 221:1 232:10,22 <b>says (43)</b> 35:13 38:23 41:15 45:7 61:12 70:14,23 71:3 75:1 79:24 80:22 81:3 83:17 84:21 89:12,12 93:10 97:25,25 102:6 113:2,13 115:8 116:11,13,19 117:2,13 118:12 119:1,23 121:13 165:9,11 168:8 170:11 181:15 183:18 187:1,4 192:14 200:1,2	89:23 106:12 167:2 167:20,25 169:2,3 170:3 194:24 195:2 195:11 196:5,19,22 199:3 201:4 203:10 203:25 204:3,6 207:1 208:13,14 209:15 210:5 214:18,24 215:10 215:25 216:7,11,22 216:24 217:3,11,16 217:18 218:8,21 219:1,3,6,7,17,18 219:21,25 220:1,1,2 220:8 221:22 222:5 222:9,21,24 223:8 223:17,20 224:3,13 224:14 225:15 227:16 229:12 232:24 234:3 236:7 237:5,5 238:4 239:11,15,22,25 240:8,10 241:5 242:16 244:22 246:10 247:24 248:7,15,21,22	138:23 139:25 146:12,20 149:24 150:1,4 152:7 155:2 157:1,4 166:22 171:19 176:23 190:22 192:20 195:6 199:11,20 201:9 202:17 205:17 211:18,19 212:4,5,7 213:9,14 219:11 223:21 228:23 235:23 236:3 240:5 241:1 241:11,12,18 242:17,25 243:21 249:12,12,13,13,14 255:25 <b>seeing (1)</b> 249:3 <b>seen (1)</b> 65:18 <b>segment (6)</b> 179:14,19,23,23,25 179:25 <b>selected (1)</b> 68:10 <b>send (8)</b> 23:8 85:20,21 121:15 139:14 201:23 215:17 226:12 <b>sending (3)</b> 101:21 228:9 229:15 <b>sends (5)</b> 112:25 120:21 121:7 123:5 202:3 <b>sense (9)</b> 132:5,7 135:24 172:14 173:1,9,17 174:4 179:21 <b>sent (4)</b> 23:21 101:13 227:14 249:4 <b>sentence (35)</b> 46:23 65:21 67:19 72:9 78:11 80:19 117:20 118:23,25 120:14 146:13 187:7 190:12 191:22 192:13,14 194:14,24 196:5,19 197:12 201:4 202:11 204:4 205:3 205:9 206:3,14 209:15 210:5 214:12 215:2 216:5 218:13 231:24	<b>sentences (2)</b> 197:13 205:6 <b>separate (4)</b> 103:12 237:13 239:23 239:24 <b>Serial (2)</b> 260:6,10 <b>ServiceNow (5)</b> 1:5 4:8,25 7:25 213:17 <b>ServiceNow's (5)</b> 7:6 14:3 214:1 230:9 230:11 <b>services (2)</b> 7:14 12:8 <b>SESSION (2)</b> 108:1 259:8 <b>set (38)</b> 33:7,8,11,12,18 39:17 41:18,20,21,23,25 43:10,12,13 76:23 78:4 102:9 129:22 155:20,25 156:8,11 202:16 206:25 214:17,18 215:8,10 216:8 219:4,14,15 219:17,19,21 220:8 222:21 258:8 <b>sets (4)</b> 125:24 129:17 211:6 211:10 <b>setting (4)</b> 30:2 32:11 39:12 127:23 <b>seven (1)</b> 195:22 <b>shape (1)</b> 213:9 <b>shared (20)</b> 109:17,18,20,21 143:17,17,18,20 147:22 148:16,16 149:23 150:19,20 177:18,20,23,24 178:17 200:3 <b>shel (1)</b> 152:4 <b>sheets (1)</b> 54:7 <b>short (1)</b> 196:12 <b>shorthand (3)</b> 2:11 258:4,12 <b>shortly (1)</b> 73:8 <b>show (14)</b>
<b>reviews (1)</b> 170:3 <b>revision (1)</b> 248:12 <b>right (24)</b> 11:14 17:7 21:14 25:22 50:6 63:11 64:21 69:3 70:19 81:16 84:6 129:24 174:1 178:9,21 180:8,11 189:20 197:15 202:2 220:6 231:6 244:5,10 <b>RIP (2)</b> 234:6,8 <b>role (1)</b> 6:5 <b>roles (8)</b> 17:9,10 19:12 20:17 20:23 24:3,6 58:15 <b>room (7)</b> 91:21 106:1 167:4 173:21 186:5,6 227:12 <b>rough (1)</b> 10:1 <b>roughly (1)</b> 11:15 <b>routers (2)</b> 199:15,15 <b>routing (4)</b> 85:19 200:2 234:4,9	<b>science (3)</b> 6:14,18 150:8 <b>scientist (1)</b> 9:14 <b>scope (1)</b> 255:23 <b>se (1)</b> 253:10 <b>second (171)</b> 21:6 26:9,11,18,21 27:6,19 28:12,25 29:11 31:7,12,20,24 32:1,7,9,11,14,17 33:2,5,11,21,24 34:2,11,15,24,24 35:8,20 36:12,22 37:8,17,23 38:10 40:8 41:3,8,21,22 41:25 42:5,6,6,8,9 42:11,11,24 43:1,2 43:13,14,17,19,20 43:22,23 44:5,11,15 45:19 46:23 47:7,16 47:19,21 48:4,16,17 50:13,23 51:16,21 52:4,23 57:6,8 66:3 67:12 71:4 75:10	<b>seconds (4)</b> 89:25 106:13 218:10 226:12 <b>section (30)</b> 7:14,16 15:8,16,22,23 22:18 39:21 40:3,4 46:6 55:3,6,7,12 56:6,13 111:10 112:3 147:7 150:16 150:18,21 163:10 173:15,15 195:25 199:11 229:14,16 <b>sections (2)</b> 40:2 204:23 <b>see (107)</b> 17:25 18:8,17,20,22 18:24 19:3,5 20:3 20:25 21:2,4,10,20 23:2,25 26:8 32:3 36:2,6 37:4,8 45:3,4 45:15 46:9 50:1 51:2 57:1,12 59:8 61:16 62:7 64:9 67:18,18 68:6 69:21 75:18 80:8 81:12,12 81:12,22 82:14 83:4 89:6 95:5 96:13,17 97:6 98:4 99:22 100:14,23 110:2 118:5,25 137:10	<b>sentences (2)</b> 197:13 205:6 <b>separate (4)</b> 103:12 237:13 239:23 239:24 <b>Serial (2)</b> 260:6,10 <b>ServiceNow (5)</b> 1:5 4:8,25 7:25 213:17 <b>ServiceNow's (5)</b> 7:6 14:3 214:1 230:9 230:11 <b>services (2)</b> 7:14 12:8 <b>SESSION (2)</b> 108:1 259:8 <b>set (38)</b> 33:7,8,11,12,18 39:17 41:18,20,21,23,25 43:10,12,13 76:23 78:4 102:9 129:22 155:20,25 156:8,11 202:16 206:25 214:17,18 215:8,10 216:8 219:4,14,15 219:17,19,21 220:8 222:21 258:8 <b>sets (4)</b> 125:24 129:17 211:6 211:10 <b>setting (4)</b> 30:2 32:11 39:12 127:23 <b>seven (1)</b> 195:22 <b>shape (1)</b> 213:9 <b>shared (20)</b> 109:17,18,20,21 143:17,17,18,20 147:22 148:16,16 149:23 150:19,20 177:18,20,23,24 178:17 200:3 <b>shel (1)</b> 152:4 <b>sheets (1)</b> 54:7 <b>short (1)</b> 196:12 <b>shorthand (3)</b> 2:11 258:4,12 <b>shortly (1)</b> 73:8 <b>show (14)</b>	
<b>S (2)</b> 3:1 79:20 <b>SAN (1)</b> 258:3 <b>sand (2)</b> 25:14,22 <b>save (19)</b> 22:23 84:25 91:23,25 92:8 94:22 100:13 100:16 101:1,1 185:7 186:3,22	<b>S</b>			

16:18 51:4,6 93:19 97:10 103:4 138:18 155:16 197:20,21 208:5 222:25 245:15 255:8	<b>simplifying (1)</b> 187:16 <b>simply (10)</b> 33:4 36:19 50:9 98:4 176:24 177:1 178:21 187:2,11 222:15 <b>single (4)</b> 152:8,11 168:14 169:20 <b>single-heard (2)</b> 152:8,10 <b>single-hearded (1)</b> 170:14 <b>singly-heard (12)</b> 143:9 151:22 152:1,3 157:19,25 158:16 167:21 168:6,8 169:4,10 <b>sir (13)</b> 68:24 69:19 73:14 75:18 76:5 87:6 88:7,22 118:5 129:3 136:14 225:11 242:23 <b>sit (2)</b> 76:5 228:10 <b>sitting (2)</b> 129:20 250:8 <b>situation (1)</b> 105:22 <b>six (1)</b> 19:5 <b>sixth (1)</b> 91:21 <b>size (18)</b> 104:7,9,18,20 105:7 105:11,15,17,20 115:5,19 116:8 117:6 118:9 119:10 126:12 234:19,20 <b>smaller (1)</b> 228:8 <b>SMS (2)</b> 237:1,15 <b>SNA (2)</b> 237:1,15 <b>SNMP (6)</b> 85:19 229:1,15,22 236:25 237:14 <b>so-called (1)</b> 229:2 <b>soft (4)</b> 236:12,16,23 238:8 <b>softly (1)</b> 236:11	<b>software (8)</b> 45:9,11 46:10,11 49:3 49:5 236:22 237:13 <b>soon (1)</b> 252:18 <b>sorry (39)</b> 9:4,4 49:18 53:4,22 56:14 57:23 62:18 67:20 71:21 82:14 84:14 87:12 94:14 99:20 100:20 104:14 111:18 124:8 125:4 127:2 154:21 157:14 165:10,10 174:5 179:10 180:17 187:4 188:6 190:15 192:8 208:11 213:16 230:10 236:6 242:11 251:5 253:7 <b>sort (1)</b> 213:5 <b>Sounds (1)</b> 53:2 <b>sourced (5)</b> 121:24 122:14,17 131:22 134:20 <b>sources (7)</b> 127:10,16 130:5 133:21 183:11 198:17 200:18 <b>space (7)</b> 126:13 185:7,15 186:16,22 187:2,11 <b>speaking (1)</b> 201:3 <b>spec (2)</b> 173:14 208:2 <b>specialist (1)</b> 4:16 <b>specific (34)</b> 20:9 21:24 22:3 23:1 74:9,17 76:3 77:15 77:16 84:11 86:13 105:5 111:2,23,25 128:23 129:23,25 147:25 150:16,20 150:20 154:9 191:6 195:24 197:5,6 211:12,14 219:11 228:1 241:15 243:1 256:7 <b>specifically (34)</b> 19:16,17 22:18,25 23:5 35:3 41:10,13	42:3 43:5 45:3,7 49:16 63:3 75:25 77:25 78:24 83:25 91:20 136:18 146:5 150:17,19 168:7,7 195:24 203:14 211:15 224:7 226:3 228:2 235:16 240:3 254:13 <b>specification (25)</b> 14:19 15:1,4,7,11,15 64:11 68:18 77:14 78:7 89:1 129:1 130:2 131:4,15 133:17 174:9,11 176:24 189:5 196:11 197:4,5 207:24 225:19 <b>specifics (2)</b> 105:23 195:19 <b>spend (1)</b> 243:21 <b>spending (1)</b> 12:1 <b>spent (7)</b> 9:14,17 10:20 12:11 53:23,25 205:5 <b>split (1)</b> 10:15 <b>spot (1)</b> 242:22 <b>ss (1)</b> 258:2 <b>stage (7)</b> 35:13 36:4 37:5 42:22 42:23 48:20 155:2 <b>stages (1)</b> 57:1 <b>stamina (1)</b> 105:25 <b>stamp (1)</b> 135:4 <b>standpoint (1)</b> 127:24 <b>stands (1)</b> 205:3 <b>start (20)</b> 4:6 19:18 25:15 41:16 43:8 53:24 72:8 83:7 94:1 99:3 122:10,11,23 138:10 147:3 154:21 179:9 214:8 228:23 230:21 <b>started (2)</b> 26:17 141:15	<b>starting (9)</b> 7:10 40:22 44:7 45:14 54:13 64:22 83:6 116:16 146:8 <b>startup (5)</b> 9:25 10:5 11:24,24 12:5 <b>startups (1)</b> 9:21 <b>state (25)</b> 3:13 5:12 9:7 31:9 35:10 37:8 38:20 55:21 100:9 108:18 120:13 140:14 141:1 153:7 162:16 164:25 175:8 177:16 196:20 202:3 207:15 209:16 241:17 258:1,5 <b>stated (6)</b> 24:4 57:22 59:23 161:13 210:6 216:21 <b>states (76)</b> 1:1 32:17,17 35:10 37:1 46:23 55:6,12 55:15 56:3,6,13,19 56:24 57:8 60:23 61:7,7,9 62:15 65:22 66:18 68:18 76:25 80:13 84:16 87:9,14 88:18 92:17 96:5 97:15 110:6 111:14 112:2,23 113:7 117:24 118:19 120:19 121:5 142:19 143:6 144:4,10 147:14 151:20 155:15 157:16 159:5 160:7 163:14 166:5,9 167:18 168:25 170:2,25 179:9,12 180:14,24 182:23 183:24 185:2 188:8 190:12 194:25 202:11 205:23 214:14 216:5 230:25 231:25 236:9 247:22 <b>stating (2)</b> 7:16 196:5 <b>status (1)</b> 230:1 <b>staying (2)</b>
--	---	---	--	---

59:22 208:7	126:19 130:8 132:3	30:10,19 31:4,21	168:15,16 171:18	257:5 258:7
<b>step (18)</b>	133:7,15 134:1	32:16 33:3 36:24	173:21,23 178:11	<b>takes (3)</b>
31:9,9,16 32:8 36:20	145:8,11,14,17,22	37:13 38:4,6 40:9	178:11 208:23,23	58:10 118:13,20
37:5,8,9 39:13	146:23 193:21	40:12 48:1 50:15	237:17	<b>Tal (15)</b>
59:20 93:23 94:7	194:8 198:22	55:8 58:5 60:11,16	<b>switch-something (1)</b>	1:14 2:8 4:7 5:4,15
142:22 178:16,23	200:24 202:5	63:2,13 64:6 66:14	168:12	72:23 73:4 151:4,9
239:15,23,24	205:22	67:1 69:12 70:13	<b>switched (2)</b>	224:22 225:3
<b>steps (9)</b>	<b>storing (5)</b>	73:9 74:24 84:6	106:16 169:17	256:16 257:3,16
33:5 94:3 157:2	91:15 92:3 125:14	92:6 94:16 95:12	<b>switches (5)</b>	259:4
174:10,12,21	202:6 207:12	96:1,18 100:5 104:9	106:8 170:12 171:19	<b>talk (6)</b>
176:25 177:8	<b>stream (9)</b>	104:19 105:10,15	199:14,14	76:1 84:10 115:10,11
178:16	94:20 96:22 99:9	109:19 113:23	<b>switching (4)</b>	193:19 229:17
<b>sticking (1)</b>	100:6 119:15 120:5	114:12 115:22	85:19 198:9 200:11	<b>talked (2)</b>
100:19	120:7,11 139:16	117:15,19 118:24	234:10	150:21 207:22
<b>stopped (1)</b>	<b>streams (1)</b>	119:12 122:6	<b>sworn (1)</b>	<b>talking (11)</b>
220:7	95:16	123:14,23 124:3,10	5:5	24:13 33:17 78:3
<b>stopping (1)</b>	<b>Street (4)</b>	124:13 127:7 128:5	<b>system (27)</b>	99:12 124:12
220:3	2:10 3:6,13 4:12	129:16 130:17	17:25 54:19 55:14	136:19 165:25
<b>store (19)</b>	<b>strike (6)</b>	137:3,9 138:3 140:4	61:11 62:16,22,24	175:16 180:10
19:20 20:11,12 83:10	44:12 49:10 50:10	140:23 142:15	62:25 63:9,11,21	233:21 244:6
84:22 86:10 87:1,2	67:13 238:1,13	143:15 144:6 145:1	64:3,14,20,24 68:9	<b>talks (7)</b>
90:24 91:6 93:4,10	<b>studied (2)</b>	146:3 148:10,12	79:7 81:15,21 88:4	29:9 74:6 109:17
93:24 99:1,17 101:3	14:19 244:4	149:17 153:19	104:24 156:7	166:22 218:4 221:2
126:1 198:6 200:9	<b>submit (1)</b>	155:11 156:2 157:3	176:13,21 198:10	229:15
<b>stored (88)</b>	242:19	157:8 158:8,20	200:12 252:23	<b>tape (4)</b>
56:22 60:7 62:1 65:11	<b>submitted (1)</b>	160:21 161:22		72:20 151:2 224:19
67:24 73:17,19	12:19	162:25 163:10	<b>T</b>	225:7
78:15,16,18 85:9,10	<b>subscribed (1)</b>	164:5 165:25 167:8	<b>T (1)</b>	<b>taskmaster (1)</b>
88:1 93:7,14 94:6	258:19	168:17 170:11	25:15	53:14
95:5 99:2 101:24	<b>substantially (1)</b>	171:7 172:11,12,25	<b>table (10)</b>	<b>taught (3)</b>
113:9 114:2,16	237:20	176:4 181:25	85:19,19 111:4,5	89:18 215:22 225:18
115:6,13,20,24	<b>suggest (1)</b>	182:20 185:18	136:24 157:13	<b>tax (1)</b>
116:3,7,9,21 117:4	39:22	186:13 188:24	168:11 200:2,3	12:13
117:7 118:1,10	<b>suggested (1)</b>	189:6,14 193:7	234:22	<b>taxes (4)</b>
119:3,25 121:22	50:18	201:21 202:23	<b>tables (7)</b>	11:6,9,13,20
122:13 123:10,11	<b>suggesting (1)</b>	203:13 204:18	177:22 198:6,16	<b>teaches (4)</b>
123:19,21 124:7	37:22	210:3 215:1 216:15	199:14,16 200:9,17	40:21 174:9 245:20
127:3,4,18,25 128:2	<b>suggests (1)</b>	221:7 222:1,13	<b>tag (2)</b>	250:19
129:8 131:13,15	50:18	223:1,10 232:13	180:25 181:12	<b>teaching (2)</b>
134:13,19,23 135:1	<b>summarize (5)</b>	234:19 235:8	<b>take (40)</b>	227:24 228:12
135:6 136:6 137:25	110:15 184:20 196:9	237:25 239:20	8:6 11:6,12 20:3 21:9	<b>teachings (1)</b>
138:13 141:3,18	196:14 207:25	241:6 243:19,25	21:22 22:22 23:17	65:7
142:2,6,10 147:3,5	<b>summarized (1)</b>	246:3 247:5,9 248:4	53:3,7 56:25 57:16	<b>technology (1)</b>
190:14,25 191:9,13	196:10	248:25	58:7 59:13 64:19	177:17
191:14,19 192:16	<b>summary (10)</b>	<b>swapping (1)</b>	72:19 73:21 74:4,8	<b>Tel (2)</b>
194:16 202:21	15:11,15 55:19	166:9	84:4 85:24 102:22	6:16,18
203:3,9,10 204:10	196:16 197:24	<b>swear (1)</b>	103:21 110:13	<b>Telecom (2)</b>
205:12 206:8,20	202:10 204:20	5:2	137:6 150:25 151:1	9:14,18
207:20 209:12	235:17,24 236:7	<b>switch (34)</b>	156:24 167:4,6	<b>telecommunication...</b>
210:1,16 225:20	<b>Sunnyvale (1)</b>	86:15,15 92:8,9 98:15	189:21 192:17	7:2
229:3	5:16	98:15 101:18,19	209:13 210:19,20	<b>telephonic (2)</b>
<b>stores (30)</b>	<b>support (2)</b>	103:15,22 104:2,22	211:15 219:2,3	252:7,12
55:13,22 84:18 86:22	7:14 206:3	104:23,24 105:18	227:11 234:16	<b>tell (7)</b>
92:18 94:13,23	<b>sure (131)</b>	105:19,19 106:6	<b>taken (9)</b>	44:13 68:7 118:22
99:19 113:20	8:7,16,22 9:9 16:2	149:5,16 152:20,21	2:8 53:18 73:2 107:1	135:24 171:22
114:10 122:3 126:3	27:8 28:16 29:7	165:23 167:4	151:7 190:2 224:25	191:4 211:9

191:4 211:9	125:4 131:12	61:5 66:23 67:4,5,6	227:9 238:11,12	16:19 17:4,5,7,8,9,10
<b>tells (1)</b>	135:21 151:1	67:8,11,12,12,13	<b>timestamp (17)</b>	17:13 18:5 19:2,7,8
88:2	153:22 174:22	69:2,3,3,3,5,5,10,10	95:4,6,18 129:11,12	19:19 21:12 22:7,8
<b>temporal (3)</b>	176:25 177:1 184:4	69:11,11,11,14,14	129:13 130:10,12	22:15,17,20,24 23:9
69:8,9 127:24	185:4 187:12	69:15,15,25 70:2,3	135:1,5,5,11,17,19	23:11,14,19,20,21
<b>temporarily (2)</b>	210:17 212:22	70:4,5,6,9,9,18,22	136:4,5,10	24:2,3,23 26:11,23
94:22 191:11	213:15 220:16	71:2,7,9,9,10,13,13	<b>timestamped (1)</b>	32:19 34:6,19 35:7
<b>temporary (3)</b>	245:11,12 246:5	72:6,6,25 73:6,11	129:10	35:9 36:8 37:11
20:7,10 139:8	250:17 254:4,9,12	73:12,12,13,19 74:3	<b>timing (2)</b>	46:2 47:22 50:2,2
<b>ten (2)</b>	254:12,21 255:7,8	74:14,23 75:4,17,23	25:17 90:3	51:7 54:24 55:13,14
53:10 217:25	255:10	76:9,19 77:8 78:20	<b>tiny (1)</b>	55:17,22,23,23,24
<b>tense (2)</b>	<b>thinking (1)</b>	78:20 79:12,12,17	103:10	55:25 56:7,14,15,16
74:6 77:19	193:11	82:2 88:14,16 89:11	<b>titled (1)</b>	56:21,22,22 57:3,8
<b>term (5)</b>	<b>third (44)</b>	89:20,22,23 90:4,4	7:14	57:13,13,16,18,18
50:17 168:10 178:10	30:6,12,18 31:5,8,18	94:15,17,25 100:7	<b>today (4)</b>	57:19,23,24 58:1,2
207:9 240:5	31:23,23,24 32:2,13	102:11 103:3	5:25 7:11 228:10	58:2,3,7,8,12,15,18
<b>termination (1)</b>	32:15,23 33:5,12,12	106:24 108:3 111:6	251:5	58:19,24,25,25 59:5
144:24	33:19,23 34:16 36:3	115:1,2 125:23	<b>today's (4)</b>	59:6,10,14,20,24,25
<b>terminology (1)</b>	36:14 37:23 38:2,19	127:4,14,17 128:1,9	251:6,15,17 256:15	60:6,7,8,24,25 61:2
203:24	38:20 39:3,16 47:23	128:17,18,20 129:5	<b>Tonelli (44)</b>	61:3,4,10,13,14,17
<b>terms (3)</b>	48:19 188:6 211:24	129:10,14,23	13:4 44:2,15,20,23	61:18,19,24,24,25
28:8 42:13 173:18	217:17 218:5,7	130:12,20 135:11	45:3,17 46:5,7,24	62:1,2 65:10,11,12
<b>testified (6)</b>	220:2 224:8 232:25	135:15,16 136:1,2,9	47:4,13 48:7,24	65:15,16,20,23,24
5:6 9:1,4,6,7,8	240:1,4,11,24 241:3	136:11 151:6,11	49:13,17 50:18 51:1	65:25 66:1,1,2,4,22
<b>testify (2)</b>	242:8,14	174:24 185:15	51:11 52:6,11,19,21	67:23 68:23 69:23
5:18 6:3	<b>thousand (1)</b>	186:17,24 187:22	230:6,16 231:1,7,15	70:11,16,20,25 71:6
<b>testifying (2)</b>	255:5	189:25 190:3,20	231:19 232:2,7,11	72:4,16 73:16,17,18
5:25 258:10	<b>thousands (6)</b>	192:24 193:14	232:23 233:3,6,18	73:19 74:2,12,22
<b>testimony (6)</b>	103:1,23 106:10	195:5 196:25	233:23 235:6,13	75:3,15,21 76:8,18
40:5,25 45:17 47:4,13	125:24 209:1	197:19 202:25,25	236:2,3,8 238:5	77:1,2,7,7,18 78:10
257:8	238:12	204:2,9 205:5,15	246:1	78:10,11,14,15,16
<b>text (1)</b>	<b>three (8)</b>	208:18,18,20 209:7	<b>tons (1)</b>	78:16,18,19,19,22
64:11	18:4 126:24 135:14	209:8,14,14 216:7	237:2	78:25 79:19,20 80:4
<b>thank (12)</b>	150:1 161:16	217:11,18,19,20,23	<b>tool (1)</b>	80:5,7,9,9,18 81:5,7
23:10 51:10 52:25	188:17 208:3	217:24 218:2,3,8,9	255:24	81:8,9,11,12,15,16
65:5 106:22 138:21	212:17	218:25 219:1,1,1,3	<b>tools (1)</b>	81:23,23 82:1,8
148:6 182:12	<b>ticking (3)</b>	219:4,4,16,18,25	237:14	83:5,9,15 84:2 85:5
184:17 189:24	220:4,13,17	220:3,4,12,16,22,24	<b>top (7)</b>	85:10,13,14,14,17
256:11,12	<b>time (262)</b>	224:10,12,13,24	17:7 20:19 61:18 83:4	85:22,24,25 86:5,6
<b>themselves (2)</b>	9:3,13,16,17 10:19	225:1,4 226:18	133:6 231:4 250:2	86:6,8 88:1,1 89:11
199:22 200:2	12:2,4,11,11 16:18	232:2 233:14	<b>topic (1)</b>	94:14,24 96:8 97:5
<b>thereabouts (2)</b>	24:25 25:3,4,8,20	237:21 241:9,12,14	182:14	97:18 98:3,5,7,8,9
54:8 252:5	26:2,24,25,25 27:1	242:22 243:21	<b>topo (11)</b>	98:21,22,23,25 99:2
<b>thereof (1)</b>	27:5,10,11,25 28:11	247:14 250:9	56:17 57:20 58:20	99:5,6,7,15,17,19
258:14	28:14,22 29:1,11,12	256:11,17,18 258:8	59:7 60:1 61:1,15	99:20 100:16,18,25
<b>thing (2)</b>	30:3,16,23,25 31:1	<b>time-out (1)</b>	65:17 77:3 79:1,22	101:2,4,16 112:14
27:18 187:20	31:16 32:20 33:9,10	186:25	<b>topodb (7)</b>	113:1,12,21 114:11
<b>things (10)</b>	34:20 36:8 37:12,19	<b>times (28)</b>	54:24 55:13 73:17,19	114:19 115:16,16
20:16 63:15 117:12	37:20,22 38:1,9,14	8:23 9:5 10:4,6 28:10	114:3 194:17	116:3,8,18 117:5,14
174:23 186:12	41:7,21,22 42:7,8,9	29:5 30:23 41:14	212:17	117:16 118:4 119:6
187:24 197:23	42:12 43:13,15,20	47:18 50:20 68:21	<b>topological (1)</b>	119:16,17,22 120:2
234:11 254:7 256:8	44:22,24,24 45:6	69:1 71:14 86:2	133:7	120:4,12,17,22
<b>think (36)</b>	47:23 48:8,14,15	96:23 97:9,9 103:14	<b>topologies (5)</b>	121:8,16 122:21,22
8:5,11 12:12 16:16	49:2,2,19 50:5,7,19	139:23 156:15	66:2 97:2 185:23	123:6,9,10,18,19
59:3 73:20 102:13	50:20 51:23,24	169:11 181:10	186:18 187:17	124:6,7,8,20,25,25
102:14 111:10	53:16,19 54:7 60:9	184:5 186:21 189:4	<b>topology (471)</b>	125:7,11 126:16,17

126:18,23,24 127:5 127:19,21 128:2,13 128:14,15 129:8,12 130:9,13 132:3,8,13 133:3,6 134:2,7,8,8 134:12,24 135:2,20 135:23 136:6,15,16 136:21,22 137:13 137:18,20,23,24 138:10,12,23 139:1 139:2,4,6,9,11,11 139:19,20,20 140:1 140:14 141:3,3,9,13 141:18,18,23 142:2 142:6,10,11 149:3 156:9 157:7 158:17 158:18 170:18,19 171:23 174:2,2 177:5,7 182:3 183:4 183:18,19 184:3,7 184:10,14,16 185:7 185:8,12 187:5,10 187:11,13,16 188:11,13,21 189:11 190:13,20 190:24 191:8,16,17 191:18,19,25 192:12,15,24 193:5 193:14,19,21,22,22 193:23,24 194:4,6,8 194:9,9,10,11,15,17 194:19,22 195:1,5 195:11 196:21,25 197:18 199:3 202:15 204:5,9 205:11,15,21,22,24 205:24,25 206:7,9 206:12,12,20,21 207:12,20,20 209:18,18,25 210:8 210:8,15,19,20,22 211:10,15,16,25 212:5,6,9,18,23 224:9 225:20,21 227:4,5 228:6,7 229:13,24,25 230:1 233:24 234:14,16 234:18 236:13,24 237:7,7,8,9,10 238:8,10 247:13 252:20,24	<b>traffic (2)</b> 112:5 198:12 <b>transcribed (1)</b> 258:13 <b>transcript (1)</b> 257:5 <b>transcription (2)</b> 258:14 261:7 <b>trial (5)</b> 1:2 4:9 9:1,4 14:11 <b>tried (4)</b> 196:8,12 207:24 209:4 <b>true (1)</b> 257:8 <b>truthfully (1)</b> 5:18 <b>trying (11)</b> 60:20 69:8 79:10 84:4 120:25 126:6 193:9 203:22 206:23 208:8 216:20 <b>TSG (2)</b> 4:14,18 <b>tuple (245)</b> 17:18,21,23 18:4,7,10 19:11,11,12,13,15 21:3,22 23:8 24:22 25:23,23 30:13,15 31:25 32:4,24 34:5 34:8,14,15,16 35:6 35:6,11,12,14 36:1 36:1,2,4,7 37:2,3,6 38:21,24,25 39:6,7 39:19 40:1,1 41:7 43:6,7,7 45:25 46:1 47:21,21,24,25 48:17,18 56:16 57:2 57:3,13,19,24,25 59:6,10,25 60:25 61:14 62:7 65:16,24 66:6,19 68:7 71:18 72:1,13,15 76:17 77:2,22 78:25 79:20 80:5,11,15,22 81:9 81:14,20 82:7,7,9 82:15,17,17 83:14 83:22 84:1,10,17,22 86:21 87:4,10,15,16 87:23,24,24 88:3,12 88:19 89:2,9 90:2,8 90:9,16,23 91:6,7 92:19,19 95:10,10 95:14,15 96:21 99:22 100:1,3,9,11 104:6,9,12,16 106:2	106:19 108:10 109:1 110:25 111:22 112:25 114:16,18 115:2,10 115:12,15 116:19 119:22 120:21 121:7,11,15,20,22 122:2,2,9,12,19,20 122:21,23,25 123:4 123:5 126:3 127:10 128:10 131:20 132:17 144:12,13 144:15,16,20 146:15,16,18,19 152:2,4,5,9,14 154:17 159:8 160:10 162:23 163:5,22 172:1 179:9,13,19 181:8 182:25 183:1 184:5 191:2 192:1 193:6 197:8,14,16,25 198:3,14,21 199:5 199:10,20 200:4,16 200:23 201:6,20,22 202:2,3,6 204:10,11 207:9,16,17,18 210:21 211:4 213:7 215:14,18 224:12 226:21 240:1,11 247:12 <b>tuples (344)</b> 19:14,20,20 20:14,15 23:21 24:18,23 25:2 25:2,7,7,10,18,19 25:25 26:1,10,12,18 26:22 28:21,25 30:5 30:11 31:5,7,18,20 32:12,13,18 33:6,8 33:18,20 34:1,5,9 34:10,19,23 35:17 35:19,20 36:13,14 36:17,18,19 37:10 37:15 38:17,18 39:2 39:3,12,12,14,15,20 39:22 40:7 41:1 43:17 44:11,14,21 45:18 47:1,2,5,14 47:22,25 48:8,22 49:9,11 51:19 52:6 52:13,14,17 56:1,23 57:15 58:19 59:1,12 60:8 61:5 62:2 65:13 66:21 67:25 69:22 70:10,15,24 71:6 72:3 74:1,12	74:22 75:2,14,21 76:7 77:8 80:17,24 81:4 83:10,10,13,15 83:18,19,23 84:2,18 84:22 86:22 87:1,2 89:6,10,13,14 93:4 93:7,11,14 94:6,13 94:24 104:7,17,19 105:7 110:10,12 113:8,11,21,24 114:1,10,25 115:4,6 115:11,13,15,18,20 115:24 116:2,6,9,19 116:21 117:4,7,25 118:3,7,9 119:2,5 119:24 120:1,16 123:11,21 124:7 127:3,4 128:25 136:16 137:14,19 137:25 138:13 141:6,21 142:2,6 145:9,15,19,22,25 146:23,25 147:5,5 153:12 157:18,20 157:23 158:15 159:6,13,15,22 160:3,8,14,17,24 161:7,13,18,23 170:4 181:1,3,4,12 181:23,24 183:2,2,3 183:8,9,13,16 184:1 184:2,13,13,14,16 185:5,11,12 187:9 188:3,9,10,12,15,20 188:22 189:10,13 190:17 191:24 192:10,22 193:4,12 193:24 194:3,12,21 195:3,10,17 196:23 197:9,17 198:22 199:5 200:23 201:14 202:4,12,16 202:19,20,21 203:2 203:8,9,17 204:7 205:13 206:1,9 207:10 208:11 209:9,10,11,19,20 210:1,9,10,15 211:6 214:17,19,24,25 215:9,11,19,23 216:1,6,13,13,24,25 217:10 221:4,13 224:9 225:25 226:6 226:11,25 227:24 228:12 231:9,10,16 231:19 232:1,24,25	233:4,6,7,11,17 239:9,12 240:6 241:4 242:15 244:20,21 247:21 247:23 248:17,18 248:22,23 <b>turn (48)</b> 24:11 44:1 54:15 55:1 55:19 56:4 62:14 66:8 67:14 82:3,20 93:3 95:22 99:21 108:6,13 109:23 112:12,17 113:3 138:22 140:18 142:12 143:1,25 147:9 153:3 155:8 157:10 158:25 162:11 167:10 168:19 170:20 174:25 177:11 178:24 180:13 184:23 187:25 190:6,9 202:9 214:6 216:3 230:18 231:21 253:1 <b>turned (1)</b> 78:5 <b>turning (4)</b> 90:11 97:14 178:23 182:13 <b>twice (1)</b> 9:7 <b>two (83)</b> 13:1 18:9,12 28:12 39:5,8 57:5 66:2 67:8 68:13,20 69:1 79:14 89:24 101:6,8 102:9,16,18 103:9,9 103:20 105:19 106:8 109:22 111:2 112:2 125:2 132:15 132:16,18 133:19 133:25 134:5 152:24 166:16,16 169:20,21,22 170:12,15,19 181:14 182:5 186:3 186:3 187:15 196:14,14 201:12 202:12,19,24 203:2 205:6 208:11,12,21 209:8,9,20 210:10 210:23 211:6,10 212:25,25 217:3,5,5 218:10,20 220:25 222:4 228:23 231:4
---	---	---	---	--

233:13 240:21 244:11 249:22,23 249:24 <b>type (17)</b> 38:5 51:22 97:11 111:11 124:11,21 126:12 130:3 143:15 147:19 152:19 153:19 157:8 181:9 189:16 229:4 243:24 <b>types (3)</b> 27:20 163:8 169:9 <b>typical (1)</b> 11:16 <b>typo (2)</b> 185:4 187:12 <b>typos (1)</b> 187:15	159:4 160:21 162:15,25 164:5,8 167:17 168:17 172:11,12,25 173:4 173:6,12 174:20 176:4 177:15 179:8 179:11 184:16 185:18 186:13 188:12,24 189:6,10 193:7,9 202:23 203:22 204:18 206:24 207:23 208:8,10 210:3 215:1 216:15 221:7 222:1,14 223:1,10 230:15 237:25 241:22 246:3 247:9 248:4,25 250:16 254:17 255:22,24 <b>understanding (41)</b> 13:21,24 14:10 16:25 26:5,14 28:1,7 34:22 37:15 56:20 58:23 60:6 61:2 65:7,10 70:19 76:6 77:6 80:2,6,19 81:2 103:15 104:2 121:18 122:18 133:5 134:10 137:18 155:24 181:7 183:7,18 195:8 209:24 210:14 250:18 253:23 254:22 256:2 <b>understood (1)</b> 194:2 <b>unique (1)</b> 229:3 <b>UNITED (1)</b> 1:1 <b>University (2)</b> 6:16,18 <b>unnecessary (3)</b> 106:20 183:3 184:2 <b>unprofessional (1)</b> 249:11 <b>update (25)</b> 23:19 57:4 66:22 72:4 72:16 80:17 81:4,6 81:21,23,25 98:9 99:11 139:10,18,19 139:19,20,21,23 140:6,8 177:7 211:19 252:24 <b>updated (6)</b>	82:1 140:9,13,15 184:14 211:20 <b>updates (11)</b> 81:11,13,15 139:6,13 139:15,15,17,25 162:23 163:5 <b>updating (12)</b> 24:2 81:15 82:8 138:24 139:2,4 140:2,12 177:4 182:2 186:18 187:17 <b>use (6)</b> 55:14 116:24 137:7 139:11 191:17 192:21 <b>useful (2)</b> 177:25 181:23 <b>user (4)</b> 16:12 45:9 46:10 49:4 <b>uses (2)</b> 150:11 228:25 <b>USPTO (2)</b> 7:20 253:11 <b>usually (1)</b> 227:15	<b>W</b> <b>Wait (2)</b> 87:17 180:16 <b>walking (4)</b> 173:10 174:7,14,19 <b>want (26)</b> 8:16 16:3 53:6 54:11 85:2 92:8 106:15 109:10 112:5,10 125:20 132:19 140:6 143:16,23 146:11 150:5 153:20,23 156:9 158:23 171:12 177:7 186:24 232:18 241:1 <b>wanted (3)</b> 245:15 254:14 255:8 <b>way (21)</b> 7:3 10:18 16:14 26:3 30:4 73:20 84:6 122:16 150:17,23 158:24 171:23 180:9 196:11 208:4 208:16,17 212:22 213:10 221:12 240:13 <b>ways (6)</b> 85:18 86:4 118:16 125:9 150:25 177:9 <b>we're (22)</b> 30:2 53:17,20 72:25 73:6 78:6 106:25 108:3 151:6,11 173:10 174:13 179:3 182:14 189:25 190:3 191:1 224:24 225:4 244:10,11 256:17 <b>we've (4)</b> 65:18 189:12,20 246:9 <b>weed (1)</b> 22:1 <b>weeding (17)</b> 21:5,6 143:8,14,22 147:15,20,21 149:20 150:11 157:20 167:20,25 169:2,3,5 170:3 <b>week (4)</b> 10:5,7,8 11:1 <b>weeks (2)</b> 252:16,18 <b>weight (1)</b> 156:16	<b>went (3)</b> 105:18 110:17 112:7 <b>WHEREOF (1)</b> 258:19 <b>WilmerHale (2)</b> 3:12 4:22 <b>wireless (1)</b> 7:2 <b>wiring (2)</b> 167:4 168:13 <b>witness (142)</b> 5:2 6:7 7:17,20 9:15 10:20 11:3 27:8 28:16 29:7,22 35:2 35:24 36:24 38:4 41:5 44:17 45:23 47:18 48:11 50:15 53:5,9,12,15 55:9 58:5 59:3 60:11 61:9 63:2,23 64:8 65:2 66:15 67:1 74:16 76:12 77:11 79:10 80:22 81:19 85:13 90:7 91:1,10 91:18 92:25 93:19 96:2 105:10 108:15 110:4 113:5 114:5 114:15 115:10 116:13 122:6 123:14,23 124:18 126:22 128:5 134:15 137:3 138:3 138:16 140:4,12,24 142:16 143:3 144:7 145:11,17 148:10 148:25 149:14 150:15 151:18 152:18 153:19 155:2,12 156:2,13 157:12 158:8 159:2 159:20 161:3,22 162:5,13,25 163:7 167:15 168:23 170:22 172:25 175:6 176:4 177:13 179:6 182:21 183:21 185:18 189:23 201:12 203:13 206:17 211:14 215:14 218:17 221:7,18 222:1,13,23 223:10 223:20 224:6 226:3 227:2 233:10 234:8 235:8,15 239:19 244:25 246:3 247:3
--	--	--	---	--

247:9 248:4,12 250:21 254:4 256:6 256:12 258:19 261:3 <b>witnesses (1)</b> 258:9 <b>word (5)</b> 137:7,11 164:17 166:2 229:20 <b>words (1)</b> 207:23 <b>work (7)</b> 11:23 16:17 54:9 177:2 213:23 251:24 252:24 <b>worked (5)</b> 7:25 8:3,12 251:11,19 <b>working (10)</b> 9:21,23,24 10:5,6,14 10:20 11:23 140:9 140:13 <b>works (3)</b> 16:1 61:12 176:24 <b>wouldn't (1)</b> 243:20 <b>write (2)</b> 54:1 70:5 <b>wrote (2)</b> 193:11 254:10	<b>I</b> <b>1 (63)</b> 4:6 14:13 15:19 24:12 30:8 42:18,22 44:6 45:24 46:3 47:20 69:3,5,10,10,17 71:14 72:23 74:9,10 75:8,12 76:3,23 77:23,25 78:3,12 187:25 188:2,18 214:9 216:17,19 228:21,22 229:18 230:22 232:18 239:4,8,11 240:5,20 242:1 244:8 245:20 245:23,24,25 246:11,23 247:25 248:8,16 249:21 250:14,16,19 254:2 254:17,20 261:5 <b>1,000 (2)</b> 243:18 244:1 <b>1:28 (1)</b> 108:3 <b>10 (31)</b> 11:3 18:21 21:1,4 45:4 46:6 49:18 57:7 84:7 109:23,25 110:6 111:14,20 142:20 167:11,13 167:14,18 170:21 170:21,24 174:8,15 175:12 178:23 182:13,17,23 184:24 252:5 <b>10:37 (1)</b> 53:16 <b>10:55 (1)</b> 53:19 <b>1001 (5)</b> 14:3,4,7 24:9 69:18 <b>1002 (10)</b> 7:6,7 26:6,15 28:2 40:13 67:15 190:7 224:1 253:2 <b>1003 (4)</b> 213:15,17 214:1,2 <b>1004 (3)</b> 230:7,10,11 <b>108 (1)</b> 259:8 <b>11 (24)</b> 56:4,9 58:16 59:17,22 60:18 65:8,9 76:24 78:5 80:3 92:8,9 101:19 102:4,13,24	103:16 104:3 116:17 140:19,20 140:21 141:1 <b>11:32 (1)</b> 72:25 <b>11:47 (1)</b> 73:6 <b>12 (16)</b> 41:11 55:20 108:13 108:17,22 111:13 111:19,20 170:21 170:24 193:1,19,25 195:13 205:20 207:7 <b>12:38 (1)</b> 106:24 <b>12a (1)</b> 155:16 <b>13 (4)</b> 157:10,16 158:6 169:1 <b>14 (6)</b> 12:21 23:4 111:13,20 175:9,16 <b>15 (12)</b> 41:11 108:14,18 110:1,7,14 111:1 178:24 179:4,8,11 180:19 <b>16 (23)</b> 1:16 2:3 4:2 18:25 56:5,11 58:17 59:23 60:17,23 65:8 66:8 66:11,17 71:16,23 76:24 78:6 80:2,12 80:20 257:5 259:3 <b>161 (1)</b> 166:25 <b>162 (1)</b> 166:24 <b>1640 (1)</b> 5:15 <b>16th (2)</b> 4:13 258:20 <b>17 (25)</b> 19:6 46:7 57:10,11,12 57:21 59:9,9,21 60:4 61:12 62:4 64:12 65:19 78:13 168:12 178:25 179:4,9,12 180:13 180:19,19,22,24 <b>171 (1)</b> 166:23 <b>172 (1)</b> 166:24	<b>18 (15)</b> 56:5,11 58:17 59:17 59:23 60:17,23 65:8 76:24 78:6 80:3 140:19,21 141:1,15 <b>18A (1)</b> 19:6 <b>18B (1)</b> 19:6 <b>19 (14)</b> 19:6 55:1,5,11 66:9 66:11,17 71:17,23 80:13,20 168:19,22 168:25 <b>1d (3)</b> 214:9,14 230:22	<b>2</b> <b>2 (22)</b> 41:11,11,16 43:4,21 51:12 69:3,5,11 73:4 83:6 151:4 162:12,16 163:14 166:14 235:17 236:7,8 239:6 242:1 261:6 <b>2,000 (3)</b> 243:19,25 244:1 <b>2:00 (1)</b> 9:23 <b>2:37 (1)</b> 151:6 <b>2:58 (1)</b> 151:11 <b>20 (13)</b> 8:24 10:3,7 55:2,5,12 92:16 105:19 109:16 112:22 180:14,22,24 <b>200 (1)</b> 11:12 <b>2000 (2)</b> 185:16 254:6 <b>2001 (15)</b> 238:16,18,21,24 241:4 242:1,7,9,10 242:15 243:15 244:21 248:2,10 260:5 <b>2002 (7)</b> 246:10,12,15,20 248:8,16 260:9 <b>2003 (6)</b> 243:8,9,14,16 246:9 260:13 <b>2004 (3)</b>	239:3 248:1,10 <b>2005 (4)</b> 246:16,19,22 248:15 <b>2006 (2)</b> 6:20 10:22 <b>2014 (1)</b> 11:21 <b>2015 (9)</b> 1:16 2:3 4:2,13 9:20 257:6,12 258:20 259:3 <b>20A (1)</b> 19:6 <b>20B (1)</b> 19:6 <b>20C (1)</b> 19:6 <b>20D (6)</b> 15:19 19:6 63:18,25 64:22 65:2 <b>22 (16)</b> 41:11,16 43:4,21 45:4 46:5,7 49:18 92:17 95:22 96:4 97:14 109:16 168:20,22 168:25 <b>23 (8)</b> 68:15,16 69:2 140:19 140:21 141:1 196:12,17 <b>23-24 (4)</b> 193:1 195:13 207:7,8 <b>238 (1)</b> 260:5 <b>24 (33)</b> 23:6 67:15,17,20 69:2 95:22 96:5 97:14 112:17,20 120:18 121:3 169:25 170:2 190:10 191:22 192:13 194:5,14,24 196:4,12,17,20 201:4 203:23 204:4 205:6 206:3,14 235:17 236:5,8 <b>243 (1)</b> 260:13 <b>246 (1)</b> 260:9 <b>25 (12)</b> 8:24 46:8 54:3 59:17 196:18 202:10 203:23 206:20 208:10 209:10,16 210:6 <b>250 (2)</b>
<b>X</b> <b>X (2)</b> 259:1 260:1	<b>Y</b> <b>yeah (2)</b> 100:20 179:2 <b>year (10)</b> 6:19 9:20 11:9,11,17 11:21 250:3 251:2,3 251:18 <b>years (6)</b> 10:16 11:3,16 12:4 173:3 174:17 <b>yes-or-no (2)</b> 223:13,14				
<b>Z</b> <b>0</b> <b>0 (1)</b> 25:15 <b>02109 (1)</b> 3:14 <b>09/703,942 (2)</b> 260:7,11					



11:12,15 <b>250K (1)</b> 11:22 <b>26 (9)</b> 8:11 23:18 24:5 63:14 112:18,20,23 120:19 121:3 <b>27 (3)</b> 63:14 169:25 170:2 <b>28 (1)</b> 41:12 <b>29 (6)</b> 24:5 41:16 144:1,2,9 146:8	123:12,21 124:25 125:1,1,6,10,14 126:23,24,24 127:3 129:11 131:16 133:22 134:5 135:18 138:1,14,19 144:13,25 145:6,8 145:14,22 146:16 146:23 154:4,12,18 154:25 155:5 159:16,20 172:2,10 172:23 198:23 200:25 201:15,18 202:22 209:12 210:2,16 <b>3175 (3)</b> 2:9 3:6 4:11 <b>320 (68)</b> 20:21 21:2 23:7,23 58:8 95:20 96:6 98:1 99:20 108:10 108:25 111:22 112:24 113:10 115:5,14 117:6 118:2,9 119:4 120:1 120:15,20 121:6,14 121:19 132:1 134:8 141:5,20 142:1,5,21 143:7 144:11,14,18 145:24 146:4,14,17 146:25 147:4,6 153:8 154:3,11,15 154:24 155:18 159:7 162:18,22 163:4,16,21 164:1 165:14 166:11 167:19 171:1,24 172:9,21 180:15,25 185:5 191:16 <b>327 (1)</b> 214:4 <b>33 (6)</b> 87:8,12,18,19,20 204:17 <b>330 (33)</b> 22:19 23:9,22 61:19 66:4 99:20 112:15 113:1 120:22 123:7 123:11,20 125:7,11 126:24 127:5 130:9 133:7 134:3,9,13 135:20 136:17 137:20 138:17 139:12 142:3,7 182:24 188:13,21 189:11 210:22	<b>34 (6)</b> 182:13,18,23 183:24 207:14,15 <b>34-39 (1)</b> 193:2 <b>340 (43)</b> 23:19 55:17 56:7,15 56:21 57:9,18,23 58:18,24 59:5,24 60:6 61:3,13 62:8 65:10,15,18,23 77:1 77:18 78:23 79:19 80:4 136:15 137:13 137:19,24 138:10 138:12,17,19 139:13 141:10,14 141:24 191:18 209:19,25 210:9,15 211:11 <b>35 (6)</b> 43:4,21 144:1,3,10 146:8 <b>350 (31)</b> 17:6 19:9 23:20 54:24 55:13 56:22 58:3,12 58:25 59:5 60:8 61:18,24 62:1,8 65:12 66:3 73:18,19 81:25 85:11 88:2 100:18 101:2,4 114:3 139:14 141:4 194:17 197:22 207:21 <b>36 (6)</b> 68:4,6 87:11,17 190:16 192:21 <b>37 (5)</b> 182:13,18,23 183:17 183:24 <b>380 (2)</b> 18:19,19 <b>39 (21)</b> 68:5,6 87:8,12,22 88:17 174:25 175:5 175:8 176:7 190:16 192:21 195:17 196:6 197:1,7,13 198:1 199:10 207:15,15 <b>39-39 (1)</b> 195:14	165:20,22 184:12 193:1 195:13 207:7 225:2 256:15 <b>4:04 (1)</b> 189:25 <b>4:27 (1)</b> 190:3 <b>40 (3)</b> 88:18,25 175:8 <b>402 (3)</b> 144:13,19 146:16 <b>404 (1)</b> 144:14 <b>410 (2)</b> 152:2,10 <b>411 (100)</b> 13:1,7,11,14,21,25 14:6,8,9,13,17,22 14:25 15:3,6,10,14 15:18,21 16:6,19 17:3,18,21,23,24 19:22,25 22:16 23:3 23:12,13,16 24:14 24:15 40:20 53:23 54:1,15,23 55:2,12 55:16 56:5 62:11 64:5,25 66:5,9 68:3 69:18 76:24 78:7 79:7 82:3,20,22 92:12 93:3 95:19,19 95:23 99:21 108:7 108:14 112:13,18 120:19 138:22 142:13 143:2 144:1 147:10 149:10 150:11,15 153:4 155:9 156:20 157:11 159:1 162:12 167:11 168:20 175:1 176:13,21 190:16 192:18 196:4 197:14 202:10 209:25 225:19 232:19 238:23 240:17 242:5,10 246:18 <b>418 (1)</b> 144:18 <b>42 (9)</b> 62:15,20 174:25 175:5 176:7 177:11 177:15 228:22 229:18 <b>44 (2)</b> 184:24 185:1	<b>444 (2)</b> 159:7 160:9 <b>46 (3)</b> 184:24 185:2 187:4 <b>49 (4)</b> 46:21 52:10 177:11 177:16
<b>3</b>			<b>5</b>	
<b>3 (30)</b> 14:13 55:20 62:14,18 81:24 101:19 102:3 102:4,19,23 103:16 104:2 105:14 106:9 143:2,6 151:9 193:1 193:1,18 194:7,7 195:13 205:20 207:6 224:22 250:14,17 254:17 261:7 <b>3:00 (1)</b> 9:23 <b>30 (7)</b> 7:17,21 10:7 23:4 235:18 236:5,8 <b>300 (45)</b> 18:11 66:6,19,20 68:8 71:18,19 72:1,2,13 72:14 80:12,15,16 80:23 81:9,24 83:5 84:18 86:22 88:3,19 94:19 95:11,15 96:21 100:12 108:11 109:1 111:23 183:1 191:2 192:1 197:15 198:3 198:15 199:21 200:23 201:6,14,14 201:17,20 207:16 207:18 <b>310 (74)</b> 20:2 84:20 86:24 92:14,18 94:12,22 94:23 95:14 96:7,25 98:2 113:9,15,18 114:17,17 115:7,14 115:21 116:10,21 117:7 118:1,10 119:4,25 121:23			<b>5 (15)</b> 45:4 46:6 49:18 101:18,20 102:15 102:19 105:15 106:10,12,16 164:21 211:7 237:18 259:7 <b>5:20 (1)</b> 224:24 <b>5:33 (2)</b> 225:1,4 <b>50 (15)</b> 40:16,17,18,19,22,23 41:6 54:5,8 208:1 216:3 218:12 228:22 229:18 253:10 <b>50/50 (1)</b> 10:19 <b>51 (3)</b> 84:15 86:19 88:25 <b>53 (12)</b> 84:15 86:19 90:11 195:17 196:6 197:1 197:8,14 198:1,24 199:10 204:17 <b>56 (1)</b> 90:11 <b>58 (1)</b> 7:10 <b>59 (5)</b> 253:2,4,5,7,8	
			<b>6</b>	
			<b>6 (60)</b> 23:3,16 24:5 55:1,11 66:8,11,17 68:4 71:16,23 80:12,20 84:15 86:19 87:8,12 87:20 88:17,25 90:11 92:16 95:22 96:4 97:14 109:24 109:25 110:14 112:17,20,22 113:4 113:6 116:16,16 117:21 120:18 121:1 142:12,15,18	
		<b>4</b>		
		<b>4 (15)</b> 65:19 109:23,25 153:3,6 155:9,14		

143:1,5 164:22 166:21,22 190:16 192:21 193:2 195:13,17 196:6 197:1,7,13 199:10 201:3 204:16 207:14,15 <b>6:22 (2)</b> 256:17,18 <b>60 (15)</b> 3:13 10:5 147:10,10 147:11,12 158:25 159:4,23 160:1,4,7 160:15,25 161:11 <b>60/70 (1)</b> 10:25 <b>61 (6)</b> 40:23 147:10,12 151:14,17,24 <b>62 (12)</b> 113:3,6 117:22 158:25 159:5,23 160:1,4,7,15,25 161:11 <b>65 (10)</b> 42:20,21 113:3,7 117:22 142:12,15 142:18 214:7,8 <b>66 (7)</b> 42:15,16,21 151:14 151:17 214:12 215:3 <b>67 (10)</b> 42:21 142:13,15,19 143:1,5 162:11,15 163:13 165:4 <hr/> 7 <b>7 (118)</b> 17:7,25 18:10,18 19:9 20:3 21:1 22:19 23:1,3,17 54:13,15 54:18,23 55:16 61:17,23 62:6,15,21 62:25 63:8,8,13,20 63:25 64:3,13 65:3 65:19 66:5 73:18 74:6,21 75:6,20,25 79:5 80:8 81:20 83:3,4 84:7 85:9,11 92:12 95:14,19 97:13 108:7,9,13,17 112:13,13 136:13 136:20 137:10,17 138:6,16,16 143:2,6 143:25 144:9 146:7	147:9 148:1,2 151:14,24 153:3,4,6 153:7 154:4,8,12 155:9,15 157:10,15 158:6 159:16 165:21,23 167:10 167:10,12,13,17,17 170:20,25 178:24 179:1,3,8,11 180:14 180:24 189:12 191:1,5 192:10 193:10,18 195:9 201:1,5 211:15 212:2,4,7,16 225:16 <b>7,027,411 (1)</b> 1:6 <b>70 (2)</b> 10:5,24 <b>7645 (3)</b> 1:24 2:11 258:23 <hr/> 8 <b>8 (40)</b> 18:9,19 19:4,17 21:2 24:1 56:25,25 63:18 63:24 64:22 65:2 82:3,4,5 84:7 99:21 104:14 138:22 148:2 155:9,14 157:11,15 158:5,25 159:4,23 160:1,4,7 160:15,25,25 161:11 162:11,15 163:13 165:4 197:21 <b>86 (6)</b> 44:3,4,7 231:21,24 232:21 <b>89 (1)</b> 44:4 <hr/> 9 <b>9 (42)</b> 18:13 20:4 55:20 57:6 82:20,22,25 83:1,12 84:7 87:5 88:9 89:5 89:15 93:3,17,19 94:5,11 162:12,16 163:14 168:19,21 168:22,25 169:25 170:2 174:25 175:5 175:8 177:12,15 193:1,18 194:7 197:10,11,16,21 205:20 207:6 <b>9:16 (3)</b>	2:4 4:2,13 <b>902 (13)</b> 18:9,13 19:17 57:1 66:20 71:19 72:2,14 80:16 81:3 82:5 83:6 91:21 <b>904 (12)</b> 18:10,13 19:17 57:1 66:21 72:10,15,18 79:20 80:17 81:4 82:5 <b>905 (4)</b> 72:3,10 82:14,14 <b>906 (14)</b> 18:20,21 21:3 23:7 57:1,6 82:6 99:22 104:12 112:24 120:20 121:6,14 142:23 <b>908 (7)</b> 19:4 23:19,25 24:1 57:2 82:6 138:23 <b>909 (1)</b> 57:1 <b>910 (7)</b> 18:14 83:1,8 87:5,15 87:23 207:16 <b>912 (4)</b> 18:14 83:1 87:25 207:18 <b>914 (6)</b> 18:14 83:2 88:9,19 198:3 200:4 <b>916 (15)</b> 18:14 83:2,12,24,25 84:1,18 86:22 87:5 89:5 93:9,16 94:8 198:22 200:23 <b>918 (10)</b> 18:14 83:2 84:19 86:23 93:4,10 94:7 94:9 198:22 200:24 <b>920 (3)</b> 18:14 20:4 83:2 <b>922 (4)</b> 18:22 143:8 157:21 169:6 <b>924 (7)</b> 18:22 153:10 155:17 155:19 157:18 158:13 170:5 <b>926 (5)</b> 18:22 167:20 169:2,3 170:3 <b>928 (6)</b> 18:22 171:2 175:10	175:13,17,19 <b>93 (1)</b> 44:8 <b>930 (5)</b> 18:22 109:1 110:8 111:15,21 <b>932 (2)</b> 18:22 179:13 <b>934 (30)</b> 56:15,17 57:9,10,19 57:20,24,25 58:18 58:20 59:6,7,9,11 59:20,24 60:1,24 61:1,13,15 65:15,17 65:19,23 77:1,3 79:1,22 80:5 <b>936 (8)</b> 57:14 59:13 141:2,6,8 141:17,20,22 <b>938 (2)</b> 57:16 59:14 <b>94087 (1)</b> 5:16 <b>94304 (1)</b> 3:7 <b>97 (14)</b> 45:14 46:4,20,23 48:11,12 49:1,15 50:5 52:3,9 230:19 230:21,25 <b>98 (3)</b> 46:4 48:12 49:15 <b>99564 (1)</b> 1:25
---	--	---	--