UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner
v.
SITNET LLC,
Patent Owner

Case IPR2026-00113
U.S. Patent No. 12,336,052

**DECLARATION OF BERNARD J. JANSEN, PH.D.,
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 12,336,052**

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1. [1.P] A method for creating a situational network as a subset of a larger multi-dimensional information network comprising a plurality of nodes, wherein the situational network is formed in response to an event in a particular geographical area, and wherein the situational network is created for delivering information to selected user nodes based in at least part on the situational network, the method comprising:..... 51

2. [1.A] a) maintaining, by a networking server configured to maintain data defining the multi-dimensional information network, a database comprising: (i) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional information network, wherein at least some respective user nodes of the plurality of user nodes are associated with respectively user data; 56

3. [1.B] b) providing, by the networking server, to each user device of a plurality of user devices associated with the plurality of user nodes, a respective composite data feed that [is] based on the database;..... 60

4. [1.C] c) establishing, by an event node server, an event node associated with the event in the particular geographical area, wherein the event node is discoverable by each user device of the plurality of user devices by browsing the respective composite data feed;..... 64

5. [1.D] d) creating, by the networking server, based on the database, a projection of the plurality of user nodes, the projection comprising a first subset of the plurality of user nodes associated with a first subset of the plurality of user devices, wherein the projection is created based on respective distances of devices of the first subset of the plurality of user devices from the event;..... 67

6. [1.E] e) transmitting, by the networking server, a respective request in a form of a roll call to connect to the event node to each respective device of the first subset of the plurality of user devices;..... 73

7. [1.F.1] f) joining, based on responses to each of the respective requests, a second subset of the plurality of user nodes to a centralized architecture for the event node, ... 75

8. [1.F.2] wherein the event node is configured as a central node in the centralized architecture for accessing information associated with the event from a location in the multidimensional information network, and wherein the second subset of the plurality of user nodes is associated with a second subset of the plurality of user devices; 78

9. [1.G] g) storing, as node-to-node links in the database, data representing the joining of the second subset of the plurality of user nodes to the event node; 80

10. [1.H] h) analyzing the database to identify a third subset of the plurality of user nodes in the database based at least in part on the data representing the joining of the second subset of the plurality of user devices to the event node; and 82

11. [1.I] i) delivering additional information to a third subset of user devices associated with the third subset of the plurality of user nodes, wherein the supplemental information was received from an information node configured to store and provide supplemental information via the multi-dimensional information network. 83

C. Independent Claim 7 87

D. Claims 2 and 8 92

E. Claims 3 and 9 93

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A. Motivation to Combine 97

B. Independent Claim 1 106

1. [1.P] A method for creating a situational network as a subset of a larger multi-dimensional information network comprising a

plurality of nodes, wherein the situational network is formed in response to an event in a particular geographical area, and wherein the situational network is created for delivering information to selected user nodes based in at least part on the situational network, the method comprising:..... 106

2. [1.A] a) maintaining, by a networking server configured to maintain data defining the multi-dimensional information network, a database comprising: (i) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional information network, wherein at least some respective user nodes of the plurality of user nodes are associated with respectively user data; 109

3. [1.B] b) providing, by the networking server, to each user device of a plurality of user devices associated with the plurality of user nodes, a respective composite data feed that [is] based on the database;..... 112

4. [1.C] c) establishing, by an event node server, an event node associated with the event in the particular geographical area, wherein the event node is discoverable by each user device of the plurality of user devices by browsing the respective composite data feed;..... 115

5. [1.D] d) creating, by the networking server, based on the database, a projection of the plurality of user nodes, the projection comprising a first subset of the plurality of user nodes associated with a first subset of the plurality of user devices, wherein the projection is created based on respective distances of devices of the first subset of the plurality of user devices from the event;..... 119

6. [1.E] e) transmitting, by the networking server, a respective request in a form of a roll call to connect to the event node to each respective device of the first subset of the plurality of user devices;..... 123

7. [1.F.1] f) joining, based on responses to each of the respective requests, a second subset of the plurality of user nodes to a centralized architecture for the event node,..... 125

8. [1.F.2] wherein the event node is configured as a central node in the centralized architecture for accessing information associated with the event from a location in the multidimensional information network, and wherein the second subset of the plurality of user nodes is associated with a second subset of the plurality of user devices; 126

9. [1.G] g) storing, as node-to-node links in the database, data representing the joining of the second subset of the plurality of user nodes to the event node; 129

10. [1.H] h) analyzing the database to identify a third subset of the plurality of user nodes in the database based at least in part on the data representing the joining of the second subset of the plurality of user devices to the event node; and 131

11. [1.I] i) delivering additional information to a third subset of user devices associated with the third subset of the plurality of user nodes, wherein the supplemental information was received from an information node configured to store and provide supplemental information via the multi-dimensional information network..... 132

C. Independent Claim 7 134

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I, Bernard J. Jansen, hereby declare as follows.

I. INTRODUCTION

1. I have been retained as an expert witness on behalf of Meta Platforms, Inc. ("Petitioner") for the above-captioned *inter partes* review (IPR). I am being compensated for my time in connection with this IPR at my standard consulting rate. My compensation is not contingent on either my expert opinion or the outcome of this litigation. I have no other interest in this proceeding.

2. I understand that this Declaration accompanies a petition for IPR of U.S. Patent No. 12,336,052 ("the '052 patent") (EX1001), which resulted from U.S. Patent Application No. 19/005,970 ("the '970 application"), filed on December 30, 2024. I understand that the '052 patent alleges a priority date of February 2, 2007 (the "Priority Date"). I refer to this date throughout this Declaration.

3. In preparing this Declaration, I have reviewed the '052 patent and each of the documents cited herein, in light of general knowledge in the art before February 2, 2007. In formulating my opinions, I have relied upon my experience, education, and knowledge in the relevant art. In formulating my opinions, I have also considered the viewpoint of a person of ordinary skill in the art ("POSA") (as explain further below in Sections V.C and IX) prior to February 2, 2007.

II. MY BACKGROUND AND QUALIFICATIONS

4. My analysis is based on my experience, training, knowledge, and education, and it is formed through the application of that experience, training, knowledge, and education in the principles of search engines, Web search, keyword advertising, display advertising, online advertising, Web analytics, network communications, and related areas.

5. I received my B.S. in Computer Science from the United States Military Academy in 1985, my M.S. in International Relations from Troy State University in 1994, my M.CS. in Computer Science from Texas A&M University in 1996, and my Ph.D. in Computer Science from Texas A&M University in 1999.

6. I was a tenure-track professor at Penn State from 2002 through 2016, departing as a tenured, full-time professor on January 1, 2017, to become a principal research scientist at the Qatar Computing Research Institute where I am currently employed. I was a Senior Fellow at the Pew Internet & American Life Project, which is part of the Pew Research Center, from 2010 through 2012. I was a University Expert at the National Ground Intelligence Center from 2011 through 2014. Before my professorship at Penn State, I was a Lecturer in the Computer Science Program at the University of Maryland (Asian Division) for one year. Before that, I was an Assistant Professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy, also

known as West Point, for three years.

7. In addition to my academic credentials, my professional experience includes twenty years of practice in the U.S. military, serving in the Infantry as an enlisted soldier and then as a communications officer, upon commissioning, working primarily in a variety of information technology-related positions planning and establishing communication networks from portable ground radios to large satellite communication radios, and evaluating the performance of these networks. I also led a large multimedia team at a major U.S. Army educational facility, responsible for designing, providing, and assessing multimedia products, including the organizational website. I employed various software programs and databases for interactive products and website design for these tasks. I used these programs and others to develop interactive websites and multimedia applications, including employing analytics for the performance evaluation of these websites and applications. During this time, the team received several product awards and honors, including one award for website development, four for multimedia applications development, and one for software development.

8. I am the editor-in-chief of the international academic journal *Information Processing and Management*, a premier journal in computing science and information science, including computational science, online analytics, and social media computing. I am a former Editor-in-Chief of the journal *Internet*

Research, a top-ranked journal in the Web science and business domains that examines the Internet's social, ethical, economic, and political implications.

9. I have authored approximately 400 academic publications on Web searching, search engines, keyword advertising, online advertising, branding, Web analytics, social media, social networks, and related fields. Approximately 300 of my publications address search engine optimization, search analytics, Web analytics, online advertising, keyword advertising, search engines, or Web searching. My recent research focuses on online analytics, investigating the qualitative and quantitative attributes of digital content usage and social computing analytics, which investigates social behavior using algorithmic methods. I have authored, co-authored, or co-edited four books, including Web Search: Public Searching of the Web (2007), Understanding User – Web Interactions via Web Analytics (2009), Understanding Sponsored Search (2011), Data-Driven Personas (2021), and Understanding Audiences, Customers, and Users via Analytics – An Introduction to the Employment of Web, Social, and Other Types of Digital People Data (2023). In a 2020 study, I was ranked in the top 2% of researchers in my field. In the 2024 edition of the Best Computer Science Scientists in the World, my research was ranked 1371st worldwide (~top ten percent of the top computer science researchers). EX1036.

10. My professional expertise includes search engine optimization, Web

analytics, search engines, Web searching, social media, online advertising, online reputation management techniques, and related computer science and data science areas, including programming and networks. Throughout my academic career, I have worked with various search engines and information searching applications to understand user information behavior on the Web and other environments. For example, as part of my Master's program in Computer Science, I designed and coded a text-based search engine, and my thesis involved the building of a tool for network performance monitoring. For my Doctorate program in Computer Science, I developed a program interface for Web search engines and implemented it on the Gigabyte search engine. I have been invited to present research at major search engine companies, including Google and Yandex, and many search marketing agencies.

11. As a computer scientist, I have engaged in and am experienced with classic computer science areas, such as programming, software development, algorithms, and networking, along with non-traditional areas, such as data analytics, keyword advertising, and online advertising. I have taught various computer courses at the undergraduate and graduate levels, including micro-computing, programming (in various programming languages), and the Web/Internet. I have taught a Web technology overview course (websites, mobile, social media, Web metrics, market analysis, etc.) and a graduate-level research

course for professional masters students. Previously, I taught courses in keyword and display advertising where student teams engaged with small-medium-sized enterprises (SMEs) to implement online advertising campaigns. I have supervised students with SMEs on various online advertising platforms, including Google Ads and Facebook Ads. I have experience with several online marketing platforms, including Google Ads, Facebook Ads, LinkedIn Ads, and Microsoft Advertising.

12. I have conducted research and teaching concerning search engines and websites, including search engine optimization, content creation, search engine keyword advertising, Web searching, and Web analytics. In the field of online searching, online advertising, and Web analytics, I have worked directly with real user searching data from several Web search engines. I have also analyzed Web data of traffic and other attributes from various websites and social media accounts. I have analyzed real user data from a multi-million-dollar online advertising marketing campaign that spans multiple years, involving thousands of ads and key terms. I have also analyzed user referral traffic to websites and monetized this traffic via online advertising. A 2015 review of keyword advertising research reported that I was the predominant researcher in the field of search engine advertising, EX1033, 12, along with co-authors. I have developed Web analytics models and processes to analyze business goals and have used Web and online advertising analytics data in my research and teaching.

13. I have advised government agencies and private companies in consulting and expert witness matters, including online searching, online advertising, search engines, locating relevant information, and disseminating defaming statements, among other related areas.

14. I have personal knowledge or have developed knowledge of the technologies discussed in this Declaration based upon my education, training, or experience with the matters discussed herein.

15. I understand that a copy of my complete *Curriculum Vitae* has been submitted as Exhibit 1004, which includes a list of publications I have authored in the past ten years, a list of cases in which I have testified as an expert in deposition or trial in the past four years, and other details regarding my expertise and qualifications.

III. SUMMARY OF OPINIONS

16. In forming my opinions about the ’052 patent, I have considered the following grounds of unpatentability. Based on my review of the prior art references that form the basis of these grounds, it is my opinion that claims 1-30 of the ’052 patent would have been obvious to a POSA prior to February 2, 2007.

17. Petitioner requests *inter partes* review based on the following grounds.

Ground	35 U.S.C.	Claims	References
1	§103(a)	1-12	Kraft, Nguyen, Altman
2	§103(a)	1-12	Wong, Burfeind, Crowley

18. I have been asked to consider how a POSA would have understood the challenged claims in light of the disclosures of the ’052 patent. I have also been asked to consider how a POSA would have understood the prior art references Kraft, Nguyen, Altman, Wong, Burfeind, and Crowley.

19. Further, I have been asked to consider and provide my technical review, analysis, insights, and opinions regarding whether a POSA would have understood that the combinations of the prior art references listed in the table above render obvious claims 1-30 of the ’052 patent.

IV. LIST OF DOCUMENTS CONSIDERED

20. In forming my opinions, I have considered the documents listed below in addition to any other documents cited in this Declaration. To the best of my knowledge, these documents are true and accurate copies of what they purport to be. An expert in the field would reasonably rely on them to formulate opinions such as those set forth in this Declaration.

Exhibit No.	Description
1001	U.S. Patent No. 12,120,052 to Cona *et al.*, issued October 15, 2024 (“the ’052 patent”)

Exhibit No.	Description
1002	Prosecution History of U.S. Patent No. 12,120,052 ("'052 File History")
1005	U.S. Patent No. 7,747,648 B1 to Kraft *et al.* ("Kraft")
1006	U.S. Patent Publication No. 2005/0033615 A1 to Nguyen *et al.* ("Nguyen")
1007	U.S. Publication No. 2008/0103784 A1 to Wong *et al.* ("Wong")
1008	U.S. Publication No. 2007/0233635 to Burfeind *et al.* ("Burfeind")
1009	U.S. Publication No. 2006/0270419 to Crowley *et al.* ("Crowley")
1010	U.S. Publication No. 2007/0281690 to Altman *et al.* ("Altman")
1011	U.S. Patent No. 8,024,330 to Franco *et al.* ("Franco")
1012	U.S. Publication No. 2006/0047825 to Steenstra *et al.* (Steenstra")
1013	U.S. Publication No. 2003/0197615 to Roche *et al.* ("Roche")
1014	U.S. Patent No. 8,346,864 B1 to Amidon *et al*. ("Amidon")
1015	Boyd & Ellison, *Social Network Sites: Definition, History, and Scholarship*, Journal of Computer-Mediated Communication, 13 (2008) pp. 210-230.
1016	U.S. Patent Application Publication No. 2007/0194938 to Mitchell ("Mitchell")
1017	U.S. Publication No. 2003/0162557 to Shida ("Shida")
1018	November 26, 2006 Wikipedia page "Social network" (from web.archive.org) (accessed Jan. 24, 2024)
1019	Adamic & Adar, *How to Search a Social Network*, SOCIAL NETWORKS 27, 187-203 (2005), accessed at https://www.cs.toronto.edu/~bor/303s19/docs/adamic-adar.pdf.
1020	Caroline Haythornthwaite, *Social Networks and Internet Connectivity Effects*, INFORMATION, COMMUNICATION & SOCIETY 125-147 (2005), accessed at https://www.dhi.ac.uk/san/waysofbeing/data/communication-zangana-haythornthwaite-2005.pdf
1021	Andrew Turner, *Introduction to Neogeography* 36-37 (2006).

Exhibit No.	Description
1022	Gary Rivlin, *Friendster, Love and Money*, N.Y. TIMES (Jan. 24, 2005), https://www.nytimes.com/2005/01/24/technology/friendster-love-and-money.html
1023	*Myspace Events*, MYSPACE, (from web.archive.org) (accessed Nov. 5, 2025)
1024	Alex Williams, *MySpace: A Sit with 26 Million 'Friends'*, N.Y. TIMES (Sept. 1, 2005), https://www.nytimes.com/2005/09/01/technology/myspace-a-site-with-26-million-friends.html.
1025	Theodora Stites, *Someone to Watch Over Me (on a Google Map)*, N.Y. TIMES (July 9, 2006), https://www.nytimes.com/2006/07/09/fashion/sundaystyles/someone-to-watch-over-me-on-a-google-map.html
1026	Amanda Lenhart & Mary Madden, *Social Networking Websites and Teens*, PEW RSCH. CTR. (Jan. 7, 2007), https://www.pewresearch.org/internet/2007/01/07/social-networking-websites-and-teens/
1027	Janet Kornblum, *Teens Hang Out at MySpace*, USA TODAY (Jan. 8, 2006) (from web.archive.org) (accessed Nov. 3, 2025)
1028	*Subset*, DICTIONARY.COM, https://www.dictionary.com/browse/subset (accessed Nov. 3, 2025).
1029	Joseph T. Plummer, *The Concept and Application of Life Segmentation*, 38 J. MKTG. 1, 33-37 (Jan. 1974)
1030	*Meta Platforms, Inc. v. SitNet LLC*, IPR2024-00529, Final Written Decision, Paper 33 (P.T.A.B. Sept. 8, 2025).
1031	*Meta Platforms, Inc. v. SitNet, LLC*, IPR2024-00530, Final Written Decision, Paper 30 (PTAB September 8, 2025)
1032	Claim Construction Order in *SitNet LLC v. Meta Platforms, Inc.*, Case No. 1:23-cv-06389-AS (SDNY) (Dkt. 79) filed July 26, 2024
1033	A Systematic Review on Search Engine Advertising
1034	U.S. Publication No. 2006/0272012 to Wu ("Wu")

Exhibit No.	Description
1035	U.S. Patent No. 6,910,077 to Najork ("Najork")
1036	Best Computer Science Scientists - Data Sources for the 11th Edition of the Research.com Best Computer Science Scientists Ranking (Page 14) https://research.com/scientists-rankings/computer-science?page=14

V. LEGAL UNDERSTANDING

21. I have also relied upon various legal principles (as explained to me by Meta's counsel) in formulating my opinions. My understanding of these principles is summarized below.

A. My Understanding of Claim Construction

22. I understand that during an *inter partes* review proceeding, claims are to be construed in light of the specification as would be read by a person of ordinary skill in the relevant art at the time the application was filed. I understand that claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the relevant art in the context of the entire disclosure. A claim term, however, will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the claim term in the specification. In this case, the claim term will receive the definition set forth in the patent.

B. My Understanding of Obviousness

23. I understand that a patent claim is invalid if the claimed invention would have been obvious to a POSA at the time the application was filed. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid.

24. To obtain a patent, a claimed invention must have, as of the priority date, been nonobvious in view of the prior art in the field. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a POSA.

25. I understand that to prove that prior art or a combination of prior art renders a patent obvious, it is necessary to:

(1) identify the particular references that, singly or in combination, render the patent obvious;

(2) specifically identify which elements of the patent claim appear in each of the asserted references; and

(3) explain how the prior art references could have been combined in order to create the inventions claimed in the asserted claim.

26. I also understand that prior art references can be combined under several different circumstances. For example, it is my understanding that one such

circumstance is when a proposed combination of prior art references results in a system that represents a predictable variation, which is achieved using prior art elements according to their established functions.

27. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine the references exists so as to avoid impermissibly applying hindsight when considering the prior art. I understand this test should not be rigidly applied, but that the test can be important to avoid such hindsight.

28. I understand that certain objective indicia can be important evidence as to whether a patent is obvious or nonobvious. Such indicia include: (1) commercial success of products covered by the patent claims; (2) a long-felt need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art.

29. At this point, I am not aware of any objective indicia of non-obviousness. However, I reserve the right to review and opine on any evidence of

objective indicia of non-obviousness that may be presented during this proceeding.

30. I also understand that "obviousness" is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the prior art, and any objective indicia of non-obviousness.

31. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal conclusion of obviousness or non-obviousness, and when I use the term obvious, I am referring to the perspective of one of ordinary skill at the time of invention.

C. A Person of Ordinary Skill in the Art

32. I understand that a POSA is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an automaton.

33. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. In deciding the level of ordinary skill, I considered the following:

- the levels of education and experience of persons working in the field;
- the types of problems encountered in the field; and

- the sophistication of the technology.

34. My opinion below explains how a POSA would have understood the technology described in the references I have identified herein around the February 2, 2007, timeframe, which I have been advised is the earliest possible effective filing date for the ’052 patent. However, my opinions herein would not be affected if the ’052 patent is found to only be entitled to a later effective filing date.

35. Regardless of whether I use “I” or a “POSA” during my technical analysis below, all of my statements and opinions are always to be understood to be based on how a POSA would have understood or read a document at the time of the alleged invention.

VI. OVERVIEW OF THE ’052 PATENT

36. The ’052 patent relates to systems and methods for creating a situational network or “SitNet.” A “situational network allows the participants… to interact and exchange information over connections to or through a computer network… regarding the event or situation.” EX1001, 4:28-31. The ’052 patent describes examples of events or situations as broadly including social events, emergencies, natural disasters, and weather phenomena. EX1001, 5:14-24, 32:4-8. A “projection,” also referred to as “a ‘projected’ view,” is described as “a subset of the nodes” of a social network, and can be determined based on a wide variety of criteria, including the geographic location of the user device, as recited in the ’052

patent claims. EX1001, 17:6-7, 22:55-23:42. In short, the '052 patent relates simply to methods and systems that allow a set of participants in a social network to exchange information about an event or situation.

37. One example embodiment of a SitNet 3000 is illustrated in Figure 28, reproduced below.

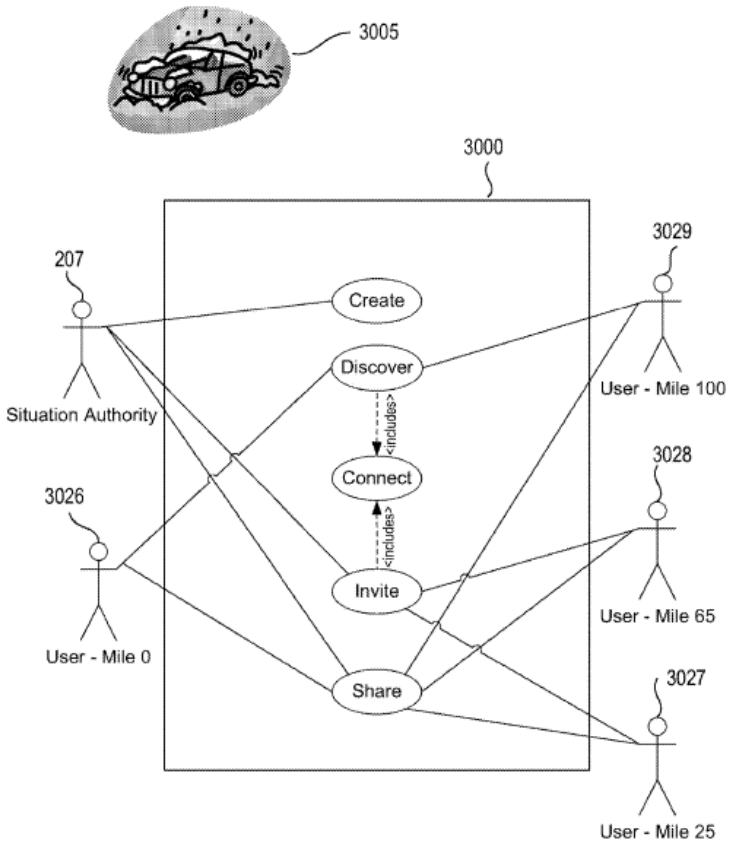


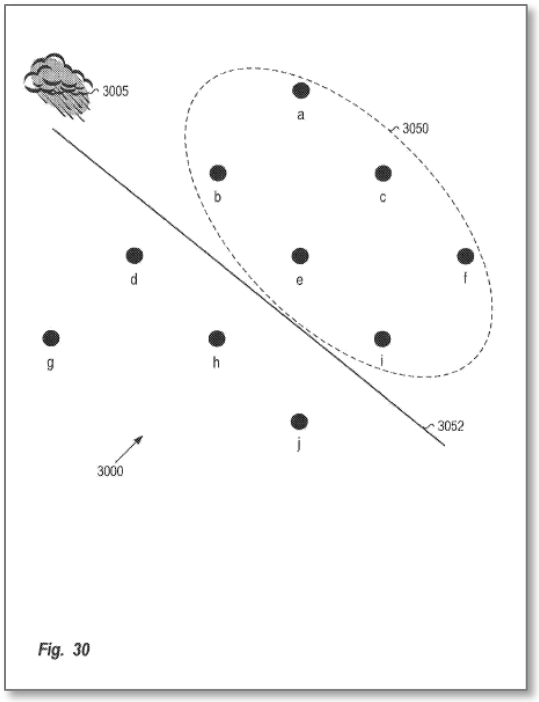
Fig. 28

EX1001, FIG. 28.

38. In Figure 28, situation authority 207 creates an event node (not shown in Figure 28) relating to a storm event 3005. EX1001, 24:20-31. Users (i.e.,

travelers 3026-3029) can connect to the event node. EX1001, 24:31-36. For instance, a user can connect to the event node either by discovering it or by being invited to join if they are within a predetermined distance from the location associated with the event. EX1001, 24:31-36. Information regarding the event (e.g., traffic, weather) is shared between users and/or by the situation authority. EX1001, 24:37-51. The '052 patent also discusses additional ways to share information such as traffic information, emergency information, and other travel information. *See* EX1001, 24:52-26:15. Information may be distributed via "centralized connections" between "the situation authority server" and "the user devices." EX1001, 6:63-7:14. Accordingly, an event node "corresponding to [a] situation" may be made available to multiple users. EX1001, 24:20-51, FIG 28. As shown in Figure 28, "some travelers (3027, 3028) have been invited to join the SitNet 3000 by [a] situation authority 207, while other travelers (3026, 3029) have joined the SitNet 3000 based on a discovery of the event node by their own devices." EX1001, 24:40-44.

39. Figure 30, reproduced below, shows an example of a geographic projection 3050 of nodes of a situational network 3000. EX1001, 23:11-12.



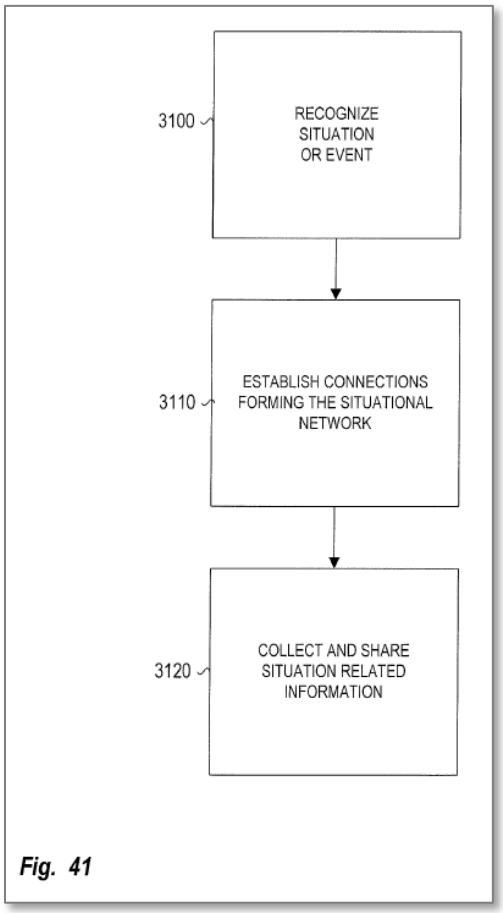
EX1001, FIG. 30.

40. In Figure 30, network 3000 includes the ten nodes labeled (a) through (j). EX1001, 23:12-13. In this example, the situation 3005 is a severe rainstorm posing a flood threat to persons located on one side of a river (boundary 3052). EX1001, 23:16-19. Geographic projection 3050 includes a subset of the nodes, i.e., nodes (a), (b), (c), (e), (f), and (i), which are included based on their location with respect to boundary 3052, i.e., those users threatened by flood waters. EX1001, 23:12-21.

41. The ’052 patent also describes a “roll call” feature, which can be included in the situational network. EX1001, 27:24-27. Using this feature, a message is sent out to users, and the user responses are received and recorded. EX1001, 27:27-42. The responses may be made viewable to users within the

situational network or to users not connected to the situational network. EX1001, 27:42-28:15.

42. The ’052 patent makes clear that the implementation of its methods is architecture agnostic. *See* EX1001, 6:63-64 (“A variety of different architectures may be used to connect the devices of participants in the situational network.”). Regardless of the architecture, the same generic process is used to form the situational network. EX1001, 7:51-56. This process is shown in Figure 41, reproduced below.



EX1001, FIG. 41.

43. The ’052 patent also says that the situational network is implemented using known and conventional technologies. For example, users are connected via the situational network using known devices such as cell phones, PDAs, personal computers, network servers, or “other devices generally known to those skilled in the art that enable connection to, from and through the computer network.” EX1001, 4:57-62. Further, participants in the situational network are associated with “nodes,” which are simply the users’ point of connection to the network and which “may be implemented using a wide variety of available hardware and technologies generally known in the art, such as software on a personal computer or a handheld PDA.” EX1001, 15:36-53, 15:61-65. As the ’052 patent also explains, a POSA would have understood that the nodes of the network “may be interconnected and may communicate with each other using a wide variety of available hardware and technologies generally known in the art, such as TCP/IP over an Ethernet or a wireless network.” EX1001, 15:65-16:2.

VII. STATE OF THE ART

44. As I explain above, the ’052 patent describes systems and techniques “for accessing situation related information.” EX1001, Abstract. The claims of the ’052 patent recite general concepts, such as maintaining a database comprising “(i) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links,” providing “to each user device of a plurality of user devices associated with

the plurality of user nodes, a respective composite data feed," "establishing… an event node associated with [an] event in [a] particular geographic area," joining a "first subset of the plurality of user devices" to the event node, creating a "projection of the plurality of user nodes," transmitting requests to connect the event node to "each respective device of the first subset of the plurality of user devices," joining "a second subset of the plurality of user nodes to a centralized architecture for the event node," storing "data representing the joining of the second subset of the plurality of user nodes to the event node" as node-to-node links in the database, analyzing a database "to identify a third subset of the plurality of user nodes in the database," and delivering "information to a third subset of user devices associated with the third subset of the plurality of user nodes."

45. These concepts were well known before the '052 patent's earliest possible priority date. For instance, systems for sharing information items related to situations or events were well known. Such systems may include social networks as well as systems for sharing information items related to events.

A. Social Networks

46. The earliest social network sites were launched in the late 1990s, with such sites growing in popularity through the 2007 priority date of the '052 patent. EX1015, 212. In November 2006, the Wikipedia page for "Social network"

described a "social network" as a "social structure made of nodes which are generally individuals or organizations." EX1018, 1. The Wikipedia page confirms the popularity of Internet-based social networks in this time frame. EX1018, 3-4.

47. Some references, such as U.S. Patent No. 8,346,864 to Amidon, filed before the Priority Date of the '052 patent, indicate "a 'social network' refers to a group of persons or other entities… linked to one another through one or more types of social connections." EX1014, 1:27-30. Amidon continues, describing that "[m]any social networking systems attempt to provide computer-based tools for maintaining, enhancing, and creating social networks." EX1014, 1:38-40. Amidon also describes that communication among users of social networking web sites was known. *See, e.g.*, EX1014, 1:41-49.

48. Other prior art references, such as Kraft, include systems for managing communications of users across an Internet environment that include features of conventional networks as well as additional, expansive features that "provid[e] additional avenues for categorizing, filtering and retrieving information." EX1005, 10:25-30.

49. The Background section of Wong also confirms that online social networking systems were known and were "popular" for connecting with, and sharing information with, other users via the Internet. EX1007, ¶3.

50. Moreover, social networks were gaining increasing prominence for

facilitating real life interactions, i.e., event planning, via an online environment. For instance, social network platforms such as Friendster and MySpace, were boasting millions of registered users and billions of total page views. *See* EX1022, 4. On these networking platforms, "[u]sers can converse via instant message, play games, contribute to blogs or browse through a range of local cultural events." EX1022, 4. Social Networks such as MySpace included an events page allowing users to organize and invite users to local events. EX1023, 1. For instance, it was known that "social networking model [could be expanded] into a one-stop Web spot, incorporating elements from other sites popular with the young: the instant-message capabilities of America Online, the classified ads of Craigslist.com, the invitation service of Evite.com and the come-hither dating profiles of match.com." EX1024, 3. Many social networks also translated offline relationships (e.g., friends, close friends) into a social networking platform. *E.g.*, EX1020, 135-136. Many of these network sites, such as Flavorvill, Meetup, and GeoCaching, used these relationships to facilitate and encourage real interactions between members. EX1025, 4. Indeed, it was commonly known that "[i]n addition to socializing online, teens employ social networking sites for scheduling and coordinating events with friends." EX1026, 3.

51. Indeed, this confirms my opinion that the concepts of communication and event planning via online social networks were well known and would have

been readily appreciable by a POSA in the relevant time frame.

B. Delivering Event Information to Nodes in a Social Network

52. As I explain above, the ’052 patent claims broadly require establishing nodes in a multi-dimensional social network and delivering information items to the nodes.

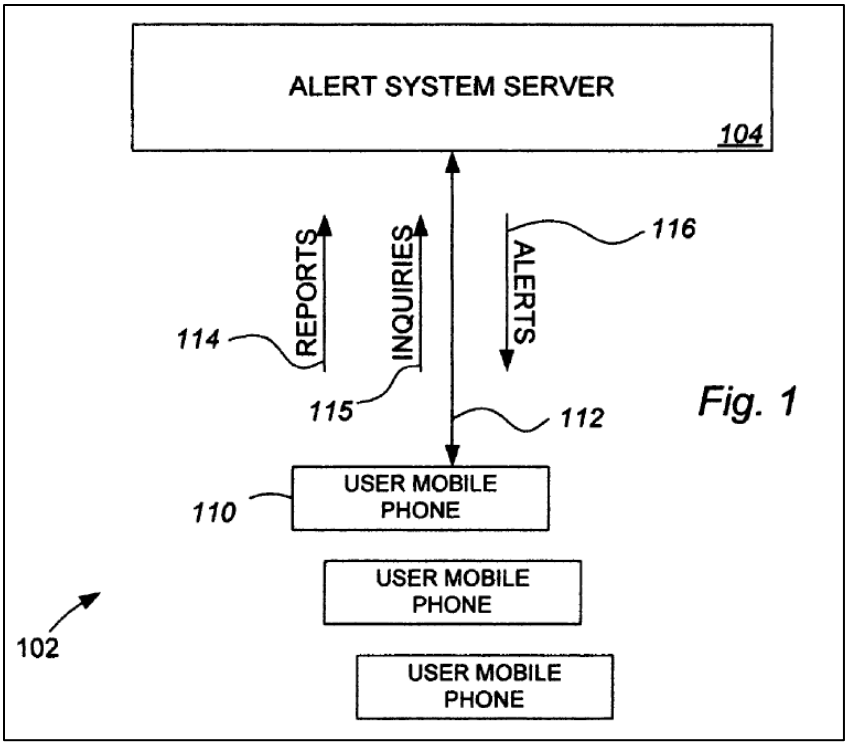
53. The ’052 patent describes that participants in the multi-dimensional information network (i.e., users) are associated with “nodes.” The ’052 patent’s “nodes” are the users’ point of connection to the network. *See* EX1001, 15:43-51. A node of the ’052 patent “may be implemented using a wide variety of available hardware and technologies generally known in the art, such as software on a personal computer or a handheld PDA.” EX1001, 15:61-16:2. Before the Priority Date of the ’052 patent, the concept of nodes was commonly implemented in social networks to interconnect various users, which access the network via their respective devices. *See generally* EX1019. Thus, the concept that users are associated with devices—which are in turn associated with nodes in the social network—was well known. In other words, it was common knowledge before the Priority Date of the ’052 patent that a user accesses a social network via an associated user device (such as a computer or cell phone) and that each user is associated with a node that represents that user in the social network.

54. I note that the claims do not require any particular manner in which

the information item is received or made available to the user devices. These broad, conceptual claim elements were well known prior to the ’052 patent. For instance, such claimed elements were commonly found in emergency warning systems and event planning systems.

1. Emergency Warning Systems

55. It was known for emergency warning systems to receive information items describing emergency events from users near the events, and to use that information to warn other nearby users of the event. For instance, Franco discloses an “incident alert system” in which “[a] user uses a networked mobile phone with geo-positioning capability to communicate with a server to report incidents… based on the user’s current geographic position.” EX1011, Abstract. “Reports of incidents are transmitted to the server accompanied by the current position of the user/mobile phone.” EX1011, Abstract. The server then reports the information related to the incident to certain users within a “zone of interest” near the incident. EX1011, 2:17-25, 3:7-28, FIG. 1.

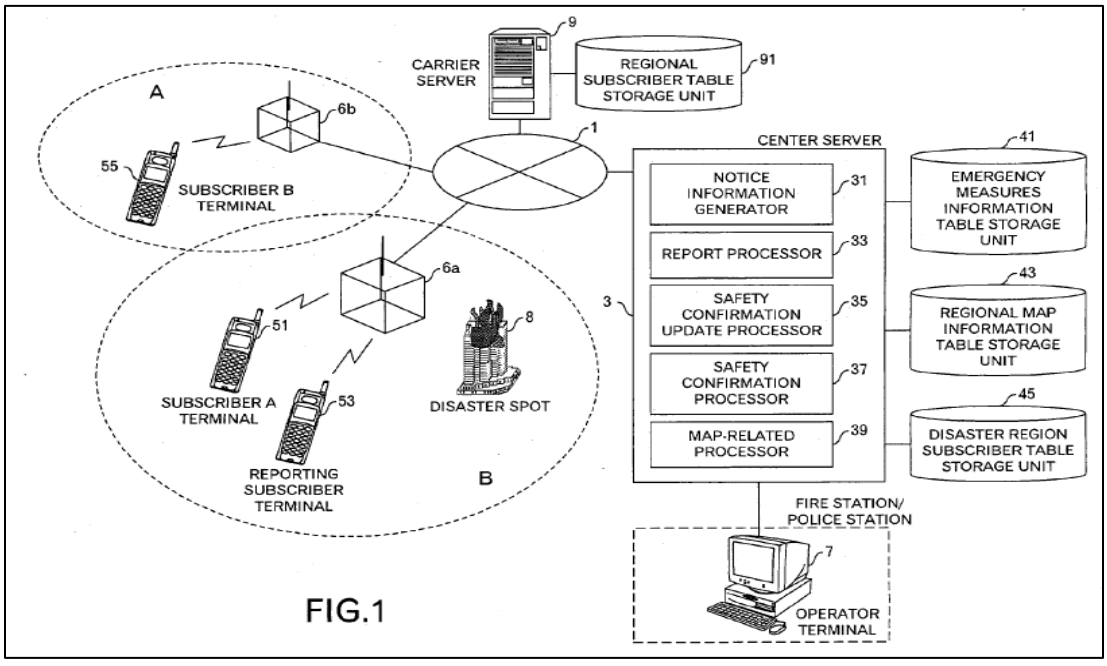


EX1011, FIG. 1.

56. Franco thus capitalized on the intuitive idea that "facilitating information sharing based on users' geographic locations… significantly opens the opportunities for individuals to be Good Samaritans by informing others of hazards or by responding to urgent requests for assistance by others in need." EX1011, 1:53-58. Indeed, this confirms my opinion that the claimed concepts of delivering information items related to situations (i.e., an event) among nodes in a social network were well known and would have been readily appreciable by a POSA in the relevant time frame.

57. As another example, Shida is directed to a system for confirming the safety of persons upon the occurrence of a disaster. EX1017, Abstract. When a

disaster occurs, a reporting subscriber terminal (e.g., user device) generates and transmits a disaster occurrence report to a "carrier server," which in turn transmits "disaster information included in the disaster occurrence report" to a "center server." EX1017, ¶¶33, 37, FIG. 1. The center server then determines "the subscribers… who should be informed of the occurred disaster." EX1017, ¶46. Specifically, "the subscribers to be notified are subscribers who exist in the disaster occurring region," as specified by a "disaster region subscriber table" stored at the center server. EX1017, ¶¶39, 46.

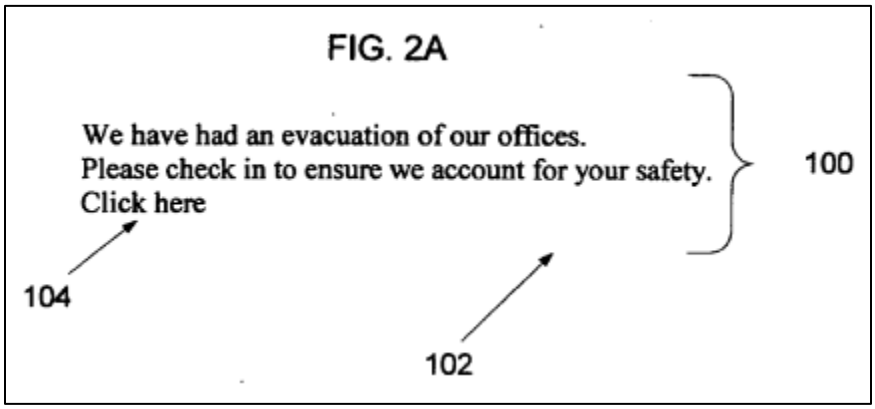


EX1017, FIG. 1.

58. The center server "generates notice information" related to the disaster "and transmits it to the subscribers to be notified." EX1017, ¶46. "The subscriber terminal of the designated subscriber receives the broadcast notice information from the mobile communication network system, and displays it on

the display device." EX1017, ¶46.

59. Mitchell discloses another example emergency warning system. Specifically, Mitchell is directed to an "intelligent headcount system" that "ensur[es] that all persons have been accounted for… in real time in response to an emergency or disaster declaration." EX1016, ¶11; *see also* EX1016, Abstract. When a disaster is detected, a server provides an "alert message" to a user, prompting the user to check in by sending an "acknowledgement signal" that indicates the user's status. EX1016, ¶¶35-37.



EX1016, FIG. 2A.

60. Roche teaches a "disaster recovery virtual roll call and recovery management system" that "allows any organization to locate their staff and allocate resources to their staff in the event of a disaster." EX1013, Abstract. "In case of disaster, the system can contact the users over one or more communications networks… and request the user provide their status." EX1013, Abstract. "The users can send user status updates to the web network using internet enabled devices, such as personal computers, telephones, or handheld portable computers."

EX1013, Abstract. "The system can compile the information, and generate reports on group and individual status." EX1013, Abstract.

61. These example systems thus show that the claimed concepts of maintaining nodes in a multi-dimensional social network and delivering information items related to an event with user devices located near the event were well known. As I explain in greater detail below, the prior art references applied herein—including Kraft, Nguyen, Altman, Wong, Burfeind, and Crowley—teach similar social network communication fabrics and event (i.e., an emergency situation) information delivery systems that teach and/or render obvious the claims.

2. Event Planning Systems

62. The claimed concepts of establishing nodes in a multi-dimensional social network and delivering information items related to events to the nodes were also known via event planning systems. For instance, Burfeind discloses a system for "schedul[ing] a location-specific event." EX1008, Abstract. For instance, an "event organizer" plans an event by using a "portable device" to access an "organization device" implemented as a server. EX1008, Abstract, ¶¶56, 59, 66, 146-147. The event organizer provides "event information" to the organization device, which uses the information to create a new event. EX1008, ¶¶108, 110, 162. The organization device then sends invitations (information items) to invitees of the events and "track[s] the attendance status of each event invitee." EX1008,

¶¶108, 131.

63. As another example, Crowley discloses a system for coordinating meetings between friends and acquaintances. EX1009, Abstract. Specifically, Crowley discloses "location-based social software" for "establishing connection between users of mobile devices." EX1009, ¶¶7-8. Specifically, Crowley's system determines when a user's acquaintances are geographically proximate to an event venue, and automatically sends invitations to those acquaintances, inviting them to meet the user at that venue. EX1009, ¶45.

64. For instance, Crowley discloses an example where a user "TJ" is "located at a bar called the Luna Lounge." EX1009, ¶45. At TJ's request, the system "identif[ies] which of [TJ's] acquaintances is currently active in the system, and… which of the acquaintances is near the Luna Lounge." EX1009, ¶45. The system then "send[s] each of the acquaintances messages," inviting them to meet TJ at Luna Lounge. EX1009, ¶45, *see also* ¶78.

65. As another example, Steenstra teaches a "[l]ocation based service (LBS) system and method for creating a social network." EX1012, Title. The LBS system "includes an interest group feature" that shares information related to an event with user devices located proximate to the event. EX1012, ¶50. For instance, Steenstra describes an example in which a user named "Alex" creates "an interest group" for basketball. EX1012, ¶50. The system makes information related to the

event available to other users "based on their being in the same geographical location as Alex." EX1012, ¶50. The system then enables the users to "arrange to meet at the Neighborhood Park and play 3-on-3 basketball." EX1012, ¶50.

66. Such references confirm my opinion that the claimed concepts of establishing nodes in a multi-dimensional social network and delivering information items related to events to the nodes were well known. Indeed, as I explain in greater detail below, the prior art disclosed herein—including Kraft, Nguyen, Altman, Wong, Burfeind, and Crowley—teaches these claim elements via event planning systems.

VIII. PROSECUTION HISTORY

67. It is my understanding that the '052 patent issued on June 17, 2025 from U.S. Patent Application No. 19/005,970 ("'970 application"), and claims a priority date of February 2, 2007. EX1002, 15. Over the course of the '970 application's prosecution, Applicant submitted multiple information disclosure statements citing to IPR proceedings for patents within the '052 family, including a second great-grandparent of the '052 patent. *E.g.*, EX1002, 203-207. The '052 patent issued after a single office action in which the Examiner rejected all claims under the judicially created doctrine of obviousness-type double patenting over the claims of other SitNet issued patents. EX1002, 146-153. Applicant subsequently filed a Terminal Disclaimer. EX1002, 195-201. In response, the Examiner issued a

Notice of Allowance, but did not provide any comments on the reasons for allowance. EX1002, 264-269. The prosecution history includes no substantive discussion of the claims in view of prior art.

IX. PERSON OF ORDINARY SKILL IN THE ART

68. In my opinion, a person of ordinary skill in the art ("POSA") at the time of the '052 patent would have had a Bachelor's degree in Computer or Electrical Engineering or equivalent discipline, and approximately two years' experience in telecommunications or computer networking. I also believe additional education could substitute for professional experience, and significant work experience could substitute for formal education.

69. I am well qualified to determine the level of ordinary skill in the art. I am very familiar with the technology of the '052 patent during the February 2007 timeframe. As mentioned above, by 2007, I was a tenured track professor at Penn State University and had acquired extensive experience relating to computer networking and telecommunications.

X. CLAIM CONSTRUCTION

70. I have been informed that the challenged claims of the '052 patent are to be given their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention in light of the specification and the prosecution history pertaining to the patent.

71. Based on my review of the Final Written Decision in IPR2024-00529, I understand that the Board determined that the term "event node" required no construction and that additional limitations from the specification should not be imported into the claims. EX1030, 8-12. I agree with this assessment, and it is my opinion that the same understanding should apply to the claims of the '052 patent.

72. I note that the Board construed the term "situational network" in IPR2024-00530. EX1031, 12-18. Specifically, the Board indicated that "situational network" should be construed as "a network created in response to an event or situation" but "a created 'situational network' does not exclude pre-established networks and does not require new connections to be established incorporating new elements." EX1031, 18. I also understand that the district court construed the term "projection" to mean "subset." EX1032, 5.

73. It is my opinion that none of the claim terms require explicit constructions for the purposes of this *inter partes* review and assessing the obviousness of the claims based on the prior art that I have discussed in this Declaration. Regardless, the art teaches the claims of the '052 patent under the prior constructions as well.

XI. OVERVIEW OF THE PRIOR ART

A. Kraft

74. Kraft generally discloses "systems and methods for information

retrieval and communication using a world model." EX1005, 2:35-37. Kraft discloses a "[w]orld server 160 maintains a world model data store 162 that stores a 'world model.'" EX1005, 6:33-35. Kraft's "world model is made up of *interrelated entity models*, where each entity model corresponds to an entity (or abstraction) in the real world, such as a *person*, place, business, other tangible *thing*, community, *event*, or thought." EX1005, 2:37-41(emphasis added), 8:28-31. The interrelated entity models of the world model are "linked to each other by navigable relationships." EX1005, 8:1-3. Kraft's "world model can include features of a conventional social network" but "allows other types of entities, not just users, to be included as full participants in the network, thereby providing additional avenues for categorizing, filtering and retrieving information." EX1005, 10:25-30.

75. Kraft indicates its world server 160 includes a query response module 166. EX1005, 6:52-65. The query response module interacts with client systems 120 to retrieve information from the world model or to add/modify entity models 164. EX1005, 6:52-65. Kraft's "world model," and the components contained therein, are illustrated in Figure 2. EX1005, 8:35-38.

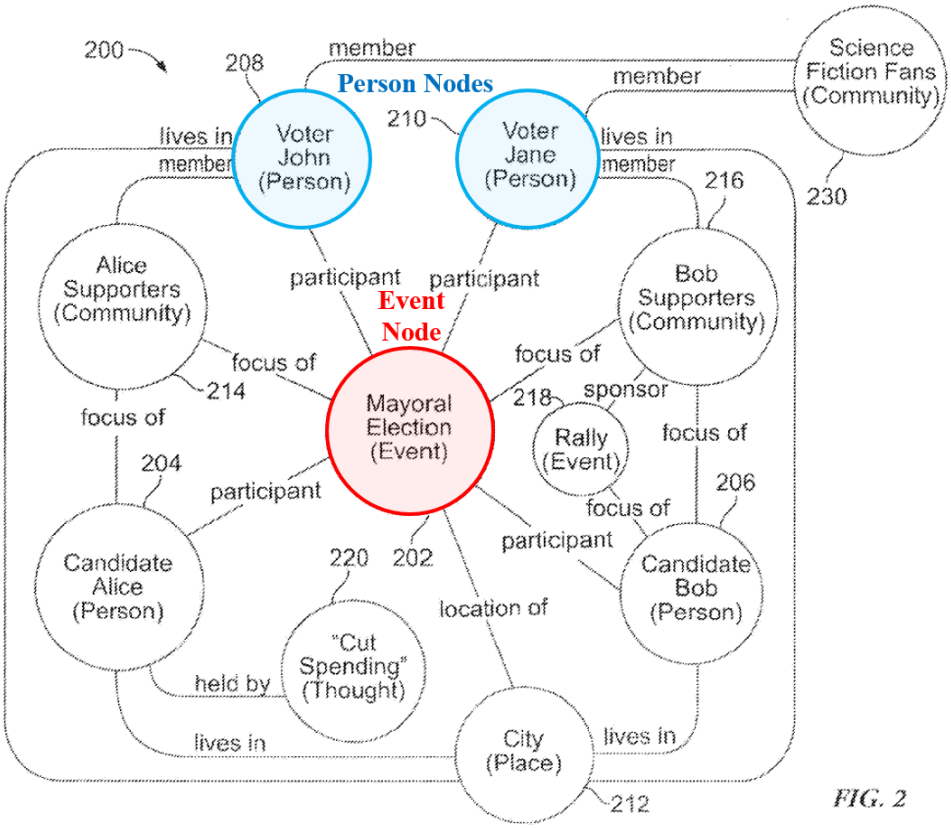


FIG. 2

EX1005, FIG. 2 (annotated).

B. Nguyen

76. Nguyen is directed to "an event planning system providing an interface allowing a user, that is an event planner, to organize events and manage information associated with the events." EX1006, ¶3. Nguyen describes an "important advantage of the event planning system … is that it facilitates event planning tasks including identifying and contracting with venue providers and vendors for the event, inviting guests, soliciting RSVP fees from invitees who respond affirmatively, receiving the RSVP fees, tracking RSVP status of each invited guest, tracking and managing RSVP accounts generated by the RSVP fees,

and sending guest reminders." EX1006, ¶23.

C. Altman

77. Altman is directed to a "location-based social network manager process." EX1010, ¶8. The manager allows users "to set up virtual networks that connect that user to other people, places, and events" and "utilizes the geographic location information for each of these items." EX1010, ¶39. Mobile communication devices include a location-determination component such as a GPS module. EX1010, ¶40. Location information, "such as location histories, frequently visited areas, and so on, is stored in the location database 126." EX1010, ¶37.

D. Wong

78. Wong relates to a "method and system for generating an interactive computerized biological network consisting of living and non-living entities based upon the multiple relationship types which can exist between entities." EX1007, Abstract. Wong teaches creating a social network. *See, e.g.*, EX1007, Abstract, ¶¶2-3, 17-19. Wong's network 24 is illustrated in Figure 2, reproduced below.

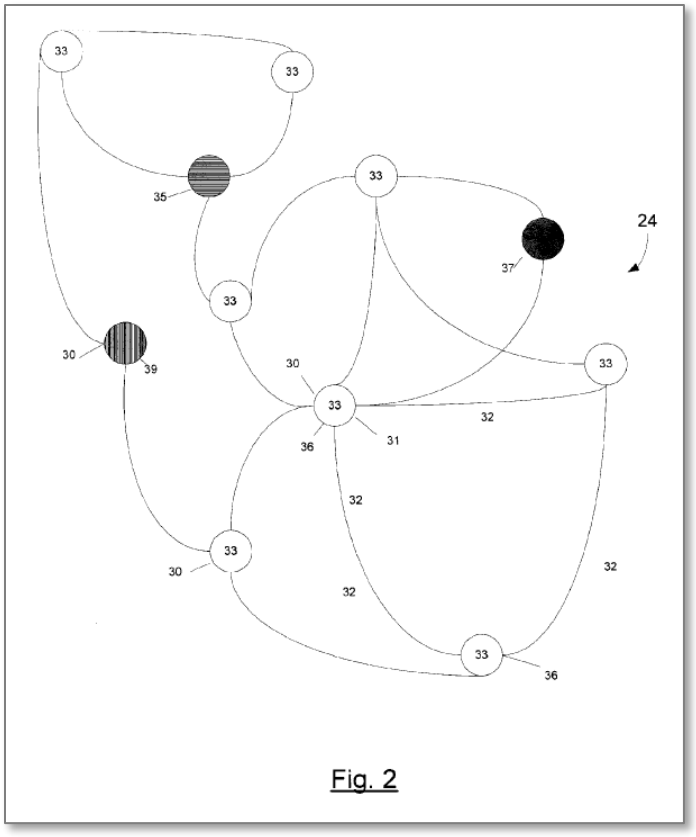


Fig. 2

EX1007, FIG. 2.

79. In Wong, the social "network of living and non-living entities is represented by a number of elements, each representing a living or non-living entity, which are referred to as 'nodes' 30, joined by connections 32, referred to as 'linkages', to other nodes 30." EX1007, ¶21. Each node of Wong's network represents a living or non-living entity such as people, places, objects (e.g., groups, organizations, or businesses), or animals. EX1007, ¶¶21-22. When a new node is created, the new node is linked to existing nodes. EX1007, ¶¶27, 41, FIG. 6. Two existing nodes may also be linked. EX1007, ¶28, FIG. 7.

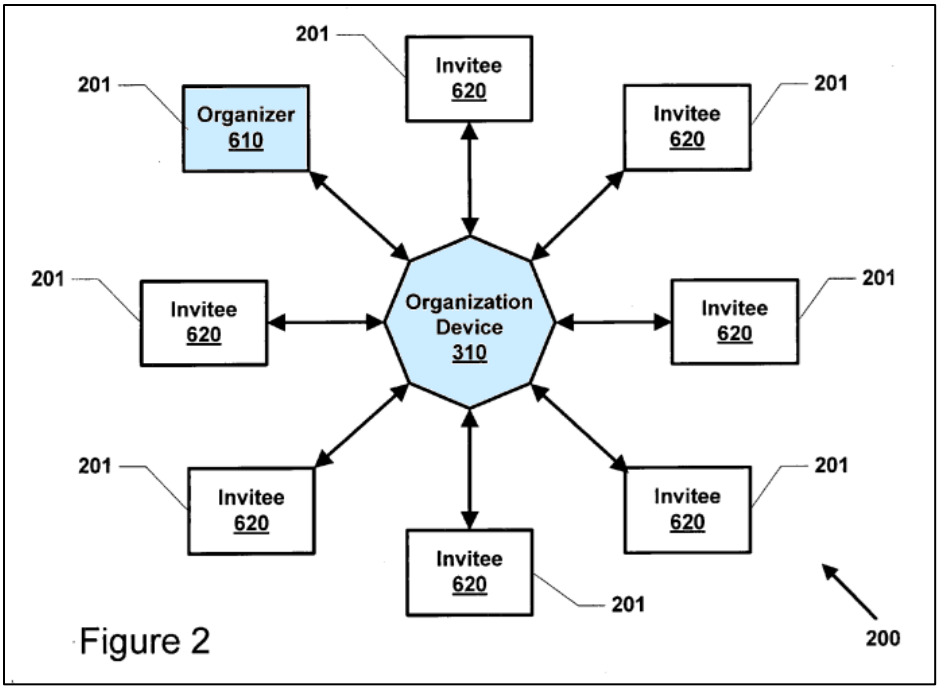
80. In Wong, people or organizations "can represent themselves to other

persons or organizations of persons through their active nodes and interact electronically with other persons or organizations of persons represented by an active node." EX1007, ¶30. Users 10 access the network via computer terminals 14. EX1007, ¶17. Wong teaches that the computer terminals can include a variety of devices such as "laptops, desktops, handheld, personal digital assistants, mobile telephones or any other device capable of communicating over a network." EX1007, ¶17.

81. Wong also teaches communication between nodes in a social network. "The social networking features … facilitate many forms of communication, such as notification of updates, alerts, sharing of files and photos, blogs, instant messaging and comments." EX1007, ¶44. The sender of communications can select which nodes in the network can receive a particular communication. EX1007, ¶44.

E. Burfeind

82. Burfeind's system enables a user to "schedule[] a location-specific event." EX1008, Abstract. In Burfeind's network 200, "users 201, such as event participants, are communicatively coupled to an organization device 310," which facilitates event planning. EX1008, ¶54, FIG. 2.



EX1008, FIG. 2 (annotated).

83. As depicted in Figure 2, "event organizer 610" (a user) provides event information—including time, location, and invitees for the event—to "organization device 310," which in turn communicates the invitations and other event information to invitees 620. EX1008, ¶¶52-57, 108, 111-113, 115, FIG. 2.

84. Invitees can view events to which they are invited in event listing 2110. EX1008, ¶¶120-122, FIG. 21. "[E]ach entry 2115 includes a hyperlink 2117 associated with a webpage containing additional information about the event." EX1008, ¶¶120-122, FIG. 21. The information described in Burfeind can include the event name and time. EX1008, ¶¶120-122, FIG. 21.

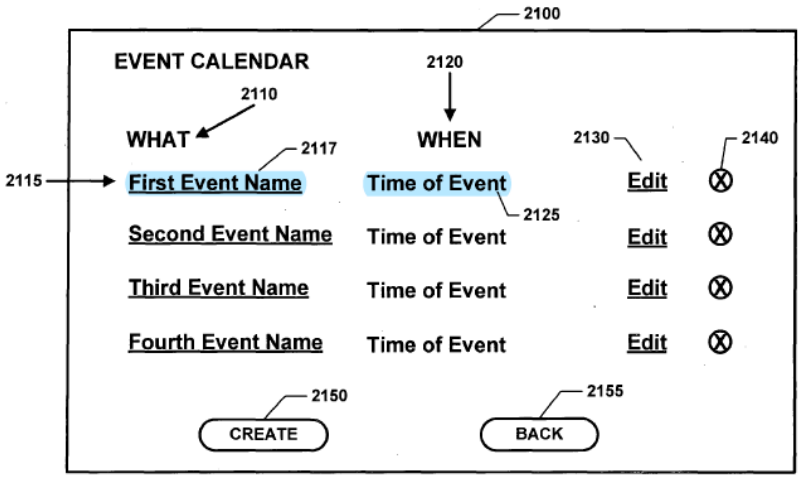


Figure 21

EX1008, FIG. 21 (annotated).

85. Burfeind's interface 2100 also includes additional interactable elements, including elements for "modify[ing] the date, time, location, and other information associated with the event." EX1008, ¶123.

F. Crowley

86. Crowley's system coordinates meetings between friends and acquaintances. EX1009, Abstract. Crowley's system and core functionality underscore a commonly known aspect in social networks, which includes coordinating meetings among social friend groups. *See* EX1020, 136-137. Crowley discloses "location-based social software" for "establishing connection between users of mobile devices." EX1009, ¶¶7-8. Specifically, Crowley's system determines when a user's participating acquaintances are geographically proximate to an event venue. EX1009, ¶45. Crowley's system then automatically sends

invitations to those individuals, inviting them to meet the user at that venue. EX1009, ¶45.

XII. GROUND 1: CLAIMS 1-12 WOULD HAVE BEEN OBVIOUS IN VIEW OF KRAFT, NGUYEN, AND ALTMAN.

87. In my opinion, the combination of Kraft, Nguyen, and Altman renders obvious claims 1-12.

A. Motivation to Combine

88. Kraft describes that a participant in its world model (e.g., an event manager) can create an Event entity model that represents an event. EX1005, 9:50-66, 15:28-16:54. An event may include a variety of real-world events, "such as elections, natural disasters, sports events, and so on." EX1005, 9:50-66. Kraft also discloses defining relationships of the Event entity to numerous existing entity models 400, such as Person entity models. EX1005, 10:7-18, 16:28-42, FIG. 3. For example, a person entity may be a "participant" of an event. EX1005, 10:7-18, 16:28-42, FIG. 3.

89. But Kraft does not explicitly disclose techniques for connecting users to events based on their current location. Additionally, Kraft does not disclose methods for tracking responses from the invited entity. In my opinion, a POSA would have recognized it to be useful in Kraft's world model to facilitate event planning tasks, such as inviting Persons to connect to an Event. In the context of Kraft, I believe a POSA would have found it useful to invite existing Person entity

models to connect to an Event entity model (e.g., as a participant, sponsor, or another relationship). In my opinion, it would have been useful to a POSA to also track response from the invited entity (e.g., a Person entity model).

90. As I describe above, systems for enabling communications between individuals affected by a disaster or between individuals for event planning were well known and commonly implemented. *See* Sections VII.A-B. Indeed, Kraft discloses that its world server 160 allows for "the full complexity and scope of interrelationships that exist in the real world [to] be modeled." EX1005, 9:3-5. The full complexity and scope of interrelationships between real-world people, things, events, and more, as described by Kraft, include facilitating communications between individuals for event planning, among other real-world applications. As depicted in Figure 2 of Kraft, relationships may be defined between different entities, such as Persons and Events:

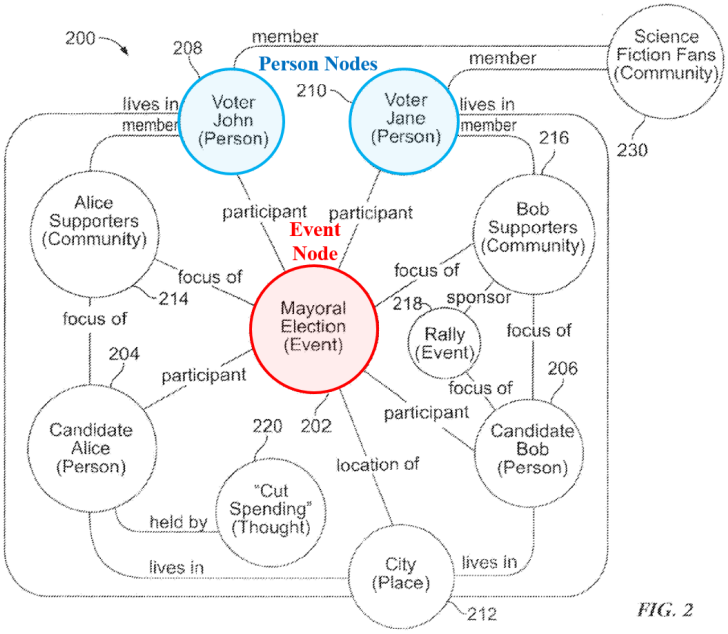
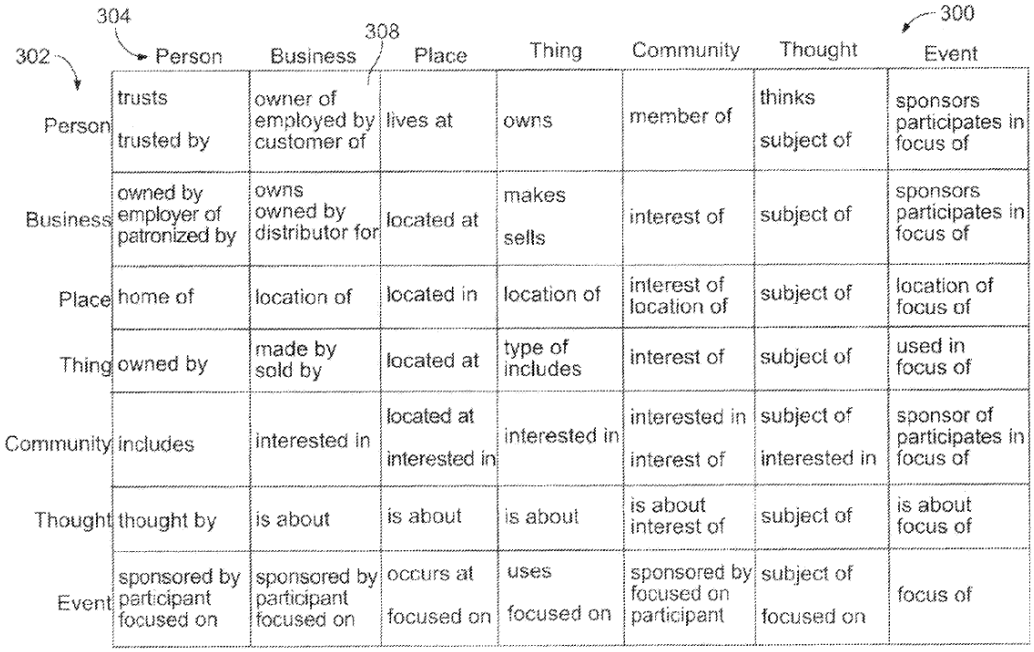


FIG. 2

EX1005, FIG. 2 (annotated).

91. Moreover, Kraft explicitly contemplates a matrix "illustrating some relationship types that may be defined" among Entities. EX1005, 10:13-15. For instance, Kraft's Figure 3 depicts how "an entity model belonging to the 'row' category 302 can be related to an entity model belonging to the 'column' category 304 by any of the relationships in the intersection cell 306." EX1005, 10:15-18. Accordingly, Kraft's system aims to capture how "[i]n the real world, entities are interrelated, and relationships between entities may be of different types." EX1005, 10:7-8. As depicted in Figure 3 of Kraft, the unique relationships defined among various entities may be different for each entity-to-entity relationship:



302	Person (304)	Business (308)	Place	Thing	Community	Thought	Event (300)
Person	trusts trusted by	owner of employed by customer of	lives at	owns	member of	thinks subject of	sponsors participates in focus of
Business	owned by employer of patronized by	owns owned by distributor for	located at	makes sells	interest of	subject of	sponsors participates in focus of
Place	home of	location of	located in	location of	interest of location of	subject of	location of focus of
Thing	owned by	made by sold by	located at	type of includes	interest of	subject of	used in focus of
Community	includes	interested in	located at interested in	interested in	interested in interest of	subject of interested in	sponsor of participates in focus of
Thought	thought by	is about	is about	is about	is about interest of	subject of	is about focus of
Event	sponsored by participant focused on	sponsored by participant focused on	occurs at focused on	uses focused on	sponsored by focused on participant	subject of focused on	focus of

FIG. 3

EX1005, FIG. 3

92. As one example, a POSA would have understood that persons would be interested in sending invitations to events to various parties, such as employees, friends, family members, etc., and tracking their respective responses. Indeed, Kraft highlights its system models relationships between entities reflecting real-world components, such as people, events, and tangible things. *See, e.g.*, EX1005, 9:50-10:6. That is, certain parties could be invited to attend a particular event based on a relationship to the event or another entity (e.g., trust and/or a relationship between two Persons, a relationship between a device and a person, a location of the person proximate to an event, etc.). *See* EX1005, 9:42-49.

93. My opinion is informed by multiple corroborating references that provide techniques for enabling parties to communicate event invites to other parties and for one or more parties to track the status of a particular invite. *See* EX1009; EX1012. For instance, Crowley discloses an example where a user "TJ" is "located at a bar called the Luna Lounge." EX1009, ¶45. At TJ's request, the system "identif[ies] which of [TJ's] acquaintances is currently active in the system, and … which of the acquaintances is near the Luna Lounge." EX1009, ¶45. The system then "send[s] each of the acquaintances messages" inviting them to meet TJ at Luna Lounge. EX1009, ¶45; *see also* EX1009, ¶78.

94. Steenstra also teaches a "[l]ocation based service (LBS) system and method for creating a social network." EX1012, Title. The LBS system "includes an interest group feature" that shares information related to an event with user devices located proximate to the event. EX1012, ¶50.

95. In my opinion, the advantages of Kraft, as reinforced by the aforementioned corroborating prior art references, would have led a POSA to references like Nguyen and Altman.

96. For instance, because a POSA would have recognized it would be useful to incorporate event planning into Kraft, a POSA, in my opinion, would have been led to Nguyen. Like Kraft, Nguyen is directed to a network for connecting users. Nguyen describes embodiments "for planning and organizing

events, and more specifically to an event planning system providing an interface allowing a user, that is an event planner, to organize events and manage information associated with the events." EX1006, ¶3. Specifically, Nguyen describes a centralized system for enabling "a user to plan an event, generate and send invitations, track RSVP status, and manage RSVP fee account information." EX1006, ¶55. The system stores and tracks "event information indicative of a name, time, date, and location for a planned event; invitee information including information indicative of addresses of the invited guests (e.g., home and business Email addresses, home and business postal addresses, home and business FAX numbers, and a preferred method of sending invitations); invitation format information; and paid RSVP requirements indicative of RSVP fees required to be paid by each invited guest in order to respond affirmatively to the invitation." EX1006, ¶57.

97. Nguyen's system provides numerous advantages such as allowing the user to "select an option of viewing event summary information associated with a selected event, the event summary information including RSVP status information associated with each of the invitees for the selected event." *See* EX1006, ¶¶18, 21.

98. In my opinion, a POSA would have been motivated to incorporate Nguyen's invitation and tracking system into Kraft to achieve the explicit advantages taught by Nguyen of facilitating event planning tasks (sending

invitations and tracking responses) and managing relationships between an Event and other entities (e.g., updating the relationship of a Person as a "participant" of the Event by providing a "yes" response to an invitation to join the event). EX1005, FIG. 3. For example, Nguyen's features could be implemented in Kraft's world server system to modify various entity models to define relationships amongst the entities, such as whether a Person entity is attending (e.g., "a participant" as described in Kraft's Figure 3) an "Event." *See* EX1005, 10:7-30, FIG. 3.

99. In my opinion, a POSA would have had a reasonable expectation of success in implementing Nguyen's invitation and RSVP tracking in Kraft because both Kraft and Nguyen use conventional elements such as servers that send/receive communications to/from clients and databases. *See, e.g.*, EX1005, 4:64-5:15, FIG. 1; EX1006, ¶55, FIG. 1A. Thus, a POSA would have readily been able to implement Nguyen's event planning functions in Kraft.

100. The Kraft-Nguyen combination combines known prior art elements (e.g., Kraft's communication network that includes a world server with Nguyen's event planning functions) according to known methods to yield predictable results (e.g., the ability of Kraft's system to send and track invitations to join, or otherwise have a relationship, to an event). A POSA would have understood that Kraft's communication network was ready for improvement to provide Nguyen's event

planning functions (such as Nguyen's invitation and RSVP tracking). Nguyen's features would have been predictably implemented in Kraft, and would have operated in the same manner as in Nguyen. For instance, both Kraft and Nguyen use conventional computing and communications elements, which would allow invitations to be sent to various Person entities, who may become "participant[s]" of the Event entity based on a response to the invitation. *See* EX1005, FIG. 3 (depicting this relationship via a relationship matrix). Kraft's "user-defined metadata fields" of the entity may be advantageously modified to track the relationship between the Event entity and the Person entity (e.g., a Person entity being a "participant" of the Event entity). *See* EX1005, 10:7-15, FIG. 3; EX1006, ¶58.

101. Kraft also does not explicitly disclose techniques for connecting users to events based on their current location. However, the advantages of Kraft would have led a POSA to a reference like Altman. Similar to Kraft, Altman discloses a virtual network that connects users to people, places, and events. EX1010, ¶39. And similar to Nguyen, Altman discloses its social network manager includes "an event manager module." EX1010, ¶53. The event manager module allows a user to create and manage events, and send invitations regarding the events. EX1010, ¶53.

102. Kraft also does not explicitly disclose techniques for connecting users to events based on their current location. This would have led a POSA to a

reference like Altman. Similar to Kraft, Altman discloses a virtual network that connects users to people, places, and events. EX1010, ¶39. Similar to Nguyen, Altman discloses that its social network manager includes "an event manager module" that allows a user to create and manage events, and send invitations regarding the events. EX1010, ¶53.

103. Kraft discloses its entities may include a "Location" field, but Kraft's system focuses on a static location entered by the user, such as an "address." EX1005, 11:39-41. In my opinion, a POSA would have found it obvious that it would be useful to incorporate Altman's teachings of a location determination component (e.g., GPS module) into Kraft's world model (as modified by Nguyen). Many systems existing before the priority date of the '052 patent, such as Kraft and Nguyen, incorporate a user's location to define a particular relationship between a user and another entity (e.g., an event). *E.g.*, EX1005, 8:57-62, 9:23-26; EX1006, ¶62. Indeed, many systems existing before the priority date of the '052 patent used GPS coordinates of the user device to determine the location of a user. *E.g.,* EX1009, ¶59.

104. In my opinion, a POSA would have been motivated to include Altman's teachings of GPS location to use a more precise and current location of users who are close enough to the event to invite to participate. Prior to 2007, it was known that GPS locations of users proximate to an event could be used for

invitations to participate in such events. As an example, Crowley's system determines when a user's acquaintances are geographically proximate to an event venue, and automatically sends invitations to those acquaintances, inviting them to meet the user at that venue. EX1009, ¶45.

105. A POSA would have also been motivated to incorporate Altman's teachings of location history/frequently visited areas to identify potential participants/invitees for the event that, although the participant/invitee may not be currently geographically proximate, they are likely to travel to the event location. For example, systems existing prior to the priority date of the '052 patent store user preferences to identify users as potential participants of an event. *See* EX1011, 2:17-25, 3:7-28, FIG. 1. In Franco, a user's "zone of interest" can be expanded or contracted based on various user parameters, one being "a history of each user's location in a user position database," which can be used to predict whether a user would likely attend an event (such as responding to a request for assistance). EX1011, 2:17-25, 3:7-28, 7:3-5, FIG. 1.

106. A POSA would have a had a reasonable expectation of success in implementing Altman's GPS and location history in the combination of Kraft-Nguyen. And a POSA would have been further motivated to make the combination because it is simply a predictable combination of known elements. For instance, Kraft includes a database (e.g., world model data store 162) that stores location

data of an entity (within entity model 400). EX1005, 12:36-50, FIG. 4. This could be combined with Altman's database that obtains and stores GPS location and location history within a database (e.g., location database 126). EX1010, ¶¶37, 71. It was commonly known that social networks store location data of an entity, many of which include specific GPS location information and location history. *See* EX1009, ¶¶11, 63; EX1011, 4:24-38. Thus, it is my opinion that the combination of Kraft's world model with Altman's specific GPS location information and location history could have been made by a POSA, according to known methods, to yield the predictable result of Kraft's world model storing specific GPS location information and location history.

B. Independent Claim 1

1. [1.P] A method for creating a situational network as a subset of a larger multi-dimensional information network comprising a plurality of nodes, wherein the situational network is formed in response to an event in a particular geographical area, and wherein the situational network is created for delivering information to selected user nodes based in at least part on the situational network, the method comprising:

107. I understand that, in certain circumstances, the preamble of a claim may be limiting. To the extent the preamble is determined to be limiting, it is my opinion that Kraft teaches this element.

108. The '052 patent broadly describes that a "situational network 3000 is created when an occurrence or expected occurrence of an event or situation 3005

causes connections, also referred to as links, to be established between, within or among a set of participants." EX1001, 4:24-28, FIG. 1. The '052 patent provides several examples of "situation[s]," including "a social event, such as a concert or festival." EX1001, 32:3-4; *see also* EX1001, 5:14-29 ("Examples of events or situations 3005 that might initiate the formation of a situational network include weather phenomenon, such as hurricanes, tornadoes, severe thunderstorms, or winter storms; emergency situations, such as building fires, aircraft crashes, or toxic substance releases; natural disasters, such as earthquakes, tsunamis, or floods; weather related activities, such as skiing or surfing; navigation and/or travel incidents, such as road closures or construction, vehicle accidents, traffic congestion, roadway debris, or air turbulence; and public health crises, such as disease outbreak.").

109. Kraft discloses "systems and methods for information retrieval and communication using a world model." EX1005, 2:35-37. In Kraft, "[t]he world model is made up of interrelated entity models, where each entity model corresponds to an entity (or abstraction) in the real world, such as a person, place, business, other tangible thing, community, event, or thought." EX1005, 2:37-41, 8:28-31. Kraft discloses an entity model may be assigned an "event" category. The event category may be assigned to "entity models representing occurrences such as elections, natural disasters, sports events, and so on." EX1005, 9:50-66. Therefore,

it is my opinion that Kraft's events align with the types of situations disclosed in the '052 patent. The '052 patent describes a "situation" as broadly including social events, emergency events, weather phenomena, natural disasters, etc. *See* EX1001, 5:14-29, 32:3-4.

110. Kraft further discloses, "the world model advantageously defines types of relationships that may exist among entity models belonging to the same or different categories." EX1005, 10:10-13. For example, as I have highlighted in Kraft's Figure 3 below, a "Person" can be directly linked to a created "Event" as a "participant." EX1005, 10:13-21, FIG. 3.

302	304 Person	308 Business	Place	Thing	Community	Thought	300 Event
Person	trusts trusted by	owner of employed by customer of	lives at	owns	member of	thinks subject of	sponsors participates in focus of
Business	owned by employer of patronized by	owns owned by distributor for	located at	makes sells	interest of	subject of	sponsors participates in focus of
Place	home of	location of	located in	location of	interest of location of	subject of	location of focus of
Thing	owned by	made by sold by	located at	type of includes	interest of	subject of	used in focus of
Community	includes	interested in	located at interested in	interested in	interested in interest of	subject of interested in	sponsor of participates in focus of
Thought	thought by	is about	is about	is about	is about interest of	subject of	is about focus of
Event	sponsored by participant focused on	sponsored by participant focused on	occurs at focused on	uses focused on	sponsored by focused on participant	subject of focused on	focus of

EX1005, FIG. 3 (annotated).

111. In Kraft, a Person entity can also be indirectly related to an event by

being a "member of" a community that is "focused on" or a "participant" in an "Event." EX1005, FIG. 3. This relationship is shown in Kraft's Figure 3, depicted above. Each entity model can be "implemented as a data structure that can reference other entity model data structures, e.g., using labels, pointers or other suitably persistent references, thereby allowing relationships among entity models to be defined." EX1005, 9:42-47. Additionally, Kraft discloses that relationships between entities may be defined when the event is created. EX1005, 15:41-52, 16:28-30 (When creating a "new entity model 400," "relationships of the new entity model 400 to existing entity models 400 in world model data store 162 are defined."). Kraft describes various entity models 164, where each entity model 164 "corresponds to some entity existing in the real world, such as *a person*, business, other tangible thing, place, community, event, or thought" and is "implemented as a data structure." EX1005, 6:35-42 (emphasis added), 8:26-31. The data structure provides access to information about the real-world entity that the node represents. EX1005, 6:35-42, 8:26-31.

112. Accordingly, it is my opinion that Kraft teaches "*[a] method for creating a situation network as a subset of a larger multi-dimensional information network comprising a plurality of nodes, wherein the situation network is formed in response to an event in a particular geographical area*." Kraft teaches establishing an event node associated with an event (a situation) in a geographical

area (as I discuss further in Section XII.B.4 for claim element [1.C]). Kraft also teaches claim element [1.P] by defining connections between the Event entities and Person entities (i.e., joining user nodes to the event node as I discuss further in Section XII.B.7 for claim element [1.F.1]).

113. For the reasons I discuss for element [1.H] and [1.I], the Kraft-Altman combination teaches "*delivering information to selected user nodes based in at least part on the situational network*" through their combined teachings that: i) a third subset of nodes is identified based at least in part on data representing user devices joined to the event node (i.e., *based on the situational network*) ([1.H]); and ii) additional information is delivered to the identified third nodes ([1.I]). *See* Sections XII.B.10-11.

114. Kraft teaches *delivering information* to user nodes in several exemplary ways. Kraft discloses that the content may be "links to content" that pertains to the real-world entity being modeled. EX1005, 11:47-49. By clicking on a link to content or another entity model, a Person entity node "may be able to retrieve information and user feedback about the entity." EX1005, 19:42-45. And using Altman's alert techniques, a user may be notified about a rally event related to the Event node that may be of potential interest. *See* EX1005, FIG. 2 (illustrating a rally event related to a Mayoral event), ¶55. For instance, Altman discloses "alerting the user to the … location of events of interest when the user

enters a particular area." EX1010, ¶61. As I discuss above, a POSA would have been motivated to employ Altman's geolocation-based user identification techniques in Kraft's system to identify and connect users to events in close proximity, creating "*a situational network*" corresponding to an event. *See* Section XII.A.

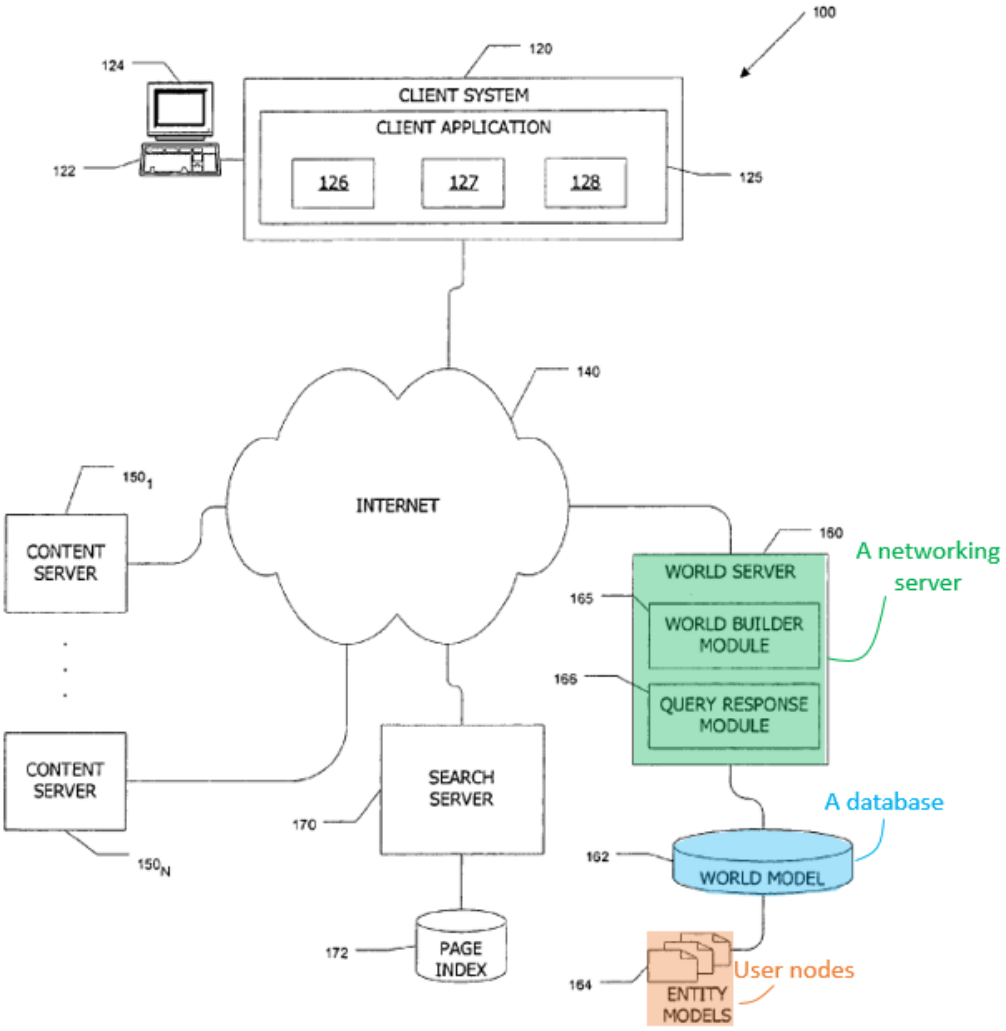
115. Therefore, it is my opinion that at least Kraft, or the Kraft-Altman combination, teaches the preamble of claim 1.

> **2. [1.A] a) maintaining, by a networking server configured to maintain data defining the multi-dimensional information network, a database comprising: (i) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional information network, wherein at least some respective user nodes of the plurality of user nodes are associated with respectively user data;**

116. In my opinion, Kraft teaches claim element [1.A].

117. First, Kraft teaches "*maintaining, by a networking server configured to maintain data … a database*." Kraft's world server 160 is a *networking server* that maintains *a database* (world model data store 162). EX1005, 6:33-35. Kraft's world server is a networking server that is "communicably coupled to the world model data store." EX1005, 2:47-50. World server 160 includes a query response module 166. EX1005, 6:52-54. Query response module 166 interacts with client systems 120 and enables users to search world model data store 162. EX1005,

6:57-59. Kraft's system is illustrated as information retrieval and communication network 100 in Figure 1.



EX1005, FIG. 1 (annotated).

118. Second, Kraft's world model is "*data defining the multi-dimensional information network*," as recited in claim element [1.A]. The '052 patent uses a "multi-dimensional personal information network" and "N-dimensional social network (NDSN)" interchangeably. *See* EX1001, 6:29-44, 8:7-11, 15:4-7. In

particular, the ’052 patent explicitly indicates that the NDSN may also be referred to as “a multi-dimensional personal information network.” EX1001, 8:7-11. The ’052 patent’s “NDSN uses multiple dimensions of association to characterize the relationships” (e.g., family, professional connection). EX1001, 15:9-19.

119. Kraft’s world model “provides a searchable set of interrelated entity models 164.” EX1005, 6:35-40. Each entity model 164 “corresponds to some entity existing in the real world, such as **a person**” and is “implemented as a data structure.” EX1005, 6:35-42, 8:26-31. The data structure provides information about the real-world entity that the node represents. EX1005, 6:35-42, 8:26-31.

120. Third, Kraft discloses a “real-world person who is a world-model participant may create” one or more Person models “to represent himself or herself in the world model.” EX1005, 14:1-15. The Person models are *a plurality of user nodes* stored in database 162. The user nodes of Kraft correspond to some entity existing in the real world and “contain[a] user’s profile, which may include information regarding the user’s basic personal information.” *Compare* EX1005, 6:35-42, 8:26-31, *with* EX1001, 7:63-8:15. As described by the ’052 patent, user nodes can be “a [Personal Information Aggregator]” that is implemented as a data structure used to store personal information. *E.g.,* EX1001, 9:65-8:3.

121. Kraft’s entity models are “linked to each other by navigable relationships.” EX1005, 8:1-3. Like the ’052 patent, Kraft’s entity models are

linked via "*dimensions in the multi-dimensional information network*." Kraft's world model captures and stores relationships between user nodes along multiple dimensions, which are "*node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional network*." Kraft discloses world model 162—depicted, as an example, in Figure 2—"can be represented visually using a network graph, with each node representing an entity model 164 and each edge representing a relationship between entity models." EX1005, 8:32-38. Person entity models may be interconnected via relationships amongst each other. For instance, Kraft indicates that Person entity models "can have trust (or friendship) relationships with each other." EX1005, 10:22-26. Kraft also indicates that its world model "can include features of a conventional social network." EX1005, 10:22-26. Kraft's world model 200 can model "the full complexity and scope of interrelationships that exist in the real world." EX1005, 9:3-5. For instance, Kraft indicates that other types of relationships may be captured in its world model system, such as an employer to employee relationship, among others. EX1005, 16:45-48. In Kraft, users may also be linked by common interests and community involvement. *E.g.*, EX1005, 9:5-14, FIG. 2. For example, two users (e.g., Jane node 210 and Joe node 202) may be linked by an interest in "science fiction." EX1005, 9:5-14, FIG. 2. Like in the '052 patent, Kraft models the full scope of interrelationships (*the multi-dimensional network*), wherein each

modeled relationship—such as trust/friendship, employer/employee, and common communities—is a *dimension*. *E.g.*, EX1005, 9:5-14, FIG. 2.

122. Fourth, Kraft teaches "*wherein at least some of the user nodes of the plurality of user nodes are associated with respectively user data*." An entity model "stores other information about the real-world entity it represents." EX1005, 10:7-51. Furthermore, Kraft discloses its entity models include "structured metadata section 406" that "stores a number of field-value pairs related to the real-world entity being modeled"; content section 404 provides content "that pertains to the real-world entity being modeled"; and "[r]elationships section 430 defines relationships between the entity model and other entity models." EX1005, 11:36-12:18, 13:6-26, FIG. 4. Person entity models —like the *user nodes* of the '052 patent—"might include name, age, sex, address, occupation, or the like" within its metadata fields. EX1005, 11:39-43. These fields "may be varied as desired." EX1005, 11:39-43. The metadata fields, content data, and relationship data are *user data associated with* the Person entity (*user node*).

123. Thus, in my opinion, Kraft teaches claim element [1.A].

3. [1.B] b) providing, by the networking server, to each user device of a plurality of user devices associated with the plurality of user nodes, a respective composite data feed that [is] based on the database;

124. In my opinion, Kraft teaches claim element [1.B].

125. First, in my opinion, Kraft's client devices are "*a plurality of user*

devices associated with the plurality of user nodes (i.e., the real-world persons associated with Person models). Kraft discloses users may interact with world model using client devices 120. EX1005, 6:61-65 Client systems 120 can reflect various *user devices*, such as desktop personal computers, laptops, personal digital assistants (PDA), and cell phones. EX1005, 5:13-19. Kraft also indicates that users may use devices 120 to communicate with other users of world server 160. EX1005, 5:7-19, 6:61-65.

126. Client system 120 interacts with world server 160 as a "user" (to retrieve information from the world model) or as "a participant" (to add or modify entity models 164 in world model data store 162). EX1005, 6:61-65. Kraft's entities store contact information, such as an IM or other communication channel, to contact the entity manager (e.g., for a Person entity, the real-world person the entity represents). EX1005, 11:5-29, 13:61-14:15. In other words, users may be contacted at devices identified in the communication channel (e.g., at a device associated with the IM contact). Each of these users—for example, a user defined by an IM screen name—is associated with a *user node* reflected by a real-world person of an entity model. EX1005, 11:18-29.

127. In my opinion, a POSA would have understood that at least some of Kraft's client systems 120 disclose claim element [1.B]'s *each user device of a plurality of user devices associated with the plurality of user nodes*—the real-

world persons associated with Person entity models—because Kraft discloses users may interact with world model using client system 120 as "participants" or "users." A POSA would readily understand that Kraft discloses *user devices* that are *associated with respective user nodes of the plurality of user nodes*.

128. *Second*, Kraft's world server 160 (*the networking server*) includes "a query response module 166" which "*provid[es] … a respective composite data feeds that based on the database*." EX1005, 6:51-59. The query response module interacts with client system 120" and "enables users to search world model data store 162 for entity models 164 that match user-specified criteria." EX1005, 6:52-59. Kraft indicates that a user "can access world model data store 162 to facilitate information retrieval" through "a world search module 126 of client application 125." EX1005, 18:31-40. The world search module 126 can "interact[] with query response module 166 of world server 160." EX1005, 18:31-40. For example, a user can submit a query to world server 160 through "a conventional Web browser to a page providing search interface to world server 160." EX1005, 18:41-44. Once a search query is submitted, "the search is performed," and "search results, including links to matching entity models from world model data store 162 are returned to the user, e.g., in the form of a search results Web page listing the matched entity models." EX1005, 19:6-8. Each entity model includes a content section that provides "content (or links to content) that pertains to the real-world entity being

modeled." EX1005, 11:47-49. Each entity model includes a content section that provides "content (or links to content) that pertains to the real-world entity being modeled." EX1005, 11:47-49. Thus, Kraft describes a *networking server* (world server 160) provides the claimed *user devices* with *respective composite data feeds* (the search results from world model data store 162 that are returned to a user device). *See* EX1005, 19:6-8. Each user device may perform respective searches of the entity models using Kraft's query response model 126, which "search[es] world server data store 162 for entity models 164." EX1005, 6:57-59.

129. In my opinion, Kraft's search result listing is consistent with the '052 patent's use of the term "data feed." The '052 patent discusses data feeds broadly. It does not limit the form of a data feed but provides embodiments where a "[u]ser 250 requests the PIA 400 to receive a data feed" by "sending a requestData message" to an entity, to which the entity responds by "provid[ing] the requested data feed to the PIA 400 by sending the provideData message to the PIA 400." EX1001, 12:55-66. The '052 patent further describes and where the data feed may be "single use" such that static data is provided to the user. EX1001, 10:32-3913:34-45. Moreover, the '052 patent says "[t]he event node may be discovered" by "**searching** … **the network** for information about the situation or event." EX1001, 20:49-52. Kraft's user performs similar operation, searching the network for entity models (including events) via the user's device (e.g., client system 120).

130. Thus, in my opinion, Kraft teaches claim element [1.B].

4. [1.C] c) establishing, by an event node server, an event node associated with the event in the particular geographical area, wherein the event node is discoverable by each user device of the plurality of user devices by browsing the respective composite data feed;

131. In my opinion, Kraft teaches claim element [1.C].

132. *First*, Kraft's world server 160 "may include multiple servers and associated database systems." EX1005, 7:45-48. Kraft teaches "*establishing, by an event node server*" (the server of world server 160 that creates and stores an Event entity) "*an event node associated with the event*" (an "event" entity model) "*in the particular geographical area*" (the "location" specified in the metadata). For example, Kraft discloses an entity model may be assigned an "event" category. EX1005, 9:50-66. An event category may be assigned "for entity models representing occurrences such as elections, natural disasters, sports events, and so on." EX1005, 9:50-66. Kraft's world-model participants can create and update entity models via client application 125 (Figure 1), which interacts with world-builder module 165 of world server 160." EX1005, 15:21-28, FIG. 1. Kraft describes how a participant may interact with the world-builder module 165. For example, a participant can select a category for the new entity model 400 (e.g., event); complete core information for the entity model, including structured metadata (e.g., location); and populate content section 404. EX1005, 15:45-52,

15:64-16:14. Kraft also discloses defining relationships of the new entity model to existing entity models. For example, "if the metadata includes a 'Location' field, a relationship to a Place entity model representing that location can be automatically defined." EX1005, 16:28-34. Kraft further discloses world server 160 "may include multiple servers and associated database systems." EX1005, 7:45-48.

133. Thus, Kraft teaches *establishing, by an event node server* (the server of world server 160 that creates and stores the Event entity) *an event node associated with an event* (the created "event" entity model) *in a particular geographical area* (the "location" specified in the metadata). In my opinion, a POSA would have understood Kraft's location is *particular geographic location*. Kraft allows for a search interface to search for keywords "to a particular structured metadata field," which may include "a specified geographic location." EX1005. 18:44-50. Figure 2 of Kraft illustrates an example event node 202 that represents a mayoral election located in a city represented by node 212. EX1005, 8:40-45, FIG. 2.

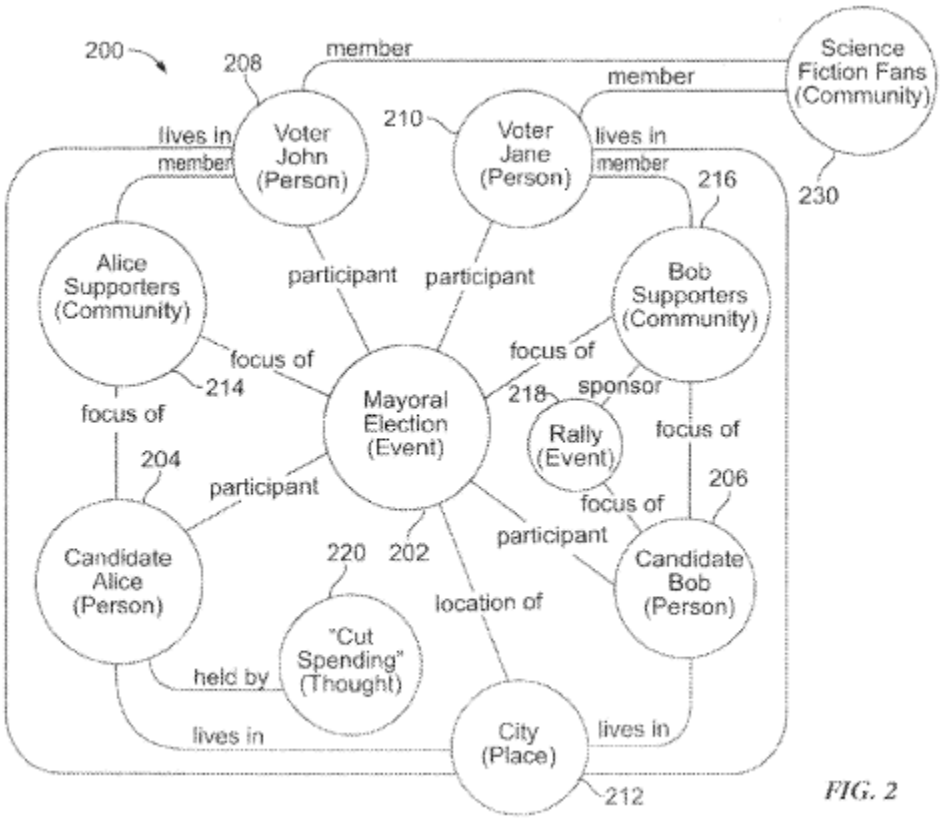


FIG. 2

EX1005, FIG. 2.

134. Second, Kraft teaches the event node (Event model) "is discoverable to each respective user device of a first plurality of user devices by browsing a respective composite data feed." For example, Kraft's client devices may search and browse a list of entity models on a "Web browser … providing a search interface." EX1005, 18:41-44. A user, via their device, may search for keywords for "a particular category of entities," which may include an Event entity model. EX1005, 9:50-66, 18:45-50.

135. Kraft also describes that, after a participant commits a new entity

model to Kraft's world model data store 162, "it becomes accessible to other users via various search and navigation interfaces and tools." EX1005, 16:53-59. As described in claim element [1.B], client system 120 (*user device*) can "communicate with a world server system 160—via, for example, "world search module 126"—"to search world model data store 162 for entity models that match user-specified criteria" (e.g., events located near a specified location). EX1005, 5:8-10, 6:51-59, 18:31-54. For example, users may search for "entities located near a specified geographic location," and, in some embodiments, the "matched entity models might be shown by reference to locations on a map." EX1005, 18:47-50, 19:17-23. The user may select a matched entity model of interest to show an "entity view." EX1005, 19:37-41. The entity view "displays information from the entity model in a user-readable form." EX1005, 19:37-41.

136. Thus, in my opinion, Kraft teaches claim element [1.C].

5. [1.D] d) creating, by the networking server, based on the database, a projection of the plurality of user nodes, the projection comprising a first subset of the plurality of user nodes associated with a first subset of the plurality of user devices, wherein the projection is created based on respective distances of devices of the first subset of the plurality of user devices from the event;

137. In my opinion, the Kraft-Altman combination teaches claim element [1.D].

138. *First*, in my opinion, Kraft teaches "*creating, by the networking*

server, *based on the database, a projection of the plurality of user nodes*." For example. Kraft describes that world server 160 creates a view of Person entities that match specified criteria upon user request. And Kraft's world server 160 "may include multiple servers and associated database systems." EX1005, 7:45-48.

139. The '052 patent describes a "projected view" as a subset of the nodes of the NDSN. EX1001, 15:30-35. A projected view is "also referred to as a projection." EX1001, 22:55-56.

140. To generate a *projection*, Kraft discloses that a participant may "access a search-and-navigation interface to world model data store 162." EX1005, 16:36-39. The search-and-navigation interface may, for example, allow a user to identify entity models that should be related. EX1005, 16:36-39. The interface "may include a network view, similar to FIGS 2 and 5, as well as other components" of exemplary search and navigation interfaces. EX1005, 16:36-42, FIGs. 2, 5. Users may search for entity models that match specified criteria, and a "network graph similar to those of FIGS. 2 and 5 might be used to display the matching entity model as well as related entity models." EX1005, 19:6-8, 19:29-32; *see also* EX1005, 20:59-21:9 (describing how a user may search for entity models to display a network graph).

141. Second, in my opinion, the Kraft-Altman combination renders obvious "the projection comprising a first subset of the plurality of user nodes

associated with a first subset of the plurality of user devices" (the user device(s) associated with the user node(s) in the projection).[1] As I explain above for claim element [1.B], Kraft teaches user devices associated with user nodes. See Section XII.B.3. Additionally, Kraft's world model defines relationships that exist among entity models. EX1005, 10:7-15, FIG. 3. One such relationship is ownership—e.g., a Person can "own" a "thing" entity, which can be "focused on" an event." EX1005, 10:10-18, FIG. 3. A POSA would have understood the user may create a "Thing entity" to add a "user device" (e.g., a client device 120, such as a cell phone) to Kraft's world model and define an "own" relationship with its Person entity to model its real-world relationship with the device. For instance, I believe a POSA would have known that relationships between users and their devices were defined in many prior art systems, such as those used for incident alert systems and event planning. *See, e.g.*, EX1009, Abstract; EX1011, Abstract.

142. In my opinion, POSA would have been motivated to create a "user device" entity and associate it with a user because Kraft explains that "any type of real-world entity can be represented by an entity model," including "tangible

[1] A POSA would have understood that a "subset" includes a "set of one." Thus, I have been advised the claim does not require multiple users to join the event node.

things." EX1005, 8:23-31, 10:7-12, FIG. 3. Moreover, Kraft's world model may "advantageously" reflect real-world relationships. EX1005, 8:23-31, 10:7-12, FIG. 3. Such a real-world relationship between a user and a device was well-known, as evidenced by Altman's teachings of associating user profile information and user location with a mobile device operated by the user. EX1010, ¶¶8, 32, 36-37, 44. In my opinion, A POSA would have been further motivated to create an association between a user and a device in Kraft's world model to allow the location of a user to be more precisely determined (as taught by Altman and as I further discuss in Section XII.A).

143. Third, in my opinion, the Kraft-Altman combination renders obvious "wherein the projection is created based on respective distances of devices of the first subset of the plurality of user devices from the event." Kraft discloses the metadata including in its entity models may include a "location" or "address" field." EX1005, 11:36-45, FIG. 4. Additionally, the metadata fields "may be varied as desired." EX1005, 11:36-45. Kraft describes embodiments in which "some or all of the structured metadata fields may be user-defined." EX1005, 11:43-45. Kraft teaches that a search may be performed that is "constrained in some way by geographic location." Kraft teaches the projection (e.g., the network view) can be based on a variety of criteria. EX1005, 19:17-32. In some examples, the criteria may include geographic location, which may be included in an entity model's

structured metadata. EX1005, 19:17-32. For example, Figure 2 of Kraft illustrates a projection in which the candidate and voter participants in the mayoral election event all live in the same city 212. EX1005, FIG. 3. In my opinion, a POSA would have understood that a participant of Kraft's world model, such as the event organizer, would have been motivated to create such a view of a first subset of user nodes "based on respective distances of devices in the first subset of the plurality of user devices from the event." EX1005, 11:5-8, 16:36-39, 21:3-8. Thus, a participant could identify potential participants close enough to the event to participate. EX1005, 11:5-8, 16:36-39, 21:3-8. This functionality was well known in the art, as many emergency warning systems and event planning systems identified particular user nodes based on geographic location. *See generally* EX1008; EX1009; EX1011. However, Kraft's location is static and does not explicitly disclose creating the projection based on current respective distances between the device (e.g., mobile device) and event at the time the projection is created.

144. In my opinion, this would have led a POSA to Altman. Altman determines the geographic location of a mobile communication device operated by a user and the location of event(s). EX1010, ¶¶8, 39 (describing a "location-based social network manager … that connect[s] [a] user to other people, places, and events in a manner that adaptively utilizes the geographic location information for

each of these items"). The location information "is transmitted and stored in the server computer of the network." EX1010, ¶63. The GPS location of the device may be provided on a real-time basis or by polling each device at a set frequency. EX1010, ¶¶65-67. Based on the location of the device, relative distances to events may be provided to the user and users may be alerted of locations of events of interest when the user enters a particular area (i.e., alerted *based on distance of device from the event*). EX1010, ¶¶54, 61.

145. Kraft teaches its entities may be automatically updated to reflect changes that can be detected or reported to world server 160. EX1005, 18:16-29; see *also* EX1005, 11:45-55 (describing portions of content server 404 may be automatically updated). In my opinion, a POSA would have found it obvious to include Altman's teachings of obtaining and storing the GPS location of a user device in Kraft (e.g., in the location field of a Person entity associated with the device or in a location field of a "Thing" entity that represents the device). I also believe a POSA would have been motivated to do so for the reasons I discuss in Section XII.A. For example, Kraft indicates that "some or all of the structured metadata fields [in an entity model] may be user-defined." EX1005, 11:44-45. A POSA would readily understand that Altman's GPS location may be included in such metadata, as implemented in accordance with the combination of Kraft-Nguyen. Geotagging social media activity using GPS data was known before the

priority date of the ’052 patent, and leveraging such data would further capture the interrelationships of real-world entities via a (e.g., Kraft’s world model and entity models contained therein). *See* EX1021, 25-26.

146. Thus, in my opinion, the Kraft-Altman combination renders obvious claim element [1.D].

6. [1.E] e) transmitting, by the networking server, a respective request in a form of a roll call to connect to the event node to each respective device of the first subset of the plurality of user devices;

147. In my opinion, the Kraft-Nguyen-Altman combination renders obvious claim element [1.E].

148. The ’052 patent describes a “roll call” as a “check-in” feature to invite users to respond to an invitation, which allows users to be invited to respond to an invitation. *E.g.*, EX1001, 27:24-27. However, Kraft does not explicitly describe transmitting requests to connect to the event node in the form of roll calls. Nguyen does.

149. Nguyen discloses “an event planning system that facilitates event planning tasks.” EX1006, ¶11. Nguyen’s system allows the event planner to specify “invited guest information including information indicative of addresses of the invited guests,” such as an email address. EX1006, ¶60. Nguyen also allows the event planner to specify “allowable RSVP methods indicating procedures by which an invitee may RSVP for the planned event.” EX1006, ¶60. Nguyen’s server then

"generates and sends the specified invitations to the specified invitees … each invitation soliciting a response." EX1006, ¶62. Thus, it is my opinion that Nguyen teaches *transmitting*, by a server, *a respective request in a form of a roll call*, as recited in claim element [1.E]. For example, Nguyen describes a system for requesting the invitee to check-in with an RSVP response to respond to an event invitation. EX1006, ¶62 (indicating that the request "include links to the associated invitation Web page with which the invitees may interact to RSVP for the event").

150. As I discuss above in Section XII.A, a POSA, in my opinion, would have been motivated to incorporate Nguyen's teachings of transmitting invitations to specified invitees and soliciting a response (a *roll call*) into Kraft's world model to facilitate event planning and achieve the advantages of Nguyen's system. Kraft highlights its system models relationships between entities reflecting real-world components such as people, events, and tangible things. EX1005, 9:50-10:6. One relationship includes whether a "Person entity" is a "participant" of an "Event entity." EX1005, FIG. 3.

151. Kraft describes how a participant (e.g., the event planner) can create an Event entity node. EX1005, 16:28-42. The participant may also "define relationships" between the Event entity node and other entities (e.g., *user nodes*) EX1005, 16:28-42. In my opinion, a POSA would have understood, or found obvious, that Kraft's participant (an event planner) would be motivated to use

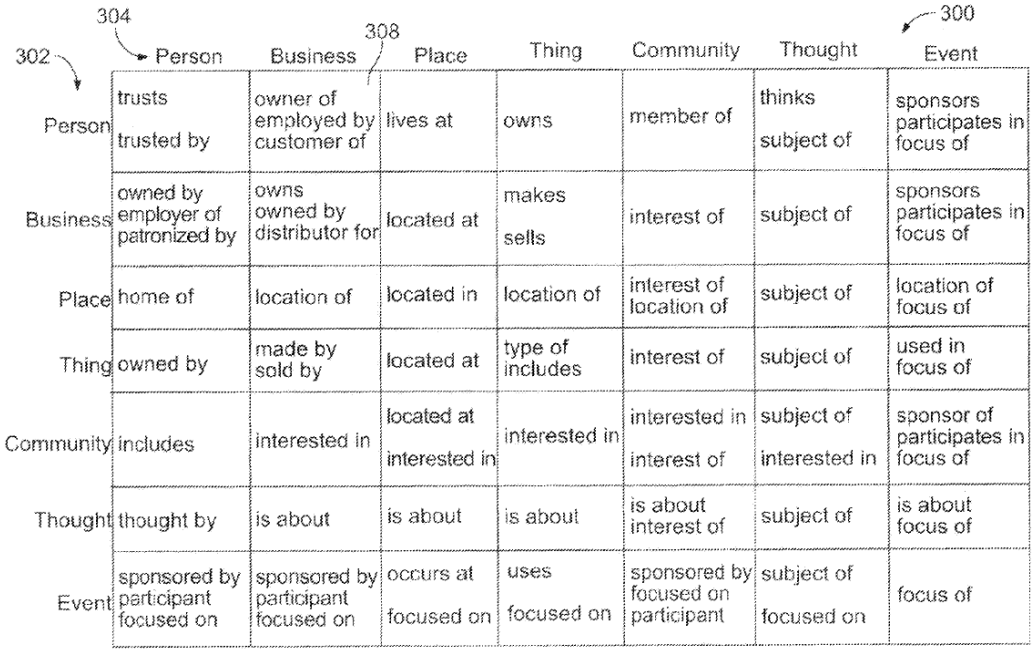
Nguyen's event-planning teachings to invite the users to connect to the event node to facilitate event planning. Indeed, this would greatly facilitate Kraft's modeling of "the full complexity and scope of interrelationships that exist in the real world." EX1005, 9:3-5. Thus, in my opinion, the Kraft-Nguyen-Altman combination renders obvious *transmitting, by the networking server* (Kraft's world server), the claimed *request(s) to connect to the event node to each respective device of the first subset of the plurality of user devices* (the devices associated with the first subset of user nodes as I discuss above in claim elements [1.B] and [1.D]). Additionally, because the request would solicit a response as taught by Nguyen, the requests *are in forms of roll calls*. EX1006, ¶62.

152. Thus, in my opinion, the Kraft-Nguyen-Altman combination renders obvious claim element [1.E] obvious.

7. [1.F.1] f) joining, based on responses to each of the respective requests, a second subset of the plurality of user nodes to a centralized architecture for the event node,

153. In my opinion, the Kraft-Nguyen combination teaches claim element [1.F.1].

154. Kraft's world model defines relationships that exist among entity models. EX1005, 10:7-15, FIG. 3. Kraft also provides a matrix that illustrates exemplary relationship types that may be defined among the entities. EX1005, 10:7-15, FIG. 3. Figure 3 of Kraft is depicted below:



302	304 Person	Business	308 Place	Thing	Community	Thought	300 Event
Person	trusts trusted by	owner of employed by customer of	lives at	owns	member of	thinks subject of	sponsors participates in focus of
Business	owned by employer of patronized by	owns owned by distributor for	located at	makes sells	interest of	subject of	sponsors participates in focus of
Place	home of	location of	located in	location of	interest of location of	subject of	location of focus of
Thing	owned by	made by sold by	located at	type of includes	interest of	subject of	used in focus of
Community	includes	interested in	located at interested in	interested in	interested in interest of	subject of interested in	sponsor of participates in focus of
Thought	thought by	is about	is about	is about	is about interest of	subject of	is about focus of
Event	sponsored by participant focused on	sponsored by participant focused on	occurs at focused on	uses focused on	sponsored by focused on participant	subject of focused on	focus of

FIG. 3

EX1005, FIG. 3.

155. Kraft's system aims to capture how "[i]n the real world, entities are interrelated, and relationships between entities may be of different types." EX1005, 10:7-8. For example, relationship types that may be defined between a Person entity and an Event entity include "participant" and "focused on." EX1005, 10:10-18, FIG. 3. A Person entity can also be indirectly related to an event by being a "member of" a community that is "focused on" or a "participant" of an event. EX1005, FIG. 3. World builder module 165 "supports modification of an entity model 400 that is already in world model data store." EX1005, 17:9-17. Relationships between two entity models might be modifiable by the entity

manager of either entity model. EX1005, 17:35-37. Kraft also discloses that some relationships may be "automatically defined." EX1005, 16:28-34.

156. In my opinion, POSA would have recognized from Kraft's description of its relationships, that after a user has responded "yes" to the request to connect to the event node (as described in claim element [1.E]), Kraft's relationships enable the user to *join the event node*. To do so, Kraft describes modifying the relationship data of the Event entity (*event node*) or Person entity (*event node*) to indicate the Person entity associated with the user (*user node*) is a "participant" of the event. EX1005, 17:11-17, 17:35-37, FIG. 3. Thus, Kraft discloses *joining the user node to the event node* based on the *response to the request*.

157. In my opinion, a POSA would have recognized that the modification of the relationship could also occur automatically (e.g., based on the RSVP response), as taught by Kraft. EX1005, 16:28-34. A POSA would have further understood that, to the extent additional nodes are part of the *second subset*, a similar process would be applied to join additional users who respond "yes" to the event node. A POSA would have understood that a "subset" includes a "set of one." Thus, I have been advised that the claim does not require multiple users to join the event node.

158. In my opinion, Kraft also teaches, or renders obvious the *user nodes* are joined *to a centralized architecture for the event node*, because, as described in

claim element [1.F.2], the event node is configured as *a central node in the centralized architecture*. For the reasons I describe above, Kraft teaches the user nodes are joined to the event node.

159. Thus, in my opinion, the Kraft-Nguyen combination teaches claim element [1.F.1].

8. [1.F.2] wherein the event node is configured as a central node in the centralized architecture for accessing information associated with the event from a location in the multidimensional information network, and wherein the second subset of the plurality of user nodes is associated with a second subset of the plurality of user devices;

160. In my opinion, Kraft teaches claim element [1.F.2].

161. First, Kraft's Event entity (the claimed event node) "is configured as a central node in the centralized architecture for accessing information associated with the event." The event node is stored and accessed from its central location on the world server 160 to obtain information associated with the event. EX1005, 5:64-6:3, FIG. 1. As described in claim elements [1.B] and [1.C], Kraft's client systems 120 communicate with world server system to "search world model data store 162 for entity models that match user-specified criteria." EX1005, 5:8-10, 6:51-59, 18:31-40. A user may select a matched entity model (e.g., an Event entity) to obtain "information about the entity." EX1005, 19:37-41. For example, information that may be stored (and displayed) for an entity model includes content section 404. EX1005, 11:47-49. Kraft's content section 404 "provides

content (or links to content) that pertain to the real-world entity being modeled." EX1005, 11:47-49.

162. *Second*, Kraft teaches that the information is accessed *from a location in the multi-dimensional network* because, as I discuss above in claim elements [1.A], [1.B], and [1.D], client systems 120 are part of Kraft's multi-dimensional network and at least some of the devices are associated with user nodes. EX1005, 4:64-5:12, FIG. 1. For instance, the '052 patent also says that the situational network is implemented using known and conventional technologies. For example, users are connected via the situational network using known devices, such as cell phones, PDAs, personal computers, network servers, or "other devices generally known to those skilled in the art that enable connection to, from and through the computer network." EX1001, 4:57-62. Further, participants in the situational network are associated with "nodes," which are simply the users' point of connection to the network, and which "may be implemented using a wide variety of available hardware and technologies generally known in the art, such as software on a personal computer or a handheld PDA." EX1001, 15:45-53, 15:61-16:4. As the '052 patent also explains, a POSA would have understood that the nodes of the network "may be interconnected and may communicate with each other using a wide variety of available hardware and technologies generally known in the art, such as TCP/IP over an Ethernet or a wireless network." EX1001, 15:61-

16:4. Thus, I believe Kraft teaches the information is access from the multi-dimensional network because Kraft similarly describes devices retrieve information from its world server 160.

163. *Third*, for the same reasons as I discuss in [1.D], Kraft renders obvious *the second subset of the plurality of user nodes is associated with a second subset of the plurality of user devices* (the user devices associated with the persons/users represented by the user nodes). *See* Section XII.B.5.

164. Thus, in my opinion, Kraft teaches claim element [1.F.2].

9. [1.G] g) storing, as node-to-node links in the database, data representing the joining of the second subset of the plurality of user nodes to the event node;

165. In my opinion, Kraft teaches claim element [1.G].

166. As I discuss above in claim element [1.A], Kraft's world model captures and stores relationships between entities (i.e. *node-to-node* links) and stores these links in its database (world model data store 162). EX1005, 6:33-35, 8:1-3, 8:32-36. For instance, Person entity models may be interconnected and "can have trust (or friendship) relationships with each other." EX1005, 10:22-26. A world model "can include features of a conventional social network" and also "allows other types of entities, not just users, to be included as full participants in the network." EX1005, 10:22-30. World model 200 can model "the full complexity and scope of interrelationships that exist in the real world." EX1005, 9:3-5. Kraft

also indicates other relationships may be depicted, such as an "employer to employee" relationship. EX1005, 16:45-48. Kraft also indicates that users may also be linked by common interests and community involvement. *E.g.,* EX1005, 9:5-14, FIG. 2. For example, two users (e.g., Jane node 210 and Joe node 202) may be linked to a community of science fiction fans. EX1005, 9:5-14, FIG. 2.

167. Thus, once each of the user nodes in the second subset are joined to the event node by creating a relationship between the user node and Event (as I discuss above in claim element [1.F.1]), the relationships "*represent[] the joining of the plurality of user nodes to the event node"* is "*stor[ed], as node-to-node links in the database.*"

168. This is in line with the teachings of the '052 patent. As described above, the '052 patent describes degrees of separation as "[a] connection from one node directly to another node is considered to be of first-degree separation; a connection that goes indirectly through one other node is of second-degree separation; a connection that goes indirectly through two other nodes is of third-degree separation, and so on." EX1001, 16:57-62. This connection between these two nodes reflects a similar relationship described in Kraft. *Compare* EX1001, 16:35-39, *with* EX1005, 9:5-14, FIG. 2.

169. Thus, in my opinion, Kraft teaches claim element [1.G].

10. [1.H] h) analyzing the database to identify a third subset of the plurality of user nodes in the database based at least in part on the data representing the joining of the second subset of the plurality of user devices to the event node; and

170. In my opinion, Kraft teaches claim element [1.H].

171. For the reasons I discuss in claim elements [1.B] and [1.E], Kraft's users may search for entity models that match specified criteria, and a participant may access a search-and-navigation interface to identify entity models that should be related. EX1005, 16:36-42, 18:31-19:32; *see also supra* Sections XII.B.3, XII.B.6. A network graph may be displayed (similar to Figures 2 and 5) and all related entity models up to a maximum degree of separation (e.g., 2) from the current entity may be shown. EX1005, 20:59-67. When world server performs the specified search, it is "*analyzing the database to identify … nodes in the database*."

172. Kraft's network graph view further teaches the analysis is *to identify* the claimed *third subset of the plurality of user nodes*. In view of Kraft's description of displaying a network graph related to the currently viewed entity for two degrees of separation, the network graph of the Event entity will show the user nodes (Person models) connected to the Event entity and other user nodes within two degrees of separation from the Event entity. EX1005, 20:59-67; Section XII.B.7. For example, Kraft's network graph of an event with a related Community entity also identifies Person entities (second nodes) that are members of the Community, which have *user data indicating an interest* in the *topic relevant to*

the event. EX1005, 20:59-67, FIG. 2. The claimed *third subset* may be any subset of one or more of the displayed user nodes identified using a variety of criteria, as I further discuss in the analysis of the dependent claims.

173. In my opinion, the analysis is *based at least in part on the data representing the joining of the second subset to the event node* because Kraft includes analysis of the data representing the joining of the second subset of user nodes joined to the Event (as I discuss above in element 1.F.1) to identify nodes connected within two degrees of separation. For instance, Kraft describes modifying the relationship data of the Event entity (event node) or Person entity (event node) to indicate the Person entity associated with the user (user node) is a "participant" of the event. EX1005, 17:11-17, 17:35-37, FIG. 3. Thus, Kraft discloses *joining the user node to the event node based on the response to the request*.

174. Thus, in my opinion, Kraft renders obvious claim element [1.H].

11. [1.I] i) delivering additional information to a third subset of user devices associated with the third subset of the plurality of user nodes, wherein the supplemental information was received from an information node configured to store and provide supplemental information via the multi-dimensional information network.

175. In my opinion, the Kraft-Altman combination teaches this claim element [1.I].

176. *First*, for the reasons I discuss above in [1.A], [1.D], and [1.F.2], I

believe Kraft and Altman teach "*a third subset of user devices associated with the third subset of user nodes*." *See supra* Sections XII.B.2, XII.B.5, XII.B.8. As I discuss in these sections, Kraft discloses that once an event is created, "Person" entities (i.e., "*user nodes*") can be directly joined to the "Event" entity ("*event node*") as a "participant." EX1005, 10:13-21, FIG. 3. In the combined system of Kraft-Altman, a POSA would have understood "*a third subset of user devices of user devices associated with the third subset of user nodes*" may be joined to the event node as a participant. In other words, more than one person in geographic proximity to the event can participate in the event—that is part of the purpose of alerting users in proximity to an event. *See, e.g.*, EX1010, ¶53 ("The event manager allows the user to create and manage various events using date and location information and **send invitations** or messages **regarding the events**."). As I discuss above, in the '052 patent, users are connected via the situational network using known devices, such as cell phones, PDAs, personal computers, network servers, or "other devices generally known to those skilled in the art that enable connection to, from and through the computer network." EX1001, 4:57-62. A user device (i.e., of a user) of the situational network is associated with "nodes," which are simply the users' point of connection to the network." EX1001, 15:45-54, 15:61-16:4. Therefore, Kraft-Altman teaches "*a third subset of user devices associated with the third subset of user nodes*."

177. *Second*, Kraft-Altman teaches *"delivering additional information*" to the "*third subset of user devices*." Altman describes "[a] database specifying places and/or events," and information "can be provided to [a] user in a 'push' model in which the server sends relevant point of interest ("POI") information to a user device based on a user condition, such as if the user goes near a particular POI." EX1010, ¶55. Altman further discloses that an alert function can be used to facilitate "interactive features, such as displaying or alerting the user to the location of places of interest in the displayed area or the time and location of events of interest when the user enters a particular area." EX1010, ¶61. In my opinion, Altman's delivery of information (e.g., events or places of interest in a particular area) teaches *delivering information to user devices*.

178. In my opinion, a POSA would have understood Altman's alert functionality could be employed in Kraft to *deliver additional information* to the *third subset of user devices* (associated with the *third subset of nodes* identified in [1.H]) and would have been motivated to do so to provide useful information on events of interest to identify and connect users to events. Kraft supports a wide range of events, including "occurrences such as elections, natural disasters, sports events, and so on." EX1005, 9:65-66. A POSA would have understood that Altman's alert system would advantageously allow information to be delivered to identified user devices (the *third subset*) of all events or POI in a particular area

(i.e., *additional information*) for connecting the user to events and places of potential interest. For example, using Altman's alert techniques, a user may be notified about a rally event related to the Event node that may be of potential interest. *See* EX1005, FIG. 2 (illustrating a rally event related to a Mayoral event). Indeed, many systems existed prior to the Priority Date of the '052 patent that delivered such information to a user device. *See, e.g.*, EX1009, ¶45; EX1008, ¶¶108, 110, 162; EX1012, ¶50. And in my opinion, a POSA would have had a reasonable expectation of success, and been further motivated, of employing Altman's alert functionality because it would amount to nothing more than incorporating well-known techniques into Kraft's system, which includes mobile communication devices and content servers to store Altman's database of event and POI information. EX1005, 4:67-5:19, FIG. 1.

179. *Third*, Kraft-Altman teaches "*the supplemental information was received from an information node configured to store and provide supplemental information via the multi-dimensional information network*." Kraft discloses its network includes content servers configured to communicate with client systems (e.g., user devices). EX1005, 4:67-5:2. In the Kraft-Altman combination, a POSA would have understood that Altman's database of events and places would be stored on a content server, and thus the supplemental information is received from an information node configured to store and provide supplemental information (the

content server storing the database of places of interest and events). For instance, Kraft also discloses content—included in the entity model's content section 404—"may be stored on servers other than world server 160" (i.e., "information node") and that content "may be automatically added or updated." EX1005, 11:46-56. In other words, the content is delivered to the event node from the content server (an information node). Kraft discloses that the content may be "links to content" that pertains to the real-world entity being modeled. EX1005, 11:45-48.

180. Thus, in my opinion, the Kraft-Altman combination teaches claim element [1.I].

C. Independent Claim 7

181. In my opinion, the Kraft-Nguyen-Altman combination renders obvious claim 7. Claim 7 recites elements that are substantially the same as claim 1. Therefore, the Kraft-Nguyen-Altman combination renders obvious claim 7 for the same reasons as claim 1.

182. In my opinion, the Kraft-Nguyen-Altman combination also renders obvious the additional generic server components (*network controller*, *central processing units*) recited in claim 7. Kraft discloses "elements in the system shown in FIG. 1" (including world server 160) include "conventional, well-known elements." EX1005, 5:14-15, FIG. 1. Nguyen also describes its exemplary system as containing generic computing components. *See, e.g.*, EX1006, ¶¶55-56

(describing its system as including "a processing unit 36 communicatively coupled to a bus 38; a system memory unit 44, such as a hard disk or other memory storage device, communicatively coupled to the processing unit via the bus").

183. First, a POSA would have recognized that "world model data store 162" is stored in *memory* of world server 160 (the claimed *networking server*). EX1005, 6:34-36.

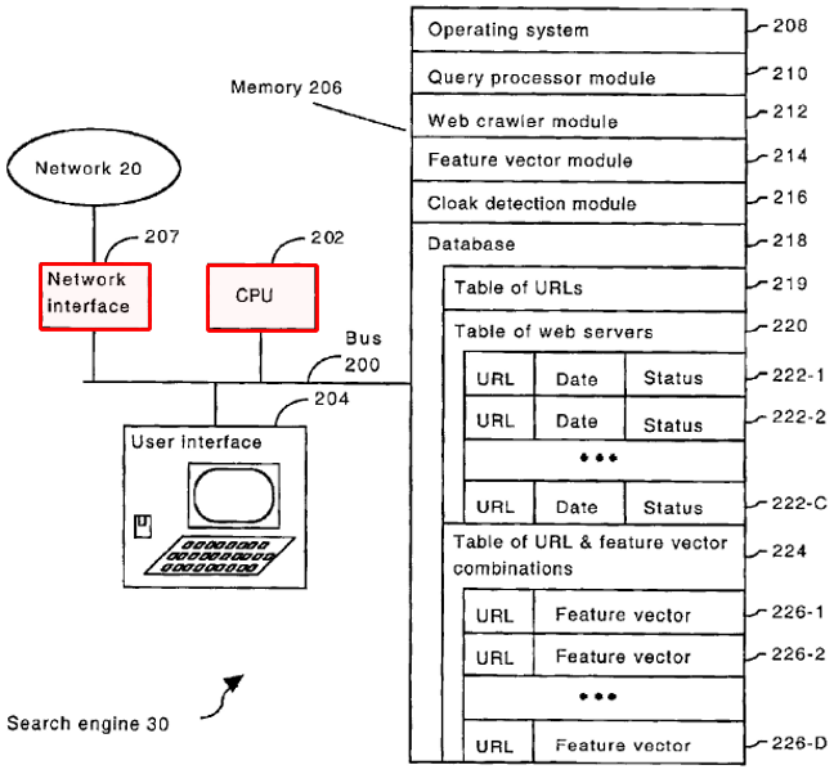
184. Second, a POSA would have further recognized *network controller*(s) of world server 160 are *configured to* perform the *provide*, *transmit*, and *deliver* limitations because Kraft discloses its world server 160 communicates with client system 120 and that it uses a network, such as the Internet, for these communications—a network controller is a conventional component used for network communications. EX1005, 5:8-12, 5:33-39, FIG. 1.

185. Finally, a POSA would have recognized that *one or more central processing units* of world server 160 and the specific server that is the *event node server* perform their respective recited functions because a CPU is a conventional component that executes instructions to perform server functions.

186. The '052 patent only describes its particular server components generally. EX1001, 14:59-15:9, 15:65-16:4 (indicating that the NDSN "may be implemented using a wide variety of available hardware and technologies generally known in the art" and "the nodes of the NDSN 100 may be

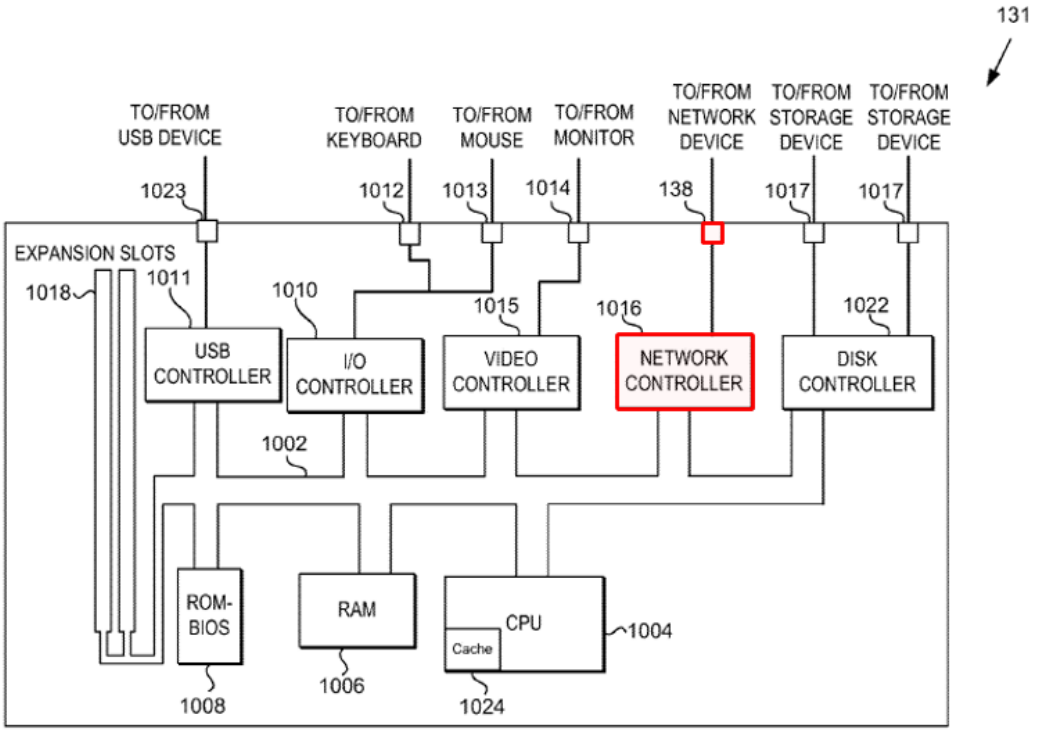
interconnected and may communicate with each other using a wide variety of available hardware and technologies generally known in the art"); *see supra* Section VI.

187. Indeed, it was well known at the time of the '052 patent that servers included processors and network interfaces. For example, in 2006, Wu described that a "server," as it existed in the prior art, "can be a powerful personal computer (PC)" having "a central processing unit (CPU)" and "a memory unit" configured to "perform high-speed logic operation and signal processing." EX1034, ¶4; *see also* EX1034, ¶11 ("The multifunction server includes a central processing unit (CPU) and a memory unit."). Wu further described servers "connect[ed] to the Internet" and various host devices via a standard "network interface." EX1034, ¶¶11, 21. Similarly, in 2005, Najork described "a search engine 30 includ[ing] **standard server components** such as **one or more processing units 202**, an optional user interface 204 (e.g., keyboard, mouse, and a display), memory 206, [and] **a network interface 207 for coupling the search engine 30 to clients 40 and web servers 50 via communications network 20**." EX1035, 3:59-65 (emphasis added).



EX1035, FIG. 2 (annotated).

188. A POSA would have understood that Kraft's world server 160 would similarly include "standard server components" such as a central processing unit and network interface to operate and receive/transmit data over the network. EX1035, 3:59-65. Moreover, a POSA would have understood that the '052 patent's description of a "network controller" (only mentioned once in the specification) aligns with the general understanding of a network interface that would be present on an Internet-connected server. For example, the '052 patent describes "network controller 116" as residing within the "*server*," as illustrated in Figure 23, which is connected "to the network port 138."



EX1001, FIG. 23 (annotated).

189. A POSA would, therefore, have understood the "*network controller*" to function similar to a standard network interface present on standard servers at the time of the '052 patent. Accordingly, it is my opinion that the additional elements of independent claim 7 would have been obvious in view of Kraft-Nguyen-Altman.

190. A POSA would have further recognized *network controller*(s) of server 20 are *configured to* perform the *provide*, *transmit*¸ and *deliver* limitations because Kraft's world server 160 communicates with client systems 120 over via a network, such as the Internet. EX1005, FIG. 1.

191. Thus, in my opinion, the Kraft-Nguyen-Altman combination renders

obvious claim 7.

D. Claims 2 and 8

192. In my opinion, Kraft teaches *wherein the third subset of the plurality of user nodes includes at least a portion of second subset of the plurality of user nodes*, as recited in claims 2 and 8.

193. For the reasons I discuss in claim element [1.H], Kraft's network graph within two degrees of separation from the Event teaches the claimed analysis to identify *the third subset*. *E.g.*, EX1005, 20:59-67. This may be any subset of the user nodes displayed in the network graph. *E.g.*, EX1005, 20:59-67. Because the displayed user nodes from which the third subset may be identified includes the *second subset of user nodes*, Kraft teaches *the third subset includes at least a portion of second subset of the plurality of user nodes*. One example of such a third subset is a set including a first Person that joined the event based on a response to the request (i.e., a node in the *second subset*) and a second Person connected by a relationship (e.g., a trust relationship) to the first Person. For instance, Kraft's description of displaying a network graph related to the currently viewed entity for two degrees of separation, the network graph of the Event entity will show the user nodes (Person models) connected to the Event entity and other user nodes within two degree of separation from the Event entity. EX1005, 20:59-67.

194. Thus, in my opinion, Kraft teaches claims 2 and 8.

E. Claims 3 and 9

195. In my opinion, Kraft teaches *wherein the identifying the third subset of the plurality of user nodes is based on: identifying the data representing the joining of the second subset of the plurality of user devices to the event node in conjunction with identifying a set of data stored in the multi-dimensional information network representing at least one of: demographics, interests or behaviors*, as recited in claims 3 and 9.

196. For the reasons I discuss in claim element [1.H], Kraft's network graph within two degrees of separation from the Event teaches the claimed analysis to identify the third subset, which may be any subset of the user nodes displayed in the network graph. E.g., EX1005, 20:59-67. A POSA would have understood that by searching for entities within two "degree[s] of separation" from an event node, EX1005, 20:59-67, Kraft's system would identify both user nodes connected to the event node (i.e., identifying the data representing the joining of the second subset joined to the event as I discuss above in elements [1.F.1], [1.G] and [1.H]) and user nodes indirectly connected to the event node through another node.

197. Kraft further teaches "*identifying the third subset … in conjunction with identifying a set of data stored in the multi-dimensional network representing at least one of demographics, interests, or behaviors*." Kraft teaches its entities include Communities that represent groups united by a common interest or

characteristic. EX1005, 9:61-63. A POSA would have understood such Communities include communities based on demographics (e.g., a senior citizen community), interests (e.g., membership in "Science Fiction Fans 230"), or behaviors (e.g., an optimism club) because Kraft's world model models the full complexity and scope of the real world. EX1005, 9:3-5, FIG. 2. Indeed, this was a common functional purpose of social media networks. *See, e.g.*, EX1018, 2; EX1026, 2-5. The network graph of the Event within two or three degrees of separation displays "Community nodes" and its members connected to the Event. *E.g.*, EX1005, FIG. 2, 8:53-62 (discussing user nodes linked to an event node via membership in a community node). Thus, Kraft's network graph identifies data representing demographics, interests, or behaviors through membership in a community.

198. Thus, in my opinion, Kraft teaches claims 3 and 9.

F. Claims 4 and 10

199. In my opinion, Kraft teaches *wherein the analyzing the database to identify the third subset of the plurality of user nodes comprises: identifying a direct link between a user node of the third subset of the plurality of user nodes and a user node of the second subset of the plurality of user nodes*, as recited in claims 4 and 10.

200. For the reasons I discuss in claim element [1.H], Kraft's network

graph within two degrees of separation from the Event teaches the claimed analysis to identify *the third subset*. *E.g.*, EX1005, 20:59-67. A POSA would have understood that the network graph would identify *a direct link between a user node of the third subset and a user node of the second subset* (i.e., a user node connected to the event within two degrees of separation through a relationship with a user node that joined the event). For example, Kraft teaches Person models (*user nodes*) may be connected through a trust or friendship relationship with each other (*a direct link*). EX1005, 10:22-25. This is congruent with the disclosures of the '052 patent. The '052 patent describes degrees of separation as "[a] connection from one node directly to another node is considered to be of first-degree separation; a connection that goes indirectly through one other node is of second-degree separation; a connection that goes indirectly through two other nodes is of third-degree separation, and so on." EX1001, 16:57-62. The '052 patent's social network "uses multiple dimensions of association to characterize relationship between users or members" such as friendships as well as professional and healthcare relationships. *E.g.*, EX1001, 15:4-22.

201. Thus, in my opinion, Kraft teaches claims 4 and 10.

G. Claims 5 and 11

202. In my opinion, Kraft teaches *wherein the analyzing the database to identify the third subset of the plurality of user nodes comprises: identifying an*

indirect link between a user node of the third subset of the plurality of user nodes and a user node of the second subset of the plurality of user nodes, as recited in claims 5 and 11.

203. For the reasons I discuss for claim 3, a POSA would have understood that a network graph of the Event within two or three degrees of separation would display "Community nodes" connected to the event. *E.g.,* EX1005, FIG. 2, 8:53-62; *see also* Section XII.E. A user node joined to the event as described in [1.F.1] (*a user node of the second subset*) and *a user node of the third subset* may both be members of a "Community" node that is linked to the Event through a "focus on" relationship (e.g., members of Bob Supporters Community in Kraft's example Figure 2). EX1005, FIG. 2. In this case, the "Community" node provides "*an indirect link between a user node of the third subset … and a user node of the second subset*." Indeed, a Person entity can also be indirectly related to an event by being a "member of" a community that is "focused on" or a "participant" in an event. EX1005, FIG. 3.

204. Thus, in my opinion, Kraft teaches claims 5 and 11.

H. Claims 6 and 12

205. In my opinion, Kraft teaches *wherein the user node of the third subset of the plurality of user nodes and the user node of the second subset of the plurality of user nodes are connected by a preference dimension to an additional node*, as

recited in claims 6 and 12.

206. Kraft teaches these claims for the reasons I discuss for claims 5 and 11. *See supra* Section XII.G. A POSA would have understood that the "Community" node connects "*the user node of the third subset"* and *"the user node of the second subset … by a preference dimension to an additional node*" (i.e., the *additional node* is another member of the community). For example, Kraft explains that "Community" "entity models represent[] groups of people united by a common interest or characteristic." EX1005, 9:5-7, 9:61-63. Kraft provides examples of this, such as "science fiction fans" or supporters of a political candidate (i.e., *a preference*). EX1005, 8:49-62, 9:5-7, 9:61-63.

207. Thus, in my opinion, Kraft teaches claims 6 and 12.

XIII. GROUND 2: CLAIMS 1-12 WOULD HAVE BEEN OBVIOUS IN VIEW OF WONG, BURFEIND, AND CROWLEY.

208. In my opinion, the combination of Wong, Burfeind, and Crowley renders obvious claims 1-12.

A. Motivation to Combine

209. Wong teaches creating a social network made up of nodes (representing entities, e.g., users or objects) and connections (representing the relationship between entities). EX1007, ¶¶6, 17, 22-24. In Wong, the "individual represented by an active node can join groups, organize memberships, send emails from the node, and the like and in particular **take advantage of the activities**

facilitated by the social networking features of the network of living and non-living entities, such as using certain communication tools." EX1007, ¶44 (emphasis added). Wong, thus, explicitly recognizes the benefit of including and utilizing various "social networking features."

210. As I discuss above, by February 2007, it was well known to use social networks to facilitate and organize events, including location-specific events. *See supra* Section VII.A, ¶50; *see also supra* Section VII.B (describing examples of systems used for delivering event information to nodes in a social network). A POSA would have been motivated to include such well-known event-organizing capabilities in Wong's social network, and would have looked for references including implementation details for event-organization functionality. For instance, prior to the earliest Priority Date of the '052 patent, MySpace was looking to expand into facilitation of local event planning, which included concerts and festivals. EX1027, 3. Burfeind and Crowley are such references.

211. In my opinion, a POSA would have been motivated to include the event-organizing capabilities of Burfeind's user network as an additional "social networking feature" in Wong's social network because it would have amounted simply to including a known technique (event-organizing capabilities) into a known system ready for improvement (Wong's social network) to yield predictable results (a social network including event-organizing capabilities).

212. Burfeind's organization device communicates invitations and other information regarding an event to invitees. EX1008, ¶¶52-57, 108, 115. And, in Wong, communication happens between nodes in the network. EX1007, ¶44. Indeed, Wong describes each node contains communication tools for "communicat[ing] with other entities within or outside the network using the features of the social network" and/or "communicat[ing] with nodes in the same network." EX1007, ¶19; *see also* EX1007, ¶¶31-32. Wong discloses that users—such as Burfeind's organizer 610—can create new nodes. EX1007, ¶¶26-27, 41, FIGs. 5, 6. New nodes can also be linked to existing nodes. EX1007, ¶¶26-27, 41, FIGs. 5, 6. And although Wong describes four exemplary "main node types"—people, places, objects, animals—Wong also teaches that there may be additional node types. EX1007, ¶¶21-22. Indeed, Wong indicates that its system, including its main node types, are "not limiting in scope." *See* EX1007, ¶¶4-5. Based on the teachings of Burfeind and Wong, a POSA would have recognized that a **new node related to the event** (i.e., an *event node*) would be useful in Wong's social network to facilitate the event-related communication in the social network. Therefore, in the Wong-Burfeind combination, a new node associated with the event would be created in Wong's network 24.

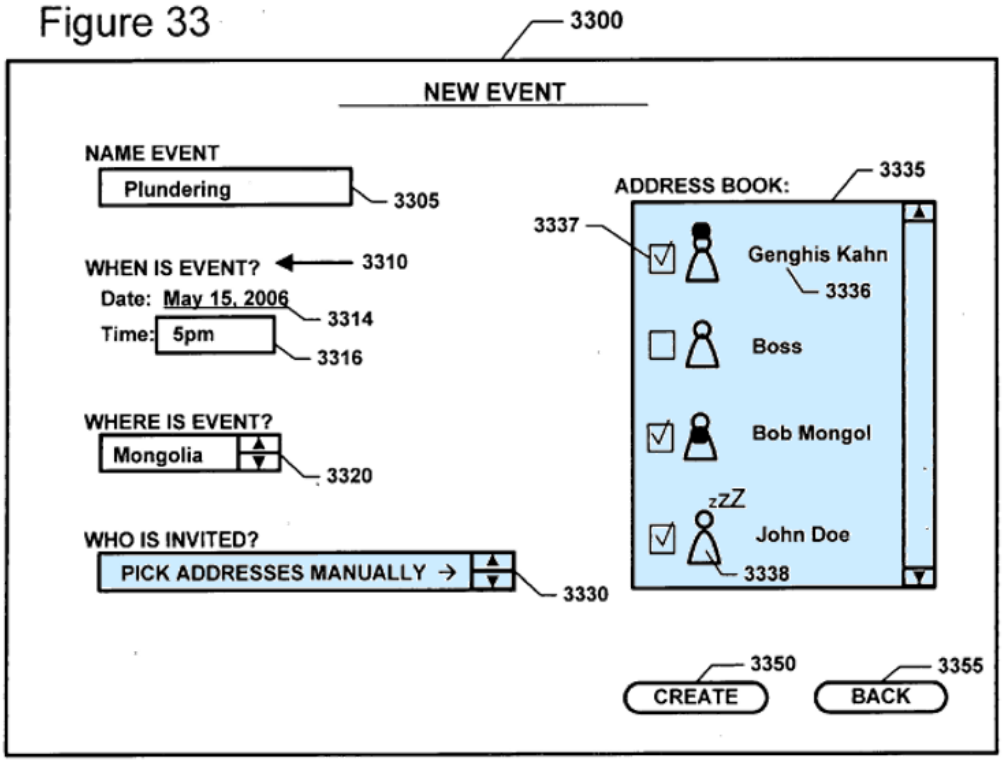
213. In my opinion, a POSA would have had a reasonable expectation of success in implementing Burfeind's features in Wong, including the creation of a

new *event node*. Wong recognizes that creating nodes was "well known to web site programmers." EX1007, ¶18. Indeed, node creation and utilization were common mechanisms for defining and traversing social networks. *See generally* EX1019; *see also supra* Section VII.B, ¶52. In Wong, nodes are created and/or edited by a user accessing the network via a user device. EX1007, ¶¶17-19. Wong also indicates that information representing the nodes is stored on the social network server. EX1007, ¶¶17-19. Likewise, in Burfeind, events are created and/or edited by the event organizer (a user) accessing the organization device (a server) via a user device and updating the information related to the event. EX1008, ¶¶57, 59. As in Wong, Burfeind's users access the user network via user devices, such as computers or cellular phones. EX1008, ¶¶56-57, FIG. 3. Burfeind's event organizer 610 communicates with organization device 310 over a networked environment. EX1008, ¶¶56-57, FIG. 3.

214. Similar to Burfeind, Crowley discloses a system for coordinating meetings between friends and acquaintances. EX1009, Abstract. Unlike Burfeind's manual selection of invitees, EX1008, ¶¶159-161, FIG. 33, Crowley's system determines when a user's participating acquaintances are geographically proximate to an event venue, and automatically sends invitations to those individuals, inviting them to meet the user at that venue. EX1009, ¶45. Indeed, Crowley acknowledges the inefficiencies of systems like Burfeind that "require the

organizer to select attendees from a manually-created list of acquaintances, such as members of an e-mail address book." EX1009, ¶4.

215. For instance, as shown in Figure 33, Burfeind indicates that "invited contacts can [] be selected from a dropdown menu" or from an "address book." EX1008, ¶¶159-161.



EX1008, FIG. 33 (annotated).

216. In Burfeind, to invite guests to the event, the event organizer manually selects contacts listed in the address book or dropdown menu. A POSA would have recognized that such manual entry would be time-consuming and inefficient, for instance, when the number of invited participants is large, and may be prone to

error. In addition, such manual entry may cause the event organizer to inadvertently exclude one or more contacts that they intended to invite. For instance, Burfeind's manual participant selection technique would require the event organizer to search through his entire address book (or dropdown menu), and to individually select each individual (or group of individuals). In doing so, the event organizer may forget that one of his contacts lives nearby, or is in the area visiting, and forget to invite the contact to the event. Thus, a POSA would have further sought references for improving upon Burfeind's burdensome and imprecise manual participant selection process.

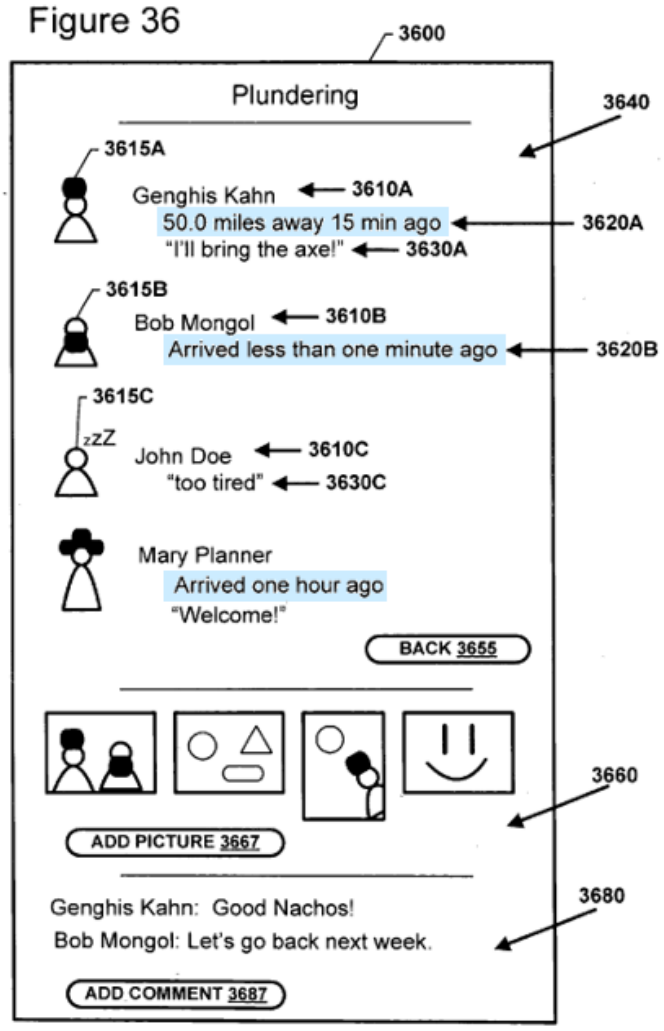
217. Crowley's system provides numerous advantages, such as enabling "spontaneous socializing" and "convenient communication among friends." EX1009, ¶6. Crowley also "help[s] avoid the problem of friends who were out near each other, but never realized it until later." EX1009, ¶6; *see also* ¶35. Crowley thus provides express motivation for implementing its location-based features in the Wong-Burfeind combination. In my opinion, a POSA would have thus been motivated to enable the Wong-Burfeind system to identify and invite all contacts that are geographically proximate to the event location, as taught by Crowley. EX1009, ¶¶45, 78. For instance, the combined system would implement an interface for creating new events that includes an option to enable the event organizer to select all contacts that are located within a threshold distance of the

venue, without having to manually select each contact individually. Consistent with Crowley, this feature would save time and would also ensure that the event organizer does not inadvertently exclude a contact that is located within the area. EX1009, ¶¶4, 6, 35.

218. In my opinion, a POSA would have had a reasonable expectation of success in implementing these features in the Wong-Burfeind combination. Like Crowley, Burfeind teaches that the location of the event can be the "current location of the portable device" of the event organizer. EX1008, ¶112, *also* ¶110. Thus, Burfeind already contemplates "location-specific event[s]" that are held at the event organizer's current location and tracks its users' GPS locations to determine the "arrival information" for the user. EX1008, ¶¶3, 110, 112, 136, 143-145, 169-171, FIG. 36. For instance, the organization device "receives location information sent from one or more portable user devices" in the system and saves this location information "in a GPS database 360 stored on the organization device." EX1008, ¶143. This information is then used to determine the users' distance from the event venue, as shown in Figure 36 below. In my opinion, a POSA would have readily been able to adapt this location-tracking feature to identify user locations for the purpose of inviting individuals who are located near the event location. That is, it would have been predictable and straightforward to determine and access user locations to determine which users to invite to the event.

Indeed, Burfeind teaches that the organization device obtains location information from the portable devices in the system "at predetermined time intervals." EX1008, ¶142.

219. A POSA would have readily been able to utilize such location information at the invitation stage, as described.



EX1008, FIG. 36 (annotated).

220. Burfeind also teaches associating multiple contacts into different

groups, such that the event organizer can "invite the members of the group without having to select and identify each individual member." EX1008, ¶¶89-93. Thus, Burfeind contemplates techniques for grouping individuals to more conveniently select those individuals. In my opinion, a POSA also would have thus readily been able to modify the Wong-Burfeind combination to determine the event organizer's contacts that are located proximate the selected event venue, and to send invitations to that group of contacts, as taught by Burfeind and Crowley. These modifications would have been implemented by leveraging Burfeind's existing teachings of location tracking and contact grouping.

221. Indeed, Burfeind and Crowley disclose similar systems for organizing meetings between individuals. EX1008, Abstract; EX1009, ¶5. As explained, Burfeind's manual participant selection process was ready for improvement because it was inefficient and time consuming. Crowley expressly recognizes and provides a solution for Burfeind's inefficiencies. EX1009, ¶¶4-5. Crowley's solution could have readily been implemented in the Wong-Burfeind combination, as described above.

222. Accordingly, I believe POSA would have understood that implementing Crowley's techniques in the Wong-Burfeind combination would merely amount to the use of a known technique (Crowley's location-based messaging) to improve similar systems (Wong-Burfeind's social network based

invitation system) in the same way (enabling the system to automatically send messages/invitations to nearby individuals), as well as applying a known technique to a known system ready for improvement to yield predictable results.

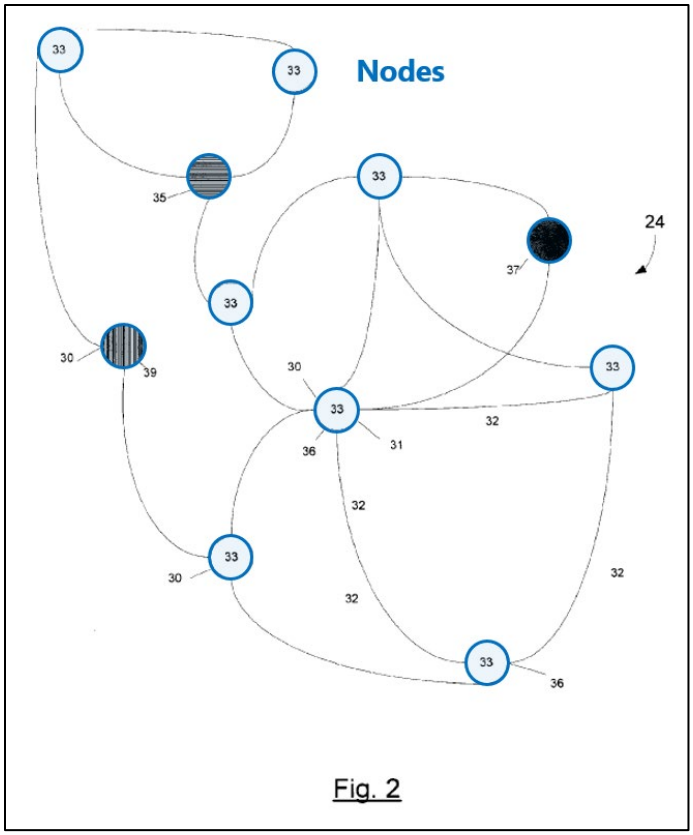
B. Independent Claim 1

1. [1.P] A method for creating a situational network as a subset of a larger multi-dimensional information network comprising a plurality of nodes, wherein the situational network is formed in response to an event in a particular geographical area, and wherein the situational network is created for delivering information to selected user nodes based in at least part on the situational network, the method comprising:

223. I understand that, in certain circumstances, the preamble of a claim may be limiting. To the extent the preamble is determined to be limiting, it is my opinion that the Wong-Burfeind-Crowley combination teaches this element.

224. As noted above, the ’052 patent specifically identifies one example of a “situation” is “a social **event**, such as a concert or festival.” EX1001, 32:3-4; *see also* EX1001, 5:14-29.

225. Wong discloses a *multi-dimensional information network comprising a plurality of nodes*. In particular, Wong teaches a “network of living and non-living entities is represented by a number of elements, … referred to as ‘nodes’ 30, joined by connections 32, referred to as ‘linkages’, to other nodes 30.” EX1007, ¶21. For example, Kraft describes “nodes 30 represent people 33 (living and deceased), places 35, objects 37 and animals 39.” EX1007, ¶¶21-22.



EX1007, FIG. 2 (annotated).

226. "Nodes can be linked by more than one linkage type, representing the multiple types of relationships between the entities represented by the nodes." EX1007, ¶24. For instance, "[a] linkage of a person node to another person node can be, for example: mother/daughter, best friend, biological, social, or genetic." EX1007, ¶24. Thus, Wong teaches a network of people, places, objects, animals, and other nodes linked by multiple relationships, i.e., the network is *multi-dimensional*. This resembles the teachings of the '052 patent. For instance, in Figure 28, situation authority 207 creates an event node (not shown in Figure 28) relating to a storm event 3005. EX1001, 24:20-31. And users (i.e., travelers 3026-

3029) can connect to the event node. EX1001, 24:31-39.

227. In my opinion, the Wong-Burfeind combination further teaches *the situational network is formed in response to an event in a particular geographical area.* As I explain above in Section XIII.A, a POSA would have recognized that a new node related to an event (i.e., *an event node associated with the event*) would be useful in Wong's social network to facilitate event-related communication in the social network. *See supra* Section XIII.A. As I discuss further below, for element [1.C], in my opinion, the Wong-Burfeind combination teaches *establishing … an event node associated with the event in the particular geographical area*. *See* Section XIII.B.4. The *situational network is formed* when, as I explain below for element [1.B], users who are invited to the event are linked to the *event node*. *See* Section XIII.B.3.

228. Finally, in my opinion, the Wong-Burfeind combination teaches *the situational network is created for delivering information to selected user nodes based in at least part on the situational network*. As I explain for element [1.G]-[1.I], advertisements (information) are delivered to advertising targets (users associated with a *third subset of … user nodes/devices*). See Sections XIII.B.9-11; *see also* EX1008, ¶¶54, 181-183 ("provid[ing] targeted advertisements to event participants," which includes event invitees); EX1009, ¶¶98, 101 (tailoring "advertising targeted to the particular users" to "thereby receive advertising and

messages from [a] brand"). These advertising targets are at least in part identified *based … on the data representing the joining of the second subset of … user nodes to the event node, or in other words based … on the situational network*, because the users associated with the *second subset of … user nodes* are part of the *situational network* (i.e., they are a group of users who have been invited to the event). *See* Sections XIII.B.9-11.

229. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches the preamble of claim 1.

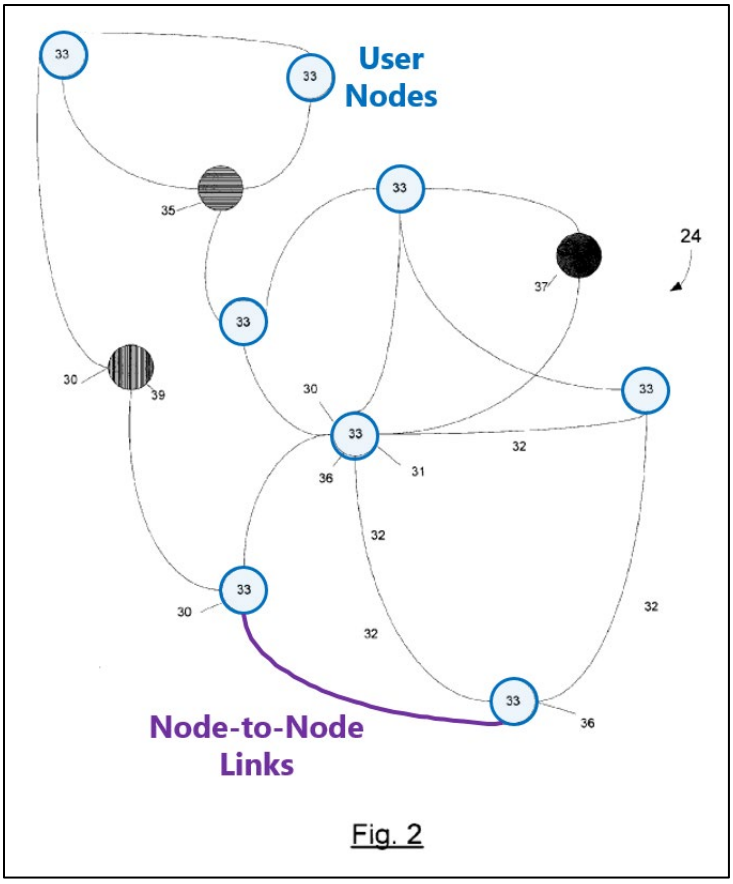
2. [1.A] a) maintaining, by a networking server configured to maintain data defining the multi-dimensional information network, a database comprising: (i) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional information network, wherein at least some respective user nodes of the plurality of user nodes are associated with respectively user data;

230. In my opinion, Wong teaches claim element [1.A].

231. Wong discloses a social network server 20 (*a networking server*) that *maintain[s] data defining* a social network 24 (*a multi-dimensional information network*). EX1007, ¶17. For instance, Wong indicates that the social network server may include more than one server, i.e., "**server or servers** 20 maintain[ing] a system comprising an Internet website, database and associated data, which is accessible to users 10." EX1007, ¶17 (emphasis added). Wong explains that data is

stored in "the same database [(*a database*)] which forms part of the system." EX1007, ¶36. The stored data includes "[n]odes, linkages, linkage types, and all data pertaining to the network" (*(1) a plurality of user nodes, and (ii) a plurality of multi-dimensional node-to-node links characterizing relationships between the plurality of user nodes via dimensions in the multi-dimensional information network*). EX1007, ¶36, *also* ¶¶21, 24, 33. Wong's network 24 (*multi-dimensional information network*) is illustrated in FIG. 2, reproduced below.

232.



EX1007, FIG. 2 (annotated).

233. Wong also further describes how Wong's network 24 (a *multi-*

dimensional network) *characteriz[es] relationships between the plurality of user nodes*, a recited in claim element [1.A]. For instance, Wong indicates that linkages 32 have a defined linkage type, "representing the actual type [of] relationship which exists between the person, place, object or animal represented by the linked nodes." EX1007, ¶24. "Nodes can be linked by *more than one* linkage type, representing the multiple types of relationships between the entities represented by the nodes." EX1007, ¶24 (emphasis added), *also* ¶33 ("The relationship of a node to another node within the same network of living and non-living entities can also be represented by more than one defined linkage type."), FIG. 4. Indeed, this type of relationship characterization is congruent with the '052 patent. The '052 patent uses a "multi-dimensional personal information network" and "N-dimensional social network (NDSN)" interchangeably. *See* EX1001, 6:29-44, 8:7-11, 15:4-7. In particular, the '052 patent explicitly indicates that the NDSN may also be referred to as "a multi-dimensional personal information network." EX1001, 8:7-11. The "NDSN uses multiple dimensions of association to characterize the relationships" (e.g., family, professional connection). EX1001, 15:9-16; *see also* Section XII.B.2 (describing the '052 patent's NDSN with respect to Kraft and Ground 1).

234. In my opinion, Wong also teaches that *at least some respective user nodes of the plurality of user nodes are associated with respectively* [sic] *user data*, as recited in claim element [1.A]. According to Wong, each node in network

24 represents a living or non-living entity, such as "people 33 (living and deceased), places 35, objects 37 and animals 39." EX1007, ¶21. In Wong, each of these nodes is associated with information pertaining to the person or entity that it represents (*user data*). EX1007, ¶¶18-19, 31-32.

235. Thus, in my opinion, Wong teaches claim element [1.A].

3. [1.B] b) providing, by the networking server, to each user device of a plurality of user devices associated with the plurality of user nodes, a respective composite data feed that [is] based on the database;

236. In my opinion, the Wong-Burfeind combination, teaches claim element [1.B].

237. Wong's users 10 access and interact with Wong's social network using computer terminals 14 (*each user device of a plurality of user devices*) and are *associated with the plurality of user nodes* 30. EX1007, ¶¶17-18, FIG. 1.

238. In Burfeind, each invitee can "view the status of each event to which the individual is a party," e.g., to which the user is invited, via interface 2100, which includes "a listing 2110 of events" (*a respective composite data feed*). EX1008, ¶¶120-121, FIG. 21; *also* ¶¶163-165, FIG. 35. As the term is used in Burfeind, "a party to an event is either the event organizer 610 or one of the event invitees 620. In some embodiments, for example, the individual can access a calendar interface, such as interface 2100 of FIG. 21 [depicted below], to obtain information about pending and recent events." EX1008, ¶¶120-121.

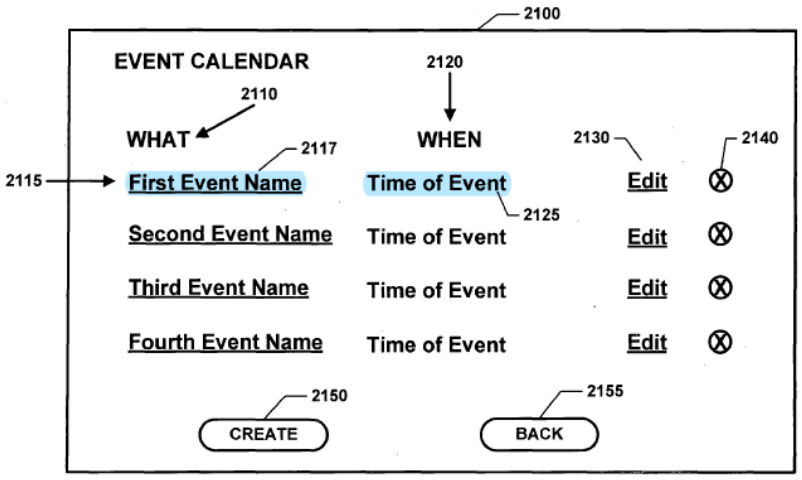


Figure 21

EX1008, FIG. 21.

239. These event listings 2110 are *respective composite data feed[s]* because, consistent with the disclosure in the ’052 patent, they, upon request, provide the user with an updated listing of all events they are invited to. *See* EX1001, 8:53-9:6, 12:55-67, 20:48-51 (describing various types of data that can be included in a “data feed”). As I discuss above, the ’052 patent discusses data feeds broadly and abstractly—the patent does not specify or limit the form of a data feed. The ’052 patent describes embodiments where a “[u]ser 250 requests the PIA 400 to receive a data feed” by “sending a requestData message” to an entity, to which the entity responds by “provid[ing] the requested data feed to the PIA 400 by sending the provideData message to the PIA 400.” EX1001, 12:55-67. The ’052 patent also describes that “[t]he event node may be discovered” by “searching … the network for information about the situation or event.” EX1001, 20:48-51.

Similarly, a user requests to view Burfeind's event listing 2110 by accessing interface 2100.

240. Moreover, a POSA would have understood that Burfeind's list 2110 would update when a user is invited to additional events. Burfeind's system stores invite information once events are created or modified. EX1008, ¶110, FIG. 13. The invitee information is used to populate a calendar interface, such as interface 2100 upon a display operation (e.g., operation 2215). EX1008, ¶124. A POSA would have understood that Burfeind's list 2100 is updated to include additional events, as invitee information is saved to Burfeind's system and is retrieved to populate a calendar interface 2100 upon request.

241. The Wong-Burfiend combination also teaches that the event listings 2110 (*composite data feed[s]*) are *based on the database*. In the combined system, Burfeind's events are implemented as nodes (*event node*) in Wong's network. *See supra* Sections XIII.A, XIII.B.4. When a user is invited to an event, a link is created between that user's node and the corresponding event node and stored in the *database* of the social network server (*networking server*). EX1007, ¶¶27-28, 36. The information included in the event listing comes from this database. When a new node is created, the new node is linked to existing nodes. *See* EX1007, ¶¶27, 41, FIG. 6. Two existing nodes may also be linked. EX1007, ¶28, FIG. 7. The information included in the event listing comes from this database. EX1007, ¶¶27-

28, 36.

242. Finally, Wong's social network server (*networking server*), *provide[s]* Burfeind's event listing (*respective composite data feed*) to *the each user device*. Wong's system includes "an Internet website, database and associated data, which is accessible to users." EX1007, ¶17. The website, database, and associated data are maintained by social network server 20. EX1007, ¶17. In the combined system, Burfeind's interface 2100 is accessed via this Internet website.

243. Thus, in my opinion, the Wong-Burfeind combination renders obvious claim element [1.B].

4. [1.C] c) establishing, by an event node server, an event node associated with the event in the particular geographical area, wherein the event node is discoverable by each user device of the plurality of user devices by browsing the respective composite data feed;

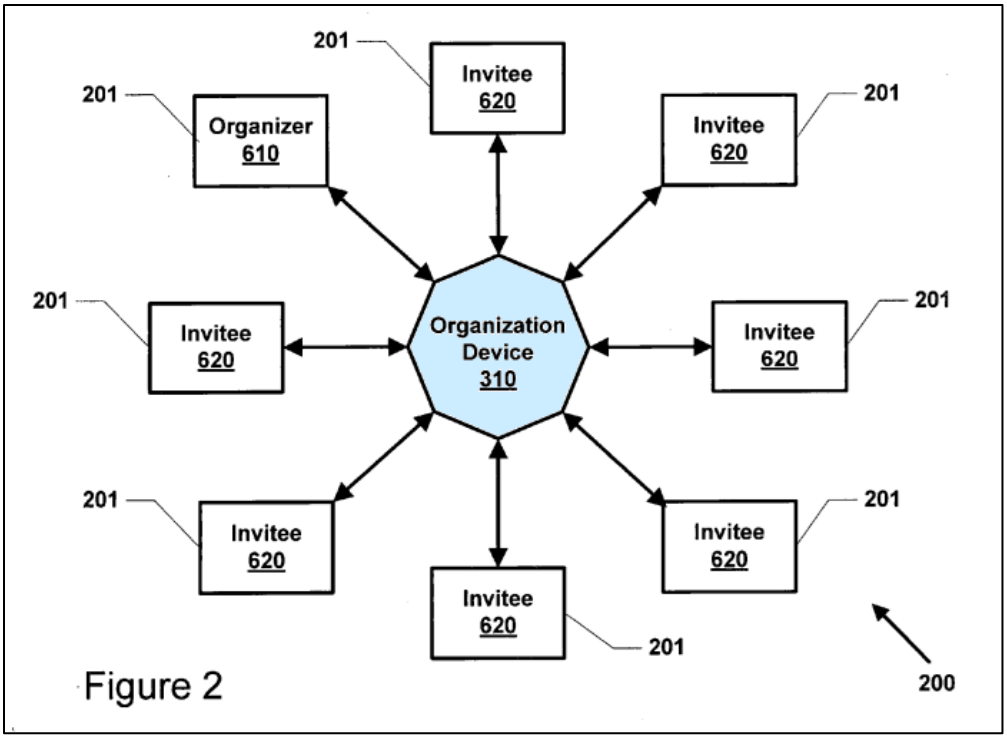
244. In my opinion, the Wong-Burfeind combination teaches claim element [1.C].

245. Burfeind's organization device 310 (*event node server*) is a "computer server" that "schedules a location-specific event" (*establish[es] an event in the particular geographical area*). EX1008, Abstract, ¶59. Burfeind discloses example events of "plundering," "apple picking," "bowling," "playoffs," and "lawn bowling." EX1008, ¶165, FIGs. 35, 44.

246. As I explain above in Section XIII.A, a POSA would have recognized

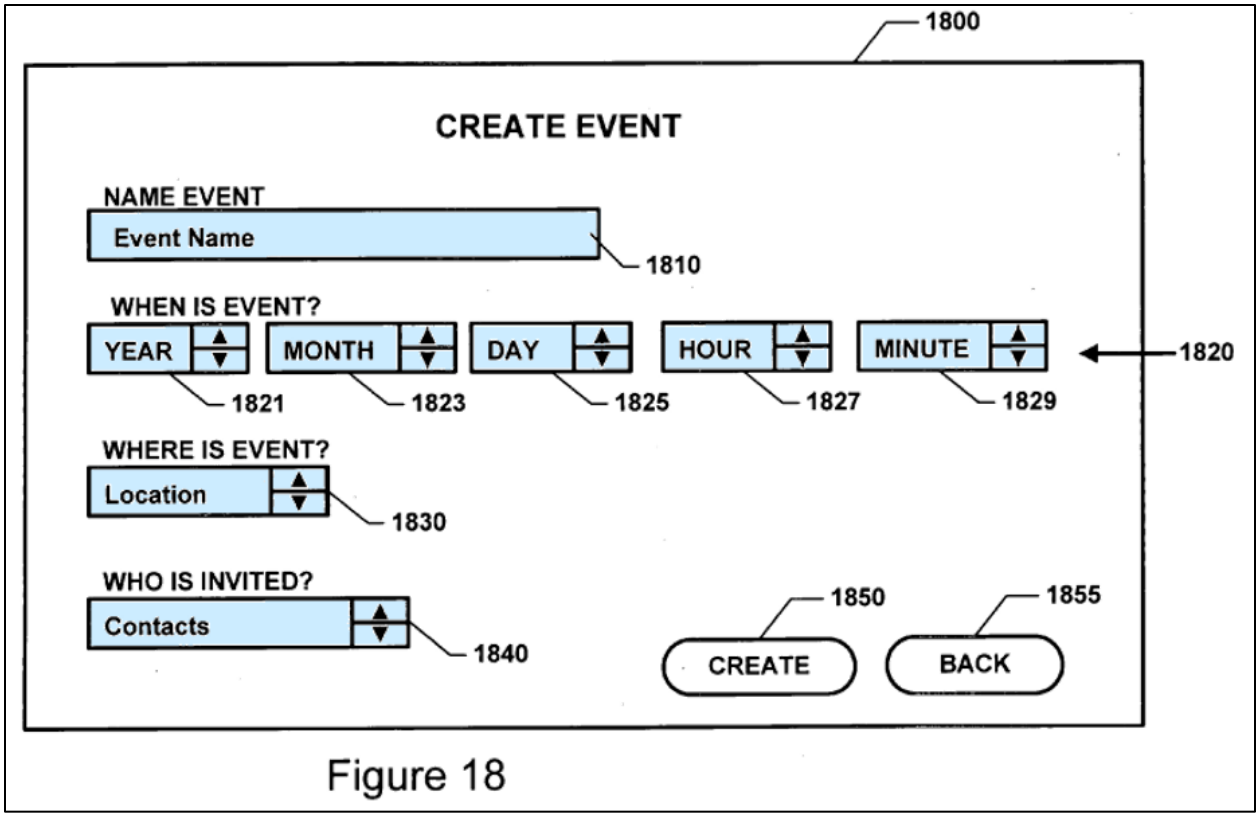
that a new node related to the event (i.e., *an event node associated with the event*) would be useful in Wong's social network to facilitate event-related communication in the social network. In my opinion, a POSA would have understood that each node in Wong is created by and associated with a server to provide the home page, communication tools, data and files, storage space, network information, and/or editing tools associated therewith. EX1007, ¶¶17-19, 31-32. This is consistent with the '052 patent's teaching. The '052 patent explains "users may have their nodes hosted in a common location, e.g., on a local or remote server." EX1001, 16:3-4.

247. Burfeind's organization device (*event node server*) "executes a number of processes at the request of the event organizer 610." EX1008, ¶¶78, 107, 111, 114; *see also* EX1008, ¶¶146, 155, FIGs. 18, 33. Those processes may include creating and scheduling an event. EX1008, ¶¶78, 107, 111, 114. Figure 2 of Burfeind illustrates how the organization device 310 interacts with various invitees 620.



EX1008, FIG. 2.

248. In doing so, the event organizer inputs information identifying the event—e.g., name, time, date, and location of the event, as well as individuals to be invited. EX1008, ¶¶111-114, *see also* ¶¶147, 155-162, FIG. 18. As included below, FIG. 18 of Burfeind depicts this process:



EX1008, FIG. 18.

249. Wong-Burfeind also teaches that the event node is discoverable by each user device of the plurality of user devices by browsing the respective composite data feed. Burfeind's organization device transmits invitations to the user devices of the respective individuals invited to the event. EX1008, ¶¶108, 115.

250. Invitations may be sent to "one or more groups" of the event organizer's contacts. EX1008, ¶159, *see also* ¶89, FIGs. 11-13. That is, Burfeind's event organizer can associate "individual contacts" in the event organizer's address book together "to form a group" of contacts. EX1008, ¶89, FIGs. 11-13. "Thereafter, the event organizer can invite the members of the group without having to select and identify each individual member." EX1008, ¶89.

251. The devices associated with these event invitees are *the plurality of user devices*.[2] Once a user has been invited to an event, that event is viewable in their event listing 2110 (*composite data feed*). EX1008, ¶¶120-121, FIG. 21.

252. In Burfeind, each event has a corresponding webpage, accessible via an interface tool 2117 (e.g., a hyperlink) in the event listing. EX1008, ¶121. Likewise, each of Wong's nodes is accessible via a web page. EX1007, ¶22. Thus, in the combined system a user (via their *user device*) can *brows[e]* their *respective* listing of events (*composite data feed*) and access (*discover[]*) the event webpage (associated with the *event node*). EX1007, ¶¶17, 28; EX1008, ¶121. Thus, each event node is *discoverable to each respective user device* as claimed.

253. Thus, in my opinion, the Wong-Burfeind combination teaches claim element [1.C].

5. [1.D] d) creating, by the networking server, based on the database, a projection of the plurality of user nodes, the projection comprising a first subset of the plurality of user nodes associated with a first subset of the plurality of user devices, wherein the projection is created based on respective

[2] I understand that the claim language does not foreclose additional user nodes beyond the claimed *plurality of user nodes* (i.e., Burfeind's invitees) being included in the multi-dimensional information network. Indeed, the preamble identifies that the *situational network* is formed as *a subset of a larger multi-dimensional information network*.

distances of devices of the first subset of the plurality of user devices from the event;

254. In my opinion, the combination of Wong, Burfeind, and Crowley teaches claim element [1.D].

255. The ’052 patent depicts an example of what is meant by “a geographic projection of nodes” in Figure 30. EX1001, 3:30-31, 23:11-21.

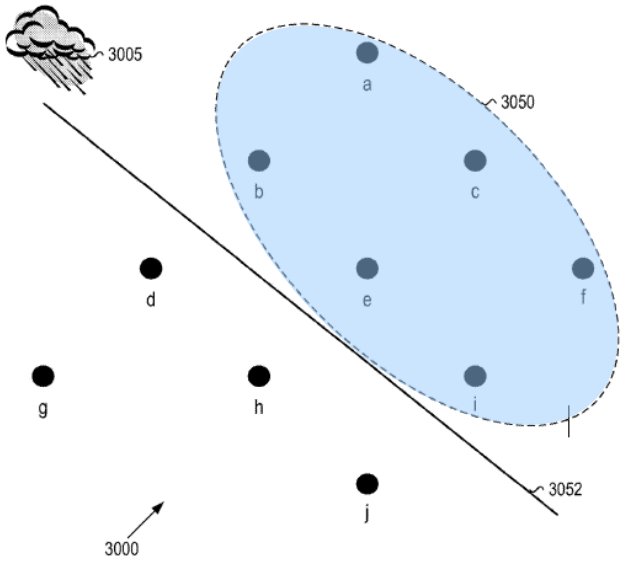


Fig. 30

EX1001, FIG. 30.

256. Consistent with this example, Wong teaches *creating, by the networking server, based on the database, a projection of the plurality of user nodes*. In Wong, the information defining Wong’s network is stored in the

database. EX1007, ¶36; *see* [1.A]. Wong's "network … 24 can be viewed in many ways, such as graphically as a set of nodes 30 connected by their associated linkages 32, or as a list." EX1007, ¶35. Wong also indicates that "[t]he network … can be presented graphically by setting a single node as the root of the network … and displaying a set number of linkages 32 radiating from the root node." EX1007, ¶35. In other words, Wong teaches that different parts of the network can be viewed by selecting different nodes as the root of the graphical view (*projection*). EX1007, ¶35. This is consistent with the '052 patent description of a "projected view" as a subset of the nodes of the NDSN. EX1001, 15:30-35. The '052 patent's projected view is "also referred to as a projection." EX1001, 22:55-58.

257. Wong-Burfeind-Crowley also teaches *the projection compris[es] a first subset of the plurality of user nodes associated with a first subset of the plurality of user devices that is selected based on respective distances of devices of the first subset of the plurality of user devices from the event*.

258. In my opinion, a POSA would have been motivated to identify nodes that have not yet sent a response, in order to send event reminders and to encourage greater participation in the event. Indeed, Burfeind teaches sending "event reminders" and that in response an invitee can "*provide* or update their participation status." EX1008, ¶¶176-180, FIG. 37. Burfeind tracks user locations, such as a "distance the invitee [] is from the event location." EX1008, ¶¶136, 138,

see also ¶131, 143-145, 169-171, FIG. 36. As an example, Burfeind tracks user locations to determine "arrival information" for the users. EX1008, ¶¶136, 143-145, 169-171, FIG. 36. "Arrival information" includes "GPS coordinates and an estimated time of arrival," as wells as "distance the invitee [] is from the event location." EX1008, ¶¶136, 138, *see also* ¶131. Thus, Burfeind determines users' proximity to the event location, but does not explicitly disclose sending reminders to users based on their proximity

259. Crowley provides that explicit suggestion. In particular, Crowley teaches inviting users to events based on their geographic proximity (*based on respective distances of devices of the first subset of the plurality of user devices from the event*). EX1009, ¶¶45, 64. For example, Crowley discloses an example where a user "TJ" is "located at a bar called the Luna Lounge," where the system "identif[ies] which of [TJ's] acquaintances is . . . near the Luna Lounge," and where the system then "send[s] each of the acquaintances messages" inviting them to meet TJ at the Luna Lounge. EX1009, ¶45, *see also* ¶78. Based on these teachings, a POSA likewise would have been motivated to send reminders to this subset of users because users located geographically proximate to an event are more likely to attend.

260. As I discuss above, a POSA would have been motivated to implement Crowley's location-based invitations into Wong-Burfeind. *See* Section XIII.A.

261. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.D].

6. [1.E] e) transmitting, by the networking server, a respective request in a form of a roll call to connect to the event node to each respective device of the first subset of the plurality of user devices;

262. In my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.E].

263. As I explain above, Burfeind-Crowley teaches sending (*transmitting*) reminders (*respective request[s]*) to a group of invitees (i.e., users associated with *the first subset of the plurality of user devices*) that are geographically proximate the event location. *See* EX1009, ¶45, *see also* ¶78. These reminders (*the respective request[s]*) are *in a form of a roll call*. Burfeind teaches that upon receiving an invitation from the organization device, invitees can provide "a response to the invitation" by transmitting their respective participation statuses to the organization device. EX1008, ¶119, *see also* ¶¶52, 117, 133. And in response to a reminder, an invitee can "*provide* or update their participation status." EX1008, ¶¶176-180, FIG. 37. The reminders (*respective request[s] … to connect*), thus, prompt users to respond with their participation statuses so that the system can "track[] the participation status of each invitee." EX1008, ¶52. Thus, these prompts are therefore *a roll call*. EX1008, ¶52. This is consistent with the disclosure of "roll calls" in the '052 patent, in which a user is presented with an unsolicited message

and an option to respond. EX1001, 27:24-50. Similar to the Kraft-Burfeind-Crowley combination, the '052 patent describes a "roll call" feature, which can be included in the situational network. EX1001, 27:24-27. Using this feature, a message is sent out to users, and the user responses are received and recorded. EX1001, 27:27-42. The roll call includes a "check-in" feature which allows users to be invited to respond to an invitation. EX1001, 27:24-50. The responses may be made viewable to users within the situational network or to users not connected to the situational network. EX1001, 27:42-28:15. The reminders are *respective request[s] ...* ***to connect to the event node*** because as I discuss below for element [1.F.1], when a user provides an affirmative response to this reminder, they are communicatively connected to the event node. *See* Section XIII.B.7.

264. Finally, a POSA would have understood that, in the combination, the communications between nodes, including *transmitting* the reminders, are implemented by the social network server (*by the networking server*) because the communications are facilitated by the social network features of Wong's system. For instance, Wong describes users may use devices "capable of communicating over a network" through the social network server 20. EX1007, ¶17. Communications between nodes corresponding to those particular devices can be "facilitated by the social networking features of the network of living and non-living entities, such as using certain communication tools." EX1007, ¶44. Thus,

Burfeind's invitations and reminders are transmitted from an event node by the social network server 20 of Wong.

265. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.E].

7. [1.F.1] f) joining, based on responses to each of the respective requests, a second subset of the plurality of user nodes to a centralized architecture for the event node,

266. In my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.F.1].

267. Burfeind's response includes a participation status (and an optional message), which is saved for future reference. EX1008, ¶¶117-119. In the combination, for users who provide an affirmative response to the event reminder (*based on responses to each of the respective requests*), their corresponding nodes (*a second subset of the plurality of user nodes*) are, thus, *join[ed] … to a centralized architecture for the event node*.

268. As I discuss below for element [1.F.2], the *event node is configured as a central node in the centralized architecture* because it facilitates the communication between the user devices associated with event participants. For instance, Burfeind indicates that communication can occur "through the organizing device," EX1008, ¶56. A POSA would have understood that in order to participate in this communication, these nodes (*second subset*), and their corresponding

devices, must be communicatively connected *join[ed] … to [the] centralized architecture*.

269. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.F.1].

8. [1.F.2] wherein the event node is configured as a central node in the centralized architecture for accessing information associated with the event from a location in the multidimensional information network, and wherein the second subset of the plurality of user nodes is associated with a second subset of the plurality of user devices;

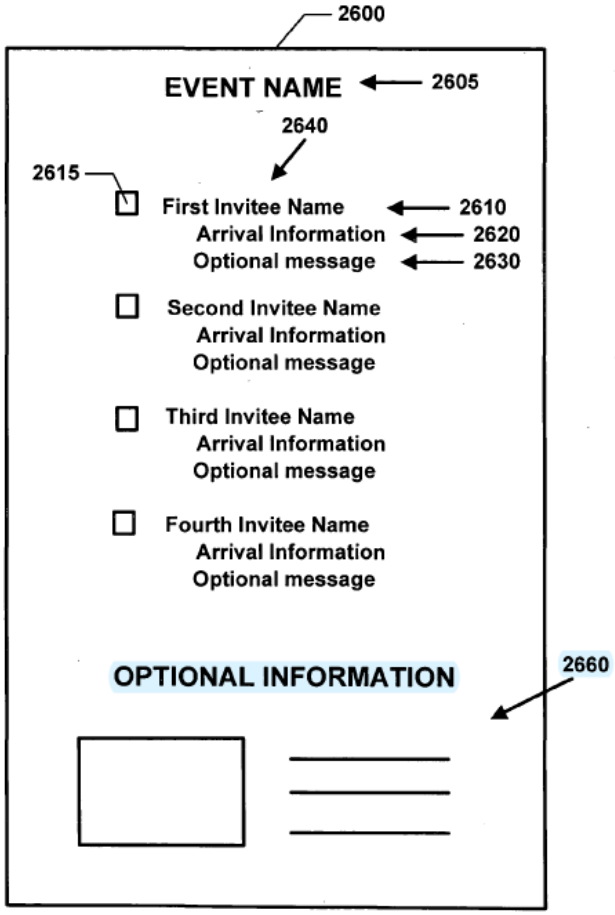
270. In my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.F.1].

271. The ’052 patent describes that “in a centralized architecture embodiment, user devices 402 in the SitNet 3012 corresponding to users 250 are connected using centralized connections 3013 to a situation authority server 3011 associated with a situation authority 207.” EX1001, 6:66-7:3. Further “[t]he situation authority 207 may distribute the information as received from the users 250 via the centralized connections 3013 between the situation authority server 3011 and the user devices 402 or perform a verification of the information before distributing the information to the users 250 of the SitNet 3012 through the centralized connections 3013.” EX1001, 7:3-7:14.

272. As I discuss above, Burfeind’s event organizer utilizes an organizing device to create an *event node* in Wong’s social network. Sections XIII.A,

XIII.B.4. In the combined system, *the event node is configured as a central node in the centralized architecture for accessing information associated with the event*. Like the "centralized architecture" disclosed in the '052 patent (*see* EX1001, 6:66-7:14, FIG. 43), Burfeind teaches that users "communicate with one another through the organizing device." EX1008, ¶56; *see also* EX1008, FIG. 2. Further, the organizing device "can also provide to event participants ([*is configured … for accessing*]) … information pertaining to the event" (*information associated with the event*). EX1008, ¶131. For example, Burfeind's "event status interface 2600 includes additional information 2660 pertaining to the event," depicted below. EX1008, ¶139, FIG. 26.

Figure 26



EX1008, FIG. 26.

273. Further, the Wong-Burfeind combination teaches the *information associated with the event [is accessed] from a location in the multi-dimensional information network* because the *information* is stored in "one or more databases on the organization device" (*event node server*). In the combined system of Wong-Burfeind-Crowley, the *event node* (and therefore the *event node server*) is a part of Wong's social network 24 (*the multi-dimensional information network*). EX1008,

¶132.

274. Finally, Wong-Burfeind teaches that the *second subset of the plurality of user **nodes** is associated with a second subset of the plurality of user **devices*** because each event invitee, which is associated with a respective node 30 (*user node*), accesses the social network via their respective computer terminal 14 (*user device*). EX1007, ¶¶17-18, FIG. 1. As I discuss above, a POSA would have understood that a user, a user device, and a user node are all interrelated *supra* Section VII.B, ¶50.

275. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.F.2].

9. [1.G] g) storing, as node-to-node links in the database, data representing the joining of the second subset of the plurality of user nodes to the event node;

276. In my opinion, the Wong-Burfeind combination teaches claim element [1.G].

277. As I discuss above for element [1.A], Wong teaches maintaining a database of nodes and node-to-node links. Burfeind teaches *storing* an invitee's response in a database in the organization device. EX1008, ¶¶117-119. Based on these teachings, a POSA would have understood that for *the second subset of ... user nodes*, i.e., those that have responded in the affirmative to attending the event and are, thus, *join[ed] ... to the event node* (see Section XIII.B.7), the *database*

would reflect the *node-to-node link* between the *second subset of … user nodes* and *the event node*.

278. Links between nodes is a core component of a social network, as "a 'social network' itself refers to a group of persons or other entities … linked to one another through one or more types of social connections." EX1014, 1:27-30. Indeed, Wong explains that a user's network can be constructed "by linking existing nodes," and that communication happens between nodes within a network. EX1007, ¶¶21, 28, 44. Wong also explains "[n]odes can be linked by *more than one* linkage type, representing the multiple types of relationships between the entities represented by the nodes." EX1007, ¶24, *also* ¶33 ("The relationship of a node to another node within the same network of living and non-living entities can also be represented by more than one defined linkage type."), FIG. 4.

279. Indeed, this type of relationship characterization is congruent with the '052 patent. The '052 patent uses a "multi-dimensional personal information network" and "N-dimensional social network (NDSN)" interchangeably. *See* EX1001, 6:29-44, 8:7-11, 15:4-7. In particular, the '052 patent explicitly indicates that the NDSN may also be referred to as "a multi-dimensional personal information network." EX1001, 8:7-11. In the '052 patent, the "NDSN uses multiple dimensions of association to characterize the relationships" (e.g., family, professional connection). EX1001, 15:9-16; *see also* Section XII.B.2 (describing

the ’052 patent’s NDSN with respect to Kraft and Ground 1).

280. Thus, in my opinion, the Wong-Burfeind combination teaches claim element [1.G].

10. [1.H] h) analyzing the database to identify a third subset of the plurality of user nodes in the database based at least in part on the data representing the joining of the second subset of the plurality of user devices to the event node; and

281. In my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.H].

282. Burfeind teaches “provid[ing] targeted advertisements to event participants.” EX1008, ¶¶54, 181-183, FIG. 38. Crowley teaches tailoring “advertising targeted to the particular users.” EX1009, ¶98. In my opinion, a POSA would have been motivated to send such advertisements to affirmative respondees to the event, for example, to advertise other stores or restaurants near the event, as taught by Burfeind. EX1008, ¶183. For example, Burfeind teaches that when an invitee views the event status interface “for an event occurring at the Mall of America in Bloomington, Minnesota, then the invitee 620 may view advertisements for stores and restaurants located in the Mall of America.” EX1008, ¶183. Furthermore, Burfeind also notes that “obtaining and displaying targeted advertisements on a web browser are well known in the art.” EX1008, ¶183.

283. In my opinion, a POSA would have been further motivated to send advertisements to “direct friends, … friends of friends and other further relations”

of the affirmative respondees to encourage them to also attend the event along with their friend or acquaintance. EX1009, ¶¶6, 64-65, 78. In this case, the advertisement may include, for example, a coupon or other promotion as taught by Crowley. EX1009, ¶¶109-111. For example, Crowley teaches that "[a]dvertising may be provided to the users on their mobile devices, and such messages may be customized, such as according to the type of venue in which the users meet, or the topic that the users have in common." EX1009, ¶109. And Crowley teaches, for example the ad could include "a promotion for a particular brand of alcohol" or that the "messages may also act like coupons for users." EX1009, ¶110.

284. Thus, Wong-Burfeind-Crowley teaches *identifying* users to which presenting advertising is desired (users associated with *a third subset of the plurality of user nodes*). Further, as discussed, these users (*third subset of ... user nodes*) include (1) the affirmative respondees (*the second subset of ... user nodes*) which are identified *based ... on the data representing the joining*, and (2) "direct friends, … friends of friends and other further relations" of the *second subset of ... user nodes*.

285. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.H].

11. [1.I] i) delivering additional information to a third subset of user devices associated with the third subset of the plurality of user nodes, wherein the supplemental information was received from an information node configured to store and

provide supplemental information via the multi-dimensional information network.

286. In my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.I].

287. In the combination, once the advertising targets (users associated with *the third subset of … user nodes*) are identified, it would have been obvious to *deliver[]* the advertisements (*additional/supplemental information*) to them. The advertisements (*information*) would come from advertisers. EX1009, ¶¶110-111.

288. Wong teaches its network (*the multi-dimensional information network*) facilitates communication between nodes, including the "sharing of information, contributing information, and storage of information." EX1007, claim 7; *also* ¶44 (describing, e.g., the sharing of data between nodes). In my opinion, a POSA would have, thus, been motivated to include an additional node (*information node*) associated with the advertiser in the network to store and provide the advertisements (*information*). For instance, Burfeind describes providing additional information to invitees invited to join an event. *See* EX1008, ¶¶58, 139. This additional information, such as advertisements, "are stored on a server … coupled to the organization device". EX1008 ¶182.

289. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim element [1.I].

C. Independent Claim 7

290. Claim 7 recites elements that are substantially the same as claim 1. Thus, in my opinion, claim 7 is rendered obvious by the Wong-Burfeind-Crowley combination for the same reasons as claim 1.

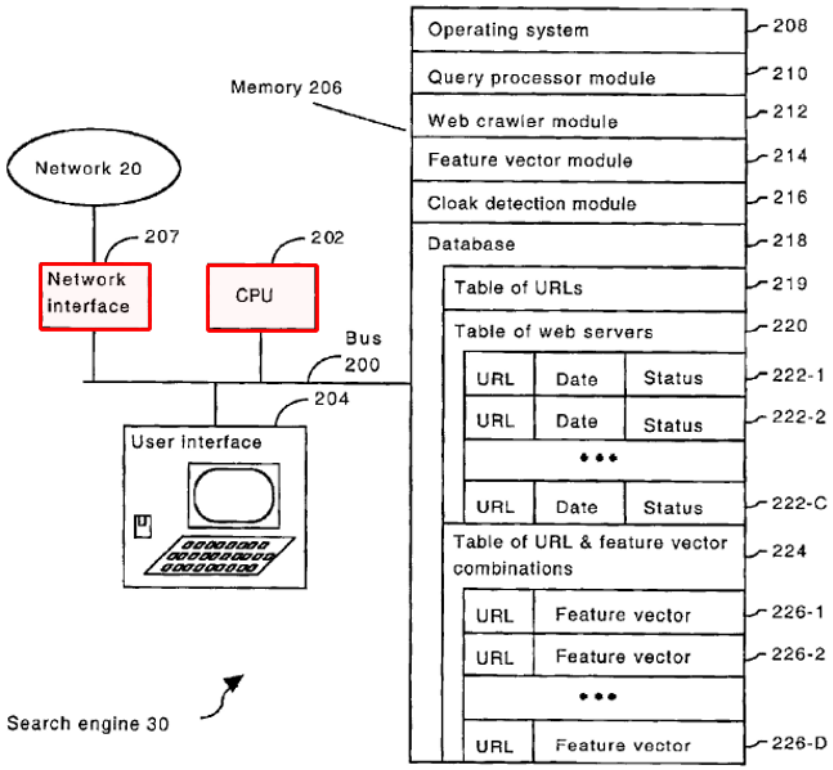
291. In my opinion, Wong-Burfeind-Crowley also renders obvious the additional generic server components (*network controller*, *central processing units*) recited in claim 7. Wong's "[s]erver 20 has the hardware and software required to operate an internet-accessible social network, including web server, email server, databases, data storage and the like." EX1007, ¶17, *also* ¶16 ("well known elements may not have been shown or described in detail"). Burfeind also includes teachings of "example hardware and operating environments." EX1008, ¶¶58-77, FIGs. 4-6. Crowley also includes descriptions of a network system for facilitating event communications. *E.g.*, EX1009, ¶¶19, 68. A POSA would have recognized that Wong's database is stored in "data storage" (*memory*) of social network server 20 (the claimed *networking server*). EX1007, ¶17. Indeed, Wong describes that its server 20 "maintain[s] a system comprising … [a] database and associated data." EX1007, ¶17. In my opinion, a POSA would have recognized that Wong's database is stored in "data storage" of social network server 20 (the claimed *networking server*). EX1007, ¶17.

292. A POSA would have further recognized *network controller*(s) of

server 20 are *configured to* perform the *provide*, *transmit*, and *deliver* limitations because Wong's server 20 communicates with user terminals 14 over via a network, such as the Internet. EX1007, ¶17, FIG. 1. Finally, a POSA would have recognized that *one or more central processing units* of server 20 and of the organization device 310 (*event node server*) perform their respective recited functions because a CPU is a conventional component that executes instructions to perform server functions. The '052 patent only describes its particular server components generally. EX1001, 15:62-65, 15:65-16:4. (indicating that the NDSN "may be implemented using a wide variety of available hardware and technologies generally known in the art" and "the nodes of the NDSN 100 may be interconnected and may communicate with each other using a wide variety of available hardware and technologies generally known in the art."); *see supra* Section VI.

293. Indeed, it was well known at the time of the '052 patent that servers included processors and network interfaces. For example, in 2006, Wu described that a "server," as it existed in the prior art, "can be a powerful personal computer (PC)" having "a central processing unit (CPU)" and "a memory unit" configured to "perform high-speed logic operation and signal processing." EX1034, ¶4; *also* ¶11 ("The multifunction server includes a central processing unit (CPU) and a memory unit."). Wu further described servers "connect[ed] to the Internet" and various host

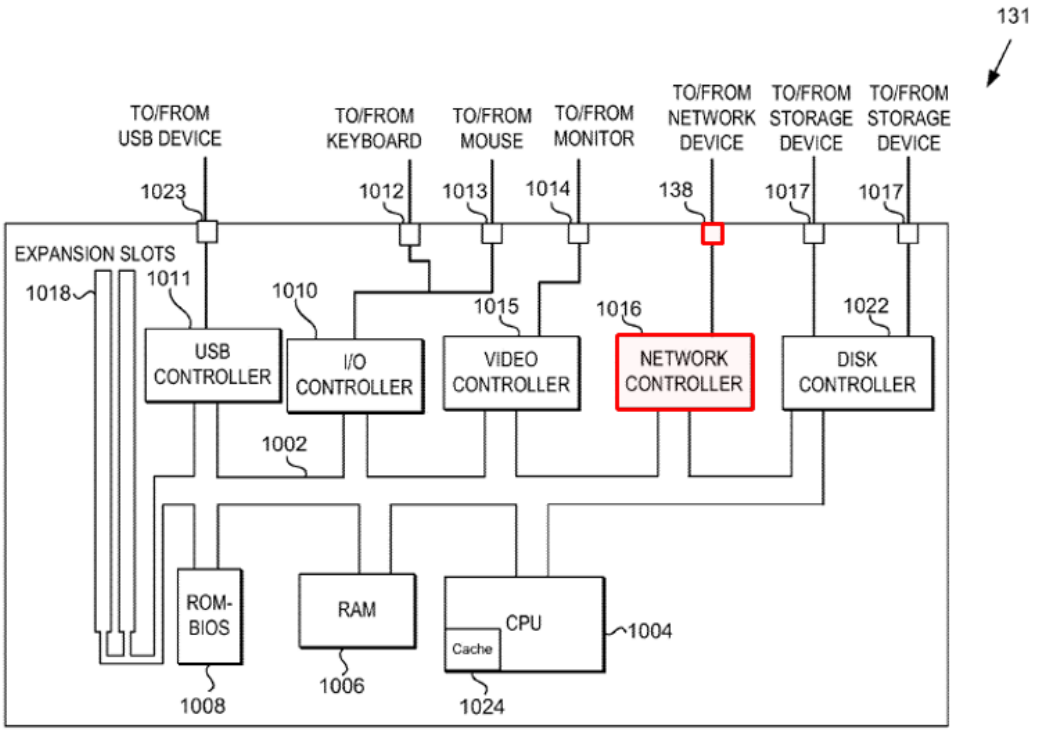
devices via a standard "network interface." EX1034, ¶¶11, 21. Similarly, in 2005, Najork described "a search engine 30 includ[ing] **standard server components** such as **one or more processing units 202**, an optional user interface 204 (e.g., keyboard, mouse, and a display), memory 206, [and] **a network interface 207 for coupling the search engine 30 to clients 40 and web servers 50 via communications network 20**." EX1035, 3:59-64.



EX1035, FIG. 2 (annotated).

294. A POSA would have understood that Wong's social network server 20 would similarly include "standard server components," such as a central processing unit and network interface to operate and receive/transmit data over the

network. EX1035, 3:59-64. Moreover, a POSA would have understood that the '052 patent's description of a "network controller" (only mentioned once in the specification) aligns with the general understanding of a network interface that would be present on an Internet-connected server. For example, the '052 patent describes "network controller 116" as residing within the "*server*," as illustrated in Figure 23, which is connected "to the network port 138."



EX1001, FIG. 23 (annotated).

295. A POSA would, therefore, have understood the "*network controller*" to function similar to a standard network interface present on standard servers at the time of the '052 patent. Accordingly, it is my opinion that the additional elements of independent claim 11 would have been obvious in view of Wong,

Burfeind, and Crowley's teachings.

296. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claim 7.

D. Claims 2 and 8

297. In my opinion, the Wong-Burfeind-Crowley combination teaches *wherein the third subset of the plurality of user nodes includes at least a portion of second subset of the plurality of user nodes*, as recited by claims 2 and 8.

298. As I explain in element [1.H], the advertising targets (users associated with *the third subset of … user nodes*) include both (1) the affirmative respondees (*the second subset of user nodes*) and (2) "direct friends, … friends of friends and other further relations" thereof. *See* Section XIII.B.10. In my opinion, *at least a portion of second subset of … user nodes* as claimed can include *all* of the *second subset of … user nodes*.

299. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claims 2 and 8.

E. Claims 3 and 9

300. In my opinion, the Wong-Burfeind-Crowley combination teaches *wherein the identifying the third subset of the plurality of user nodes is based on: identifying the data representing the joining of the second subset of the plurality of user devices to the event node in conjunction with identifying a set of data stored in*

the multi-dimensional information network representing at least one of: demographics, interests or behaviors, as recited in claims 3 and 9.

301. As I explain for element [1.H], Wong-Burfeind-Crowley teaches *identifying* advertising targets (users associated with the *third subset of … user nodes*) includes the affirmative respondees *based on identifying the data representing the joining of the second subset of the plurality of user devices to the event node*. *See* Section XIII.B.10.

302. Wong-Burfeind-Crowley further teaches using this data in conjunction with identifying a set of data stored in the multi-dimensional information network representing at least one of: demographics, interests or behaviors. For example, Crowley teaches that advertisers further identify advertising targets by "select[ing] criteria … that match" a "demographic/ psychographic profile" (data stored in the multi-dimensional information network representing at least one of: demographics, interests or behaviors). EX1009, ¶111, *also* ¶101. For example, Crowley describes "users may identify themselves with a particular (e.g., favorite) brand … and thereby receive advertising and messages from the brand." EX1009, ¶101.

303. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claims 3 and 9.

F. Claims 4 and 10

304. In my opinion, the Wong-Burfeind-Crowley combination teaches *wherein the analyzing the database to identify the third subset of the plurality of user nodes comprises: identifying a direct link between a user node of the third subset of the plurality of user nodes and a user node of the second subset of the plurality of user nodes*, as recited in claims 4 and 10.

305. As I explain in element [1.A], links between user nodes are maintained in the database. *See* Section XIII.B.2. As I explain for element [1.H], a POSA would have been motivated to send advertisements to "**direct friends**, … friends of friends and other further relations" of the affirmative respondees (*the second subset of … user nodes*). *See* Section XIII.B.10. A POSA would have understood that identifying these "direct friends" would require *analyzing the database* to *identify[] a* ***direct link*** *between* the friend (*a user node of the third subset*) and an affirmative respondee (*a user node of the second subset*).

306. Crowley teaches that "[e]ach of the members could have a variety of relationships to each other" such as "friends and friends-of-friends." EX1009, ¶¶32, 38. Additionally, Crowley's system "may be extended using well-known social networking approaches to allow for communications, not only with direct friends, but with friends of friends and other further relations." EX1009, ¶6. Based on these teachings, a POSA would have understood that Crowley's system would

define a connection between "direct friends" as a single degree of separation (or *direct link*) and a connection between friends-of-friends as a multi-degree of separation (or *indirect link*). This is consistent with the teachings of the '052 patent. For instance, "[a] node of the NDSN 100 is connected to another node by one or more degrees of separation" and "[a] connection from one node directly to another node is considered to be of first-degree separation; a connection that goes indirectly through one other node is of second-degree separation; a connection that goes indirectly through two other nodes is of third-degree separation, and so on." EX1001, 16:55-61.

307. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claims 4 and 10.

G. Claims 5 and 11

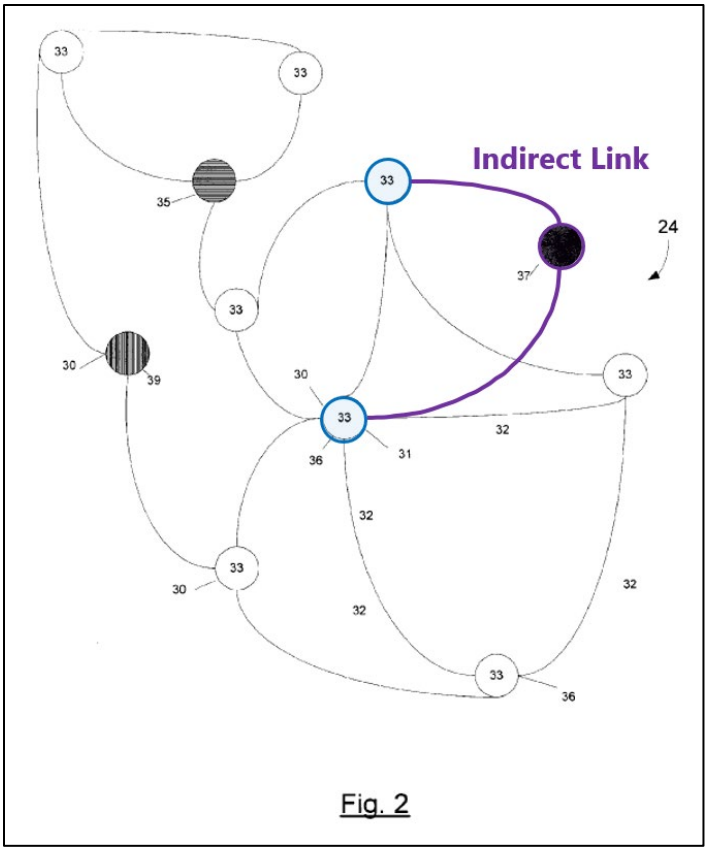
308. In my opinion, the Wong-Burfeind-Crowley combination teaches *wherein the analyzing the database to identify the third subset of the plurality of user nodes comprises: identifying an indirect link between a user node of the third subset of the plurality of user nodes and a user node of the second subset of the plurality of user nodes*, as recited in claims 5 and 11.

309. As I explain in element [1.A], links between user nodes are maintained in the database. *See* Section XIII.B.2. As I explain for element [1.H], a POSA would have been motivated to send advertisements to "direct friends, …

friends of friends and other further relations" of the affirmative respondees (*the second subset of … user nodes*). *See* Section XIII.B.10.

310. In my opinion, a POSA would have understood that identifying these "friends of friends" would require *analyzing the database* to *identify[] an* ***indirect link*** *between* the friend-of-friend user (*a user node of the third subset*) and an affirmative respondee (*a user node of the second subset*). As described above, a POSA would have understood that Crowley's system would define a connection between "direct friends" as a single degree of separation (or *direct link*) and a connection between friends-of-friends as a multi-degree of separation (or *indirect link*). This is consistent with the teachings of the '052 patent as discussed. EX1001, 16:55-61.

311. Similarly, Wong specifically teaches that "nodes can be linked by more than one linkage type," and a linkage may be "*an indirect link between*" nodes—"the chain of links and nodes between non-adjacent nodes." EX1007, ¶¶21, 24.



EX1007, FIG. 2 (annotated).

312. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claims 5 and 11.

H. Claims 6 and 12

313. In my opinion, the Wong-Burfeind-Crowley combination teaches *wherein the user node of the third subset of the plurality of user nodes and the user node of the second subset of the plurality of user nodes are connected by a preference dimension to an additional node*, as recited in claims 6 and 12.

314. As I explain above for claim 3, Crowley teaches that advertisers further identify advertising targets by "select[ing] criteria … that match" a

"demographic/ psychographic profile." EX1009, ¶111, *also* ¶101; *see* Section XIII.E. Based on this teaching, when identifying friends-of-friends (as I explain in claim 5, Section XIII.G) as potential advertising targets, a POSA would have been further motivated to narrow this friends-of-friends group by limiting it to users matching a certain profile, e.g., having a particular interest or *preference* associated with the event. This would result in advertising to users more likely to attend the event because they have a relevant common interest (*preference*) with the affirmative respondee (*the user node of the second subset*). Indeed, Crowley also teaches that the advertising may be "targeted to … the type of event." EX1009, ¶98. Further, a core functionality of social network communications—in the context of Wong, communication between nodes—includes facilitating connections between individuals with common interests. *See generally* EX1018, EX1019, EX1025.

315. Wong teaches that user nodes may be "*connected by a preference dimension to an additional node*," such as being a "customer," "fan," "admirer," or "member" of particular "groups, organizations, products, businesses, books, songs, etc." EX1007, ¶¶22, 24. For example, Wong discloses, "[a] linkage of a person node to an object node can be, for example, customer, fan, owner, admirer, member and the like." EX1007, ¶24. Thus, when *the user node of the third subset* and *the user node of the second subset* have a common preference, they are

connected by a preference dimension to an additional node—an "[o]bject" node representing the group, organization, product, business, book, or song. EX1007, ¶¶21-22. Such a node structure was a common mechanism to connect users of a social network, as described with respect to systems existing before the Priority Date of the '052 patent. *See e.g.,* EX1019; EX1020, 135-136.

316. Thus, in my opinion, the Wong-Burfeind-Crowley combination teaches claims 6 and 12.

XIV. CONCLUSION

317. In signing this Declaration, I recognize that the Declaration will be filed as evidence in an *inter partes* review before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination within the United States during the time allotted.

318. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on this 11th day of November, 2025, in Doha, Qatar.

Bernard J Jansen

Bernard J. Jansen

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