UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD. and SAMSUNG ELECTRONICS AMERICA, INC.

Petitioners

v.

MOBILE DATA TECHNOLOGIES, INC.,

Patent Owner

IPR2025-00535

U.S. Patent No. 9,032,039 B2

DECLARATION OF HENRY HOUH, PH.D. IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,032,039

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EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 9,032,039 B2 to David Walker Harper et al. ("'039" or "'039 patent")
1003	Excerpts from Alan Neibauer, *How to Do Everything With Yahoo!* (2000) ("Neibauer")
1004	***Reserved***
1005	U.S. Patent No. 7,574,486 B1 to Yin Cheng et al. ("Cheng")
1006	U.S. Patent No. 6,434,403 B1 to Michiel R. Ausems et al. ("Ausems")
1007-1009	***Reserved***
1010	U.S. Patent No. 6,487,583 B1 to Jamey Harvey et al. ("Harvey")
1011	U.S. Patent Application Publication No. 2001/0015759 A1 to Robert Francis Squibbs ("Squibbs")
1012	Excerpts from Uwe Hansmann et al., *Pervasive Computing Handbook* (2001) ("Hansmann")
1013	Excerpts from David Fox & Troy Downing, HTML Web Publisher's Construction Kit (1995) ("Fox")
1014-1016	***Reserved***
1017	U.S. Patent No. 6,332,127 B1 to Daniel Quinto Bandera et al. ("Bandera")
1018-1020	***Reserved***
1021	Excerpts from *Microsoft Computer Dictionary* (5th ed 2002)

Exhibit	Description
1022	File history of U.S. Patent 9,032,039 B2
1023	***Reserved***
1024	Excerpts of file history of *Inter Partes* Reexamination of U.S. Patent 8,135,801 B2
1025	Joint Claim Construction Statement, Dkt. 51, *Mobile Data Technologies LLC v. Meta Platforms, Inc.*, Case No. 7:22-cv-00244-ADA-DTG (W.D. Tex. filed September 13, 2023)
1026	Declaration of Sylvia D. Hall-Ellis, Ph.D. ("Hall-Ellis")
1027	***Reserved***
1028	U.S. Patent 8,135,801 to Harper et al. ("the '801 patent")
1029	Order Granting Inter Partes Reexamination of U.S. Patent 8,135,801
1030	*Meta Platforms, Inc. v Mobile Data Techs. LLC,* IPR2024-00248, Paper 26 (PTAB Oct. 2, 2024).
1031	Declaration of June Munford
1032	Excerpt from Webster's Dictionary of Computer Terms (page 98)
1033	*Meta Platforms, Inc. v Mobile Data Techs. LLC,* IPR2024-00248, Paper 33 (PTAB Jan. 10, 2025).

I, Henry Houh, Ph.D., declare as follows:

1. I have been retained on behalf of Petitioners Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. ("Petitioners") to provide this Declaration concerning technical subject matter relevant to the petition for *Inter Partes* Review ("Petition") of U.S. Patent 9,032,039 ("the '039 patent").

2. I am over 18 years of age. I have personal knowledge of the facts stated in this Declaration and could testify competently to them if asked to do so.

3. I have been asked to provide my technical opinions regarding how a person of ordinary skill in the art would have understood the claims of the '039 patent at the time of the alleged invention, which I have been asked to assume is the 2002 timeframe. For purposes of whether the teachings of the prior art render the claims of the '039 patent obvious, I have been asked to assume the date of June 18, 2002. I have also been asked to provide my technical opinions on how concepts in the '039 patent specification relate to claim limitations of the '039 patent.

4. In reaching the opinions provided herein, I have considered the '039 patent, its prosecution history, and the references cited in my Declaration and the Appendix. I have also drawn on my own education, training, research, knowledge, and personal and professional experience.

5. In general, I have been asked to cite to the specification of a patent or patent publication using the following formats: (Patent, Col:Line Number(s)) or

(Patent, Paragraph Number(s)). For example, the citation ('039 patent, 1:1-10) points to the '039 patent specification at column 1, lines 1-10. Also, for convenience, I have been asked to use italics to denote limitations from the challenged claims. Unless otherwise noted, all emphasis added.

6. I am being compensated for my time at my standard consulting rate. I am also being reimbursed for expenses that I incur during the course of this work. My compensation is not contingent upon the results of my study and analysis, the substance of my opinions, or the outcome of any proceeding involving the '039 patent. I have no financial interest in the outcome of this matter or in any litigation involving the '039 patent.

7. I understand that another party, Meta Platforms, Inc., has challenged the '039 patent in *inter partes* review proceedings at Case No. IPR2024-00248 ("the Meta-MDT-IPR"), which was instituted by the Patent Trial and Appeal Board. I refer in my declaration below to some of the positions and issues raised in that proceeding, including as it pertains to claim construction of certain claim terms in the '039 patent.

I. Qualifications

8. I believe I am well qualified to render useful opinions on this matter. I will briefly summarize my knowledge, training, and experience here. A more detailed summary of my background, education, experience, and publications is set

forth in my curriculum vitae (CV), which is attached to my Declaration at Appendix A.

9. I received my Bachelor of Science degree in Physics from Massachusetts Institute of Technology ("MIT") in 1990. I also received my Bachelor of Science degree, Master of Science degree, and Ph.D., all in Electrical Engineering and Computer Science, from MIT in 1989, 1991, and 1998 respectively.

10. My college studies focused on communications and data networking. My undergraduate and graduate coursework pertained to telecommunication networks optical communications, and data networking. I maintained both the computer workstations and networking devices in my networking research group, along with other graduate students within the group.

11. I served as a teaching assistant for the Computation Structures course several times. This course taught low-level computer architecture and included a laboratory component that involved building a central processing unit ("CPU") from discrete components from the gate level and higher. As a student this course, I redesigned the CPU hardware and software to raise the average speed by a factor of 30. I then became a head laboratory assistant and teaching assistant as an undergraduate student, and later became head teaching assistant as a graduate student.

12. I was a research assistant in the Telemedia Network Systems ("TNS") group in the Laboratory for Computer Science as part of my doctoral research at MIT. This group built a high-speed gigabit network and created applications that ran over the network such as remote video and audio capture, processing, and display on computer terminals.

13. I set up the TNS group's web server. Using this server, the TNS group was the first group to initiate a remote video display over the World Wide Web. Vice President Al Gore visited our group in 1996 and received a demonstration of—and remotely drove—a radio-controlled toy car with a wireless video camera mounted on it; the video was encoded by TNS-designed hardware, streamed over the TNS-designed network and displayed using TNS-designed software. I was also able to modify a web server to determine the location of the client, and present different web pages based on the client's location. I co-authored and presented papers on these video demonstrations and dynamic webpages at the first World Wide Web conference.

14. I defended and submitted my Ph.D. thesis, titled "Designing Networks for Tomorrow's Traffic," in January 1998. As part of my thesis research, I analyzed local-area and wide-area flows to show a more efficient method for routing packets in a network, based on traffic patterns at the time. My thesis also addressed real-time streamed audio and video. The network traffic that I analyzed

was IP protocol traffic, including User Datagram Protocol ("UDP") and Transmission Control Protocol ("TCP").

15. I worked at NBX Corporation as a Senior Scientist and Engineer from 1997 to 1999, and worked on the first fully featured business telephone that operated on data networks. I designed the core audio reconstruction algorithms for the telephones which depacketized the voice data and reconstructed the audio, and the voice data packet transmission algorithms. I created a system to capture and analyze network packets sent by devices in the NBX system for aid in testing and debugging. I also designed and validated the core packet transport protocol used by the phone system. In addition, I designed and oversaw the development of the underlying transport protocol used by the NBX100 phone system for reliable packet transport. This transport protocol is still estimated to be used hundreds of millions of times daily. I also served as lead architect in designing NBX's next-generation system, and worked with NBX's successor 3Com to demonstrate the phone system over cable equipment infrastructure in 1999.

16. From 1999 to 2004, I worked at Teradyne and its successor Empirix, which developed and provided functional and load test tools for telecommunication protocols and systems. I rebuilt Empirix's primary testing product, which could pull data from a database to provide variation of data submitted to the web applications, and then to extract data from a web page to

populate a database with key results computed by the web site after customized data is submitted. This product, PacketSphere, was Empirix's most successful new platform introduction and received several industry awards.

17. I also worked at BBN Technologies Corp. from 2004 to 2008. BBN Technologies is a technology R&D company with expertise in acoustics, speech recognition, and communications technology. I helped create EveryZing, formerly PodZinger, which is a public audio and video search engine that utilizes speech recognition technology.

18. I am a named inventor on several U.S. Patents. The patents and applications are listed in my CV.

II. Understanding of Relevant Legal Principles

19. I am not a lawyer, and I will not provide any legal opinions. Although I am not a lawyer, I have been advised certain legal standards are to be applied by technical experts in forming opinions regarding the meaning and validity of patent claims.

20. I understand that a patent claim is invalid if it is anticipated or obvious in view of the prior art, and that a claim can be unpatentable even if all of the requirements of the claim cannot be found in a single prior-art reference. I further understand that invalidity of a claim requires that the claim be anticipated or

obvious from the perspective of a person of ordinary skill in the art at the time the invention was made.

21. I have been informed that a patent claim is invalid if it would have been obvious to a person of ordinary skill in the art. In analyzing the obviousness of a claim, I understand the following factors may be taken into account: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the art; and (4) any so called "secondary considerations" of non-obviousness, if they are present. I am not aware of any evidence of secondary considerations of non-obviousness relevant to the '039 patent. I reserve the right to supplement this Declaration if Patent Owner ("PO") introduces evidence of secondary considerations of non-obviousness.

22. 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, make the patent obvious;

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

(3) explain why a person of ordinary skill in the art would have combined the references, and how they would have done so, to create the inventions

claimed in the patent. I further understand that exemplary rationales that may support a conclusion of obviousness include:

- combining prior art elements according to known methods to yield predictable results;
- simple substitution of one known element for another to obtain predictable results;
- use of known technique(s) to improve similar devices (methods or products) in the same way;
- applying a known technique to a known device (method or product) ready for improvement to yield predictable results;
- "obvious to try" – choosing from a finite number of identified, predictable solutions with a reasonable expectation of success; known work in one field of endeavor may prompt variations of the work for use in either the same field or a different field based on design incentives or other market forces if the variations are predictable to a person of ordinary skill in the art; and
- some teaching, suggestion, or motivation in the prior art that would have led a person of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

23. I have been informed that, in considering obviousness, hindsight reasoning derived from the patent-at-issue may not be used.

III. The ’039 Patent

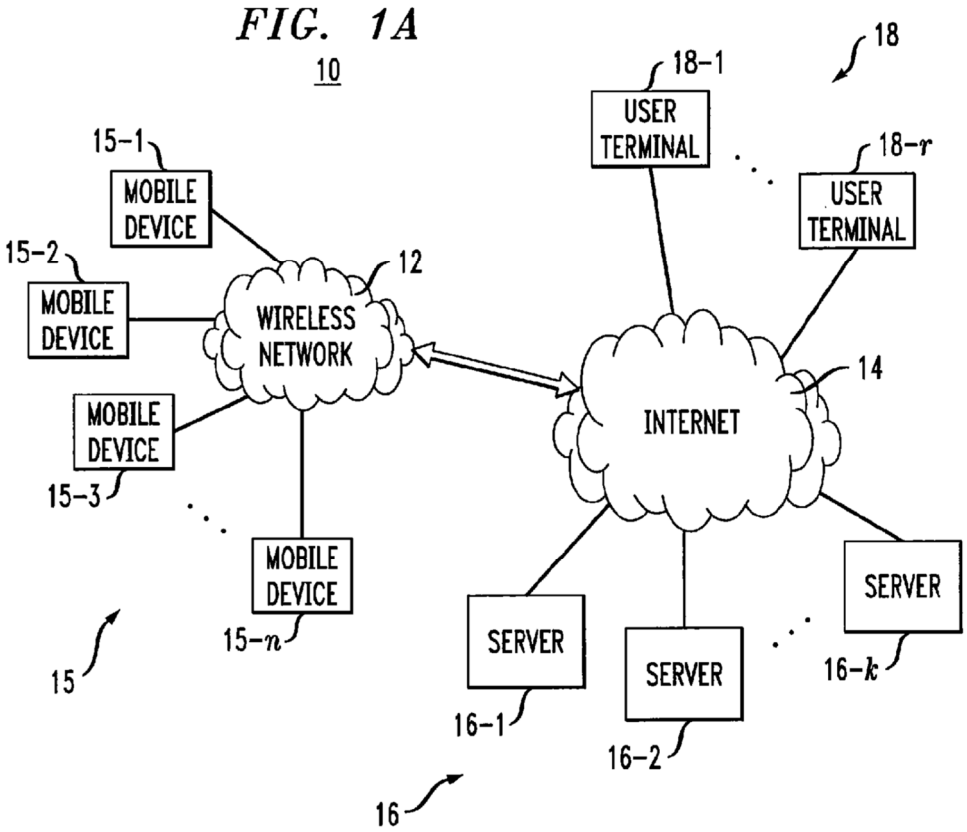
24. The ’039 patent, filed September 11, 2014, claims priority through five continuations to U.S. Patent 7,599,983, filed June 18, 2003, which claims priority to Provisional 60/389,430 filed June 18, 2002. While I do not have an opinion about whether the patent is entitled to any of the priority dates, each applied reference was filed or published before June 18, 2002.

25. The ’039 patent “relates generally to network-based communications systems, and more particularly to techniques for information content management in such systems.” (EX-1001, 1:28-30.) The patent describes providing content from a mobile device, along with “information associated with at least one wireless networking functionality of the mobile device … to at least one server for insertion into a specified application-based information channel.” (EX-1001, 2:16-22.)

A. Overview of the ’039 Patent

26. The ’039 patent identifies “accessing of information content over wireless networks via web-enabled mobile devices” as among “the most rapidly expanding aspects of wireless networking.” (EX-1001, 1:34-36.) Figure 1A, reproduced below, “shows an example network-based communication system 10”

including "wireless network 12 coupled to the Internet 14, a set of mobile devices 15, a set of servers 16 and a set of user terminals 18." (EX-1001, 3:42-46.)



'039 patent, Figure 1A

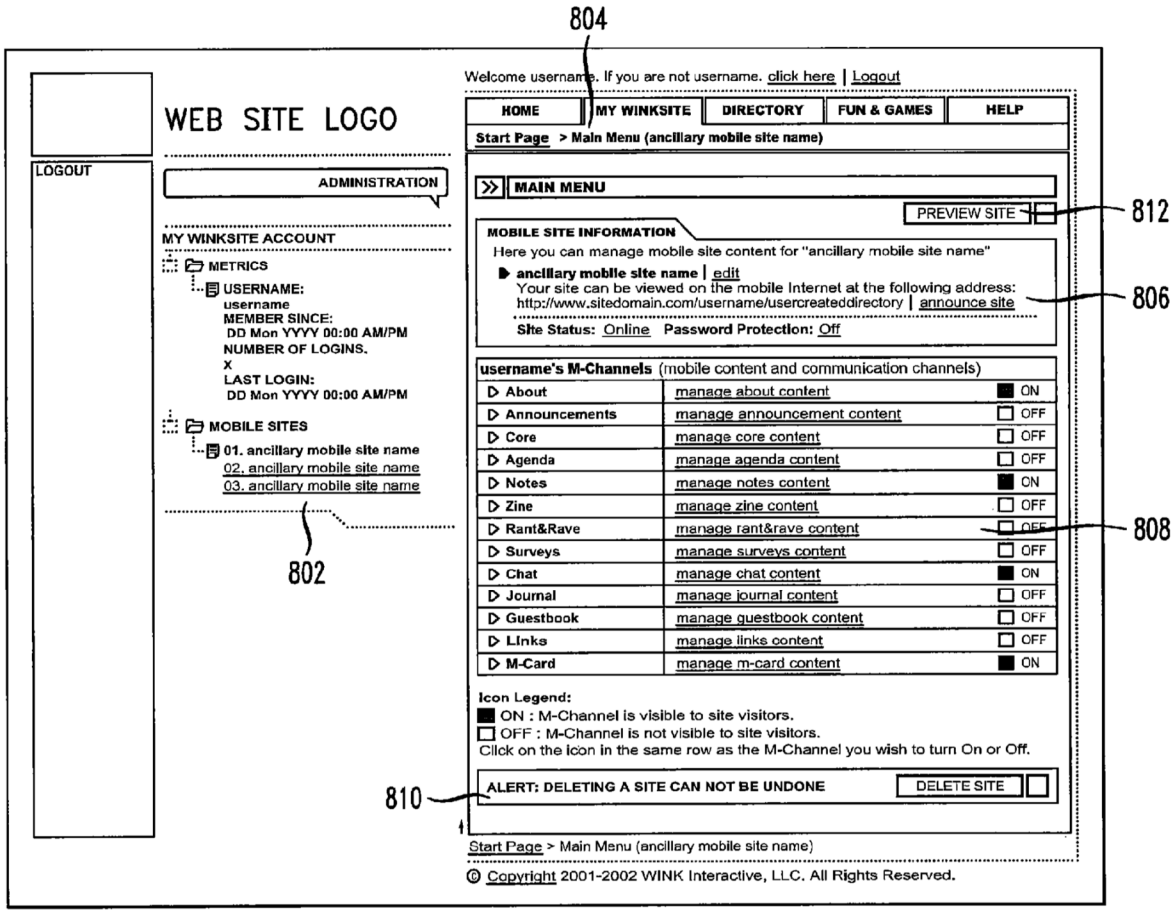
27. The Background purports to address the challenge of "facilitating the process of creating, publishing, distributing or otherwise managing information content so as to provide optimal presentation consistent with the limited display space and navigational capabilities of typical mobile devices." (EX-1001, 1:44-48.) This section also identifies "mobile telephones, personal digital assistants (PDAs), [and] palmtop computers" as typical mobile devices. (EX-1001, 1:37-38.) Further,

the ’039 patent admits in this section that it is “well-known” these wireless devices “provide access to the Internet” and “support other types of wireless networking functionality, such as messaging, distributed collaboration, and location-based services.” (EX-1001, 1:38-43.)

28. The patent discloses that the system “provides at least one content management site accessible to a system user” including “M-channels” which “allow unsophisticated users to easily and efficiently author message data or other types of information content to be made accessible via a collaborative workspace, a data mailbox, a collaborative community, or other type of mobile site.” (EX-1001, 5:6-7, 8:5-10.) Such mobile sites may be associated with “a group comprising multiple members having a common interest,” (EX-1001, 6:18-20), “an event,” (EX-1001, 6:38-43), “a game,” (EX-1001, 7:18-19), or “a user of IM, SMS, MMS, email or other type of messaging service,” (EX-1001, 7:30-32), among other associations. (EX-1001, 6:18-7:67.)

29. The main menu page in this example includes information identifying user account information and the particular mobile sites associated with that user, page navigational links, mobile site information associated with a selected one of the mobile sites associated with the user, M-channel information, and a delete site field. (EX-1001, 13:35-41.)

FIG. 8



'039 patent, Figure 8

30. According to the '039 patent, these "M-channels allow unsophisticated users to easily and efficiently author message data or other types of information content to be made accessible via a collaborative workspace, a data mailbox, a collaborative community, or other type of mobile site or portion thereof generated or otherwise managed in the system 10." (EX-1001, 8:5-11).

31. The '039 patent provides examples of M-channels:

> Examples of M-channels suitable for use in the illustrative embodiment include channels denoted herein as mobile

> ID/business card (also referred to as a "contact" M-channel), announcements, chat, events, guest book, diary/journal, bookmarks/links, discussion forum, survey/poll, newsletter/zine, notes, email, address book, contribute/ donate, mobile volunteer management, company directory, in/out board, field reports, feedback, form builder, live data/in-out syndication, mobile document library, products catalog/shopping cart, services catalog/shopping cart, appointments, task list/assignments, promotions, offers, coupons, sweepstakes, contests, photo blog, etc.

(EX-1001, 8:21-32.).

B. Level of Ordinary Skill in the Art

32. I understand that certain issues relating to the validity of the '039 patent must be judged from the perspective of a person of ordinary skill in the relevant art, as I discuss below. I have been asked to define the level of a "person of ordinary skill in the art" or "POSITA" at the time of the alleged invention as claimed was made. In deciding the level of ordinary skill, I have considered the following factors, which I have been informed are relevant to the determination of ordinary skill in the art.

- levels of education and experience of persons working in the field;
- types of problems encountered in the art;
- prior art solutions to these problems;
- rapidity with which innovations are made; and
- sophistication of the technology.

33. In my opinion, a POSITA would have had a bachelor's degree in electrical engineering, computer science, or similar field, with two years of experience in developing and implementing network-based computer systems that interact with mobile devices, such as systems for storing and retrieving information over the Internet or communicating using the Web using wireless mobile devices. A person could also have qualified as a POSITA with some combination of (1) more formal education (such as a master's of science degree) and less technical experience, or (2) less formal education and more technical or professional experience.[1]

C. Prosecution History

34. During prosecution, the Examiner rejected the filed claims as obvious over the prior art combination of U.S. Publication 2002/0060246 to Gobburu in view of U.S. Patent 6,594,347 to Calder. (EX-1002, 160-66.) In response, Applicants argued that Calder failed to disclose "*providing the content and determined information to at least one server for insertion into a specified application-based information channel.*" (EX-1002, 233-34.) Applicants also amended the independent claims 1, 18, 19, and 23 to overcome the rejection. Claim 1 was amended to add the

[1] I understand that PO did not dispute this characterization of a POSITA in the Meta-MDT-IPR.

following limitations, where the added limitations are underlined, and deleted limitations are struck through.

> 1. (Currently amended) A method comprising:
>
> ~~obtaining~~ capturing content at a mobile device;
>
> identifying a previously established application-based information channel into which the captured content is to be inserted, the identified application-based information channel permitting interaction between a user of the mobile device and one or more additional users;
>
> determining information associated with at least one wireless networking functionality of the mobile device~~ responsive to user input~~; ~~and~~
>
> providing the captured content ~~and determined information~~ from the mobile device to at least one server for insertion in association with the determined information into ~~a specified~~ the identified application-based information channel; and
>
> receiving other content, at the mobile device via the identified application-based information channel, from at least one of the additional users.

('039 PH at 227.) Corresponding amendments were made to claims 18, 19, and 23.

35. Following these amendments and remarks, the Examiner issued a Notice of Allowance, stating the prior art of record "does not teach or suggest in detail" the following limitations: "identifying a previously established application-based information channel into which the captured content is to be inserted, the

identified application-based information channel permitting interaction between a user of the mobile device and one or more additional users; determining information associated with at least one wireless networking functionality of the mobile device; [and] providing the captured content from the mobile device to at least one server for insertion in association with the determined information into the identified application-based information channel …" (EX-1002, 305.)

D. Claim Construction

36. I understand that "claim construction" is the process of determining a patent claim's meaning. I understand that the Patent Office applies the same claim construction standard used in district courts which seeks to give claim terms their plain and ordinary meaning to a POSITA at the time of the claimed invention in view of the claims, specification, and prosecution history. I also understand that if the patent applicant gave a term a special meaning in the specification or during prosecution, then the special meaning should be used.

37. I understand that in the Meta-MDT-IPR and the co-pending district court litigation, *Mobile Data Tech. v. Meta Platforms*, No. 3:24-CV-00896-WHA (N.D. Cal.) (transferred from No. 7:22-cv-00244-ADA-DTG (E.D. Tex.)). ("Meta-MDT District Court Litigation"), Meta and Patent Owner have taken the following claim construction positions:

1. "Mobile Device"

38. I dispute Patent Owner's narrow Meta-MDT-IPR and Meta-MDT-Litigation constructions because they are contrary to the express definition in the specification. (*See, e.g.,* EX-1001, 4:26-29 ("The term 'mobile device' as used herein is intended to include, without limitation, any type of portable information processing device capable of being configured for communication over a network.").)

39. I apply the plain meaning for the term which is consistent with Meta's Meta-MDT-IPR and Meta-MDT-Litigation constructions.

MDT-Meta District Court Litigation	
PO	plain and ordinary meaning; alternatively, "a piece of handheld equipment"
Meta	"any type of portable information processing device capable of being configured for communication over a network, including but not limited to a mobile telephone, a personal digital assistant (PDA), a palmtop computer, a hand-held computer, a laptop computer, a tablet computer, a global positioning system (GPS) receiver or other GPS-based navigational device, an MP3 player or other type of audio player, a pager, a watch or other timepiece, a camera, or a portable game player"
Meta-MDT IPR	
PO	"a portable device with limited display space and limited navigational capabilities that connects to a mobile site and/or mobile channel via a wireless network"
Meta	construed based on express definition: "The term 'mobile device' as used herein is intended to include, without limitation, any type of

	portable information processing device capable of being configured for communication over a network"

2. "Application-Based Information Channel"

40. The term "*application-based information channel*" is not used in the '039 patent's detailed description. The only mention of "*application-based information channel*", outside the claims, appears in the Summary of the Invention, which I understand was added in the application for the '039 patent and therefore does not appear in the June 2002 provisional or the June 2003 patent application to which the '039 patent claims priority.

41. I note that the term "channel" has different meanings based on the context in which it is used. For example, in the context of an Internet Relay Chat (IRC), a channel is "a named, topical-focused forum where you can chat in real time with other computers." (EX1032, at 98.) For media pushed to a user device, the term "channel" is "a named link to a network-based transmitter to which a user can tune." (EX1032, at 98.) The agreed upon construction uses the term in a manner consistent these exemplary meanings.

42. I understand that Meta and PO agreed to the construction "a computer program-based medium for transferring information" for the purpose of the Meta-MDT-IPR.

MDT-Meta District Court Litigation	
PO	plain and ordinary meaning; alternatively, "a computer program-based medium for transferring information"
Meta	"a virtual location at the content management site at which user-authored content may be added for transmission to the mobile web site"
Meta-MDT IPR	
PO	"a computer program-based medium for transferring information"
Meta	"a computer program-based medium for transferring information"

3. "Wireless Networking Functionality of the Mobile Device"

43. In the Meta-MDT-IPR, the parties dispute the construction primarily on the inclusion of language: the "wireless network [is] independent of the Internet." While I also dispute Patent Owner's construction, the prior art presented in this Declaration discloses the term under both constructions.

Meta-MDT-IPR	
PO	"functionality implementable by the mobile device via the wireless network independent of the Internet"
Meta	to the extent the phrase requires express construction "functionality implementable over a wireless network"

4. "Wireless Network"[2]

Meta-MDT-IPR	
PO	"a network separate from the internet that facilitates connection to the internet by mobile device"
Meta	to the extent the phrase requires express construction, "a network that allows a device to communicate wirelessly over a network"

44. For purposes of my analysis here, I do not believe express claim constructions are necessary for the terms of the challenged claims, because the prior art renders the claims obvious under any of the proposed constructions identified above or any other reasonable construction.

45. In view of this, my analysis discusses the proposed constructions and explains why, under each of them, the limitations are disclosed and rendered obvious by the prior art.

IV. Application of the Prior Art to Challenged Claims

46. In my opinion, the challenged claims of the '039 patent would have been obvious to a POSITA based on the following combinations of the prior art.

[2] The term "*wireless network*" does not appear in the challenged claims of the '039 patent. However, the term is incorporated into Patent Owner's proposed construction of "*wireless network functionality of the mobile device*."

Ground	Claims	Prior Art
1	1-4, 8, 9, 13-15, 17-20, 22-25, and 28-30	Neibauer (**EX1003**), Cheng (**EX1005**), Squibbs (**EX1011**), and Ausems (**EX1006**)
2	21	Ground 1 Prior Art + Bandera (**EX1017**)
3	1-4, 8, 9, 13-15, 17-20, 22-25, and 28-30	Ground 1 Prior Art + Harvey (**EX1010**)
4	21	Ground 2 Prior Art + Harvey

47. Grounds 3-4 are substantially the same as Grounds 1-2, except that they add Harvey (**EX1010**) to account for Meta's construction of "*application-based information channel*" that was proposed in the Meta-MDT District Court Litigation, to the extent that construction were adopted here. As noted above, for purposes of my analysis here, I do not believe express claim constructions are necessary for the terms of the challenged claims, because the prior art renders the claims obvious under any of the proposed constructions.

48. I am informed by counsel that each of the references listed above qualifies as prior art to the challenged claims because each reference was filed and/or published before the earliest priority date for the challenged claims (June 18, 2002).

A. Ground 1: Claims 1-4, 8, 9, 13-15, 17-20, 22-25, and 28-30 Are Obvious Over Neibauer in View of Cheng, Squibbs, and Ausems.

1. Neibauer (EX1003)

49. Neibauer is a book entitled *How to Do Everything With Yahoo!* by Alan Neibauer. I am informed that Neibauer qualifies as prior art because it was published before the earliest priority date applicable to the challenged claims.

50. Neibauer describes various features of Yahoo!, a popular and well-known online during the 1990s and early 2000s. Neibauer explains that "Yahoo! is your portal to the best of everything that the Internet has to offer." (Neibauer, p.4.) Yahoo! was widely known in the 1990s for providing one of the first online search engines, but by 2000 had expanded its offerings to provide additional features including email, shopping, news, weather, and sports, among other services. (Neibauer, pp.9-15, 17-18.)

51. One of the features of Yahoo! described in Neibauer was called Yahoo! Clubs. Yahoo! Clubs provided users the ability to create online communities through which users could share information. As Neibauer explains: "[a] *club* is a group of Yahoo! members who share a common interest. Each club has its own message board, chat room, as well as places to share photographs, news, addresses, and links." (Neibauer, p.473 (italics in original).)

52. Clubs were accessible from a webpage on the Yahoo! website at http://clubs.yahoo.com. The Yahoo! website allowed users to search existing clubs relating to specific topics of interest. (Neibauer, p.473.)

53. For example, Figure 21-7 of Neibauer is a screenshot showing a list of Yahoo! clubs relating to the James Bond series:

Clubs for *James Bond Series* *(83)* **Most Popular** A-Z Index New Clubs

Rank	Club Name	Description	Members
1.	Dr No	"No, Mr Bond, I expect you to die!"	180
2.	The Official James Bond 007 Club	James Bond IS official!	117
3.	The James Bond Movie Series	The James Bond place to talk about the movies.	114
4.	The Club of James Bond	The Ultimate Top Secret Dossier of James Bond Fans	94
5.	Bond Girls	A site with over 120 Bond Girl pictures ! NOT PORN!	74
6.	The James Bond 007 Club		70
7.	James Bond Heaven	A great place to hangout for Bond nuts!	37
8.	World Of Bond	Discuss James Bond Movies, Games & Music!	34
9.	British Intelligence HQ	Where international espionage is a daily event	26
10.	The World Of James Bond	Absolutely James Bond	25
11.	James bond 007 2	if you like James bond your like this.	24
11.	James Bond's Secret Service	Shaken, Not Stirred	24

FIGURE 21-7 Club listings

(Neibauer, p.474, Fig. 21-7.)

54. Neibauer explains that, to visit a club of interest, the user simply clicks the hyperlink for the club. (Neibauer, p.473.) For example, clicking on the third link shown in Figure 21-7 above ("The James Bond Movie Series") shows the club page shown in Neibauer Figure 21-8:

YAHOO! CLUBS
Clubs Top – Yahoo!
Our Pages
Home
Messages
Photos
Chat
News
Links
Contacts
Calendar
Sponsored by:
Get It Here!
Member Tools
Invite

The James Bond Movie Series
The James Bond place to talk about the movies.
Category: James Bond Serie
Club Type: Liste

You are a **guest**.
Join this club

Founder's Message

JAMES BOND is probably one of the best movie series I know of other than Star Wars. Here there are pictures, info, and links to other James Bond sites. If you know any please put add them.

Founder's Personal Home Page

Last edited by: shaner303

Chat Room enter

Overview

Online Now (4 members) view all online
Click on name to talk now: davidlaw_1975, paintballboy12, bond_freak2000, Cantana_Ma

Recent Messages post | view all

Mar 19 **GOLDENEYE SITE! -scottdaman2000**
Scott's Goldeneye Fiesta. Either for help or to celebrate your victory!

Mar 8 **BOND GIRLS ADDRESS NEEDED FOR AUTOGRAPHS -nick_jb007**
DOES ANYONE KNOW ANY BOND GIRLS ADDRESS FOR A AUTOGRAPH I REALLY NEED TO K

Mar 3 **TWINE on video and DVD! -_Lawrence_3**
Check this out folks..

Feb 12 **The best of Bond -davidlaw_1975**
Hi, I am a new member of the club and I would like to express my comments

Feb 12 **The best of Bond -davidlaw_1975**
Hi, I am a new member of the club and I would like to express my comments

FIGURE 21-8 Club page

(Neibauer, p.475, Fig. 21-8.)

55. The user can join this club by clicking "Join this club," as seen on the top-right in Figure 21-8. (Neibauer, p.475.) Neibauer discloses that after joining, "other members will see your name on the top of the page with the list of members who are online." (*Id.*)

56. Each club offers a number of features, accessible from the links shown under "Our Pages" as seen on the left side of Figure 21-8 above. For example, each club has its own private message board ("Messages"), allows users to share photographs and make photo albums ("Photos"), engage in private chat with club members ("Chat"), view news headlines ("News"), share website links

with other club members ("Links"), obtain contact information about club members ("Contacts"), and post and view events of interest to club members ("Calendar"). (Neibauer, pp.477-480.)

57. Yahoo! members could also create their own clubs. (Neibauer, pp.480-82.) For example, a member can select a category and then click "Create Club." This would cause a form to appear asking for information about the new club. (Neibauer, p.481.) Neibauer's Figure 21-12, below, shows an exemplary web form for creating a new Yahoo! Club:

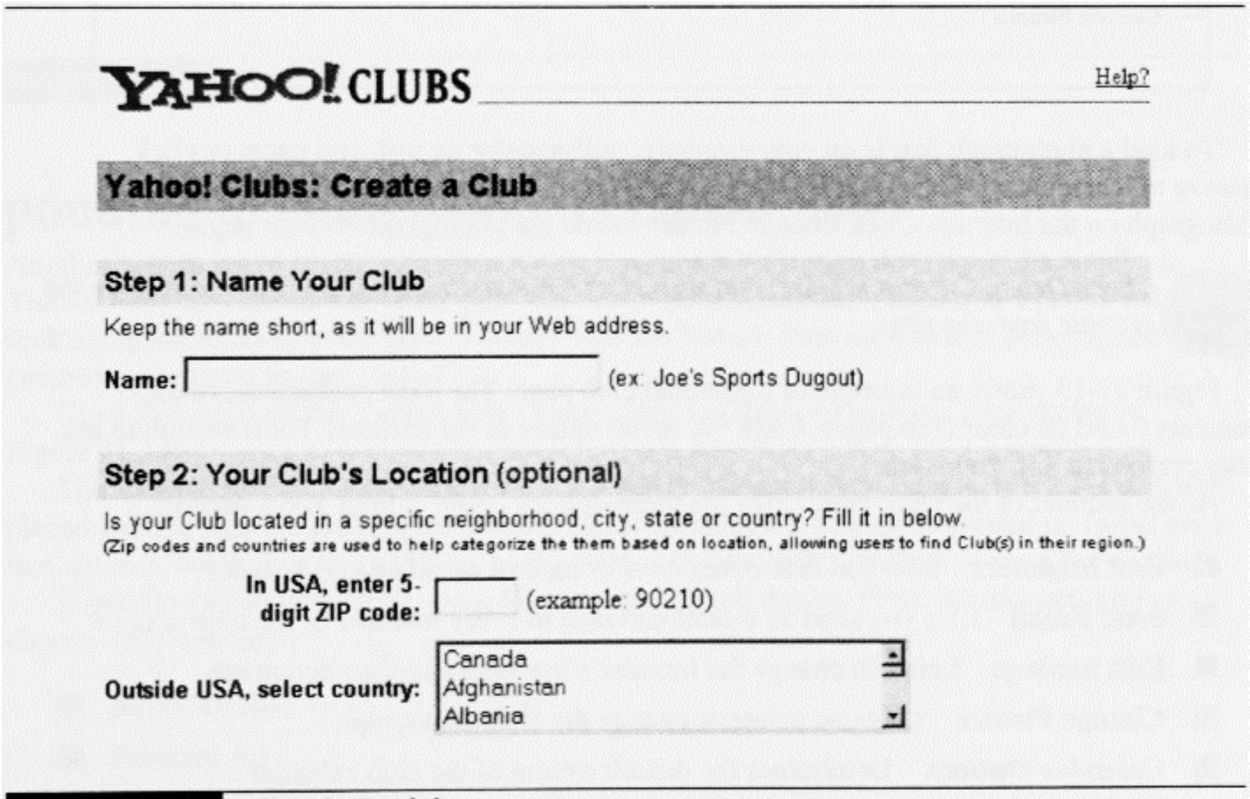


FIGURE 21-12 Creating a club

(Neibauer, p.481, Fig. 21-12.)

58. As shown in Figure 21-12 above, a club founder could specify a name for the new club, and optional zip code or country information. (Neibauer, p.481, ¶¶3-5.) The founder could also select whether the new club will be either "listed" or "unlisted." (Neibauer, p.481, ¶6; *see also* Neibauer, p.473.) "A listed club is one that is open to all Yahoo! members." (Neibauer, p.473.) The exemplary James Bond Series club, shown in Figure 21-8 above, is a listed club. (Neibauer, p.475, Fig. 21-8 (top right: "Club type: Liste[d]").) An unlisted club, on the other hand, "is private. Only Yahoo! members who were invited to join may join the club and be able to access it." (Neibauer, p.473; *see also id.*, p.475 ("You must be invited to join an unlisted club.").) "An unlisted club is ideal for sharing private information with family members or business associates." (Neibauer, p.473.)

59. The club founder could also specify additional content that will appear on the club page, such as a brief textual description that will appear under the club name, a short founder's message, a web address for the founder's personal home page, and a club picture. (Neibauer, p.482, ¶¶1-3.) For the club picture, the founder could either select a photo from their own computer, or include a link to a location of a photograph on the web. (Neibauer, p.482.) An exemplary "unlisted" club created using these techniques is shown in Neibauer's Figure 21-13 below:

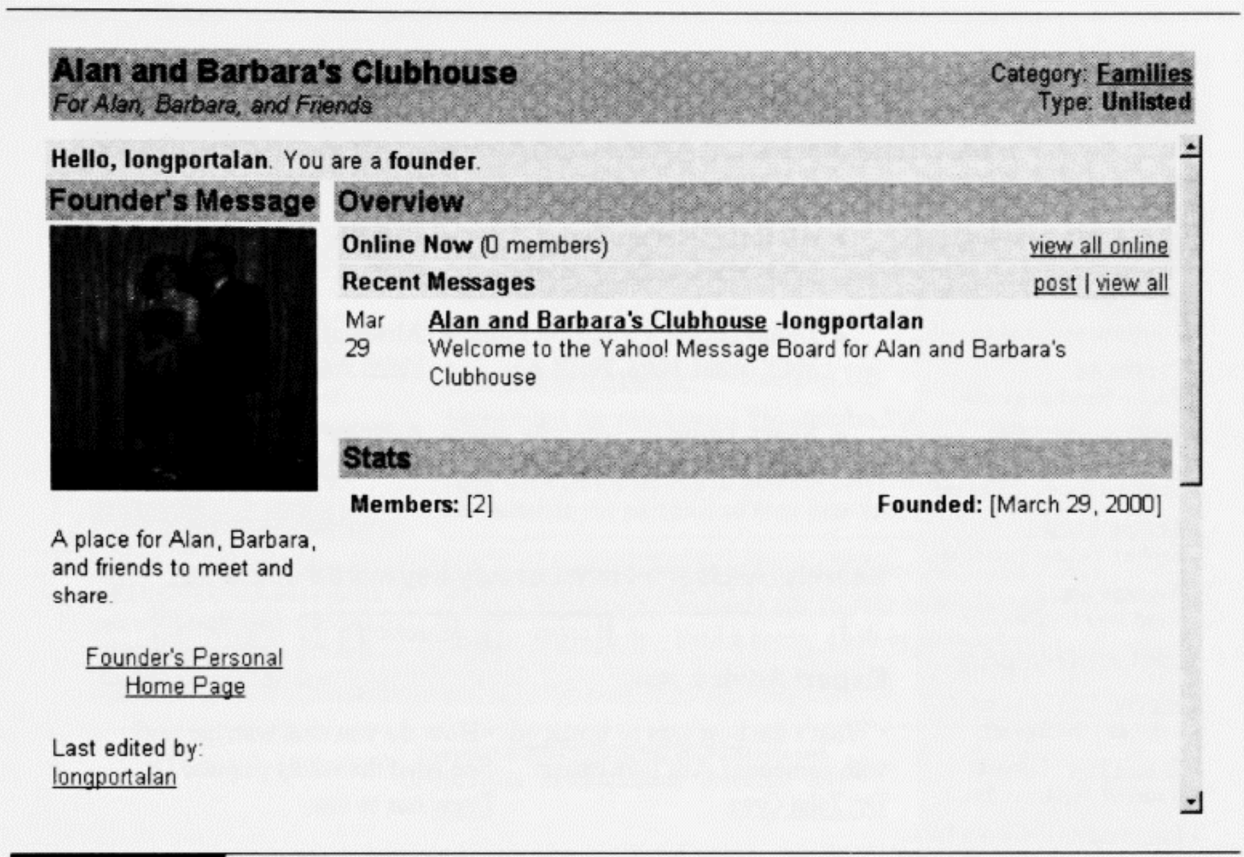


FIGURE 21-13 A Personal club

(Neibauer, p.483, Fig. 21-13.)

60. Neibauer explains that "Figure 21-13 shows an example of a personal club page. The page contains all of the elements found on other club pages. Click the Invite option in the Member Tools section to ask other persons to join your club." (Neibauer, p.482.)

61. Neibauer discloses several ways in which a club founder can manage the content of the club. Neibauer describes that "[a]s the club founder, you can invite others to join, delete members, control the contents of photo albums, and customize the photo and messages on the club's home page." (Neibauer, p.480.)

62. Neibauer also discusses Yahoo! Mobile and Yahoo! To Go, which enabled content from Yahoo! services to be provided to mobile devices such as pagers, cell phones, web phones, and personal digital assistants (PDAs). (Neibauer, pp.166-174.) "Yahoo! To Go lets you receive Yahoo! information on your mobile device." (Neibauer, p.167.) "The Yahoo! To Go option lets you set up your mobile device and Yahoo! so that they work together, as well as specify the content that will be sent to your device." (*Id.*) For example, one option referred to as "Yahoo! On Your PDA" allowed users of browser-enabled PDAs, such as Palm, Windows CE and smartphone devices, to select particular types of Yahoo! content accessible from their PDA. (Neibauer, pp.171-174.)[3]

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[3] The term PDA, an acronym for **p**ersonal **d**igital **a**ssistant, was commonly used in the 1990s and early 2000s to refer to a handheld mobile device such as handheld personal computer, tablet, or smartphone that typically provided a touchscreen display or input device, and offered communications capabilities either through a wired telephone connection or a wireless modem. By the late 1990s, popular examples of PDAs included the "Palm Pilot" line of handheld devices sold by Palm Computing, Inc., and handheld computing devices designed to run Microsoft Windows CE, a version of the popular Windows operating system optimized for smaller mobile devices. By the mid-2000s, with the widespread

63. In the clubs setting, Neibauer describes a basic client-server infrastructure. Each club has its own message board and chat room, which would be hosted at the server. (Neibauer, p.473.) The server allows different client devices to communicate therewith so that users within given clubs can engage in various types of communication with each other including exchanging messages, chats, and photographs. (Neibauer, pp. 477.)

64. One example that Neibauer walks through is sharing photographs within a club. (Neibauer, p. 477.) A member of a club can upload a photo to the shared server space, which allows for 5 MB of photo storage across the club. (Neibauer, p. 477). While 5 MB of photographs is relatively small in today's market where substantially higher resolution photographs are taken by our smartphones, twenty-plus years ago meaningfully more photographs would be stored. As Neibauer shows, graphic images at that time were only a couple hundred KB – 5 MB = 5000 KB. (Neibauer, p. 477.)

65. To effectuate this exchange, a client device would have to have access to the club server and bi-directional communication would be required. A client

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adoption and use of modern smartphones with touchscreen displays that incorporated many of the characteristics of earlier PDAs (as exemplified by the Apple iPhone introduced in 2007).

device could send files to the server – i.e., upload files – likewise the client device could receive files from the server – i.e., download files. Neibauer discusses several other features of the overall Yahoo! infrastructure that emphasize uploading and downloading between client devices and servers in ordinarily known architectures was well known. (*E.g.*, Neibauer, p. 116 (describing uploading a professionally designed Web site); p. 156 (describing the Briefcase where users can download from the internet shared documents up to 5 MB).)

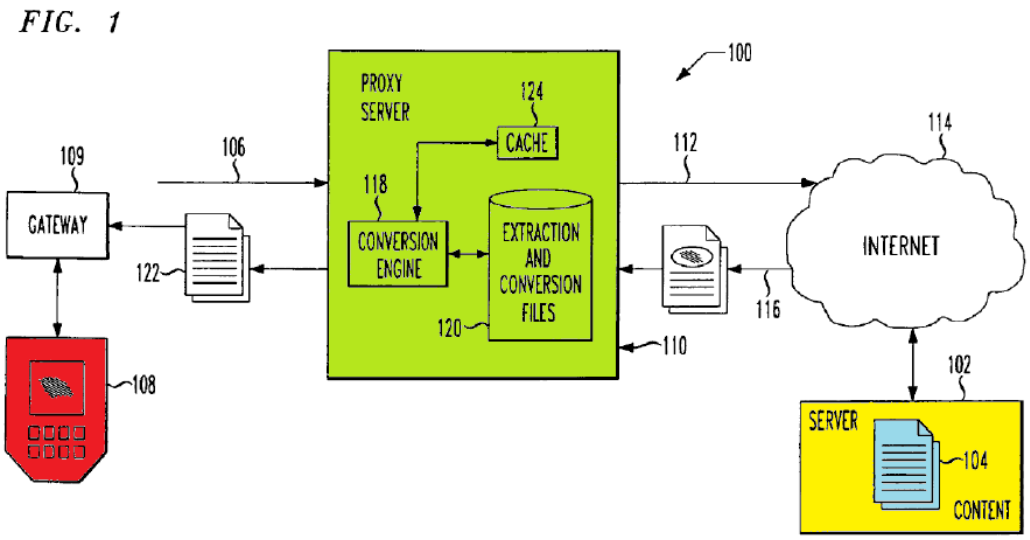
66. Neibauer does not describe using a proxy server in its client-server infrastructure. As explained below with respect to Cheng, a possible configuration for Neibauer, especially in implementing Yahoo! To Go for PDAs, would have been using a proxy server to assure that the information displayed on PDAs would be formatted correctly for the device if, for instance, the server information was stored in a fashion to best facilitate communications with PCs (personal computers), which typically had and have different display capabilities than PDAs.

2. Cheng (EX1005)

67. Cheng, U.S. Patent No. 7,574,486 B1, is entitled "Web Page Content Translator." I am informed that Cheng qualifies as prior art because it is a United States patent that issued from an application filed on November 8, 2000, which is before the earliest priority date of the challenged claims.

68. Cheng discloses a technique for translating the pages of existing websites into a format suitable for display on a mobile device. (Cheng, Abstract ("A system, method, and computer readable medium for reformatting web content into a format readable on one or more mobile devices is provided.").) Cheng explains that "[b]ecause of the explosion of mobile enterprise solutions, users of wireless devices now demand that businesses deliver web content for viewing on desktop, or mobile/portable (e.g., handheld) devices." (Cheng, 1:19-22.) Cheng explains that this "generally required organizations to develop and maintain multiple sets of content, one for viewing in a desktop environment, and others for viewing on each individual type of mobile device." (Cheng, 1:28-32.)

69. To address this issue, Cheng discloses a system and method for dynamically reformatting or converting existing web content into a format suitable for a mobile device. (Cheng, *e.g.*, 2:19-32, 3:21-26.) Cheng's Figure 1 illustrates an architecture **100** of one embodiment of the system and method of Cheng:



(Cheng, Fig. 1 (color annotation added).)

70. The right side of Cheng's Figure 1 above shows an origin web server **102** that contains original web page **104**. (Cheng, 3:36-37 ("In this context, an origin web server **102** is a web server that contains the original web page **104**.").) Web page **104** "is typically an HTML file with references to any component .wav, .mov, and/or Joint Photographic Experts Group (JPEG) files, which together comprise the web page **104**." (Cheng, 4:10-13.) "It is envisioned that each instance of web content **104** each have associated therewith a URL." (Cheng, 3:56-57.) A POSITA would have recognized that Cheng's web page **104** could have been represented by any web page in HTML format reachable via the Internet.

71. Figure 1 shows mobile device **108** connected to proxy server **110**, optionally through gateway **109**. (Cheng, 3:33-36.) "Mobile devices **108** generally come in a variety of different sizes and have a variety of different screen

interfaces… [T]he present invention provides the ability to uniquely tailor web page **104** content for specific mobile devices **108**." (Cheng, 5:11-15.) Cheng explains that, in one example, mobile device **108** could be a mobile device with a Palm operating system that includes a web browser. (Cheng, 5:17-23, 2:8-15.)

72. The middle of Figure 1 shows proxy server **110**. The term "proxy server" refers to a well-established and common technique for facilitating communication and/or interoperability between devices. The use of this technique was widespread long before Cheng. Proxy servers typically sit between one or more client and one or more server computers, and intercept and filter communications between them for a variety of purposes. For example, proxy servers were commonly used for security purposes to intercept and prevent unauthorized communications from or to client devices, and for format or content conversion purposes (commonly referred to as "transcoding"). (*See* Uwe Hansmann et al., *Pervasive Computing Handbook* (2001) (**EX1012**), p.35 ("A proxy server at AvantGo.com modifies the Web pages in a way that they can be displayed on Palm devices."), p.320, §14.3 ("Transcoding is a content adaptation technology, which tailors information for a specific device by transforming its format and representation."), p.321 ("Transcoding is typically done by a gateway or proxy, which intercepts the data exchange between the content server providing multimedia data and the client rendering the received information.").)

73. Cheng discloses a format conversion proxy server that translates web pages and requests between mobile device **108** and proxy server **110**. As Cheng explains, proxy server **110** "'sits' between the clients (e.g., the mobile device(s) **108**) and the origin web server(s) **102** that provide Web content **104**." (Cheng, 3:31-33.) Proxy server **110** "obtains the code (e.g., HTML) of the user requested web page **104**, and modifies it at the proxy server **110** (once obtained)," which can include "reformatting and/or converting an entire web site or request specific Web content that is needed from the origin web server **102**." (Cheng, 3:41-48.) Proxy server **110** can store a device profile for mobile device **108** based on the type of mobile device and its web browser. (Cheng, 5:20-23 ("To create a device profile, both the specific version of a mobile device **108** and its web browser (e.g., a Palm V with browser A, etc.) are needed.").) This is consistent with known proxy server techniques.

74. The operation of proxy server **110** is generally straightforward. As shown in Figure 1, mobile device **108** issues a request **106** for an original web page **104** using standard HyperText Transport Protocol (HTTP), as was well-known in the art, with the request **106** being received by proxy server **110**. (Cheng, Fig. 1, 2:19-21, 3:58-67, 7:65-8:2.) Cheng describes that "[u]pon determining that the requested page **104** resides at the server **102**, the proxy server **110** makes a request **112** for the page. As shown, the proxy server **110** and the server **102** are connected

via a network **114** such as the Internet." (Cheng, 3:65-4:2; *see also id.*, 2:21-24.) Proxy server **110** then converts and/or reformats original web page **104** into reformatted web page **122** (shown in Figure 1), which is transmitted to mobile device **108**. (Cheng, *e.g.*, 2:24-29, 5:46-49, 4:56-60.) As Cheng describes: "[t]he designated HTML content of the retrieved web page **104** is extracted, subsequently and/or converted, and transmitted as a reformatted web page **122** to the mobile device **108**." (Cheng, 5:46-49; *see also id.*, 3:22-26 ("Referring now to FIG. 1, it is envisioned that a proxy server **110** reformats/converts web content **104** on an origin web server **102** into a format **122** readable on any mobile device **108** (which can be any number of different mobile device types).").)

75. Cheng explains that, by using the disclosed proxy server conversion method:

> Embodiments of the present invention contemplate that web-based content can be created one time, whereafter at least a portion thereof is extracted, reformatted, and transmitted to, for example, one or more handheld device browsers (e.g., the Palm Web Clipping Browser from Palm, Inc., Santa Clara, Calif., Pocket Internet Explorer from Microsoft Corp, Redmond, Wash., and Wireless Access Protocol (WAP) on smart phones, etc.). This create-once, deliver-everywhere approach eliminates the need to build and maintain separate web pages for different devices and browsers, as well as the need to install proprietary browser software on the handheld device(s).

(Cheng, 2:8-19.)

3. Ausems (EX1006)

76. Ausems, U.S. Patent No. 6,434,403 B1, is entitled "Personal Digital Assistant with Wireless Telephone." I am informed that Ausems qualifies as prior art because it is a United States patent that issued from an application filed on February 19, 1999, before the earliest priority date of the challenged claims.

77. The Background of Ausems explains that "[t]he popularity and use of Personal Digital Assistants (PDAs) and wireless telephones has increased in recent years. A PDA or hand-held computer is primarily a lightweight, compact productivity and communications tool that can typically be held in one hand, leaving the other free to input data with a pen type stylus or a reduced size keyboard. A PDA provides computing and information storage and retrieval capabilities for personal or business use." (Ausems, 1:12-19.) Ausems further explains that "[i]ncreasingly, wireless telephones are being combined with PDAs in order to perform more advanced functions, such as transmitting, receiving and displaying text messages." (Ausems, 1:27-30.) This was well known in the art.

78. Ausems discloses a portable mobile device that combines the functionality of a PDA with a wireless telephone. (Ausems, 3:5-8.) This PDA telephone device **100** includes, among other things, a touchscreen display. (Ausems, *e.g.*, 1:57-58, 4:30-39, 6:9-14.) Ausems' device also includes a camera for recording and storing images, which can be transmitted. (Ausems, *e.g.*, 2:5-6,

5:17-18 ("Camera **190** records video images and stores them within. Additionally, video images recorded by camera **190** may also be transmitted from PDA telephone **100** in real time during a telephone call (thus allowing for video conferencing).").)

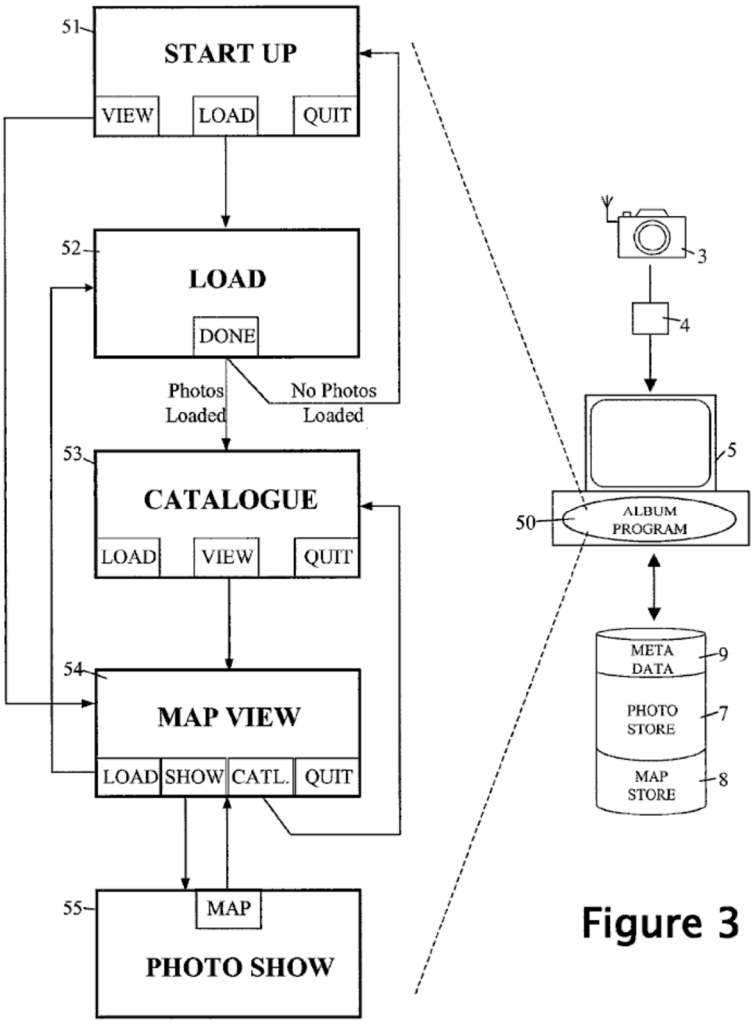
4. Squibbs (EX1011)

79. Squibbs, U.S. Patent Application Publication No. 2001/0015759 A1, is entitled "Location-Informed Camera." I am informed that Squibbs qualifies as prior art because it is a United States patent application filed on February 21, 2001 and published on August 23, 2001, both dates being before the earliest priority date of the challenged claims.

80. My analysis of Squibbs primarily relates to limitations in independent claims 1, 19 and 23, and dependent claims 13, 15, and 20, relating to the integration into a mobile information channel of "*information associated with at least one wireless networking functionality of the mobile device*," in particular, information relating to the location of a mobile device.

81. Squibbs describes a technique of recording and displaying data (such as photos) along with the location where the photo was taken. (Squibbs, Abstract.) Squibbs explains that digital cameras that included Global Positioning System (GPS) receivers were known in the art, as were systems that could display the location where the photo was taken on an electronic map. (Squibbs, ¶¶0003-0004.)

82. Squibbs discloses a photo album system that allows a user to record digital images, which can be associated with the geographic location where they were taken. An overview of the system is shown in Figure 3:



(Squibbs, Fig. 3.)

83. As further explained in Squibbs, with reference to Figure 3:

> FIG. 3 depicts a photo system in which a digital camera **3** provided with location determining means (such as a GPS receiver) is used to generate digital photos **4**, each photo (also referred to as 'image data') **4** being stamped with location data indicating where the photo was taken. Other

> data may also be associated with each photo, such as a timestamp, a camera ID, and a user ID; such associated data (including the location data) is herein referred to as photo meta data. The photos and their meta data are downloaded by any suitable means (USB connection, removable storage device, etc) into a PC **5** where an album program **50** serves to store the photos in a photo store **7** and the photo meta data in a meta-data database **9** (each photo and its meta data being linked by a suitable key associated with both). The album program also has access to a map store **8**. The stores **7** and **8** and the meta-data database can be on the PC or external.

(Squibbs, ¶0031.)

84. Squibbs also discloses an album program **50** as shown in Figure 3 that allows the user to "catalogue, manage, and view their photos through a map-based interface, the photos being represented on a displayed may by a marked indicating the location where they were taken." (Squibbs, ¶0032.) The album program as shown in Figure 3 comprises "five main operating modes **51** to **55**," as shown. (Squibbs, ¶0033.) For example, Load Mode **52** allows the user to download data from camera **3**, and Catalog Mode **53** allows the user to manage newly loaded photos using a map based display, and Map View Mode **54** allows the use to browse the photo album and select photos for viewing. (Squibbs, ¶¶0033, 0035-0036.)

85. Figure 6 shows a display generated by the album program in Catalog Mode **53** (Squibbs, ¶0064.):

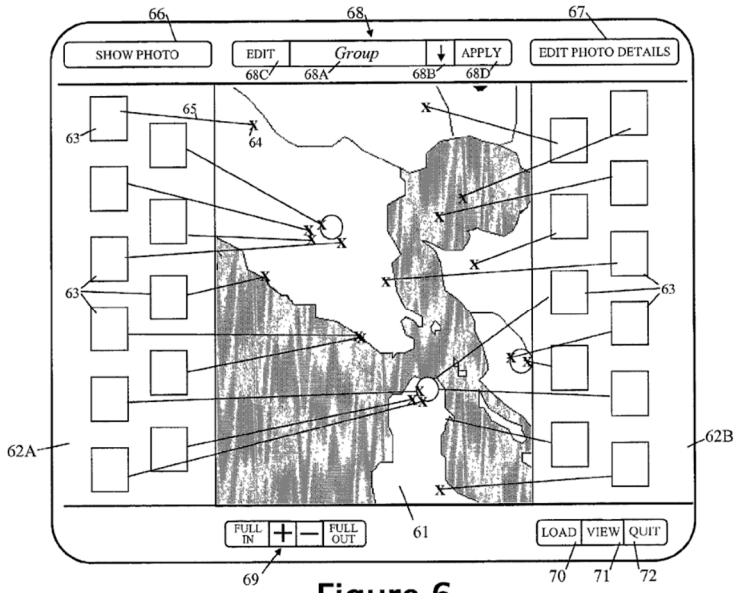


Figure 6

(Squibbs, Fig. 6.)

86. Figure 6 shows a central map area 61 which "is sufficient to encompass the locations registered for the newly loaded batch of photos." (Squibbs, ¶0064.) "A thumbnail **63** of each new photo is shown in one or other of the margin areas **62**A, B and a lead line **65** connects each thumbnail **63** to a corresponding marker 64 showing on the map the location where the photo was taken." (Squibbs, ¶0064.) Figure 6 also shows an upper control bar with, from left-to-right, Show Photo Control **66** for displaying the photo corresponding to a selected thumbnail **63**, Group Control **68** for creating groups and assigning a photo to one or more groups, and Edit Photo Details Control **67** for displaying and

editing the details of a selected thumbnail. (Squibbs, ¶¶0065-0068.) Figure 6 also "includes a zoom control **69** that enables a user to zoom in or out around a particular point on the displayed map." (Squibbs, ¶0071.)

87. Figure 7 shows a display generated by the album program in Map View **54** (Squibbs, ¶0074):

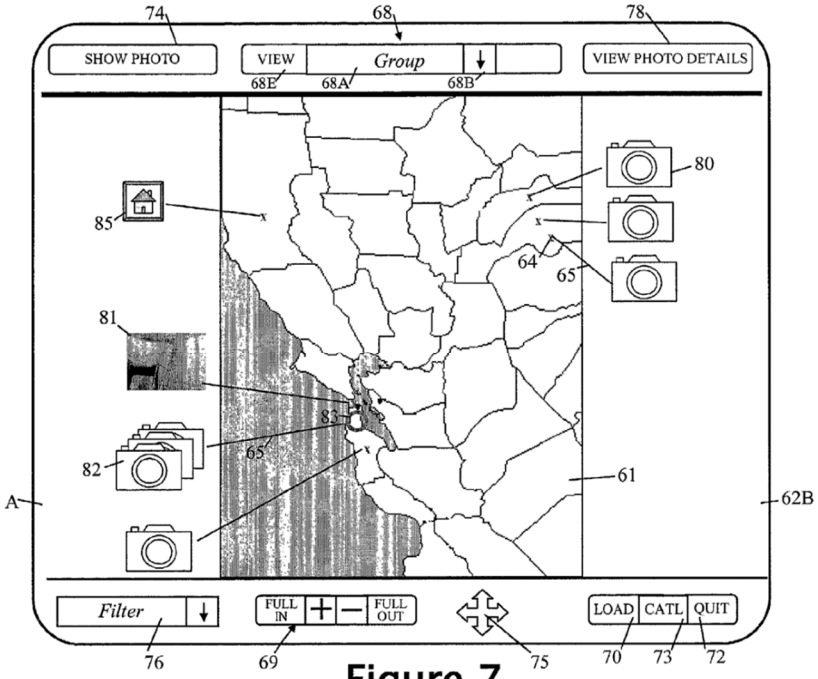


Figure 7

(Squibbs, Fig. 7.)

88. The Map View mode shown in Figure 7 allows a user to browse the album after it has finished editing the photo metadata and assigning the photos to groups. (Squibbs, ¶0074.) Squibbs explains that "[t]he starting map displayed in the Map View Mode is, for example, a world map or a map encompassing the locations of all the photos recorded in the album; alternatively, the map displayed

could be the same map as being used in the Catalogue Mode before transiting to the Map View Mode." (Squibbs, ¶0075.) Figure 7 shows photos represented "either as thumbnails **81**, individual photo icons **80**, group icons (see current-abode group icon **85**), or concentration icons (see icon **82**)." (Squibbs, ¶0075.) Squibbs also discloses (in Figure 8) the ability to display a full-size image of a photo selected from the Map View Mode. (Squibbs, ¶0091, Fig. 8.)

89. Squibbs discloses a number of ways in which a photo can be associated with location data. In the example above shown in Figure 3, the digital camera itself has a built-in GPS receiver. In another embodiment shown in Figure 11, a digital camera **90** transmits the photo image data to a cell phone **20**, which in turn uploads the image data over a cellular connection to service system **40** for storage on network store **43**. (Squibbs, ¶0101, Fig. 11 (showing transfer **105**); *see also id.*, ¶0031 (noting that the photo store can be "external").) The cell phone, concurrently with the upload of photo image data, also transmits location information associated with the photo image data. (Squibbs, ¶0101.) Squibbs explains that the cell phone can determine location information in a number of ways, including from "a location server of the mobile radio infrastructure," or using "a GPS system built into the cell phone." (Squibbs, ¶0098; *see also id.*, ¶0101.)

5. Motivation to Combine

90. **Motivation to Combine Neibauer and Cheng:** It would have been obvious to combine Neibauer with Cheng, predictably resulting in the club photo sharing feature described in Neibauer being accessible to club members via such devices as smartphones.

91. Under the proposed combination, client-side users would interface with the server via Cheng's proxy server. In this way, a user desiring to upload a photo from a smartphone, would send the photo via the proxy server to the server where it would be stored in the reserved photo storage space. That same user or another user could then interact with the server via Cheng's proxy server to download the photo from the server and assure that it would be displayed on the smartphone with appropriate sizing and formatting. Not only would the photo be viewable in proper formatting, but the Yahoo! Club interface would be tailored to the smartphone by the proxy server – as Cheng describes.

92. The implementation of the proposed combination would have been straightforward as Cheng provides "bolt-on" functionality, with the proxy server capable of converting and reformatting any existing HTML-based web page into a format suitable for display on a mobile device. (Cheng, *e.g.*, 2:30-32 ("The [reformatting] may be done for at least one of groups of devices, individual devices, web site-specific conversions, <u>or for all web sites</u>.").) It would have been

obvious that the proxy server, in the proposed combination, could have been operated by the same or a different entity from the operator of the origin web server.

93. In any case, all of the web-based club features in Neibauer, including the club photo sharing features described above to which I have mapped the claimed "*application-based information channel*," would have been available to users of mobile devices based on the proxy server techniques under the combination with Cheng. As Cheng discloses the ability to adapt any existing webpage for display on a mobile device, the proposed combination could have been implemented as a simple addition to the client-server infrastructure that would ordinarily be expected in Neibauer. Implementing a proxy server between a client and a server to efficiently assure the two sides are effectively communicating with each other would have been well-known in the art, but is also described in detail within Cheng.

94. This simple add-on – inserting a proxy server between the client and the server – would effectuate the same functionality that Neibauer describes. (Cheng, 2:8-19.) Not only would the functionality remain unchanged, it would be meaningfully improved considering that different classes of devices could better communicate (in both directions) with the server. This improvement provides one of the motivations to combine Cheng with Neibauer.

95. Neibauer and Cheng are both analogous references. The ’039 patent describes its “Field of the Invention” as relating generally to “network-based communication systems, and more particularly to techniques for information content management in such systems.” (’039 patent, 1:28-30.) Neibauer is an analogous reference in the same field as the ’039 patent that discloses similar functionality for managing information content accessible through the Internet, through a series of web-based information channels that provide the ability to exchange messages and collaborate among multiple users, and would have been reasonably pertinent to problems facing the inventors including how to implement a web-based system for managing information content and making that content available to users over the Internet. Cheng is also an analogous reference in the field of network-based communications systems, including the ability to make web-based information content available on mobile devices. Cheng would also have been reasonably pertinent to problems facing the inventors, including how to implement a web-based system for making information content available to mobile device users, further including how to properly format and deliver web content to mobile devices given their limited display space and navigational capabilities, an issue that the ’039 patent specifically identifies as an “important challenge.” (’039 patent, 1:44-48.)

96. A POSITA would have been motivated to combine Neibauer with Cheng. Neibauer itself suggests the proposed combination by disclosing services such as "Yahoo! Mobile" and "Yahoo! To Go" that enable content from Yahoo! services to be provided to mobile devices such as pagers, cell phones, web phones, and personal digital assistants (PDAs). (Neibauer, pp.166-174.) "Yahoo! To Go lets you receive Yahoo! information on your mobile device." (Neibauer, p.167.) "The Yahoo! To Go option lets you set up your mobile device and Yahoo! so that they work together, as well as specify the content that will be sent to your device." (*Id.*) For example, one option referred to as "Yahoo! On Your PDA" allowed users of browser-enabled PDAs, such as Palm, Windows CE and smartphone devices, to select particular types of Yahoo! content accessible from their PDA. (Neibauer, pp.171-174.)

97. Although Neibauer does not expressly disclose that the Yahoo! Clubs feature was available for use with mobile devices, it would have been obvious to extend mobile device functionality to cover that feature, in order to allow user-created clubs to be accessed by users via mobile devices. This would have been viewed as a logical (and obvious) extension of the existing mobile features and capabilities described in Neibauer. Providing the clubs feature for use on a mobile device, in fact, would have been obvious based on Neibauer alone without having to even refer to Cheng because, as discussed above, Neibauer urges readers to

access the Yahoo! Servers via classes of devices that include PDAs and other handheld devices that were gaining popularity at that time.

98. Neibauer's emphasis on handheld devices in other sections additionally motivates a POSITA to look to references like Cheng to make the Yahoo! Clubs features described above, including the club message board, chat, and photo sharing information channels, best available to users of mobile devices.

99. A POSITA would also have been motivated to take advantage of the growing popularity of mobile computing and the increased availability of mobile and wireless computing devices. Cheng explains that as of November 2000, "users of wireless devices now demand that businesses deliver web content for viewing on desktop, or mobile/portable (e.g., handheld) devices." (Cheng, 1:19-22.) The Background of the '039 patent itself admits that "[o]ne of the most rapidly expanding aspects of wireless networking involves the accessing of information content over wireless networks via web-enabled mobile devices," such as "mobile telephones, personal digital assistants (PDAs), palmtop computers, etc." ('039 patent, 1:34-38.) The Background of the '039 patent also admits that it was "well-known" that mobile devices "not only provide access to the Internet, but can also be used to support other types of wireless networking functionality, such as messaging, distributed collaboration, and location-based services." ('039 patent, 1:38-43.)

100. These market forces would have motivated a POSITA to combine Neibauer with Cheng to assure that clubs would be more easily accessible, viewable, and useable across different classes of devices, especially the handheld devices that were gaining popularity.

101. This would have advantageously expanded the potential audience for those features beyond traditional desktop computers, and would have improved user experience by allowing the club founder and club members to utilize club features from multiple devices and, of course, various physical/geographic locations that become important when a user-side device is handheld and can be taken anywhere.

102. The convenience of traveling with handheld devices would have been an additional motivation for looking to Cheng. Patent Owner argues that Neibauer does not sufficiently describe non-PCs. (Meta-MDT-IPR, Paper 26, at 35-36.) If that argument is accepted, Cheng emphasizes that handheld devices were becoming increasingly popular at the time. A POSITA would have been additionally motivated to implement Cheng's teachings related to handheld devices, which would have provided portability benefits when compared to devices requiring communications over physical wires or cable – as Patent Owner claims Neibauer is so limited.

103. Cheng provides a further express motivation to combine by explaining that, using its proxy server conversion method:

> [W]eb-based content can be created one time, whereafter at least a portion thereof is extracted, reformatted, and transmitted to, for example, one or more handheld device browsers (e.g., the Palm Web Clipping Browser from Palm, Inc., Santa Clara, Calif., Pocket Internet Explorer from Microsoft Corp, Redmond, Wash., and Wireless Access Protocol (WAP) on smart phones, etc.). <u>This create-once, deliver-everywhere approach eliminates the need to build and maintain separate web pages for different devices and browsers, as well as the need to install proprietary browser software on the handheld device(s)</u>.

(Cheng, 2:8-19.) The techniques of Cheng would have provided a distinct technological advantage by allowing the club system described in Neibauer to be delivered to mobile devices by converting web pages provided via Neibauer, thus obviating the need for the Yahoo! server to generate multiple different versions of those web pages (including potentially multiple mobile versions based on different mobile device and browser types), thus making it considerably simpler to provide club functionality to the web browsers of mobile devices. This would also have eased implementation of the proposed combination by minimizing or eliminating the need to modify the functionality of the base Neibauer system, as the adaptations needed to convert Neibauer's web pages for mobile devices would have been handled by the proxy server techniques in Cheng.

104. As a further motivation to combine, a POSITA would also have recognized Cheng as an example of proxy server transcoding techniques that were already well-known. As noted above (§ **IV.A.2**, *supra*), proxy server techniques had already been commercially deployed for the very purpose of converting web page content into a format suitable for other types of devices, including mobile handheld devices. The benefits of this approach were well-known and succinctly explained in Uwe Hansmann et al., *Pervasive Computing Handbook* (2001) (**EX1012**), p.320. In explaining the purpose of content adaptation technologies, Hansmann explains:

> The purpose is obvious: When providers deliver content to various pervasive clients, they need to accommodate device specific constraints such as limited memory, slow data transmission, and small screens. Transcoding automatically translates content into different representations for each class of receiving client systems. This simplifies authoring, deployment, and maintenance dramatically! An arbitrary multimedia web page can be provided to Internet TVs, handhelds, and WAP phones without change.

(*Id.*, § 14.3, p.320; *see also id.*, at p.321 ("Transcoding is typically done by a gateway or proxy, which intercepts the data exchange between the content server providing multimedia data and the client rendering the received information….").)

105. A POSITA would have recognized the proxy server techniques as described in Cheng as one of a finite number of existing techniques for seamlessly

converting Neibauer's club content, which was web-based, into a format more suitable and optimized for handheld devices, otherwise accessing club content on handheld devices would have been at best frustrating and impractical.

106. A POSITA would also have had a reasonable expectation of success with respect to Yahoo! Clubs.[4] Yahoo! Clubs' features involve little or nothing more than straightforward web programming techniques relying on standard technologies such as HTTP, HTML, and could have been implemented using off-the-shelf web browser and web server software. This limited scope of information and capabilities would have been easy to modify at the relevant time.

107. With respect to Cheng, it discloses known techniques for converting HTML documents into formats suitable for wireless mobile devices. Wireless web browsing was well-known as evidenced by the existence of industry-standard technologies such as Wireless Application Protocol (WAP) and the Wireless Markup Language (WML), an XML-based markup language for describing pages for viewing on mobile devices. Proxy server techniques, as explained previously,

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[4] I am not suggesting and have not analyzed whether a POSITA could have replicated the entire Yahoo! service based on the description in Neibauer, as the Yahoo! website has features and functionalities (such as the ability to scale to many millions of users) that go beyond the limitations of the challenged claims.

were also well-known and commercially available. A POSITA would have found the disclosures of Neibauer and Cheng sufficiently detailed to implement the techniques on which I rely, without undue experimentation.

108. Under the proposed combination, the non-descript client-server infrastructure of Neibauer would be enhanced to include a more precise infrastructure inclusive of Cheng's client device, proxy servers optimizing bilateral communications, and the end server, which communicates with the client devices via the relevant proxy servers. In an example of the combination, new uploaded photo ("*captured content*") would have been "*provid*[ed]…*from the mobile device to at least one server*," as claimed, when a club member via the web browser on their mobile device, uploads a photo using the techniques described above. The claimed "*server*" for purposes of claim 1 either corresponds to origin server **102** in Cheng (which would have performed the functionalities of Neibauer as discussed above), or proxy server **110** (which would have made those functionalities available to mobile devices), as both would have received the HTTP request that included the photo under the proposed combination (*i.e.* first by the proxy server **110**, then by origin server **102**).

109. Alternatively, the "*server*" could have corresponded to the combination of origin server **102** and proxy server **110**, which is consistent with the '039 patent as it makes clear that a particular server can comprise multiple

servers. ('039 patent, 8:63-65 ("Each of the servers **33**, **35**, **37** and **39** [of processing elements **30**] may comprise one or more of the servers **16** or other elements shown in FIG. 1A, or suitable portions or combinations thereof.").) Moreover, it would also have been obvious that the "*server*" could have corresponded to proxy server **110** in Cheng, when combined with origin server **102** providing the functionality of Neibauer, to form a combined server for performing the functions of claim 1. This implementation is directly supported by Cheng itself, which provides details about computer system **1100** for use in implementing Cheng and its proxy server techniques. (Cheng, 22:46-54.) Cheng explains that the computer system can optionally be equipped with "any multitude or combination of processors or storage devices." (Cheng, 23:16-20.) Cheng further explains that the computer system, "in point of fact, [is] able to be replaced by, <u>or combined with</u>, any suitable processing system operative in accordance with the principles of the present invention…." (Cheng, 23:20-25.) It therefore would have been obvious that the functionality of origin web server **102** could have been combined with proxy server **110**, to provide a combined server that performs the functions of claim 1. This would have been plainly obvious and trivial in view of Cheng, as a POSITA would have been familiar with known techniques for dividing tasks among servers, including dividing tasks into multiple servers or consolidating tasks within a single server, as needed. For example, a POSITA would have been

motivated to combine origin web server **102** with proxy server **110** to improve the performance of Cheng's proxy server techniques, as this would have eliminated the step of (and network overhead associated with) origin server **102** having to send the original web page to the proxy server over the Internet.

110. **Motivation to Combine Neibauer, Cheng, and Ausems:** An aspect of the challenged claim includes "*capturing content at the mobile device*." Neibauer, as described above, discusses exchanging photographs with the server. Neibauer is silent, however, as to how those photographs were "*captured*." In most expected examples, a club user would have pulled a photograph from an external digital camera. This would be "*capturing*" under its plain meaning because the computer is capturing the image from the camera. To the extent, however, that the actual device that accesses the club needs to likewise take the photograph, that would have been obvious in view of Ausems, which explains that handheld devices of the time, including those described in Cheng, could capture photographs, and that would have been obvious to use with Yahoo! Clubs included the capabilities to capture photographs. (*See* § **IV.A.3** *supra*.)

111. Neibauer, for example, describes a club for James Bond enthusiasts. If a club member had been fortunate enough to come across Sean Connery, it would have been advantageous for that user to photograph Mr. Connery and upload the picture from the device to the club.

112. In this way, it would have been obvious to combine Neibauer and Cheng with Ausems, predictably resulting in the system under the proposed combination, further adapted such that the photo uploaded by the club member to the club photo sharing feature would have comprised "*capturing content at the mobile device*," i.e., a photo captured by a digital camera incorporated into the mobile device. For example, under the proposed combination with Ausems, the club member would have obtained image data using a digital camera of its mobile device, which would have been transmitted for upload to the club for sharing with other club members using the photo sharing features described in Neibauer. (Neibauer, pp.477-478.)

113. Ausems is an analogous reference in the same field of the '039 patent of wireless and mobile communications, and would have been reasonably pertinent to problems facing the inventor. For example, Ausems would have been reasonably pertinent to the problem of how to capture media data using a mobile device, and the problem of how to share that data with other users, as well as to inform the inventor about the technological features and capabilities of conventional mobile communication devices. Ausems would also have been reasonably pertinent as it discloses a wireless telephone that also incorporates wireless communications and digital camera functionalities, thus addressing the problem of how to obtain and share image data captured using a mobile device.

114. A POSITA would have been motivated to combine Ausems with the disclosures of Neibauer and Cheng described above. The ability to share media data captured by the mobile device would have dramatically expanded the universe of image data that the club member could have shared with other members. Based on Ausems, the club founder would not be restricted to sharing preexisting images that the founder obtained from third parties or external devices. Instead, the founder could capture any number and variety of their own images (via the digital camera) and share them with other club members. This would not only have expanded the variety of shared content, but would have made the club experience more compelling to other club members because such images would have been more unique as compared to preexisting images from third parties with which club members may already have been familiar.

115. A POSITA would also have had a reasonable expectation of success. Ausems confirms that, as of its February 1999 filing date, digital cameras and the ability to transmit images captured by digital cameras were known. (*See* § **IV.A.3** *supra*.) These functionalities were already becoming commonplace on commercially-available wireless devices by June 2002. A POSITA would have found the disclosures of Neibauer, Cheng, and Ausems sufficiently detailed to implement the techniques on which I rely, using conventional programming techniques, without undue experimentation.

116. **Motivation to Combine Neibauer, Cheng, Ausems, and Squibbs:** Another aspect of the challenged claims requires that data shared within the client-server includes "*information associated with at least one wireless networking functionality of the mobile device*" such as geographic location related to a shared picture. Squibbs, as explained, teaches associating geographic data with captured pictures. In this way, the club member who photographed Mr. Connery could upload the photograph confirming that Mr. Connery was in Beverly Hills, or whatever the case may be.

117. It would have been obvious to combine with Squibbs, predictably resulting in the system and method described in Neibauer for viewing clubs and uploading a new photo using the club photo sharing feature, further adapted to receive "*information associated with at least one wireless networking functionality of the mobile device*," i.e., the location information associated with a photo taken and uploaded by the club member. For example, under the proposed combination, when a club member uploads a photo to a club using the photo sharing feature in Neibauer, the mobile device would not only upload the photo image data but also would have transmitted geographic location associated with the photo.[5]

---

[5] Squibbs discloses a digital camera that is separate from a cellular phone used to upload photo image data. (Squibbs, Fig. 11, ¶0101.) I note that the ability

118. Under the proposed combination, the photo sharing feature described in Neibauer would have been further adapted to display location information associated with photos uploaded by club members, for example, via a map-based user interface similar to the one described in Figures 6-7 of Squibbs discussed above. Under the proposed combination, therefore, the club photo sharing feature as described in Neibauer would have been further adapted to display location information (for example on an electronic map), in association with the photo uploaded by the club member during performance of limitation [1B]. This would have been seen as a natural extension of the features already disclosed in Neibauer. For example, Neibauer expressly discloses Yahoo! Maps, a service for providing users with electronic maps based on a user-specified location, and for obtaining driving directions. (Neibauer, pp.222-224, 229-232.)

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to incorporate digital cameras into mobile devices with GPS capabilities was already known in the art. (*See* EX1006 (Ausems), 5:11-23 ("… PDA telephone **100** may include… a camera **190**… Camera **190** records video images and stores them within."), 5:37-44 ("… PDA telephone **100** includes a Global Positioning System (GPS) receiver/engine….").) It therefore would have been obvious to incorporate the digital camera functionality described in Squibbs into the mobile device used to upload the image data as described in Ausems.

119. Squibbs is an analogous reference in the same field as the ’039 patent that discloses similar functionality for managing information with wireless networking capabilities, such as location information. Squibbs would also have been reasonably pertinent to problems facing the inventors, including how to obtain location information and incorporate that information into a mobile information channel – a feature of the alleged invention. (’039 patent, 5:57-63.)

120. A POSITA would have been motivated to combine in order to improve the experience club members who use the club photo sharing feature described in Neibauer. The ability to associate a location with a digital photo would have provided a clear benefit to the club photo sharing feature of Neibauer by improving the classification and enjoyment of uploaded photos.

121. Squibbs itself explains that classification of photos “has long been a problem due to the effort involved in maintaining any organisation of the photos.” (Squibbs, ¶0002.) Geographic location information would not only have provided a clear way to classify digital photos, but the location would have allowed club members to better understand the context behind the photo. The location information would also have provided a valuable tool for identification of objects in the photo; for example, a club member might mistakenly believe a particular photo of the Statue of Liberty was taken in New York when it was actually taken

from one of the versions of that statute in Paris, France, and location-information provided with the photo could have clarified that point for the user.

122. Neibauer provides a further express motivation to combine with Squibbs by disclosing a Yahoo! Maps feature that allows users to request and obtain electronic maps. (Neibauer, pp.222-224.) Neibauer further describes how a user can annotate a map to identify objects of interest on the map, such as the user's house and the location of an upcoming picnic. (Neibauer, pp.226-228, Fig. 10-5 (showing "My House" and "The picnic is here").) The annotation described in Neibauer is similar to the thumbnail view in Squibbs, as discussed above. In any case, the fact that Neibauer already discloses the ability to display electronic maps, and suggests annotating those maps to show the location of events, confirms that Neibauer and Squibbs are naturally combinable, and that a POSITA would have been motivated to do so.

6. Independent Claim 1

a. Preamble [1P]

[1P] A method comprising

123. Assuming the preamble of claim 1 is limiting, it is my opinion that it is disclosed and rendered obvious by the prior art.

124. As I described above (§ **IV.A.1**, *supra*), Neibauer discloses features of the Yahoo! online service. (Neibauer, pp.473-483.) The Yahoo! online service

included a feature known as Yahoo! Clubs. (*Id.*) As Neibauer explains, "[a] *club* is a group of Yahoo! members who share a common interest. Each club has its own message board, chat room, as well as places to share photographs, news, addresses, and links." (Neibauer, p.473 (italics in original).) Clubs were accessible from a webpage on the Yahoo! website (http://clubs.yahoo.com), that allowed users to search existing clubs relating to particular topics of interest. (Neibauer, p.473.) Figure 21-8, for example, shows a club page for the club entitled "The James Bond Movie Series":

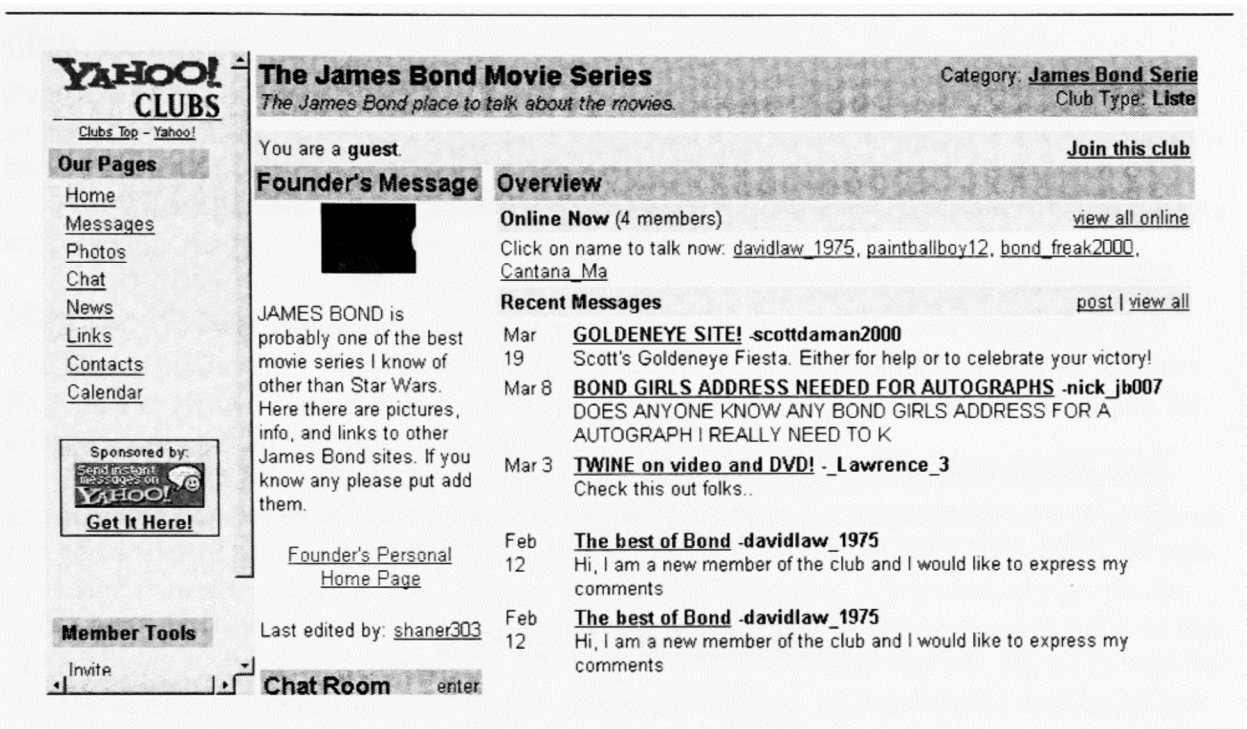


FIGURE 21-8 Club page

(Neibauer, p.475, Fig. 21-8.)

125. The user can join this club by clicking "Join this club," shown on the top-right above. (Neibauer, p.475.) After joining, "other members will see your name on the top of the page with the list of members who are online." (*Id.*) A club offers a number of features, accessible from the links shown under "Our Pages" on the left side of Figure 21-8 above. For example, each club has its own private message board ("Messages"), allows users to share photographs and make photo albums ("Photos"), engage in private chat with club members ("Chat"), view news headlines ("News"), share website links with other club members ("Links"), obtain contact information about club members ("Contacts"), and post and view events of interest to club members ("Calendar"). (Neibauer, pp.477-480.) For purposes of claim 1, I will focus on the club photo sharing feature described in Neibauer.

b. Limitation [1A]

[1A] capturing content at a mobile device;

126. Under the ordinary meaning, Neibauer discloses "*capturing content at a mobile device*." As explained in Neibauer:

> **Sharing Photographs**
>
> The Photos option in the Our Pages section lets members share photographs and other graphics. Each club is given 5 MB of space to store photographs. The photos are organized into up to 30 albums, each with no more than 24 photos.
>
> There are two types of albums: group and personal. Any member can place a photo in a group album and delete photos that he or she added

> as well. Only the creator of a personal album can add or delete photographs.

(Neibauer, p.477 (bold in original).) In order to add a photograph to an album, the user identifies the location of the photo and enters a name and description of the photo that will be uploaded. (Neibauer, p.478, ¶¶2-3.)

127. More specifically, Neibauer discloses a web-based user interface that allows a club member to select a photo file to upload to a photo album, in order to share it with other club members. As explained in Neibauer:

> **Adding a Photograph to an Album**. You can add a photo to an album starting from the list of albums or the list of photos in an album. Just follow these steps:
>
> **1.** If you are viewing the Photo Albums page, click Add Photo on the right side of the name of the album where you want to insert the photo. If you are looking at the list of photos already in an album, click the Add Photo button on the top of the page.
>
> **2.** In the page that appears, enter either the path and name of the photo on your disk or click Browse to locate the file. You can also click the On The Web link to designate a photograph located on a Web page.
>
> **3.** Enter a name and description of the photo.
>
> **4.** Select an option from the Resize Photo section. Resizing allows Yahoo! to adjust the size of the photograph to make better use of the club's Web space and to make the photos easier to view. You can select Don't Resize, Large, Medium, or Small.

5. Click Preview to see how your photo will appear, or click Upload to move a copy of the photo into the club's Web space.

(Neibauer, pp.477-478; *see also* p. 478 (showing clickable "Add Photo" option available on album pages).)

128. Photos stored on a client device have to have come from somewhere. In most examples they would have been "captured" (i.e., downloaded) from the internet or from an external device, such as a camera. For example, users who were on vacations may come back to their device and exchange pictures from their digital cameras with their computers/laptops. The '039 patent itself expressly defines a "mobile device" as including, among other things, a laptop computer. ('039 patent, 4:26-36.) It was well-known that conventional laptop computers provided the same functionality as desktop computers and were able to run web browser software and access the Internet.

129. Neibauer thus discloses "*capturing content*," by disclosing a user interface that allows a club member to designate at least one photo for insertion into an album of the club photo sharing feature as described above. The "*content*" for purposes of limitation [1A] thus corresponds to the actual photo, which is captured on the user side device. (Neibauer, p.478, Fig. 21-10 (showing exemplary club photo album).)

130. To the extent the claim is interpreted such that the device itself must have taken the noted photograph, that would have been obvious in view of Neibauer alone or, at least, the teachings of Cheng (promoting handheld devices) and Ausems, which explicitly directs a POSITA to wireless handheld devices that take pictures.

131. Alternatively, to the extent the claims are limited to handheld devices and they are not explicitly disclosed in Neibauer, it would have been obvious in view of Cheng to use handheld devices, such as PDAs and smartphones with Neibauer's clubs. As explained above (and described further below), Cheng discloses a proxy server that promotes and assists handheld devices in communicating with a server, such as the one where Neibauer's clubs would be hosted.

132. In view of the teachings of Cheng, it would have been obvious to use various handheld devices to communicate between users with the clubs feature that is taught by Neibauer.

133. Ausems teaches a type of handheld device that can take pictures and that would have been the type of handheld device that Cheng promotes. The Background of Ausems explains that "[t]he popularity and use of Personal Digital Assistants (PDAs) and wireless telephones has increased in recent years. A PDA or hand-held computer is primarily a lightweight, compact productivity and

communications tool that can typically be held in one hand, leaving the other free to input data with a pen type stylus or a reduced size keyboard. A PDA provides computing and information storage and retrieval capabilities for personal or business use." (Ausems, 1:12-20.) Ausems further explains that, "[i]ncreasingly, wireless telephones are being combined with PDAs in order to perform more advanced functions, such as transmitting, receiving and displaying text messages." (Ausems, 1:27-30.)

134. Ausems discloses a portable mobile device that combines the functionality of a PDA with a wireless telephone. (Ausems, 3:5-8.) This PDA telephone device **100** includes, among other things, a touchscreen display. (Ausems, *e.g.*, 1:57-58, 4:30-39, 6:9-14.) The PDA telephone **100** in Ausems can also run a conventional mobile operating system such as Microsoft Windows CE or Palm, and the operating system "may include a web browser in order to facilitate Internet access for a PDA telephone **100**." (Ausems, 7:64-8:5.)

135. Importantly, Ausems teaches handheld devices that include a digital camera **190** for recording and storing images, which can be transmitted. (Ausems, *e.g.*, 2:5-6, 5:17-18 ("Camera **190** records video images and stores them within [] PDA telephone **100**. Additionally, video images recorded by camera **190** may also be transmitted from PDA telephone **100** in real time during a telephone call (thus allowing for video conferencing)."), 2:5-6 ("[T]he device also includes [a] digital

camera for recording images….”).) Ausems thus discloses a handheld device that includes a camera for capturing image media.

136. Using clubs in combination with Ausems, would result in using a handheld device that can take a picture. That picture, stored within the Ausems handheld device, could then be exchanged with a club using the Ausems communications capabilities.

137. **Addressing the Proposed Constructions in Co-Pending Proceedings**: I understand that the term “*mobile device*” is subject to dispute in the Meta-MDT-IPR. In particular, I understand Patent Owner contends that “*mobile device*” means “a portable device with limited display space and limited navigational capabilities that connects to a mobile site and/or mobile information channel via a wireless network.” As explained in § **III.D.1**, this proposed construction appears to be inconsistent with the plain meaning of “mobile device” and the teachings of the patent.The handheld device of Ausems, however, is “a portable device with limited display space and limited navigational capabilities that connects to a mobile site and/or mobile information channel via a wireless network” considering Ausems primary embodiment is a personal digital assistant that operates over a wireless network, has navigational capabilities, and has a limited display space.

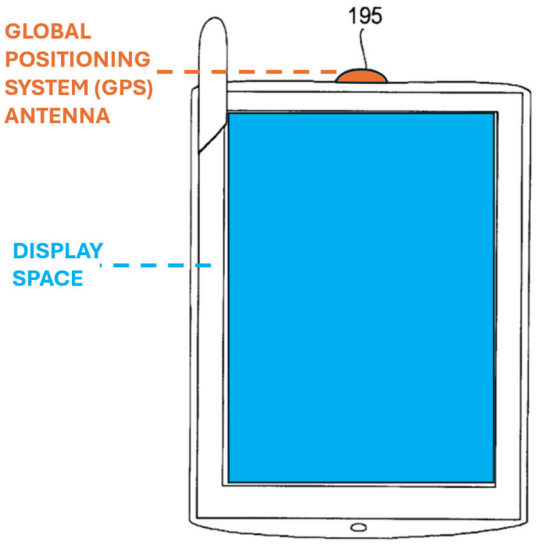


Fig. 1n

(Ausems, Fig. 1b (annotated); 5:36-40.)

138. Under any construction, the picture stored on the Ausems device is content captured at a mobile device.

c. Limitation [1B]

[1B] identifying a previously established application-based information channel into which the captured content is to be inserted, the identified application-based information channel permitting interaction between a user of the mobile device and one or more additional users

139. Neibauer explains that "[a] *club* is a group of Yahoo! members who share a common interest. Each club has its own message board, chat room, as well as places to share photographs, news, addresses, and links." (Neubauer, p.473 (italics in original).) In this way, members of a club can effectively communicate

with each other, whether it be via chats in the club room or exchanging photos in the club room. This capability allowing information to be freely exchanged between multiple users within a particular club (i.e., application) confirms that the Neibauer system uses various "*application-based information channel[s] permitting interaction between a user of the mobile device and one or more additional users*."

140. In Neibauer, clubs are accessible from a webpage on the Yahoo! website (http://clubs.yahoo.com), that allowed users to search existing clubs relating to particular topics of interest. (Neibauer, p.473.) Figure 21-8, for example, shows a club page for the club entitled "The James Bond Movie Series":

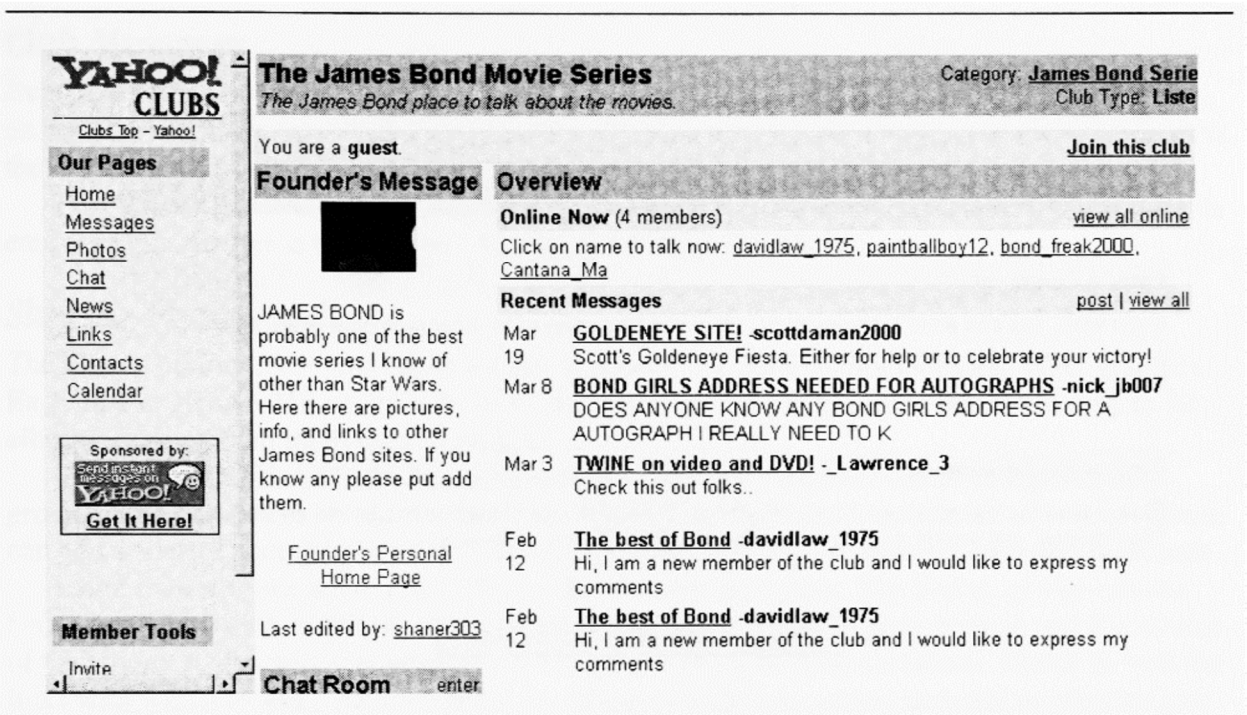


FIGURE 21-8 Club page

(Neibauer, p.475, Fig. 21-8.)

141. The user can join this club by clicking "**Join this club**," shown on the top-right above. (Neibauer, p.475.) After joining, "other members will see your name on the top of the page with the list of members who are online." (*Id.*) A club offers a number of features, accessible from the links shown under "**Our Pages**" on the left side of Figure 21-8 above. For example, each club has its own private message board ("**Messages**"), allows users to share photographs and make photo albums ("**Photos**"), engage in private chat with club members ("**Chat**"), view news headlines ("**News**"), share website links with other club members ("**Links**"), obtain contact information about club members ("**Contacts**"), and post and view events of interest to club members ("**Calendar**"). (Neibauer, pp.477-480.)

142. Neibauer discloses receiving "*content for insertion into a previously established application-based information channel*," by receiving a photo uploaded from a club member that will be shared with club members through the club photo sharing feature ("*application-based information channel*"). As explained in Neibauer:

> **Sharing Photographs**
>
> The Photos option in the Our Pages section lets members share photographs and other graphics. Each club is given 5 MB of space to store photographs. The photos are organized into up to 30 albums, each with no more than 24 photos.

> There are two types of albums: group and personal. Any member can place a photo in a group album and delete photos that he or she added as well. Only the creator of a personal album can add or delete photographs.

(Neibauer, p.477 (bold in original).)

143. As further explained in Neibauer:

> **Adding a Photograph to an Album**. You can add a photo to an album starting from the list of albums or the list of photos in an album. Just follow these steps:
>
> **1.** If you are viewing the Photo Albums page, click Add Photo on the right side of the name of the album where you want to insert the photo. If you are looking at the list of photos already in an album, click the Add Photo button on the top of the page.
>
> **2.** In the page that appears, enter either the path and name of the photo on your disk or click Browse to locate the file. You can also click the On The Web link to designate a photograph located on a Web page.
>
> **3.** Enter a name and description of the photo.
>
> **4.** Select an option from the Resize Photo section. Resizing allows Yahoo! to adjust the size of the photograph to make better use of the club's Web space and to make the photos easier to view. You can select Don't Resize, Large, Medium, or Small.
>
> **5.** Click Preview to see how your photo will appear, or click Upload to move a copy of the photo into the club's Web space.

(Neibauer, pp.477-478; *see also* pp.477-478 (showing clickable "Add Photo" option available on album pages).) Neibauer thus discloses "*providing the captured content*," by disclosing the ability of a club member to upload at least one photo for insertion into an album of the club photo sharing feature as described above.

144. The club photo sharing feature is an "*application-based information channel*."

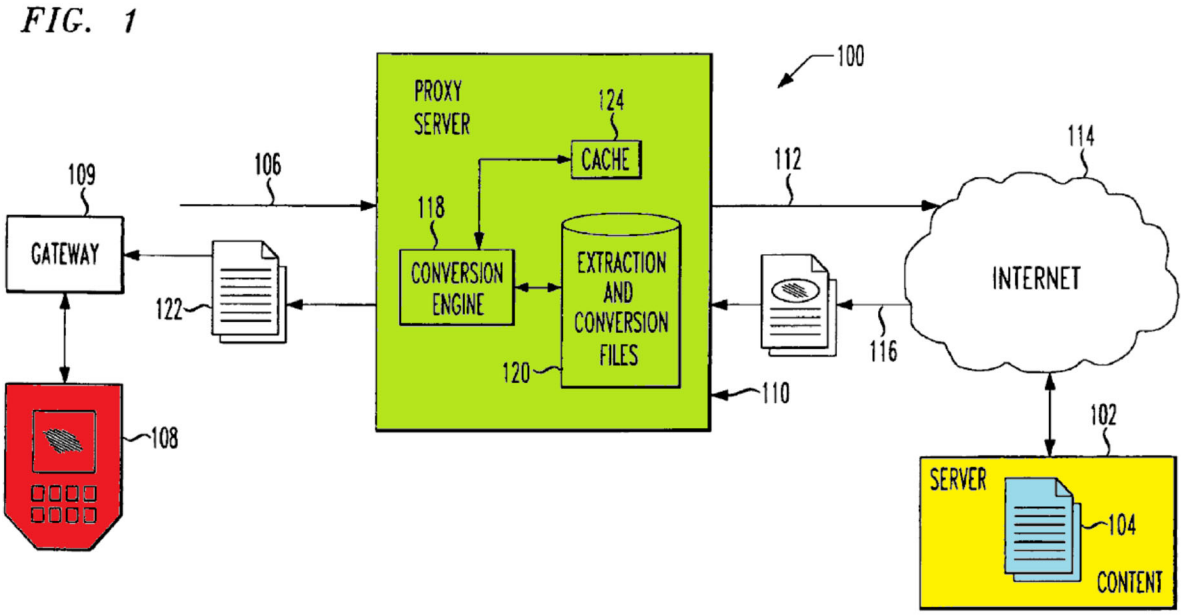
145. The club photo sharing feature receives a photo for insertion into "*a previously established application-based information channel*." The club photo sharing feature is also "*previously established*" because, as shown above, it was already established as a feature of the club before the club member chose to upload a new photo to a photo album. The club photo album feature also "*permit*[s] *interaction between a user of the mobile device and one or more additional users*," because the club member can upload and share photos with other club members. For example, Neibauer confirms that any member of a group album can post a photo. (Neibauer, p.477 ("Any member can place a photo in a group album…."); *id.* ("For each photo you will see [in Figure 21-10] the title, contributor's name, the photo's size, and the date it was posted. Click a photo title to see the photo on your screen. Click View Thumbnails to see miniatures of all of the photographs.").) The club photo sharing feature thus permits interaction and information exchange between multiple club members. In fact, the '039 patent expressly identifies, as

examples of mobile information channels, "discussion forum," "chat," and "photo blog" ('039 patent, 8:21-32), the latter mirroring the photo sharing feature described in Neibauer.

146. The term "application" is commonly understood by a POSITA as referring to a computer software program for performing a particular function. (*See Microsoft Computer Dictionary* (5th ed. 2002) (**EX1021**), p.31 ("**application** *n*. A program designed to assist in the performance of a specific task, such as word processing, accounting, or inventory management.") (bold and italics in original).) This is also consistent with how the term "application" is used in the written description. ('039 patent, 18:10-14 ("Also, the system provides a platform for the development of a wide variety of personalized content applications for users of mobile devices, thereby allowing wireless network service providers not only to increase their subscriber base, but also to reduce turnover in their subscriber base."), 12:53-55 ("The mobile site home page **400** may be accessed, for example, by entering a corresponding URL of the mobile site into a browser at one of the mobile devices **15**.").) In the case of Neibauer, as observed above, the club photo sharing feature is provided by one or more software programs or applications running on the web server, and the web browser application running on the club member's mobile device, which allows club members to interact with and use the

club photo sharing feature. The club photo sharing feature thus is an "*application-based information channel*," as claimed.

147. It would also have been obvious, based on Neibauer and in further view of Cheng (and Ausems as described above), that the photo sharing feature could have been used by a club member using a handheld device. Cheng discloses a technique for translating the pages of existing websites into a format suitable for display on various handheld devices. (Cheng, *e.g.*, 2:19-32, 3:21-26.) Figure 1 illustrates one embodiment:



(Cheng, Fig. 1 (color annotation added).)

148. The right side of Figure 1 above shows an origin web server **102** that contains original web page **104**. (Cheng, 3:36-37 ("In this context, an origin web server **102** is a web server that contains the original web page **104**.").) "The web

page **104** is typically an HTML file with references to any component .wav, .mov, and/or Joint Photographic Experts Group (JPEG) files, which together comprise the web page **104**." (Cheng, 4:10-13.) "It is envisioned that each instance of web content **104** each have associated therewith a URL." (Cheng, 3:56-57.) A POSITA would have recognized that web page **104** in Cheng could have been represented by any web page in HTML format reachable via the Internet, such as a web page from the Yahoo! website as described in Neibauer. As explained below, origin web server **102**, for example, would have taken the form of a web server used to provide the club photo sharing feature in Neibauer.

149. The left of Figure 1 shows a mobile device **108**, such as a handheld PDA or smartphone, connected to proxy server **110**, optionally through gateway **109**. (Cheng, 3:33-36.) "Mobile devices **108** generally come in a variety of different sizes and have a variety of different screen interfaces… [T]he present invention provides the ability to uniquely tailor web page **104** content for specific mobile devices **108**." (Cheng, 5:11-15.) Cheng explains that, in one example, mobile device **108** could be a mobile device with a Palm operating system that includes a web browser. (Cheng, 5:17-23, 2:8-15.)

150. The middle of Figure 1 shows proxy server **110** – the key feature of Cheng for purposes of my analysis. Proxy server **110** "'sits' between the clients (e.g., the mobile device(s) **108**) and the origin web server(s) **102** that provide Web

content **104**." (Cheng, 3:31-33.) Cheng explains that proxy server **110** "obtains the code (e.g., HTML) of the user requested web page **104**, and modifies it at the proxy server **110** (once obtained)," which can include "reformatting and/or converting an entire web site or request specific Web content that is needed from the origin web server **102**." (Cheng, 3:41-48.) Proxy server **110** can also store a device profile for mobile device **108** based on the device and web browser types. (Cheng, 5:20-23 ("To create a device profile, both the specific version of a mobile device **108** and its web browser (e.g., a Palm V with browser A, etc.) are needed.").) As explained in **Part IV.A.2** above, proxy servers were already well-known and had been commercially deployed for a variety of purposes, including to translate web-based content into a format suitable for mobile devices. (*See* Uwe Hansmann et al., *Pervasive Computing Handbook* (2001) (**EX1012**), p.35 ("A proxy server at AvantGo.com modifies the Web pages in a way that they can be displayed on Palm devices."), p.316, §14.1.1 (discussing commercially-available Palm proxy server).)

151. The general operation of proxy server **110** in Cheng is straightforward. As shown in Figure 1, mobile device **108** can issue a request **106** for an original web page **104** using standard HyperText Transport Protocol (HTTP), as was well-known in the art, with the request **106** being received by proxy server **110**. (Cheng, Fig. 1,2:19-21, 3:58-67, 7:65-8:2.) "Upon determining

that the requested page **104** resides at the server **102**, the proxy server **110** makes a request **112** for the page. As shown, the proxy server **110** and the server **102** are connected via a network **114** such as the Internet." (Cheng, 3:65-4:2; *see also id.*, 2:21-24.)

152. Proxy server **110** then converts and/or reformats original web page **104** into reformatted web page **122** (shown in Figure 1), which is transmitted to mobile device **108**. (Cheng, *e.g.*, 2:24-29, 5:46-49, 4:56-60.) "The designated HTML content of the retrieved web page **104** is extracted, subsequently and/or converted, and transmitted as a reformatted web page **122** to the mobile device **108**." (Cheng, 5:46-49; *see also id.*, 3:22-26 ("Referring now to FIG. 1, it is envisioned that a proxy server **110** reformats/converts web content **104** on an origin web server **102** into a format **122** readable on any mobile device **108** (which can be any number of different mobile device types).").) The proxy server can also perform conversion on images on the web page to enable viewing on the mobile device, for example, by scaling the images and/or reducing their colors and resolution. (Cheng, Fig. 7 (704, 706, 708), 10:60-11:8.)

153. Meta has argued in its litigation that "*application-based information channel*" should be construed as "a virtual location at the content management site at which user-authored content may be added for transmission to the mobile web site." (EX1025.) Meta has taken the position that "content management site"

within this construction means "a web site that allows a user without programming to create and manage content on a mobile web site, or a portion thereof." (EX1025.) It is my opinion that if the claims are interpreted consistent with Meta's positions, the "*application-based information channel*" would be obvious in view of Neibauer because it discloses a web-based user interface for creating a club that provides a virtual location at a content management website that allow a club founder to create and manage content for the club. (Neibauer, pp.480-82.) It would have been obvious that the content management site in Neibauer would have further allowed the club founder to add user-authored content to the club. (Neibauer, pp.480-482 (describing how to create clubs and add content such as club name and photo)) This content would also have been made available on a "mobile web site, or a portion thereof," i.e., the club webpages delivered to mobile devices, under Neibauer alone or in view of Cheng.

154. **Further Addressing the Proposed Constructions in Co-Pending Proceedings**: As discussed above, in the Meta-MDT District Court Litigation, Meta contends that "*application-based information channel*" should be construed as "a virtual location at the content management site at which user-authored content may be added for transmission to the mobile web site." This claim construction dispute appears to be the only one that the parties propose is meaningful to this claim limitation in view of the prior art. If this construction is

controlling, as explained above, it would have been obvious in view of Neibauer. Additionally, application of the prior art under this proposed construction is discussed in Grounds 3 and 4 with respect to Harvey, which teaches the concept of providing user interfaces that allow users to create and manipulate on-line content at a content management site without programming.

155. For all other claim constructions and as explained above, in my opinion, the prior art discloses and renders obvious those limitations under any of the proposed constructions.

d. Limitation [1C]

[1C] determining information associated with at least one wireless networking functionality of the mobile device

156. The '039 patent does not expressly define "*wireless networking functionality*" of the mobile device, but instead provides several examples including a "messaging action," "collaboration action," and "location-based service action." ('039 patent, 5:51-63 ("Advantageously, the information content of a given mobile site generated in the system **10** may be configured so as to integrate therewith information associated with at least one wireless networking functionality of the wireless network **12**... Examples of such information include <u>information specifying at least one messaging action implementable over the wireless network, information specifying at least one collaboration action implementable over the wireless network</u>, and <u>information specifying at least one</u>

location-based service action implementable over the wireless network.”).) The proposed combination discloses multiple examples of the claimed information associated with at least one wireless networking functionality of the mobile device, that mirror the examples in the patent, each satisfying limitation [1C].

157. **Messaging and Collaboration Action**: For example, using the patent’s own examples of “messaging actions” and “collaboration actions,” the patent places few if any restrictions on the type of messaging and collaboration actions, and makes clear they can include posting and exchanged by members to facilitate collaboration. (’039 patent, *e.g.*, 6:26-29 (“For example, the site can be used to generate messages, using instant messaging (IM), SMS, MMS, pages, emails, voice-over-IP (VoIP) calls, cellular telephone calls, or any other suitable messaging format, that are sent to organization members over the wireless network.”), 6:34-37 (“Organization members can easily and efficiently post information and generate messages to other members so as to facilitate collaboration and other types of interaction.”).) As explained, the new photo posted by the club member is integrated into the club photo sharing feature, and as noted, includes a name and description of the photo. (Neibauer, pp.477-478 (“**3**. Enter a name and description of the photo.”).) Figure 21-10 of Neibauer shows how this textual information is incorporated into and displayed by the club photo sharing feature:

The James Bond Movie Series Category: James Bond Serie
The James Bond place to talk about the movies. Club Type: Liste

Blueraja's BOND GIRL Album Back To: Album List

Created by blueraja3 on 22-Nov-1999

Add Photo

Showing 1 - 12 of 12 photos | View Thumbnails

Photo Name and Caption	Contributor	Size	Posted	Edit	Delete
Denise Richards - Stunning Blue Bikini	blueraja3	21 KB	22-Nov-1999		
Denise Richards - Seductive Stare	blueraja3	22 KB	22-Nov-1999		
Denise Richards - Sexiest Denise Pic	blueraja3	48 KB	22-Nov-1999		
Denise Richards - Too Sexy! Too Sexy!	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Modeling Lingerie	blueraja3	53 KB	22-Nov-1999		
Famke Janssen - Sexiest Bond Girl Ever	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Sexy Black Leather	blueraja3	10 KB	22-Nov-1999		

FIGURE 21-10 Club photo album

(Neibauer, p.478, Fig. 21-10.) Figure 21-10 above shows a partial list of photographs stored in an album. Although the example in Figure 21-10 shows photo messages posted by only one contributor (blueraja3), Neibauer confirms that any member of a group album can post a photo. (Neibauer, p.477 ("Any member can place a photo in a group album….").) Under the proposed combination, when the club member posts a new photo to a selected photo album, the photo, along with its textual name and description, would have incorporated and integrated into the photo album to which they were assigned.

158. The textual information provided by the club member with the uploaded photo qualifies as a "messaging action" because it allows the club

member to provide a textual message to accompany the uploaded photo when viewed by other members. This information is also similarly related to "collaboration actions" because it allows users to collaborate on topics of interest by viewing photos and posting new photos in an album based on their textual names and descriptions. Neibauer therefore discloses "*information associated with at least one wireless networking functionality of the mobile device*," in the form of a messaging or collaboration action by which the club member (by using the club photo sharing feature of its mobile device) can provide textual messages to other club members over a wireless network, as explained for limitation [1A] under the combination of Neibauer and Cheng. As noted, Cheng discloses that wireless mobile devices can communicate wirelessly with the proxy server. (Cheng, *e.g.*, 2:4-7, 5:33 ("cellular telephone"), 23:44-51 ("… wireless communication (e.g., radio frequency (RF), and the like)"); *see also* Neibauer, p.171, ¶5 ("GSM Phone").)

159. **Mobile Device Location Information**: Although not required to satisfy limitation [1C], as a separate and independent basis for showing that this limitation is rendered obvious by the prior art, the '039 patent written description provides a further example of "*information associated with at least one wireless functionality of the mobile device*" as including information specifying location of

the mobile device.[6] This feature would have been obvious over Neibauer, Cheng, and Ausems in further view of Squibbs (**EX1011**), which teaches associating geotracking data with photographs that are taken by, for example, the Ausems PDA.

160. Squibbs describes a technique of recording and displaying data (such as photos) along with the location where the photo was taken. (Squibbs, Abstract.) Squibbs explains that digital cameras that included Global Positioning System (GPS) receivers were known in the art, as were systems that could display the location where the photo was taken on an electronic map. (Squibbs, ¶¶0003-0004.)

161. Squibbs discloses a photo album system that allows a user to record digital images, which can be associated with the geographic location where they were taken. An overview of the system is shown in Figure 3:

[6] Although this feature provides an independent basis for satisfying limitation [1C], it is also separately recited in dependent claim 20 (which depends from claim 19) and will also be addressed below.

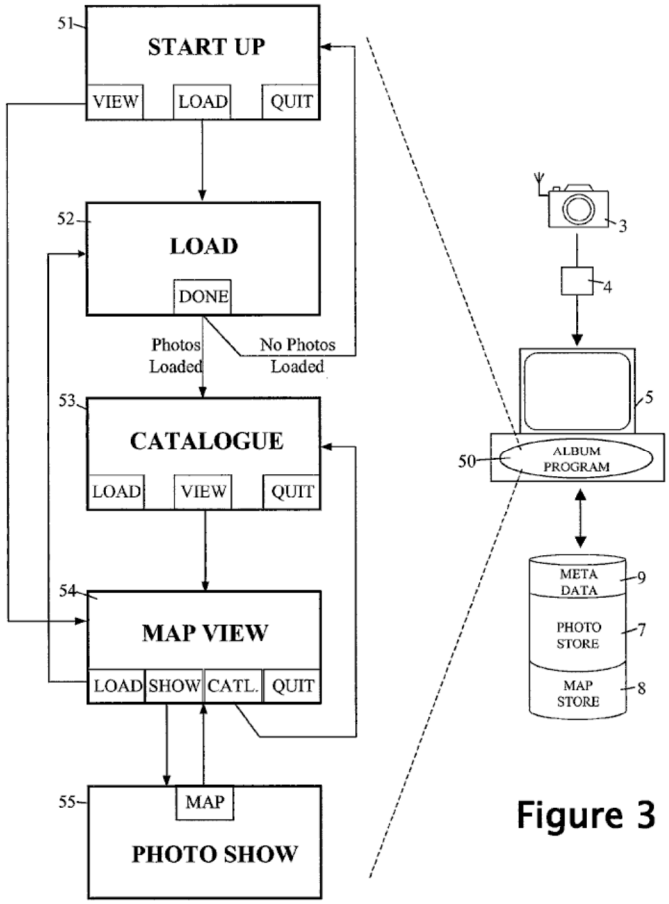


Figure 3

(Squibbs, Fig. 3.)

162. As further explained in Squibbs, with reference to Figure 3:

FIG. 3 depicts a photo system in which a digital camera **3** provided with location determining means (such as a GPS receiver) is used to generate digital photos **4**, each photo (also referred to as 'image data') **4** being stamped with location data indicating where the photo was taken. Other data may also be associated with each photo, such as a timestamp, a camera ID, and a user ID; such associated data (including the location data) is herein referred to as photo meta data. The photos and their meta data are downloaded by any suitable means (USB connection, removable storage device, etc) into a PC **5** where an album program **50**

> serves to store the photos in a photo store **7** and the photo meta data in a meta-data database **9** (each photo and its meta data being linked by a suitable key associated with both). The album program also has access to a map store **8**. The stores **7** and **8** and the meta-data database can be on the PC or external.

(Squibbs, ¶0031.)

163. Squibbs also discloses an album program **50** as shown in Figure 3 that allows the user to "catalogue, manage, and view their photos through a map-based interface, the photos being represented on a displayed may by a marked indicating the location where they were taken." (Squibbs, ¶0032.) The album program as shown in Figure 3 comprises "five main operating modes **51** to **55**," as shown. (Squibbs, ¶0033.) For example, Load Mode **52** allows the user to download data from camera **3**, and Catalog Mode **53** allows the user to manage newly loaded photos using a map based display, and Map View Mode **54** allows the use to browse the photo album and select photos for viewing. (Squibbs, ¶¶0033, 0035-0036.)

164. Figure 6 shows a display generated by the album program in Catalog Mode **53** (Squibbs, ¶0064):

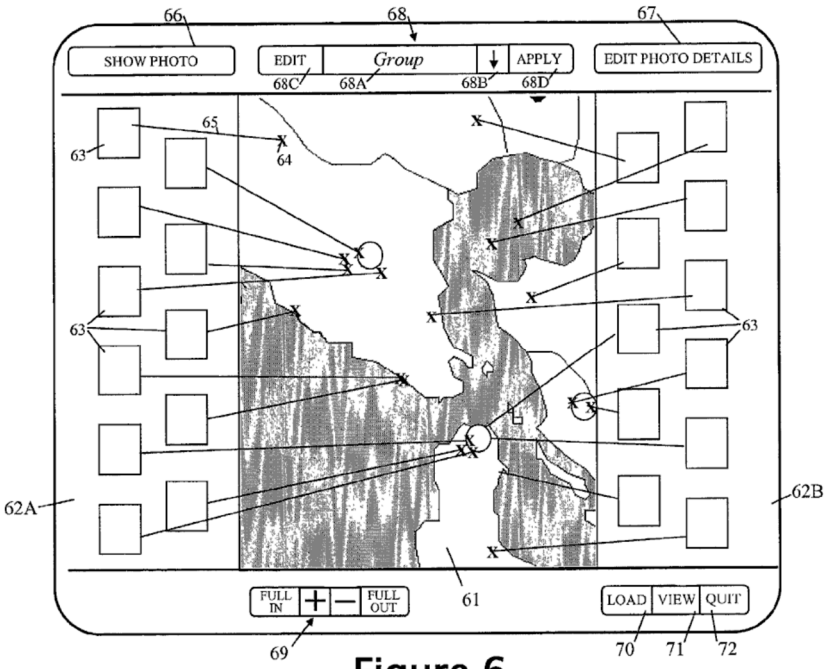


Figure 6

(Squibbs, Fig. 6.)

165. Figure 6 shows a central map area 61 which "is sufficient to encompass the locations registered for the newly loaded batch of photos." (Squibbs, ¶0064.) "A thumbnail **63** of each new photo is shown in one or other of the margin areas **62**A, B and a lead line **65** connects each thumbnail **63** to a corresponding marker 64 showing on the map the location where the photo was taken." (Squibbs, ¶0064.) Figure 6 also shows an upper control bar with, from left-to-right, Show Photo Control **66** for displaying the photo corresponding to a selected thumbnail **63**, Group Control **68** for creating groups and assigning a photo to one or more groups, and Edit Photo Details Control **67** for displaying and editing the details of a selected thumbnail. (Squibbs, ¶¶0065-0068.) Figure 6 also

"includes a zoom control **69** that enables a user to zoom in or out around a particular point on the displayed map." (Squibbs, ¶0071.)

166. Figure 7 shows a display generated by the album program in Map View **54** (Squibbs, ¶0074):

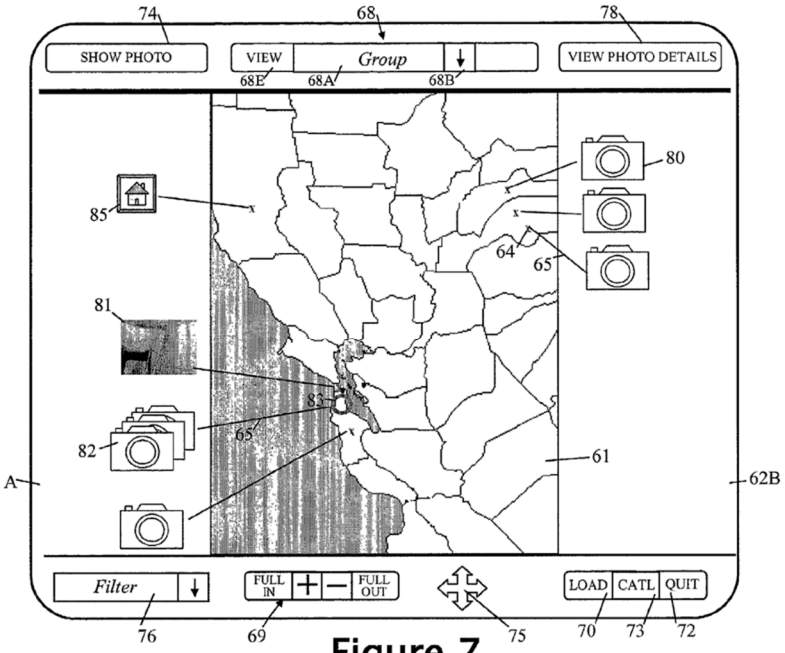


Figure 7

(Squibbs, Fig. 7.)

167. The Map View mode shown in Figure 7 allows a user to browse the album after it has finished editing the photo metadata and assigning the photos to groups. (Squibbs, ¶0074.) Squibbs explains that "[t]he starting map displayed in the Map View Mode is, for example, a world map or a map encompassing the locations of all the photos recorded in the album; alternatively, the map displayed could be the same map as being used in the Catalogue Mode before transiting to the Map View Mode." (Squibbs, ¶0075.) Figure 7 shows photos represented

"either as thumbnails **81**, individual photo icons **80**, group icons (see current-abode group icon **85**), or concentration icons (see icon **82**)." (Squibbs, ¶0075.) Squibbs also discloses (in Figure 8) the ability to display a full-size image of a photo selected from the Map View Mode. (Squibbs, ¶0091, Fig. 8.)

168. Squibbs discloses a number of ways in which a photo can be associated with location data. In the example above shown in Figure 3, the digital camera itself has a built-in GPS receiver. In another embodiment shown in Figure 11, a digital camera **90** transmits the photo image data to a cell phone **20**, which in turn uploads the image data over a cellular connection to service system **40** for storage on network store **43**. (Squibbs, ¶0101, Fig. 11 (showing transfer **105**); *see also id.*, ¶0031 (noting that the photo store can be "external").) The cell phone, concurrently with the upload of photo image data, also transmits location information associated with the photo image data. (Squibbs, ¶0101.) Squibbs explains that the cell phone can determine location information in a number of ways, including from "a location server of the mobile radio infrastructure," or using "a GPS system built into the cell phone." (Squibbs, ¶0098; *see also id.*, ¶0101.)

169. For these reasons, the combination of Neibauer, Cheng, and Squibb thus teaches that the "*at least one wireless networking functionality of the mobile*

device" comprises location information of the mobile device, further rendering limitation [1C] obvious.

170. **Addressing the Proposed Constructions in Co-Pending Proceedings**: I understand that the phrase "*wireless networking functionality of the mobile device*" is subject to dispute in the Meta-MDT-IPR. The dispute in the Meta-MDT-IPR, however, is not related to the type of data that qualifies as "*wireless networking functionality*" data such as that disclosed by Neibauer in the first instance and Squibbs' geotracking data in the second instance.

171. Rather, Patent Owner builds in its proposal that the mobile device in the architecture must have "functionality implementable by a mobile device via a wireless network *independent of the Internet*." Relatedly, Patent Owner also asserts that the term "*wireless network*" means "a network separate from the internet that facilitates connection to the internet by mobile device." [7]

172. For example, with respect to Neibauer, Patent Owner argues:

> Accordingly, in order to teach or suggest "information associated with at least one wireless functionality of the mobile device," Neibauer or

[7] In the Meta-MDT-IPR, Meta does not challenge claim 1 of the '039 patent. Meta, however, does challenge claim 19 of the '039 patent. As noted below, claims 1 and 19 are substantively similar, so Petitioner will address here Patent Owner's challenges to claim 19 raised in the Meta-MDT-IPR.

Cheng must disclose a functionality that is capable of being performed by a mobile device accessing the wireless network. *Id.*, ¶293. In other words, the functionality must rely on the wireless network that *may* connect the mobile device to the Internet and cannot include functionalities that are only implementable using the Internet without the wireless network. *Id.*

It is clear that the textual information provided in Neibauer for insertion into Yahoo! Clubs is not a wireless functionality implementable using a mobile device via a wireless network (e.g., independent of the Internet). *Id.*, ¶294. As discussed above, Yahoo! Clubs is a webpage that is only accessible via a conventional computer and hosted on an Internet website. Neibauer, p.473 (referencing http://clubs.yahoo.com/). As such, all of the functionalities provided by Neibauer are implementable while a user is accessing the Internet and independent of a wireless network that connects the user's device to the Internet. *See* Medvidovic, ¶100, 294. That is, the functionality for providing messaging or collaboration actions is implementable via the Internet. *Id*. at ¶294. The wireless network and the wireless network functionalities of the mobile device never come into use in Neibauer. Indeed, there is no suggestion in Neibauer that a mobile device can use a separate wireless network to connect to the Internet and provide content for insertion into Yahoo! Clubs. As discussed above, Yahoo! Mobile is limited to only receiving events and alerts pushed from the Internet to the mobile device. *See* Neibauer, pp.166-180; Medvidovic, ¶294. Moreover, as discussed above, Petitioner provides no evidence as to Yahoo! Mobile being capable of providing the ability for mobile device users to provide any content for insertion into Yahoo! Clubs.

(Meta-MDT-IPR, Paper 26 at 50-51.)

173. With respect to Cheng, Patent Owner further argues:

> Cheng fails to cure this deficiency. As mentioned above, Cheng only describes sending a request 106 for accessing a web page 104 and never provides the ability to send a message or collaboration action towards the servers hosting the web page 104. Cheng, 3:58-63; Medvidovic, ¶295. As such, Cheng does not disclose a wireless networking functionality of a mobile device implementable over a wireless network other than the ability to send a website request, which is not integrated into a channel for use by the mobile device. *Id.*

(Meta-MDT-IPR, Paper 26 at 51-52.)

174. Initially, Patent Owner appears to interpret its patent too narrowly. The ’039 patent explains that the “*wireless network*” need not be separate and distinct from the “internet.” The patent states, for example,

> The network configuration of system 10 illustratively comprises wireless network 12 and Internet 14. However, the invention does not require this particular network arrangement. A network suitable for use with the invention may include any type of data communication network, including the Internet, an intranet, an extranet, a wide area network (WAN), a metropolitan area network (MAN), a wired local area network (LAN), an IEEE 802.11 or Wi-Fi wireless LAN, a satellite communications network, a virtual private network (VPN), a public switched telephone network (PSTN), a cellular network based on third generation (3G) wideband code division multiple access (CDMA) or

> other standard, as well as portions of combination of these and other networks.

('039 patent, 4:1-13.) This interpretation of network is consistent with the plain meaning and consistent with how it is disclosed in the combination of Neibauer and Cheng.

175. Regardless, the combination of Neibauer, Cheng, Ausems, and Squibbs renders obvious limitation [1C] if the claims are interpreted such that they require the mobile device to be limited in its functionalities such that the device "cannot include functionalities that are only implementable using the Internet without the wireless network" (Meta-MDT-IPR, Paper 26, at 50) this still is obvious in view of the described prior art, which are not fully dependent upon the internet.

176. For example, Cheng explicitly discloses a "local area network," which would have been a well-known network that can be established independent of the internet. (*E.g.*, Cheng 24:4-9). A local area network could be used to implement all functionalities of Neibauer.

177. Separately, geotracking data is well known to be used via satellite channels, not the internet. In Squibbs, the information associated with "*at least one wireless networking functionality of the mobile device*" comprises location information of the mobile device, and a way for a mobile device to obtain its location information is using a built-in GPS receiver. A POSITA would have

known that obtaining location information of the mobile device through GPS was a wireless networking functionality that was "*independent*" of the Internet, as the location information was calculated by using GPS signals wirelessly received by the device from satellites, which were used by the device to calculate its current location. (Squibbs, ¶¶0004 ("… digital camera **3** equipped with a GPS receiver for determining camera location using signals from satellites **2**…").) Receipt and processing of GPS signals from satellites to determine a device location, as disclosed in Squibbs, is a wireless networking functionality that is independent of the Internet. GPS signals from satellites are directly transmitted wirelessly to GPS receivers using specific carrier wave frequencies—they are not delivered over the Internet.

e. Limitation [1D]

[1D] providing the captured content from the mobile device to at least one server for insertion in association with the determined information into the identified application-based information channel

178. This limitation was largely covered in the discussion of limitation [1B]. As explained, the photo ("*captured content*") would have been "*provid[ed] from the mobile device to at least one server*" when a club member uploads a photo through the club photo sharing feature ("*application-based information channel*") via the web browser on their mobile device.

179. In Neibauer, a user of a device such as a laptop can access the club and upload content, such as a photo to the club room. This should satisfy this limitation as described more thoroughly with respect to limitation [1B].

180. If the claim is interpreted to require a handheld device, that would have been obvious over Neibauer in view of Cheng, which promotes using handheld devices and teaches a proxy server for communicating with the origin server.

181. To the extent the use of the word "capture" requires the handheld device that is interacting with the club to actually take the uploaded photograph, that is obvious in further view of Ausems, which teaches the handheld devices that are promoted by Cheng but that also have picture taking capabilities.

182. Lastly, if the claims require uploading photos that are tagged with particular information, such as geolocation, Squibbs teaches this type of functionality for the same devices that are used in Ausems.

183. As explained, under the proposed combination, the uploaded photo ("*the content*") would have been inserted and integrated into, and thus would have been viewable through, the club photo sharing feature. As described above, under the proposed combination, the photo would have been integrated with the "*information associated with said at least one wireless networking functionality of the mobile device*." More specifically, as discussed, Neibauer discloses a user

interface for allowing club members to select a photo album and view the photos within the selected album. First, with respect to selection of an album:

Photo Albums

Showing 1 - 2 of 2 albums (1024 KB total) **Add Album**

Album Name	Pictures	Creator	Type	Add Photo	Edit	Delete
Blueraja's BOND GIRL Album	12 (278 KB)	blueraja3	Group	Add Photo		
James Bond	21 (287 KB)	shaner303	Group	Add Photo		

(Neubauer, p.477.) The user interface shown above lists a number of available photo albums. This user interface, as noted above, has an "Add Photo" link to allow a member to add a new photo to the album. "Click an album name to see a list of the photographs stored there, as shown in Figure 21-10." (Neibauer, p.477.)

The James Bond Movie Series Category: James Bond Serie
The James Bond place to talk about the movies. Club Type: Liste

Blueraja's BOND GIRL Album Back To: Album List

Created by blueraja3 on 22-Nov-1999

Showing 1 - 12 of 12 photos | View Thumbnails Add Photo

Photo Name and Caption	Contributor	Size	Posted	Edit	Delete
Denise Richards - Stunning Blue Bikini	blueraja3	21 KB	22-Nov-1999		
Denise Richards - Seductive Stare	blueraja3	22 KB	22-Nov-1999		
Denise Richards - Sexiest Denise Pic	blueraja3	48 KB	22-Nov-1999		
Denise Richards - Too Sexy! Too Sexy!	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Modeling Lingerie	blueraja3	53 KB	22-Nov-1999		
Famke Janssen - Sexiest Bond Girl Ever	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Sexy Black Leather	blueraja3	10 KB	22-Nov-1999		

FIGURE 21-10 Club photo album

(Neibauer, p.478, Fig. 21-10.) Figure 21-10 as noted above shows a list of photographs stored in an album. This user interface also has "Add Photo" button to allow a member to add a new photo to the album. "For each photo you will see the title, contributor's name, the photo's size, and the date it was posted. Click a photo title to see the photo on your screen. Click View Thumbnails to see miniatures of all of the photographs." (Neibauer, p.477.)

184. As noted, the proposed combination discloses at least two examples of "*information associated with at least one wireless networking functionality*." Under the first theory, this information corresponds to a messaging or collaboration action by which the club member (through their mobile device) provides a textual name or description for the photo. This theory therefore discloses "*integrating the content and the information associated with said at least one wireless networking functionality of the mobile device into the previously established application-based information channel*," because as shown in Figure 21-10 above, the uploaded photo ("*the content*") is integrated with the messaging or collaboration action ("*information associated with at least one wireless networking functionality*…"), into the club photo sharing feature ("*the previously established application-based information channel*"), both the photo and the textual name and description are presented as being integrated and associated with each other.

185. Under the second theory, the "*information associated with at least one wireless networking functionality*" corresponds to location information about the mobile device used to upload the photo. As explained for limitation [1B] above, under the proposed combination of Neibauer with Squibbs, the user interface in Neibauer could have been adapted to display the photo (or a thumbnail of the photo) with accompanying location information. This could have been implemented in a number of ways, presenting a trivial design choice to a POSITA. In one example, the photo album listing and photo display user interface in Neibauer discussed above have been further adapted such that, upon selecting a photo from Figure 21-10 that had associated location information (the "*integrated content item*"), the photo could have been displayed on a webpage of the club photo sharing feature with an electronic map showing where the photo was taken, as disclosed in Squibbs. As another example, the user interface shown in Figure 21-10 could itself have been adapted based on Figures 6 and 7 of Squibbs, such that multiple photos in the album would have been displayed in thumbnail view on an electronic map. Many other implementations would have been apparent and obvious to a POSITA. In any case, the proposed combination would have rendered obvious that the uploaded photo ("*the content*") is integrated with the location information ("*information associated with at least one wireless networking functionality*…"), into the club photo sharing feature ("*the previously established*

application-based information channel"), as both the photo and the location data would be presented as being integrated and associated with each other.

f. Limitation [1E]

[1E] receiving other content, at the mobile device via the identified application-based information channel, from at least one of the additional users.

186. This limitation discusses content that is communicated from the server to a mobile device, a feature that is also taught in Niebauer (for example, downloading a photograph that another user has uploaded).

187. As shown in the figures above, Niebauer explicitly teaches that users of the Bond related club can access and download (i.e., receive) photographs of Denise Richards.

188. In this way, the combination of Niebauer, Cheng, Ausems, and Squibbs teaches the capability of accessing a club from a handheld device that is capable of taking pictures. While the user can upload pictures it takes into the club room (i.e., provide the captured content from the handheld device pursuant to limitation [1D]), the user can also access and download "other content" such as a photograph of Denise Richards that was uploaded by another user onto the handheld device (i.e., receive other content pursuant to limitation [1E]).

189. As also noted previously, Cheng discloses that multiple mobile devices can be used with the proxy server conversion techniques. (Cheng, *e.g.*,

5:11-12, 5:26-29.) This would have allowed both the first and second mobile devices to upload as well as download photos to the club photo sharing feature described in Neibauer.

7. Claim 2

[2] The method of claim 1 wherein the identified application-based information channel comprises a personalized content application.

190. The photo sharing feature is also a "*personalized content application*" because the two club members would have accessed the club photo sharing feature ("*the identified application-based information channel*") over the Internet via their mobile devices. The web browsers on the mobile devices comprise "*personalized content applications*." This is consistent with the plain and ordinary meaning of "application" in this context, which simply refers to a software program for carrying out a particular task. (*See Microsoft Computer Dictionary* (5th ed. 2002) (EX1021), p.31 ("**application** *n*. A program designed to assist in the performance of a specific task, such as word processing, accounting, or inventory management.") (bold and italics in original).)

191. Under the proposed combinations, each club member would have used clubs to upload and download personalized content, such as photographs of interest, using the club photo album feature. (Neibauer, p.477-479.)

192. For example, each club member can create their own "personal album," where the member can add photos to share with other members.

(Neibauer, p.477.) Neibauer discloses numerous other club features that enable a member to create and view personalized content, including personalized messages using the private message board. (Neibauer, p.482-83, Fig. 21-13 (showing personalized "Welcome" message posted by club founder).) A club member can also engage in online chat with other club members. (Neibauer, p.479.) These features are "*personalized*" to the first and second users through the club home page, as shown below:

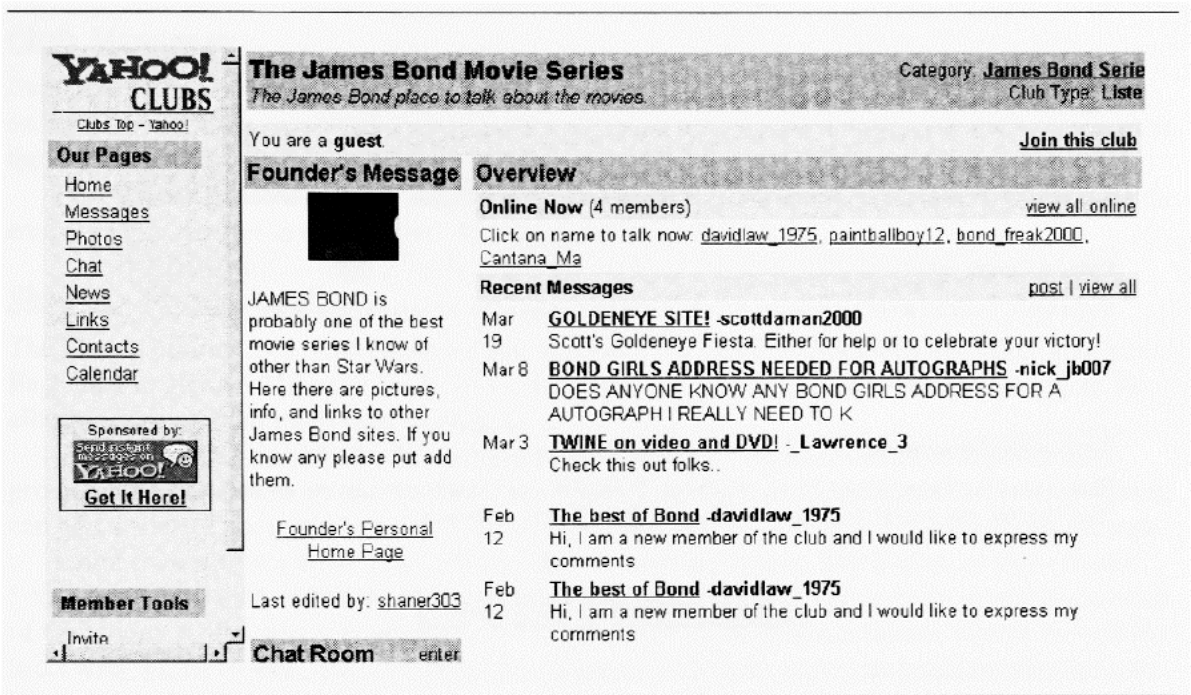


FIGURE 21-8 Club page

(Neibauer, p.475, Fig. 21-8.)

8. Claim 3

[3] The method of claim 1 wherein the identified application-based information channel comprises a collaborative workspace.

193. As explained for limitation [1A], the application-based information channel can include, for example, a club message board, club photo sharing feature, or club chat. Each of these "*comprises a collaborative workspace*," as claimed because each of these features provides a location within the club where club members can communicate and collaborate on topics of interest, e.g., by allowing each multiple club member to upload and download photos and graphics that are of interest to the various club members.

9. Claim 4

[4] The method of claim 1 wherein the identified application-based information channel comprises a chat channel.

194. As discussed for claim 1, Neibauer discloses an application-based information channel that includes a chat channel specifically in the form of allowing users to message (or "chat") each other. (Neibauer, p.479 ("The Chat option in the Our Pages section opens a private chat area for club members. There is also a Chat section on the page that lists the members who are currently chatting. Click in the Chat section header to enter the chat.").)

10. Claims 8 and 9

[8] The method of claim 1 wherein the information associated with said at least one wireless networking functionality of the mobile device comprises information specifying at least one messaging action implementable over said at least one wireless network. [9] The method of claim 1 wherein the information associated with said at least one wireless networking functionality of the mobile device comprises

information specifying at least one collaboration action implementable over said at least one wireless network.

195. As explained for limitation [1C], the information associated with at least one wireless networking functionality can comprise either "*one or more messaging actions*" or "*one or more collaboration actions*," both of which would have been implemented over the wireless network. And the combination likewise discloses a "wireless network" under any proposed construction for the same reasons it discloses "wireless networking functionality" under either Patent Owner's or Meta's proposed construction.

196. For example and as explained, Yahoo! Clubs supports the "messaging" functionalities as described with respect to "chats." Clubs also supports "collaboration" actions considering users can upload and download photos to the shared album space thereby collaborating.

11. Claim 13

[13] The method of claim 1 wherein the captured content is obtained from a device-captured data source of the mobile device, the device-captured data source comprising a source of at least one of device-captured video data, device-captured image data, device-captured audio data and device-captured location coordinates.

197. I largely covered claim 13 in my discussion of limitations [1C]-[1D], particularly under the combination that includes Ausems whereby a user's handheld device has camera functionality and, thereby, would include a handheld device utilizing captured content that is "*device-captured image data*" should

"*device-captured*" be interpreted to mean that the device takes a picture as opposed to, for example, capturing the image from an external camera as would be contemplated by Neibauer. Likewise, utilizing the teaching of Squibbs, the "*obtained*" image would also include "*device-captured location coordinates*" (e.g., via GPS or mobile radio infrastructure) of the mobile device that is used to upload the photo. (Squibbs, ¶¶0101, 0098.)

12. Claim 14 and 15

[14] The method of claim 1 wherein the mobile device comprises at least one of a mobile telephone, a tablet computer and a camera. [15] The method of claim 1 wherein the mobile device comprises a global positioning system (GPS)-based navigational device.

198. Cheng and Ausems both confirm that the mobile devices under the proposed combination would have comprised at least "*a mobile telephone*" inclusive of GPS navigation capabilities. (Cheng, 5:30-35 ("[F]or example, an organization's mobile device **108** users will often be visiting graphic-intensive web sites… [and] will be viewing these sites on, say, smart phones (i.e., a cellular telephone that provides voice, limited Internet access, email, pager and/or facsimile service, and typically has a small screen and little memory"); Ausems, *e.g.*, 3:5-8 ("FIGS 1*a*-1*d* illustrate PDA telephone **100** that provides the combined functionality of a Personal Digital Assistant (PDA) and a wireless telephone….").) Ausems further confirms that each mobile device could have comprised "*a GPS-*

based navigational device." (Ausems, 5:38-47 ("… PDA telephone **100** includes a Global Position System (GPS) receiver/engine having an associated antenna **195** for receiving signals from GPS satellites… The use of such GPS technology may allow for the inclusion of mapping and other features associated with conventional GPS devices.").)

13. Claim 17

[17] A non-transitory computer-readable storage medium having embodied therein executable code of one or more software programs, wherein said executable program code when executed by a processing element of the mobile device causes the mobile device to perform the method of claim 1.

199. Claim 17 adds nothing of patentable significance to claim 1, as it would have been obvious and required that the functionalities from Neibauer, Cheng, and Squibbs relied upon for claim 1 would have been carried out and implemented by software comprising code that executed by "*a processing element of the mobile device*," such as at least one processor or CPU for carrying out software program instructions. Ausems, 7:53-60 ("PDA engine 290 is illustrated in further detail and includes central processing unit (CPU) 305, random access memory (RAM) 310, read only memory (ROM) 315, electrically erasable programmable read only memory (EEPROM) 320…CPU 305 processes information received at PDA engine 290.").) This software would have been stored on at least one "*non-transitory computer- readable storage medium*," such as a flash memory chip. (Ausems, 7:63-8:5 ("ROM 315 is coupled to CPU 305. ROM

315 stores the operating system for PDA telephone 100."); Ausems 8:2-6 ("According to another embodiment, the operating system may include a web browser in order to facilitate Internet access for a PDA telephone 100. EEPROM 320 is also coupled to CPU 305 and may be used to store application software.").) It would have been obvious that all of the steps of claim 1, under the proposed combination, would have been carried out by program code stored in a non-transitory computer-readable storage medium (such as flash memory and other memory) and executed by at least one processing element (such as at least one CPU or processor), to carry out the claimed method.

14. Independent Claim 18

200. Claim 18 is obvious for the same reasons as claim 1. Claim 18 is an apparatus counterpart to the method of claim 1, that recites "*a mobile device*." The claim's "*mobile device*" for claim 18 is the same mobile device identified above for limitation [1A].

a. Preamble [18P]

[18P] A mobile device comprising

b. Limitations [18A]-[18B]

[18A] at least one processing element comprising a processor coupled to a memory; and [18B] at least one network interface;

201. As explained for claim 1 above, the proposed combination discloses and renders obvious access and use of Yahoo! clubs via a "*mobile device*." It would have been apparent that said mobile device as disclosed would comprise "*at least one processing element comprising a processor coupled to a memory*." The mobile device could not carry out any functionality without a computer processor coupled to a memory. (Ausems, 5:49-54 ("PDA telephone 100 includes a wireless phone engine 210…and PDA engine 290."); Ausems, 7:53-57 ("PDA engine 290…includes central processing unit (CPU) 305, random access memory (RAM) 310, read only memory (ROM) 315, electrically erasable programmable read only memory (EEPROM) 320)…); Ausems, 7:60-64 ("RAM 310 is coupled to CPU 305 and is used as a temporary storage area for data processed by CPU 305. ROM 315 is coupled to CPU 305. ROM 315 stores the operating system for PDA telephone 100.").)

202. The proposed combination also discloses and renders obvious "*at least one network interface*." As explained for claim 1, Yahoo! clubs was accessible over the Internet. (Cheng, 3:67-4:2 ("As shown [in Figure 1], the proxy server **110** and the server **102** are connected via a network **114** such as the Internet."); Neibauer, p.4 (explaining that Yahoo! members need access to an Internet connection), p.473 ("Access Yahoo! clubs by clicking Clubs on the Yahoo! home page or by going directly to http://clubs.yahoo.com to open the page

shown in Figure 21-6."), p.64 ("**http://** This is the prefix for the standard type of Internet Web site. The letters stand for Hypertext Transfer Protocol.") (bold in original).) The mobile device of the combination of Neibauer, Cheng, and Squibb would necessarily have a network interface. The '039 patent itself expressly defines a "mobile device" as including, among other things, a laptop computer. ('039 patent, 4:26-36.) It was well-known that conventional laptop computers provided the same functionality as desktop computers and were able to access the Internet. It would be apparent that smaller mobile devices would have "*at least one network interface*" in view of the proposed combination. (Ausems, 5:66-6:1 ("Modem 220 is coupled to wireless phone engine 210 and enables PDA telephone 100 to send and receive fax messages, or have Internet access.").)

203. These are basic components of mobile devices and are necessary to function under the proposed combination.

c. Limitation [18C]

[18C] said at least one processing element being configured to:

204. The functions recited in limitations [18D]-[18H] are substantially identical to the steps recited in limitations [1A]-[1E] and are therefore obvious for the same reasons. Each of these functions would have been performed by "*the processing element*," as required by limitation [18C]. Under the proposed combination, therefore, Ausems's CPU 305, RAM 310, ROM 315, and Cheng's

proxy server 110 would have worked together to provide the functions recited in limitations [18D]-[18H].

d. Limitations [18D]-[18H]

[18D] capture content at the mobile device; [18E] identify a previously established application-based information channel into which the captured content is to be inserted, the identified application-based information channel permitting interaction between a user of the mobile device and one or more additional users; [18F] determine information associated with at least one wireless networking functionality of the mobile device; [18G] provide, via said at least one network interface, the captured content from the mobile device to at least one server for insertion in association with the determined information into the identified application-based information channel; [18H] receive other content, via the identified application-based information channel, from at least one of the additional users.

205. Limitations [18D]-[18H] are substantially identical to the steps recited in limitations [1A]-[1E] and are therefore obvious for the same reasons.

15. Independent Claim 19

a. Preamble [19P] and Limitation [19A]

[19P] A method comprising: [19A] receiving, at a server from a mobile device, content for insertion into a previously established application-based information channel, the previously established application-based information channel permitting interaction between a user of the mobile device and one or more additional users;

206. Claim 19 relates to the functionality of a server, whereas claim 1 describes the functionality of the client-side device. In this way, much of claim 19

overlaps with claim 1 and is discussed with respect to claim 1, where I have discussed how Neibauer and the other prior art would interact with the server under the proposed combination(s).

207. As explained above for claim 1, Neibauer discloses features of the popular Yahoo! online service, including Yahoo! Clubs and the ability for users to share photographs and make photo albums. (Neibauer, pp.473-483.) As I explained above for limitation [1B], it would have been obvious that the photo would have been received "*at a server from a mobile device*," as claimed. As explained for limitation [1B] above, the club photo sharing feature is "*a previously established application-based information channel*."

b. Limitations [19B] and [19C]

[19B] receiving, at the server from the mobile device, information associated with at least one wireless networking functionality of the mobile device; [19C] integrating the content and the information associated with said at least one wireless networking functionality of the mobile device into the previously established application-based information channel; and

208. For the same reasons discussed above for limitations [1C] and [1D] above, limitations [19B] and [19C] are obvious under the proposed combination.

c. Limitation [19D]

[19D] inserting other content from at least one of the additional users into the previously established application-based information channel.

209. As discussed with respect to limitation [1D], various users of the clubs all have upload capabilities to upload information into the club shared photo space, for example.

16. Claim 20

[20] The method of claim 19, wherein integrating the content and the information associated with said at least one wireless networking functionality of the mobile device comprises: [a] obtaining location information of the mobile device; and [b] inserting additional content into the previously established application-based information channel based on the obtained location information.

210. I largely covered claim 20 in my discussion of limitation [1C]-[1D]. Under the proposed combination in view of Squibbs, when a club member uploads a photo via their mobile device ("*the content*") to the club photo sharing feature in Neibauer, the mobile device would have "*obtain*[ed] *location information*" (*e.g.* via GPS or mobile radio infrastructure) of the mobile device that is used to upload the photo. (Squibbs, ¶¶0101, 0098.) The proposed combination, moreover, would have resulted in "*inserting additional content into the previously established application-based information channel based on the obtained location information*," because under the proposed combination with Squibbs, the club photo sharing feature would have identified an electronic map or other location identifying information ("*additional content*") based on the obtained location information, for insertion into and display in the album provided by club photo sharing feature ("*application-based information channel*").

211. When the photo was uploaded to the server, the server would not only obtain the location information it would insert it as additional content into the application-based information channel when it stores the photo with that information.

17. Independent Claim 22

[22] A non-transitory computer-readable storage medium having embodied therein executable code of one or more software programs, wherein said executable program code when executed by a processing element of the server causes the server to perform the method of claim 19.

212. Claim 22 adds nothing of patentable significance to claim 19, as it would have been obvious and required that the functionalities of clubs would have been carried out and implemented by software comprising code that executed by "*a processing element of the server*," such as at least one processor or CPU for carrying out software program instructions. (Cheng, 23:16-19 ("Although computer system **1100** is illustrated having a single processor, a single hard disk drive and a single local memory, the system **1100** is optionally suitably equipped with any multitude or combination of processors or storage devices."), 23:29-31 ("CPU **1204** is the central processing unit of the system, performing calculations and logic operations required to execute a program.").)

213. This software would have been stored on at least one "*non-transitory computer-readable storage medium*," such as a hard disk drive. (Cheng, *e.g.*, 23:63-24:4 (explaining that computer program instructions may be stored in hard

disk storage until required by the computer system).) It would have been obvious that all of the steps of claim 19, under the proposed combination, would have been carried out by program code stored in a non-transitory computer-readable storage medium (such as hard disk drives and other memory) and executed by at least one processing element (such as at least one CPU or processor), to carry out the claimed method.

214. I note that mapping the claimed "*processing element*" to origin web server **102** and proxy server **110** is consistent with the '039 patent, which makes clear that a processing element or server can itself comprise multiple servers. ('039 patent, 8:63-65 ("Each of the servers **33**, **35**, **37** and **39** [of processing elements **30**] may comprise one or more of the servers **16** or other elements shown in FIG. 1A, or suitable portions or combinations thereof.").)

215. And even if the claim required that the "*processing element*" be contained within a single physical server (it does not), it would have been obvious to combine proxy server **110** and origin server **102** into a single server. This implementation is disclosed by Cheng itself, which explains that the computer system implementing the proxy server can "be replaced by, or combined with, any suitable processing system operative in accordance with the principles of the present invention…." (Cheng, 23:20-25.) It therefore would have been obvious that the functionality of origin web server **102** could have been combined with proxy

server **110**, to provide a combined server that performs the functions of claim 9. This would have been plainly obvious and trivial in view of Cheng, as ordinarily skilled artisans would have been familiar with known techniques for dividing tasks among servers, including dividing tasks into multiple servers or consolidating tasks within a single server, as needed. For example, a skilled artisan would have been motivated to combine origin web server **102** with proxy server **110** to improve the performance of Cheng's proxy server techniques, as this would have eliminated the step (and network overhead associated with) origin server **102** having to send the original web page to the proxy server over the Internet.

18. Independent Claim 23

a. Preamble [23P]

[23P] A server comprising:

216. Claim 23 is substantially similar to claim 19, addressed above, except that claim 23 is an apparatus claim that recites "[*a*] *server comprising*…" The limitations of claim 23 are obvious for the same reasons as claim 19. The claimed "*server*" of claim 23 corresponds to the server of limitation [19A], as discussed above.

b. Limitations [23A] and [23B]

[23A] at least one processing element comprising a processor coupled to a memory; [23B] a network interface;

217. It would have been obvious that the server, under the proposed combination, would have included a processing element "*comprising a processor coupled to a memory*," as these would have been basic components required by the server to even function. (Cheng, 23:16-19 ("Although computer system **1100** is illustrated having a single processor, a single hard disk drive and a single local memory, the system **1100** is optionally suitably equipped with any multitude or combination of processors or storage devices.").) It would have apparent and obvious that the functions in Neibauer, Cheng and Squibbs would have required at least one server comprising at least one processor coupled to a memory, in order to execute the software instructions for carrying out their respective operations as described in my discussion of claim 19. As noted for claim 22, mapping the claimed "*processing element*" to a web server and proxy server **110** is consistent with the '039 patent, and moreover, it would also have been obvious to combine origin server **102** and proxy server **110**, to the extent the claim were construed to require that the claimed processing element be contained in a single server.

218. It would also have been obvious that the server would have included at least one "*network interface*." The server as described in limitation [19A] is accessible over the Internet. (Cheng, 3:67-4:2 ("As shown [in Figure 1], the proxy server **110** and the server **102** are connected via a network **114** such as the Internet."); Neibauer, p.4 (explaining that Yahoo! members need access to an

Internet connection), p.473 ("Access Yahoo! clubs by clicking Clubs on the Yahoo! home page or by going directly to http://clubs.yahoo.com to open the page shown in Figure 21-6."), p.64 ("**http://** This is the prefix for the standard type of Internet Web site. The letters stand for Hypertext Transfer Protocol.") (bold in original).)

219. It would have been obvious that the server of claim 19 would also have included "*a network interface*," a basic and well-known component that allows a computer to communicate with other devices over a network such as the Internet. ('039 patent, 4:64-65 ("The network interface **25** provides an interface for the processing element **20** to the wireless network **12** or the Internet **14**.").) For example, Cheng discloses that the processing element is coupled to a communication port that facilitates communication with mobile devices, such as through a wireless network. (Cheng, 23:44-51 ("Communications with external devices, for example, the other components of the system described herein, occur utilizing communication port **1516**. For example, optical fibers and/or electrical cables and/or conductors and/or optical communication (e.g., infrared, and the like) and/or wireless communication (e.g., radio frequency (RF), and the like) can be used as the transport medium between the external devices and communication port **1516**.").) Alternatively, the "*network interface*" can also correspond to gateway **109**, which in this scenario, would have been part of the claimed "*server*"

and would have provided an interface between mobile devices and proxy server **110**. (Cheng, 3:33-36 ("If necessary, a gateway **109** may optionally be provided that interfaces between, for example, the mobile device **108** and the proxy server **110**.").) Under either theory, the proposed combination discloses "*a network interface*."

c. Limitations [23C]-[23G]

[23C] said at least one processing element being configured to: [23D] receive, from a mobile device, content for insertion into a previously established application-based information channel, the previously established application-based information channel permitting interaction between a user of the mobile device and one or more additional users; [23E] receive, from the mobile device, information associated with at least one wireless networking functionality of the mobile device; [23F] integrate the content and the information associated with said at least one wireless networking functionality of the mobile device into the previously established application-based information channel; and [23G] insert other content from at least one of the additional users into the previously established application-based information channel.

220. With respect to limitation [23D], as explained, the processing element in the server would have been configured to carry out each of the operations in Neibauer, Cheng and Squibbs, that I have mapped to the steps of claims 19 and 23. With respect to limitations [23D]-[23G] , they are substantially identical to the steps recited in limitations [19A]-[19D] and [1B]-[1E], respectively, and therefore obvious over the proposed combination for the same reasons discussed above.

19. Claim 24

[24] The method of claim 1 further comprising accessing integrated content at the mobile device via the identified application-based information channel, the integrated content comprising a combination of at least a portion of the captured content and at least a portion of the determined information.

221. Claim 24 is obvious for the same reasons as claim [19C]. As explained previously, the proposed combination would have rendered obvious that the uploaded photo ("*the content*") is integrated with the messaging or collaboration action, or location information ("*information associated with at least one wireless networking functionality*…"), into the club photo sharing feature ("*the previously established application-based information channel*"), as both the photo and the textual information provided by the club member or the location data would be presented as being integrated and associated with the photo.

222. As another example, the photo could have geotracking information associated with it, such as described in Squibbs. In this way a user of a handheld device could access a photo that includes both the image (the captured content) and the geolocation information of the photo (a portion of the determined information) via the application-based information channel.

20. Claim 25

[25] The method of claim 1 wherein integrated content is stored by the at least one server, the integrated content comprising a combination of at least a portion of the captured content and at least a portion of the determined information.

223. As explained, under the proposed combination, the integrated content item would have been inserted into, and thus would have been viewable using, the club photo sharing feature described in Neibauer. The club photo sharing feature is provided by one or more software programs or applications running on the web server. As described above, under the proposed combination, the integrated content item would have been stored and displayed through the club photo sharing feature.

224. It would also have been obvious that the club photo sharing feature ("*the application-based information channel*") would have provided an interface allowing club members to access a plurality of uploaded photos, including the "*integrated content item*." Under the proposed combination, the interface would also have provided access to "*the integrated content*." In the case where the integrated content comprises a photo with its accompanying textual message content, as explained for limitation [1C] above, the interface was described above and as shown in Figure 21-10, allows club members to access both the photo and its accompanying textual name and description, as well as geographic information such as is disclosed in Squibbs.

The James Bond Movie Series Category: James Bond Serie
The James Bond place to talk about the movies. Club Type: Liste

Blueraja's BOND GIRL Album Back To: Album List

Created by blueraja3 on 22-Nov-1999

Showing 1 - 12 of 12 photos | View Thumbnails Add Photo

Photo Name and Caption	Contributor	Size	Posted	Edit	Delete
Denise Richards - Stunning Blue Bikini	blueraja3	21 KB	22-Nov-1999		
Denise Richards - Seductive Stare	blueraja3	22 KB	22-Nov-1999		
Denise Richards - Sexiest Denise Pic	blueraja3	48 KB	22-Nov-1999		
Denise Richards - Too Sexy! Too Sexy!	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Modeling Lingerie	blueraja3	53 KB	22-Nov-1999		
Famke Janssen - Sexiest Bond Girl Ever	blueraja3	13 KB	22-Nov-1999		
Famke Janssen - Sexy Black Leather	blueraja3	10 KB	22-Nov-1999		

FIGURE 21-10 Club photo album

(Neibauer, p.478, Fig. 21-10.)

225. In the case where "*the integrated content*" is a photo message also having location information, under the proposed combination with Squibbs, the user interface in Neibauer would have been adapted to display the photo (or a thumbnail of the photo) with accompanying location information. This could have been implemented in a number of ways, presenting a trivial design choice to a POSITA. In one example, the photo album listing and photo display user interface in Neibauer discussed above have been further adapted such that, upon selecting a photo from Figure 21-10 that had associated location information (the "*integrated content*"), the photo could have been displayed in connection with an electronic

map showing where the photo was taken, as disclosed in Squibbs. As another example, the user interface shown in Figure 21-10 could itself have been adapted based on Figures 6 and 7 of Squibbs, such that multiple photos in the album are displayed in thumbnail view on an electronic map. Many other implementations would have been apparent and obvious to a POSITA.

21. Claim 28

[28] The method of claim 1 wherein the application-based information channel is accessible via a mobile website previously established for the user of the mobile device.

226. This claim is obvious for the same reasons as limitation [1B], discussed above. As discussed, the proposed combination discloses the club photo sharing feature ("*application-based information channel*") which is also "*previously established*" because it was already established as a feature of the club before the club member chose to upload a new photo to a photo album. This content would also have been "*accessible via a mobile web site*," *i.e.*, a website designed to be accessed by a mobile device, based on the combination.

22. Claim 29

[29] The method of claim 1 wherein the application-based information channel is accessible via a personalized content application particularly configured to run on the mobile device.

227. This claim is obvious for the same reasons as claim 2, discussed above. The proposed combination discloses that the web browser applications on

the mobile devices would have been applications that allowed club members to access personalized content.

23. Claim 30

[30] The method of claim 1 wherein the other content comprises at least one message relating to the captured content that is received at said at least one server and inserted by said at least one server into the application-based information channel.

228. This claim is obvious for the same reasons as limitation [1C], discussed above. The proposed combination discloses textual (and other) information provided by the club member with the uploaded photo which qualifies as a "*message*" because it allows the club member to provide a textual message to accompany the uploaded photo when viewed by other members.

B. Ground 2: Claim 21 Is Obvious Over Ground 1 Prior Art and Bandera.

1. Bandera (EX1017)

229. Bandera, U.S. Patent No. 6,332,127, is entitled "Systems, Methods, and Computer Program Products for Providing Time and Location Specific Advertising via the Internet." I am informed that Bandera qualifies as prior art because it is a U.S. patent that issued on December 18, 2001 from an application filed on January 28, 1999, both dates being before the earliest priority date of the challenged claims.

230. Bandera discloses a mobile device that can, in response to a request to obtain a web page, obtain the location of the mobile device information using GPS,

a cellular base station, or other known techniques of determining geographic location. (Bandera, 2:41-47, 4:46-60, 6:46-7:8.) A web server, in response, generates a requested web page that includes, among other things, an advertising object. (Bandera, 4:61-5:17, 7:17-30.) The web server selects the advertising object "based on a user location and/or on the time of day. Exemplary advertising objects may include text files, audio files, video files, image files, and the like." (Bandera, 5:21-25.) As explained in Bandera:

> As an example of this aspect of the present invention, a user requests a Web page from a Web server via a mobile Web client. The Web server utilizes user location information transmitted with the Web page request to select an advertisement object that presents information about something that is physically near the user's present location. For example, information relating to the nearest store in a national chain of stores can be presented within an advertising object displayed within a Web page.

(Bandera, 7:32-40.)

2. Claim 21

[21] The method of claim 20 wherein said additional content comprises advertising content.

231. As explained in the discussion of claim 20 in Ground 1, under the proposed combination, when a club member uploads a photo via their mobile device and also transmits location information, "*additional content*" would have

been inserted into and displayed by the photo album via the club photo sharing feature, such as an electronic map or other information identifying the location.

232. The prior art for Ground 1 does not appear to explicitly disclose that the "*additional content*" could also comprise advertising content, but this would have been obvious in further view of Bandera.

233. Bandera discloses a technique for selecting and delivering advertisements to an Internet user based on the physical location of their mobile device. In one embodiment, a mobile device can, in response to a request for a web page, obtain and provide to the web server the location of the mobile device (for example using GPS, a cellular base station, or other known techniques of determining geographic location). (Bandera, 2:41-47, 4:46-60, 6:46-7:8.) The web server, in response, generates a requested web page that includes an advertising object. (Bandera, 4:61-5:17, 7:17-30.) The web server selects the advertising object "based on a user location and/or on the time of day. Exemplary advertising objects may include text files, audio files, video files, image files, and the like." (Bandera, 5:21-25.) As explained in Bandera:

> As an example of this aspect of the present invention, a user requests a Web page from a Web server via a mobile Web client. The Web server utilizes user location information transmitted with the Web page request to select an advertisement object that presents information about something that is physically near the user's present location. For

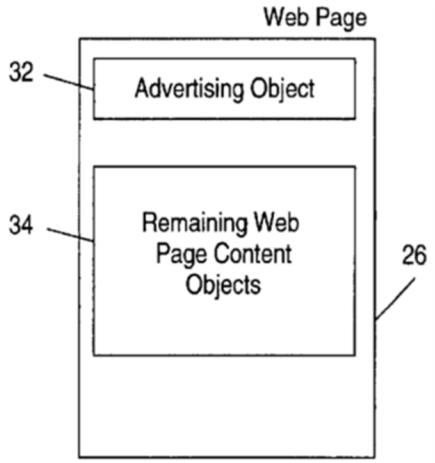
> example, information relating to the nearest store in a national chain of stores can be presented within an advertising object displayed within a Web page.

(Bandera, 7:32-40.)

234. Where a user uploads a photo to the server, under Bandera it would be advantageous for the server to additionally attach information regarding a local attraction/advertisement to the photo such that when other users access the photo the advertisement can be promoted them. Bandera thus discloses or renders obvious providing additional advertising content to the club.

235. **Motivation to Combine Ground 1 Prior Art and Bandera:** It would have been obvious to combine the prior art for Ground 1 with Bandera, predictably resulting in the system and method described for claim 20 in which the "*additional content*" comprises the electronic map or other location-identifying information as described for claim 20, and *further* comprises advertising based on the location of the mobile device. Under the proposed combination, therefore, the "*additional content*" that would have been inserted into and displayed by the club photo sharing feature would have included advertising content based on the location of the mobile device.

236. This would have been easy to implement, as placing advertising content on webpages was well-known and commonplace long before the ’039 patent. In one exemplary implementation, after the club member uploaded a photo with location information, and then viewed the photo on a webpage of the photo sharing feature that feature that included an electronic map or other location-identifying information, as described for claim 20, that same web page would also have included the location-based advertising content. The excerpt of Figure 2 of Bandera at right, for example, shows display of the selected advertising object **32** on the same page along with as the remaining content objects **34** of the page, which a POSITA would have recognized as a typical implementation of a common web banner advertisement. (Bandera, 1:66-2:10.)



237. Under the proposed combination, therefore the photo sharing feature described in Neibauer would have been further adapted to insert “*additional content*” comprising both the location information associated with the photo uploaded by the club member (as described for claim 20), and a location-based advertisement. I note that this combination is consistent with Neibauer, which shows an exemplary club page with an advertisement placed on it:

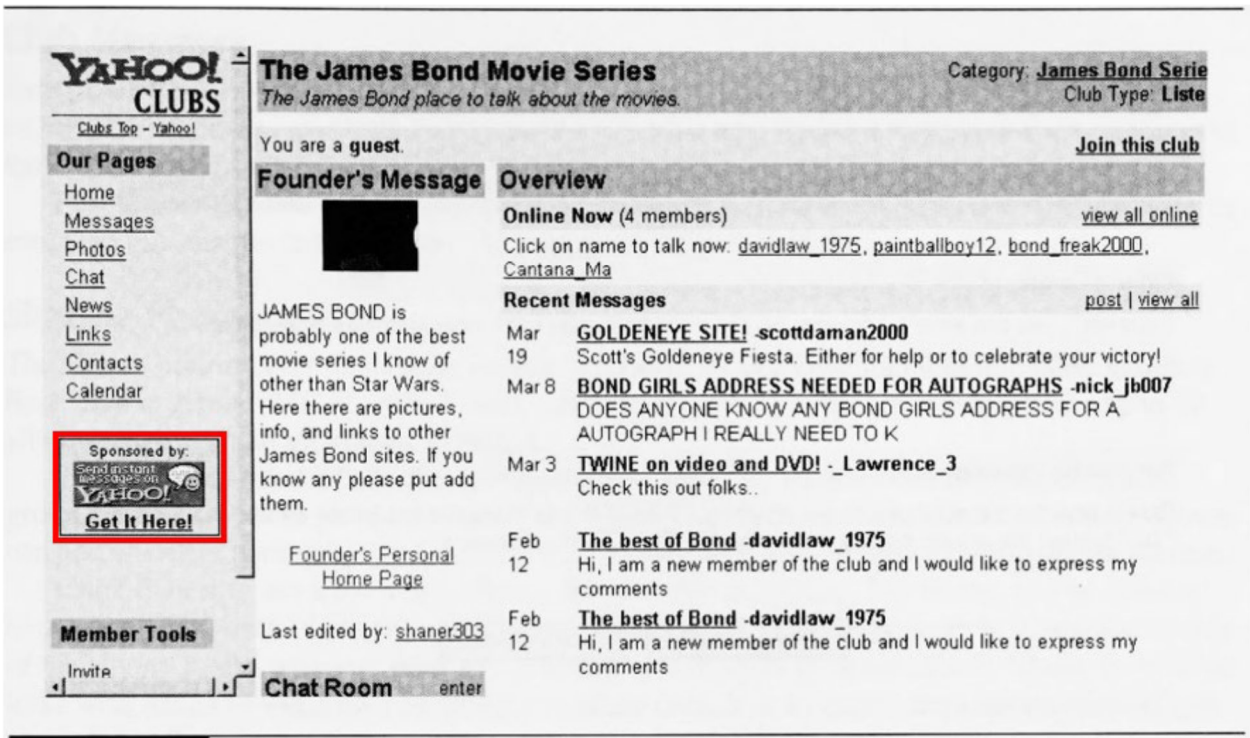


FIGURE 21-8 Club page

(Neibauer, p.475, Fig. 21-8 (red box added).)

238. Bandera is an analogous reference in the same field as the ’039 patent of network-based communication systems and information content management on such systems, as it discloses functionality for presenting information to mobile devices based on their current location. Bandera would also have been reasonably pertinent to problems facing the patent inventors, including how to insert advertising content based on the obtained location of the mobile device, as recited in claim 21.

239. A POSITA would have been motivated to combine the Ground 1 prior art with Bandera in order to increase revenue. As noted above, Neibauer discloses the ability to place advertisements on club pages. (Neibauer, p.475, Fig. 21-8.) The

techniques of Bandera would have provided a clear benefit by allowing the club photo sharing webpage to display advertisements based on the current location of the user, which would likely have resulted in advertisements that were more relevant to the user and her current location. Bandera expressly motivates the combination, noting that targeting users on the basis of location can enhance the effectiveness of advertising and targeting users. (Bandera, 3:38-42.)

240. A POSITA would also have had a reasonable expectation of success. Bandera explains that, consistent with Squibbs, the ability to determine current location (via GPS or cellular radio infrastructure) was known. (Bandera, 6:49-7:8). The ability to display banner advertisements on webpages was also well-known. (Bandera, 1:66-2:10.) A POSITA would have found the disclosures of Bandera sufficiently detailed to implement the techniques on which I rely, without undue experimentation.

C. Grounds 3-4: Obviousness in Further View of Harvey.

241. Harvey, U.S. Patent No. 6,487,583 B1, is entitled "System and Method for Information and Application Distribution." I am informed that Harvey qualifies as prior art because it is a U.S. patent issuing from an application filed on February 25, 2000, which is before the priority date of the challenged claims.

242. Grounds 3-4 are substantially the same as Grounds 1-2, except that they add Harvey (**EX1010**) to account for a narrower construction of "*application-*

based information channel" that was proposed in the pending litigation. As explained for Ground 1, limitation [1B], Petitioner Meta has argued in the MDT-Meta District Court Litigation that "*application-based information channel*" should be construed (based on a construction of "mobile information channel" from a prior litigation involving a related patent) as "a virtual location at the content management site at which user-authored content may be added for transmission to the mobile web site." I understand that Patent Owner does not agree that this construction is appropriate. In any case, the key feature of this construction, for purposes of Grounds 3-4, is the ability of user-authored content to be added "at a content management site," which Meta has defined in the MDT-Meta District Court Litigation as "a web site that allows a user without programming to create and manage content on a mobile web site, or a portion thereof." The "*content management site*," as explained for Ground 1, corresponds to the website for creating a new club based on the proposed combination, and the "*mobile website*" to the club made available to club members via mobile devices, under the proposed combination. With respect to the requirement that the "content management site" permit the user to add "user-authored content," this would have been obvious in further view of Harvey. With respect to all other claim limitations in the challenged claims, my analysis from Grounds 1-2 applies here.

243. Harvey discloses techniques for allowing users to create on-line communities in which users can communicate and share information. In one exemplary embodiment, Harvey discloses an on-line community that is very similar, in terms of its purpose and features, to the type of web-based clubs disclosed in Neibauer:

> A creator accesses a central controller over a network to create a community using a community creating module. In this example, the title of the community is "The William Henry Harrison Historical Preservation Society." The community creating module permits the creator to create a community, and designate applications and content presented. in the community by a user interface. The applications in the present example include a chat application object for users to interact with each other in chat format, a schedule application object for scheduling appointments for the events, a pledge application object for pledging a donation, a photo album application object for viewing photos related to William Henry Harrison, and other application objects. Content in the present example includes information about upcoming fund raising events and meetings for the Society, information about current funds collected, biographical information about William Henry Harrison, and other information. Different applications may provide different levels of interaction between a user, other users, and the central controller module.

(Harvey, 4:24-43.)

244. The key feature of Harvey, for purposes of this ground, is its disclosures of a community creator being able to add content to a community before the community is created and launched. As noted, Harvey explains that "[t]he community creating module permits the creator to create a community, and designate applications and content presented in the community by a user interface." (Harvey, 4:28-30.) More specifically, a user can access a creating module **165** in order to create a new community, which may include web-based community creation. (Harvey, 7:49-54, 7:55-56 ("According to another embodiment of the invention, community creation may comprise a web-based creation.").) "A creator accesses community creating module **165** through a central controller module **115** at step **200** [of Figure 2]." (Harvey, 8:49-50.) "At step **202**, a creator provides community identification information," such as a community name. (Harvey, 7:58-61.) "At step **210**," Harvey explains, "a configuration editor is presented to a creator. A configuration editor may allow a user to build a community, designate content and application objects, subscribe to subscription objects, and add other information associated with the community." (Harvey, 8:63-67; *see also id.*, 9:41-47 ("Options may include… creating specific content….").) Later, "[a]t step **230**, a creator may launch a community." (Harvey, 12:67-13:1.) A user can establish a connection with a community, among other ways, "through browser access to an appropriate website." (Harvey, 29:59-62.)

245. **Motivation to Combine with Harvey:** It would have been obvious to combine the prior art cited for Grounds 1-2 with Harvey, predictably resulting in the club creation system under the proposed combination, with the further ability of the web-based club creation interface to allow the club founder to add content to one or more mobile information channels. For example, in one exemplary and obvious embodiment of the proposed combination, the web-based club creation interface under the Neibauer combination would have further allowed the club founder to add content to one or more mobile information channels, such as by adding messages to the club message board, before the club is created and launched.

246. This would have satisfied Meta's proposed construction of "*application-based information channel*" as "a virtual location at the content management site at which user-authored content may be added for transmission to the mobile web site." Under the proposed combination, therefore, the "content management site" would have included the web-based interface for allowing the founder to create a club disclosed in Neibauer, and that interface would have further permitted the club founder to add content for the club, such as initial club messages, initial photos, and so forth. This information would have been made available for transmission to "the mobile website," i.e., the club site as delivered to mobile users, on the club page itself.

247. Harvey is an analogous reference. The ’039 patent describes its “Field of the Invention” as relating generally to “network-based communication systems, and more particularly to techniques for information content management in such systems.” (’039 patent, 1:28-30.) Harvey, like Neibauer described for Ground 1, is an analogous reference in the same field as the ’039 patent as it discloses similar functionality for managing information content accessible through the Internet, through a series of information channels that provide the ability to exchange messages and collaborate among multiple users. Harvey would also have been reasonably pertinent to problems facing the patent inventors, including how to implement a web-based system for managing information content and making that content available to users over the Internet.

248. A POSITA would have been motivated to combine in order to provide greater customizability to the clubs created under the proposed combination. This is because the club creator, under the proposed combination, would have been able to use the club-creation interface to populate the mobile information channels with initial content, before the club is launched and made available to other members. This would have allowed the club founder to ensure that other members would not experience a “blank” club devoid of content, because under the proposed combination, the club founder could have populated its mobile information channels (such as the club message board) with at least some initial content, thus

providing a more engaging club experience for other members, featuring content available from the moment of the club's creation.

249. A POSITA would also have had a reasonable expectation of success. The features that I rely upon in Harvey, namely the ability to allow content to be added to mobile information channels through the club creation interface, involved nothing more than straightforward web programming techniques using standard technologies such as HTTP, HTML, and could have been implemented using off-the-shelf web browser and web server software. A POSITA would have found the disclosures of Harvey sufficiently detailed to implement the techniques on which I rely, without undue experimentation.

V. CONCLUSION

250. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case 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 proceeding. If required, I will appear for cross-examination at the appropriate time. I reserve the right to offer opinions relevant to the invalidity of the challenged claims at issue and/or offer testimony in support of this Declaration.

251. I hereby declare that all statements made herein of my own knowledge are true and that all statements are 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 18 U.S.C. § 1001.

Dated: January 31, 2025

Respectfully submitted,

Henry H. Houh.

Henry Houh, Ph.D.

APPENDIX A

Henry H. Houh

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Education

Massachusetts Institute of Technology, Cambridge, MA

- PhD in Electrical Engineering and Computer Science, February 1998. "Designing Networks for Tomorrow's Traffic," thesis supervised by Professor David Tennenhouse and Professor John Guttag. GPA 4.7/5.0
- Master of Science in Electrical Engineering and Computer Science, February 1991. "Demonstration of a laser repetition rate multiplier," thesis. GPA 4.5/5.0
- Bachelor of Science in Electrical Engineering and Computer Science, June 1989. "Boundary element analysis of arbitrarily shaped dielectric structures," thesis. GPA 4.7/5.0
- Bachelor of Science in Physics, February 1990. GPA 4.7/5.0

MITx, Cambridge, MA

- September 2020 – present: Enrolled in Statistics and Data Science MicroMasters program, a sequence of five MIT-offered graduate-level courses in statistics and machine learning, culminating in a MicroMasters certificate. Have completed four of five required courses.

Experience

Houh Consulting Inc. / Independent Consultant

- 2009 - present: Technical consultant specializing in Social Networking, Web 2.0, Web Site Development, Data Networking, Optical Networking, Telecommunications, Media Streaming and Voice Over IP. Clients include: Akin Gump Strauss Hauer & Feld LLP, Arnold & Porter Kaye Scholer LLP, BBN, Baker Botts LLP, Barnes & Thornburg LLP, BBN Technologies, Beus Gilbert McGroder PLLC, Bracewell LLP, Christensen O'Connor Johnson Kindness PLLC, Cooley LLP, Covington & Burling LLP, Cozen O'Connor P.C., DLA Piper, Davis Polk & Wardwell LLP, Desmarais LLP, Duane Morris LLP, Erise IP, P.A., Faegre Baker Daniels LLP, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Fish & Richardson P.C., Goldman Ismail Tomaselli Brennan & Baum LLP, Haynes and Boone, LLP, Kaye Scholer, Kellogg Huber Hanson Todd Evans & Figel PLLC, Kirkland & Ellis LLP, Klarquist Sparkman, LLP, McCarthy Tetrault LLP, McGuireWoods LLP, Morgan, Lewis & Bockius LLP, Munger Tolles & Olson LLP, Orrick, Herrington & Sutfliffe LLP, O'Melveny & Myers LLP, Orrick, Herrington & Sutcliffe LLP, Paul Hastings LLP, Paul, Weiss, Rifkind, Wharton & Garrison LLP, Perkins Coie LLP, Quinn Emanuel Urquhart & Sullivan, LLP, Sidley Austin LLP, Smith Baluch LLP, Sterne, Kessler, Goldstein & Fox PLLC, Troutman Sanders LLP, Venable LLP, Weil, Gotshal &

Manges LLP, Wiley Rein LLP, Wilmer Cutler Pickering Hale and Dorr LLP, and Winston & Strawn LLP.

BlocksCAD Inc. (H3XL spin-out)

- 2014 - present: Founder and member of Board of Directors. BlocksCAD is a visual Computer-Aided Design (CAD) program, designed to teach children mathematics and geometric visualization. BlocksCAD is being used in U.S. schools and worldwide in maker spaces, with 350,000+ users. BlocksCAD was selected to be part of the LearnLaunch 2017 Boost Accelerator, the MIT Play Labs 2018 Summer Accelerator, and the MassChallenge 2018 Boston Cohort. Recipient of DARPA DSO grant in 2014, and SBIR grant from the USDA in 2019.

H3XL Inc. d/b/a Einstein's Workshop (formerly Lexington Robotics)

- 2009 - 2022: Founder and President. Started a science, technology, engineering and math enrichment program and creative/maker space, in 7,000 square feet of space. Serve 2,000+ kids and families annually. As of end of 2022, have delivered an estimated 250,000 student-instruction-hours of STEM courses. Principle Investigator for 2-year DARPA grant to improve 3D Computer Aided Design tool developed in-house for the purposes of teaching 8 year olds and up 3D CAD.

Eons

- 2008 - 2009: Chief Technology Officer. Created product that Eons acquired from BBN Technologies. Integrated BBN product with Eons social networking platform and significantly increased the Eons group creation rate. Helped evaluate advertisement platform offerings and rolled out the "Boom Network" advertising network. Eons raised $32 million from General Catalyst Partners, Charles River Ventures, Sequoia Capital, and Intel Capital.

BBN Technologies

- 2007 - 2008: Delta Division, Vice President of Technology. Grew "Boomerang" counter-sniper project engineering team and significantly de-risked $10 million worth of product deliveries. Identified sales team leading to $10 million dollars of new sales within 6 months and $100+ million in additional orders in the following two years. Boomerang was a significant asset leading to the acquisition of BBN by Raytheon in 2009. Created new business plan and grew team; launched new fully-featured social networking web site in 5 months. Served as lead expert witness in patent infringement lawsuit, resulting in $58 million jury award to client; verdict for patents I testified on were upheld on appeal which resulted in a $120 million settlement.
- 2004 - 2007: Delta Division, Director of Technology, responsible for commercializing IP and creating new businesses. Hired and grew division's initial engineering team. Wrote three business plans, two of which were funded. For call center business plan, acted as general manager, hiring and managing engineering team, inside sales team, and identifying and recruiting a new general manager. Identified and recruited other key employees to Delta Division, including senior members of team leading to successful internal sales growth and spin-outs of projects. Contracted by BBN to BBN spin-out PodZinger as VP of Operations and Technology. Additional areas studied include mesh networking, network security, satellite communications, and semantic web.

PodZinger Inc. (BBN spin-out, also known as EveryZing and now RAMP)

- 2006: Vice President of Operations and Technology. Significantly upgraded capability of consumer-facing search site and redeployed web site from company to co-location facility. Identified key portions of infrastructure for upgrading and cost reduction. Helped write business plan, evaluating advertisement models of revenue. Hired in operations replacement and phased back to BBN.

Commonwealth Capital

- 2004: Entrepreneur-in-residence (informally), performed technical due diligence on business plans, brainstormed ideas for new businesses with venture partner. With venture partner, left for portfolio company BBN to form core of commercialization team.

Empirix, Inc./Teradyne, Inc.

- 2001 - 2004: Chief Technologist, Engineering Manager, Web Application Test Group. Researched potential new product areas; developed product plan and prototype. Responsible for three new and existing products. Managed off-shore development team. Chief architect for all web testing products. Re-architected core testing product, helped write javascript interpreter. Provided technical vision for core product.
- 2000 - 2001: Chief Technologist, Communication Infrastructure Test Group. Responsible for incorporating new technology internally, tracking new technologies, technical evaluation of partnerships and potential acquisitions. Helped develop division strategy. Developed plans which formed core capabilities for successful new products introduced in 2004-5.
- 2000 - 2001: Engineering Manager, Communications Infrastructure Test Group. Execution of new product plan developed in prior role. Grew team from four existing engineers to team of over 30 on immediate team and over 40 on project. Delivered new platform in one year. Platform and derivatives accounted for large portion of booked products for the division within 2 years and is currently (2008) a key portion of new product offerings.
- 2000: Empirix was formed as a spin-out of Teradyne in January 2000. Reported to CEO in carve-out of Empirix from Teradyne.
- 1999: (Teradyne) Director of Business Development, Software Test Units. Reported directly to Chairman of the Board/Founder and then to general manager of software test unit (6 divisions of Teradyne). Evaluated and researched acquisition and partnership candidates. Internally assessed technology position in market and gaps in product lines. Worked with senior division staff to develop new product strategies. Attended internal Teradyne divisional board meetings. Chairman served as my mentor.

3Com Corporation/NBX Corporation

- 1999: Software Engineer 5. Continued work after 3Com acquisition of NBX. Built cross-division relationships for new products and research directions. NBX was acquired by 3Com in March 1999.
- 1997 - 1999: (NBX) Senior Scientist and Engineer. Work in IP Telephony. Architected next-generation product. Protocol design and validation for core protocol now used tens of millions of times daily. Led team in integration of IP protocols into current product. Designed audio reconstruction algorithms. Developed applications for bug analysis and diagnosis of system

problems. Implementation of network simulator. Work on collaborative projects with external partners. Worked to identify gaps in product. Representative at numerous trade shows. Innovated novel methods of using product.

MIT Department of Electrical Engineering and Computer Science, Cambridge, MA

- 1991 - 1998: Research assistant, Telemedia Network Systems Group. Design, development, and implementation of Gigabit ATM network for distributed multimedia system. Studied host interface design issues. ATM network simulation.
- Spring 1989, Fall 1990, Spring 1995: Teaching assistant, Computation Structures digital systems course. (Spring 1995 Head TA)
- 1988 - 1989: Head laboratory teaching assistant for Computation Structures. Responsibilities included writing and revising lab assignments, and maintaining the lab.
- 1987: Laboratory teaching assistant for Computation Structures.
- 1987: Design, construction, and programming of 16-bit computer.

Agora Technology Group, Incorporated

- 1994 - 1996: Founder and CEO. Conceived and oversaw development of targeted advertising-supported Web sites. Responsible for company's vision and direction. Attended the first two WWW Conferences, presenting a workshop and paper at the first, and appearing on the "Commercialization and Economics of the Web" panel and chairing the "Where Commercial Services and the Web Are Headed" panel at the second. Sold company intact; is currently an operating stand-alone company.

AT&T Bell Laboratories, Holmdel, NJ

- 1989 - 1990: Implementation of cascadable all-optical fiber logic gate. Modelocking of all-fiber erbium laser. Construction of modelocked laser repetition rate booster. Strong optics laboratory and fiber optic experience.
- Summer 1988, 1987: Research in integrated optics. Analysis of rectangular waveguides using microwave modeling. Fabrication of integrated optical components.

Honors

- MIT Alumni Association Great Dome Award, 2010, Baker 60th Anniversary Reunion Co-Chair (highest group award given by MIT Alumni Association)
- MIT Alumni Association Presidential Citation Award (now known as Great Dome), 2008, Member of MIT Chairman's Salon committee
- MIT Alumni Association Bronze Beaver Award, 2007 (highest individual award given by MIT Alumni Association)
- MIT Alumni Association Volunteer Honor Roll, February 2004
- MIT Alumni Association Lobdell Award, 1999
- Boston Museum of Science Gold Pin for 1000 hours of Volunteer Service, April 1999
- MIT Alumni Association Presidential Citation Award (now known as Great Dome), 1997, Member of Alumni Online Communications Committee

Patents and Patent Publications

- U.S. Patent #9,697,231, H. Houh, J. Stern, R. Spina, M. Meteer, "Methods and apparatus for providing virtual media channels based on media search," July 4, 2017.
- U.S. Patent #9,697,230, H. Houh, J. Stern, "Methods and apparatus for dynamic presentation of advertising, factual, and informational content using enhanced metadata in search-driven media applications," July 4, 2017. See also WO2007056485.
- U.S. Patent #7,975,296, L. Apfelbaum, H. Houh, T. Mayberry and G. Friedman, "Automated security threat testing of web pages," July 5, 2011. See also US20030159063, WO2003067405.
- U.S. Patent #7,877,736, H. Houh and J. N. Stern, "Computer language interpretation and optimization for server testing," January 25, 2011. See also US20050138104, WO2005043300.
- U.S. Patent #7,801,910, H. Houh and J. N. Stern, "Method and apparatus for timed tagging of media content," September 21, 2010. See also US20070112837, US20090222442, WO2007056535.
- U.S. Patent #7,590,542, D. C. Williams, W. C. Hand, H. Houh, A. R. Seeley, "Method of Generating Test Scripts Using a Voice-Capable Markup Language," September 15, 2009. See also EP1530869, US20030212561, WO2003096663.
- U.S. Patent #6,967,963, H. H. Houh, P. Anderson, C. Gadda, "Telecommunication method for ensuring on-time delivery of packets containing time-sensitive data," November 22, 2005. See also EP1060400, WO2000033092, CA2318774.
- U.S. Patent #5,144,375, M. C. Gabriel, H. H. Houh, N. A. Whitaker, "Sagnac Optical Logic Gate," September 1, 1992. Also issued as European Patent # EP0456422, July 23, 1997, German Patent #DE69126913, August 28, 1997
- U.S. Patent Application Publication No. 20020015387, "Voice Traffic Packet Capture and Analysis Tool for a Data Network" (Abandoned in 2007)
- U.S. Patent Application Publication No. 20020016708, "Method and Apparatus for Utilizing a Network Processor as Part of a Test System" (Abandoned in 2007)
- U.S. Patent Application Publication No. 20020016937, "Method and Apparatus for Utilizing a Network Processor as Part of a Test System." (Abandoned in 2007) See also WO2002011413.
- U.S. Patent Application Publication No. 20070106646, "User-directed navigation of multimedia search results" (Abandoned in 2009)
- U.S. Patent Application Publication No. 20070106660, "Method and apparatus for using confidence scores of enhanced metadata in search-driven media applications" (Abandoned in 2009)
- U.S. Patent Application Publication No. 20070106685, "Method and apparatus for updating speech recognition databases and reindexing audio and video content using the same" (Abandoned in 2015)
- U.S. Patent Application Publication No. 20070118873, "Methods and apparatus for merging media content" (Abandoned in 2015)
- U.S. Patent Application Publication No. 20090222442, "User-directed navigation of multimedia search results" (Abandoned in 2016)
- U.S. Patent Application 11/395,732, "Search snippet creation for audio and video data" (Abandoned in 2009)
- U.S. Patent Application 11/774,931, "Methods and apparatus for managing a social networking web site"
- U.S. Patent Application 11/774,947, "Methods and apparatus for organizing media files"
- U.S. Patent Application 11/774,956, "Methods and apparatus for managing an online event"

- U.S. Provisional Patent Application 61/086,909, "Measuring and ranking relationship activity"
- U.S. Provisional Patent Application 61/086,914, "Detecting media object commonality"
- U.S. Provisional Patent Application 61/086,904, "Message categorization based on message characteristics"
- U.S. Provisional Patent Application 61/086,905, "Photo tagging to request action"

Trials, Testimony and Depositions

- Case No. 1:06CV682 (CMH/BRP), Verizon vs. Vonage, U.S. District Court for the Eastern District of Virginia, filed expert report, was deposed and testified at trial.
- Case No. 1:08CV157 (CMH/TRJ), Verizon vs. Cox, U.S. District Court for the Eastern District of Virginia, was deposed and testified at trial.
- Case No. 5:09-cv-476, Two-Way Media vs. AT&T, U.S. District Court for the Western District of Texas, filed expert report, testified at trial.
- Case No. 2:10-cv-248 (RAJ/FBS), ActiveVideo Networks vs. Verizon, U.S. District Court for the Eastern District of Virginia, filed expert report and was deposed as an expert witness.
- Case No. 1:11-cv-00880-TSE-JFA, Bear Creek Technologies, Inc. vs. Verizon Services Corp., et al, U.S. District Court for the Easter District of Virginia, was deposed as an expert witness.
- Case No. 3:10-CV-298-BBC, AlmondNet, Inc. vs. Microsoft Corp., U.S. District Court for the Western District of Wisconsin, filed expert report.
- Case No. 6:10-cv-00597, Guardian Media Technologies, Ltd. Vs. AT&T Operations, Inc. et al., U.S. District Court for the Eastern District of Texas, Tyler Division, filed expert report.
- Case No. ESCV2010-02282C, The Octopus Solution LLC v. Gary Brown et al., Essex, MA Superior Court, testified at trial.
- Investigation No. 337-TA-882, In the matter of Certain digital media devices, including televisions, Blu-ray disc players, home theater systems, tablets and mobile phones, components thereof and associated software, U.S. International Trade Commission, filed expert reports, was deposed and testified at hearing.
- Investigation No. 337-TA-995, In the matter of Certain communications or computing devices, and components thereof, U.S. International Trade Commission, filed expert reports, and was deposed.
- Case No. 8:12-cv-122-LES-TDT, Prism Technologies LLC v. AT&T Mobility LLC, U.S. District Court for the District of Nebraska, filed expert report, was deposed and testified at trial.
- Case No. 11-2684 (JWL), Sprint Communications Co., L.P., v. Comcast Cable Communications, LLC, et al., U.S. District Court for the District of Kansas, filed expert report and was deposed.
- Case No. 11-2686 (JWL), Sprint Communications Co., L.P., v. Time Warner Cable, Inc., et al., LLC, et al., U.S. District Court for the District of Kansas, filed expert report, was deposed, and testified at trial.
- Case No. 12-487 (SLR), Cox Communications, Inc., et al., v. Sprint Communications Company L.P., et al., U.S. District Court for the District of Delaware, filed expert report and was deposed.
- Case IPR 2014-00039, Microsoft Corporation v. B.E. Technology LLC, U.S. Patent No. 6,628,314. Submitted declaration and cross-examined in deposition.
- Case IPR 2014-00086, Apple, Inc. v. Evolutionary Intelligence, LLC, U.S. Patent No. 7,010,536. Submitted declaration and cross-examined in deposition.
- Case No. 6:11-CV-421, Stragent, LLC v. Intel Corporation, U.S. District Court for the Eastern District of Texas, Tyler Division, deposed and testified at trial as a fact witness.

- IPR2014-01366, IPR2014-01367, IPR2014-01368, Samsung et al. v. Straight Path, submitted IPR declarations and was deposed.
- IPR2015-1006, IPR2015-1007, Cisco v. Straight Path, submitted IPR declarations.
- IPR2014-01457, IPR2014-01459, Microsoft v. Biscotti, submitted IPR declaration and was deposed.
- IPR2016-00302, Apple v. Nonend, submitted IPR declaration.
- IPR2014-00812, Yelp and Twitter v. Evolutionary Intelligence, submitted IPR declaration.
- IPR2015-00307, Cisco v. AIP, submitted IPR declaration.
- Microsoft v. Acacia, submitted IPR declaration.
- IPR2015-00342, AT&T Mobility LLC and Cellco Partnership d/b/a Verizon Wireless v. Solocron, submitted IPR declaration.
- Mediatube v. Bell Canada, Canadian Federal Court, submitted expert report and testified at trial.
- CBM2016-00036, Google v. At Home Bondholder's Liquidating Trust, submitted CBM declaration.
- IPR2016-01198, IPR2016-01201, Apple, Inc. v. VoIP-Pal.com, Inc., submitted IPR declaration and was deposed.
- Case No. 3:14-cv-2824-VC, Trend Micro Incorporated v. Rpost Holdings, Inc., et al, submitted expert report and was deposed
- Akamai v. Limelight Networks, IPR2016-01631, IPR2016-01711, IPR2017-00249, IPR2017-00349, submitted IPR declarations and was deposed
- Hyperlync Technologies v. Verizon Sourcing, No. 650151/2015 New York Supreme Court, submitted declaration and was deposed
- Cascades Streaming Technologies v. Big Ten Networks, submitted expert reports and was deposed
- Klaustech, Inc. v. Google LLC., Case No. 4:10-CV-05899-JSW (N.D. Cal.), submitted expert report and was deposed
- Cisco v. Uniloc, IPR2017-00198, IPR2017-00058, submitted IPR declarations and was deposed.
- Cisco v. Uniloc, IPR2017-00597, submitted IPR declaration and was deposed
- Twitter v. Youtoo Technologies, LLC, IPR2017-01133, IPR2017-01131, submitted IPR declarations and was deposed
- Taser International Inc. (now Axon Enterprise, Inc.) v. Digital Ally Inc., IPR2017-00375, submitted IPR declaration and was deposed
- Taser International Inc. (now Axon Enterprise, Inc.) v. Digital Ally Inc., IPR2017-00376, IPR2017-00515, IPR2017-00775, submitted IPR declarations
- HTC Corporation v. IPA Technologies, IPR2018-00306, IPR2018-00307, submitted IPR declaration
- Hulu v. Soundview, IPR2018-00864, IPR2018-01023, submitted IPR declarations and was deposed
- XpertUniverse v. Cisco, 3:17-cv-3848, U.S. District Court for Northern District of California, submitted declaration in support of claim construction and was deposed
- Improved Search v. Microsoft, C.A. No. 16-cv-650-JFB-SRF (Del.), submitted declaration in support of claim construction
- Apple v. Uniloc, IPR2018-00361, IPR2018-00394, IPR2018-00395, IPR2019-00700, IPR2019-00701, IPR2019-01667, submitted IPR declarations
- LG Electronics v. Uniloc, submitted IPR declaration
- SRC Labs and Saint Regis Mohawk Tribe v. Microsoft, 2:18-cv-00321-JLR, U.S. District Court for Western District of Washington at Seattle, submitted declaration in support of claim construction and was deposed

- Verizon Wireless v. Barkan Wireless IP Holdings LP, submitted IPR declarations
- Verizon Wireless and Samsung Electronics America Inc. v. Barkan Wireless IP Holdings LP, IPR2019-199, IPR2019-200, IPR2019-234, IPR2019-631, IPR2019-632, submitted IPR declarations
- Samsung Electronics America Inc. v. Barkan Wireless IP Holdings LP, IPR2019-100, submitted IPR declaration
- Cisco Systems Inc. v. Meetrix IP LLC, IPR2019-539, IPR2019-540, IPR2019-541, IPR2019-542, IPR2019-543, IPR2019-544, submitted IPR declarations
- GMG Products LLC v. Traeger Pellet Grills LLC, PGR2019-24, PGR2019-34, PGR2019-35, PGR2019-36, submitted PGR declaration and was deposed
- Uniloc 2017 LLC v. Google LLC, 2:18-cv-00502-JRG-RSP, U.S. District Court for the Eastern District of Texas, Marshall Division, submitted declaration in support of claim construction
- Microsoft Corporation v. Uniloc 2017 LLC, IPR2020-00102, IPR2020-00103, submitted IPR declarations
- Microsoft Corporation and HP Inc. v. Synkloud Technologies, LLC, IPR2020-00316, IPR2020-01031, IPR2020-01032, IPR2020-01269, IPR2020-01270, IPR2020-01271, submitted IPR declarations
- Seven Networks, LLC v. Apple Inc, 2:19-cv-115-JRG, U.S. District Court for the Eastern District of Texas, Marshall Division, submitted declaration in support of claim construction
- Unified Patents Inc. v. Ortiz & Associates Consulting, LLC, IPR2019-00743, submitted IPR declaration
- Uniloc 2017 LLC v. Apple Inc., 3:19-cv-01905-JD, U.S. District Court for the Northern District of California, San Francisco Division, submitted declaration in support of claim construction and was deposed
- ClearPlay Inc. v. Dish Network LLC et al.; 2:14-cv-00191, U.S. District Court for the District of Utah, Central Division, submitted expert report and re-examination declarations, was deposed, and testified at trial
- AMC Networks, Inc. et al v. Sound View Innovations, LLC, IPR2020-00482, submitted IPR declaration
- Case No. 1:17-cv-01734-RGA, Sprint Communications Co., L.P., v. Charter Communications, Inc., et al., U.S. District Court for the District of Delaware, filed expert report and was deposed.
- CommScope Technologies LLC et al. v. Barkan Wireless IP Holdings LP et al., IPR2020-00827, IPR2020-00829, IPR2020-00831, IPR2020-00833, IPR2020-00835, IPR2020-00838, submitted IPR declarations
- Cisco Systems Inc. v. Monarch Networking Solutions LLC, IPR2020-01226, submitted IPR declaration
- CoolTV Network.com v. Blackboard, Inc., Facebook, Inc., International Business Machines Corporation, Kaltura, Inc., Limelight Networks, Inc., Microsoft Corporation, Ooyala, Inc., Snap, Inc., and Trapelo Corp., submitted declaration in support of claim construction and was deposed
- Facebook, Inc. v. Onstream Media Corporation, IPR2020-01507, IPR2020-01508, IPR2020-01525, IPR2020-01527, IPR2020-01528, submitted IPR declarations
- Hisense Co LTD. v. Maxell, LTD, IPR2020-01598, IPR2020-01600, submitted IPR declarations
- Microsoft Corp. v. O'Brien, IPR2021-00015, submitted IPR declaration and was deposed
- Sable Networks Inc. v. Cisco Systems, Inc., WA:20-CV-00288-ADA, U.S. District Court for the Western District of Texas, Waco Division, submitted declaration in support of claim construction
- Peloton Interactive, Inc. v. Icon Health and Fitness Inc et al., IPR2021-00342, submitted IPR declaration

- Hulu, LLC v. SITO Mobile R&D IP, LLC et al., CBM2020-00028, IPR2020-00158, IPR2020-00206 , IPR2020-00219 , IPR2020-00265 , IPR2020-00298 , IPR2020-00304 , IPR2020-00308 , submitted CMB and IPR declarations and was deposed
- Twitter, Inc. and Google LLC v. B.E. Technology, LLC, IPR2021-00482, IPR2021-00483, IPR2021-00484, IPR2021-00485, submitted IPR declarations
- MG Freesites LTD v. ScorpCast, LLC, IPR2021-00511, submitted IPR declaration
- Avionte, LLC v. Sandeep Acharya, Samar Basnet, and Aqore LLC, Arbitration, Hon. Jeffrey Keyes (Ret.)
- Microsoft Corporation v. WSOU Investments, LLC d/b/a Brazos Licensing and Development, IPR2021-00751, submitted IPR declaration
- SAP America, Inc. v. Express Mobile, Inc., IPR2021-01144, IPR2021-01145, IPR2021-01146, submitted IPR declarations
- StratosAudio Inc. v. Hyundai Motor America, 6:20-cv-01125-ADA, U.S. District Court for the Western District of Texas, Waco Division, submitted claim construction declaration and was deposedPeloton Interactive, Inc. v. Ifit Health and Fitness Inc, IPR2022-00029, IPR2022-00030, submitted IPR declarations and was deposed
- Investigation No. 337-TA-1263, In the matter of Certain televisions, remote controls, and components thereof, U.S. International Trade Commission, filed expert reports, was deposed, and testified at hearing
- Alexander Stross v. Netease, Inc., et al., U.S. District Court (Central District of California), Case 2:20-cv-00861-AB(JC), filed expert reports, and was deposed
- Ralph Ledergerber v. Netease, Inc., et al., U.S. District Court (Central District of California), Case 2:20-cv-00862-AB(JC), filed expert reports and was deposed
- John Walmsley v. Netease, Inc., et al., U.S. District Court (Central District of California), Case 2:20-cv-00863-AB(JC), filed expert reports and was deposed
- Bernhard Kuhmstedt v. Netease, Inc., et al., U.S. District Court (Central District of California), Case 2:20-cv-02044-AB(JC), filed expert reports and was deposed
- Netflix, Inc. v. CA, Inc., IPR2021-01319, submitted IPR declaration and was deposed
- F45 Training Pty Ltd. v. Body Fit Training USA Inc., C.A. No. 20-1194 (LPS) (D. Del.), filed expert report
- Apple v. Fintiv, IPR2022-00976, IPR2022-01149, IPR2022-01150, IPR2023-00399, submitted IPR declarations and was deposed
- Estech Systems, Inc. v. Howard Midstream Energy Partners d/b/a Howard Energy Partners, C.A. No. 6:20-cv-777-ADA (Western District of Texas, Waco Division), filed expert reports and was deposed
- Echelon Fitness Multimedia, LLC. v. Peloton Interactive, Inc., IPR2020-01187, submitted IPR declaration and was deposed
- VIZIO. V. Maxell Ltd., IPR2022-01458, submitted IPR declaration
- Maxell, Ltd. et el. v. VIZIO, Inc., Case No. 2-21-cv-06758 (C.D. Cal.). filed declaration and was deposed
- Microsoft Corporation v. SurfCast, Inc., submitted IPR declarations
- The Walt Disney Company et al. v. WAG Acquisition LLC, IPR2022-01227, IPR2022-01228, IPR2022-01346, submitted IPR declarations and was deposed
- Rakuten Rewards et al. v. IBM, submitted IPR declarations and was deposed
- Fubotv Media Inc. v. Sito Mobile R&D IP, LLC et al., submitted IPR declarations
- Unified Patents, LLC v. Noblewood IP LLC, IPR2022-01111, submitted IPR declaration
- Unified Patents, LLC. v. Pedersen, Peter Henrik, IPR2023-00029, submitted IPR declaration
- Ericsson Inc v. Dali Wireless Inc., submitted IPR declarations

- Universal Electronics, Inc. et al. v. Roku, Inc., IPR2022-00818, submitted declarations and was deposed
- Google LLC. v. Wildseed Mobile LLC et al., IPR2023-00244, IPR2023-00245, IPR2023-00246, IPR2023-00247, IPR2023-00248, submitted declarations
- Lululemon Athletica Canada Inc. et al. v. Nike, Inc., IPR2023-00180, IPR2023-00424, submitted declarations
- Zoho Corporation, et al. v. Meetrix IP, LLC, IPR2023-00371, IPR2023-00377, IPR2023-00379, IPR2023-00380, IPR2023-00382, submitted declarations
- WSOU Investments, LLC d/b/a/ Brazos Licensing and Development v. Google LLC, 6:20-cv-572, U.S. District Court for the Western District of Texas, Waco Division, submitted reports and was deposed
- Google LLC v. Safecast Limited LLC, IPR2023-00652, submitted declaration
- Investigation No. 337-TA-1338, In the matter of Certain smart televisions, U.S. International Trade Commission, filed reports and was deposed
- Cisco Systems, Inc. v. Orckit IP LLC, IPR2023-00714, submitted declaration
- SupplyPro, Inc. v. Sandvik Machining Solutions AB, et al., AAA Case No. 01-22-000-7897. submitted declaration
- TrackThings LLC v. NETGEAR, Inc., Case No. 22-00981-RGA-JLH, U.S. District Court for the District of Delaware, submitted declaration
- Walt Disney Parks & Resorts US Inc. v. Agile Journeys LLC; IPR2024-00029, submitted declaration
- Aylo Freesites Ltd v. Dish Technologies LLC; IPR2024-00043, IPR2024-00044, IPR2024-00045, IPR2024-00046, IPR2024-00047, IPR2024-00048, IPR2024-00146, IPR2024-00147; submitted declarations
- Arm Inc. et al. v. Icpillar LLC; IPR2024-00476, IPR2024-00566; Retained by Arm; submitted declarations
- Microsoft Corp et al. v. Litl LLC, IPR2024-00454, IPR2024-00455, IPR2024-00456, IPR2024-00457, IPR2024-00458; submitted declarations
- Cisco Systems Inc et al. v. InfoExpress Inc, IPR2024-00539, IPR2024-00540, IPR2024-00677, IPR2024-00678; submitted declarations
- Vizio Inc v. Multimedia Technologies Pte Ltd; IPR2024-00722, IPR2024-00723; Retained by Vizio; submitted declarations
- Sap America Inc v. Isix IP LLC; IPR2024-00615; Retained by SAP; submitted declarations
- Cisco Systems Inc et al. v. Portsmouth Network Corp; IPR2024-00505, IPR2024-00506; submitted declarations
- Aylo Freesites Ltd v. Dish Technologies LLC; IPR2024-00512, IPR2024-00513, IPR2024-00514, IPR2024-00515, IPR2024-00516, IPR2024-00517, IPR2024-00518, IPR2024-00519, IPR2024-00940, IPR2024-00941; submitted declarations
- Verizon Corporate Service Group et al. v. Headwater Partners I LLC; IPR2024-00809, IPR2024-00945; Retained by Verizon; Technology: Mobile device management; Submitted declarations
- Microchip Technology Inc v. Aptiv Technologies Ltd et al.; IPR2024-00228; Retained by Aptiv; Technology: Universal Serial Bus; Submitted declaration, 2024
- Vusion Group SA v. Hanshow Technology Co Ltd; IPR2024-00963; Retained by VusionGroup; Technology: Video analysis; Submitted declaration
- Maxell, Ltd. v. TCL Electronic Holdings Ltd. et al.; Case No. 5:23-cv-00108-RWS-JBB; U.S. District Court for the Eastern District of Texas, Texarkana Division; Retained by TCL; submitted declaration and was deposed

Publications

- "IP switching: server driven flow classification," H. H. Houh, *Proceedings of the Washington University Workshop on Integration of IP and ATM* , November 1996.
- "Aurora at MIT," D. D. Clark, H. H. Houh, and D. L. Tennenhouse, Editors, *MIT Laboratory for Computer Science Technical Report 673*, December 1995.
- "ViewStation Applications: Implications for Network Traffic," C. J. Lindblad, D. Wetherall, W. Stasior, J. F. Adam, H. H. Houh, M. Ismert, D. Bacher, B. Phillips, and D. L. Tennenhouse, *IEEE Journal of Selected Areas in Communications*, 1995.
- "The VuNet Desk Area Network: Architecture, Implementation, and Experience," H. H. Houh, J. F. Adam, M. Ismert, C. J. Lindblad, and D. L. Tennenhouse, *IEEE Journal of Selected Areas in Communications*, 13 (4), May, 1995.
- "Reducing the Complexity of ATM Host Interfaces," H. H. Houh and D. L. Tennenhouse, Hot Interconnects II Symposium Proceedings, Stanford, August 11-12, 1994.
- "Media-intensive data communications in a `desk-area' network," J. F. Adam, H. H. Houh, M. Ismert, and D. L. Tennenhouse, IEEE Communications, August 1994.
- "ViewStation Applications: Intelligent Video Processing Over A Broadband Local Area Network," C. J. Lindblad, D. J. Wetherall, W. Stasior, B. Phillips, D. Bacher, J. Adam, H. Houh, M. Ismert, and D. L. Tennenhouse, Proceedings of the 1994 USENIX Symposium on High-Speed Networking, Oakland, CA, August 1994.
- "The Media Gateway: Live Video on the World Wide Web," H. H. Houh, C. J. Lindblad, J. Soo, D. L. Tennenhouse, and D. J. Wetherall, Workshop at the 1994 World Wide Web Conference, Geneva, Switzerland, May 1994.
- "Active Pages: Intelligent Nodes on the World Wide Web ," H. H. Houh, C. J. Lindblad, and D. J. Wetherall, Proceedings of the 1994 World Wide Web Conference, Geneva, Switzerland, May 1994.
- "Wavelength Division vs. Code Division Access Methods for Optical Networks," H. H. Houh, Area Exam Paper, May 1993.
- "Experience with the VuNet: A Network Architecture for a Distributed Multimedia System," J. F. Adam, H. H. Houh, D. L. Tennenhouse, Proceedings of the 18th Conference on Local Computer Networks, pp. 70-76, September 1993
- "The VudBoard: A Simple DMA Interface," H. H. Houh, Proceedings of the 4th Gigabit Minijam, January 1994.
- "A Software-Oriented Approach to the Design of Media Processing Environments," D. L. Tennenhouse, J. Adam, D. Carver, H. Houh, M. Ismert, C. Lindblad, W. Stasior, D. Weatherall, D. Bacher, and T. Chang., submitted to the International Conference on Multimedia Computing and Systems, May 1994.
- "A Network Architecture for Distributed Multimedia Systems," J. F. Adam, H. H. Houh, M. Ismert, and D. L. Tennenhouse, submitted to the International Conference on Multimedia Computing and Systems, May 1994.
- "The Viewstation Collected Papers," D. L. Tennenhouse, J. Adam, C. Compton, A. Duda, D. Gifford, H. Houh, M. Ismert, C. Lindblad, W. Stasior, R. Weiss, D. Wetherall, D. Bacher, D. Carver, and T. Chang, MIT Laboratory for Computer Science Technical Report, MIT/LCS/TR-590, November 1993.
- "The Viewstation Collected Papers II," W. F. Stasior, D. L. Tennenhouse, J. F. Adam, D. R. Bacher, H. H. Houh, M. Ismert, C. J. Lindblad, B. M. Phillips, D. J. Wetherall, MIT Laboratory for Computer Science Technical Report, MIT/LCS/TR-696, April 1996.

- "A System's Perspective of the Sagnac Fiber Logic Gates and Their Possible Applications," A. Huang, N. Whitaker, C. Gabriel, H. Avramopoulos, P. M. W. French, H. H. Houh, and I. Chuang, Applied Optics, September 10, 1994
- "Complete Switching in a Three-Terminal Sagnac Switch," H. Avramopoulos, P. M. W. French, M. C. Gabriel, H. H. Houh, N. A. Whitaker, T. Morse, IEEE Phot. Tech. Lett. **3** (3), 235
- "Complete Switching in a Three-Terminal Sagnac Switch," H. Avramopoulos, P. M. W. French, M. C. Gabriel, H. H. Houh, N. A. Whitaker, IEEE/LEOS Annual Meeting, Paper PDP-13, November 1990
- "All-optical phase-locked oscillator," N. A.Whitaker, Jr., H. H. Houh, H. Avramopoulos, T. F. Morse, IEEE/LEOS Annual Meeting, Paper ELT2.4/MOO3, November 1990
- "Passive modelocking of an all-fiber erbium laser," H. Avramopoulos, H. H. Houh, N. A. Whitaker, M. C. Gabriel, T. F. Morse, IEEE/LEOS Conference on Optical Amplifiers and their Applications, Paper PDP-8, August 1990
- "Transverse modes, waveguide dispersion, and 30ps recovery in submicron GaAs/AlAs microresonators," J. L. Jewell, S. L. McCall, A. Scherer, H. H. Houh, N. A. Whitaker, A. C. Gossard, and J. H. English, Appl. Phys. Lett. **55** (1), July 3, 1989

Leadership, Activities and Interests

- Leadership
  - Reading Symphony Orchestra
    - Board of Directors (Treasurer), 2022 – present
  - Discovery Museum (Acton, MA)
    - Board of Directors, 2023 – present
    - Board of Directors, Development Committee, 2023 – present
    - Science and Technology Advisory Council, 2012 – present
    - The Discover Museum received the 2024 National Medal for Museum and Library Service, the nation's highest honor given to museums and libraries that make significant and exceptional contributions to their communities.
  - Tau Beta Pi National Engineering Honor Society
    - Executive Councilor and Secretary, 2024 – 2026
    - Advisor, MA B Chapter at MIT, 2003 – present
    - District Director (National Officer), Tau Beta Pi, New England Area, 1991 – 2003
    - President, MA B Chapter at MIT, Fall 1988 – Spring 1989
    - Laureate award, 1989
  - MIT Alumni Association Board of Directors
    - MIT Annual Giving Board, 3 year term, 2024 – 2027
    - National Selection Committee, 3 year term, 2020 – 2023
    - K-12 STEM Initiatives Co-chair, 2013 – 2017
    - Awards Committee Chair, 2012 – 2014
    - Awards Committee, 3 year term, 2011 – 2014
    - Vice President, 2 year term, 2004 – 2006
    - Alumni Ad-Hoc Committee, Chair, 2005-2006
    - Board Member, 2 year term, 1997 – 1999
  - MIT Club of Boston
    - Board of Directors, 2006 – 2011
    - K-12 Initiatives Chair, 2009 – 2012

        - VP of Communications, MIT Club of Boston, 2003 – 2006
        - Past-President, MIT Club of Boston, 2002 – 2003
        - President, MIT Club of Boston, 2001 – 2002
        - President-Elect, MIT Club of Boston, 2000 – 2001
        - VP of Programs, MIT Club of Boston, 1999 – 2000
        - Activities Super-Chair, MIT Club of Boston, 1998 – 1999
    - MIT Enterprise Forum of Cambridge, Inc.
        - Past Chair, 2009 – 2011
        - In-NOW-vation Co-chair, 2010
        - Chair, 2007 – 2009
        - Vice Chair, 2005 – 2007
        - Executive Board Member, 2002 – 2011
        - Winter Workshop Co-Chair, February 2007 – conceived idea for conference, which sold-out and produced largest attendance numbers in recent memory
        - Spring Workshop Co-Chair, Spring 2004
        - Membership Committee Chair, Fall 2003 - 2006
        - 25th Anniversary Dinner Chair, Fall 2003
        - As Membership Chair and Board Member, started Special Interest Groups in 2004; a SIG won the MIT Presidential Citation award, the MIT Alumni Association's highest award for organizations, in 2006
    - Estabrook Elementary School PTA
        - Advisory committee to the superintendent on PCB issue, 2010-2011
        - 4th Grade after-school science program co-organizer, 2010-2012
        - 4th and 5th Grade before-school Math Olympiad co-organizer, 2009-2013
        - 5th Grade BBQ and Yearbook Committee, 2011, 2013
        - Family Math Night volunteer, 2008-2012
    - MIT Class of 1989
        - 35-year Reunion Gift Committee, Co-chair, 2024
        - Secretary, five consecutive 5 year terms, 1989 - 2014
        - 30-year Reunion Committee, 2019
        - 25-year Reunion Committee, 2014
        - 20-year Reunion Committee and Gift Committee, 2009
        - 15-year Reunion Committee and Gift Committee, 2004
        - 10-year Reunion Committee and Gift Committee, 1999
        - 5-year Reunion Committee, 1994
        - Interim Treasurer, 1993 - 1994
        - Instituted annual senior class career fair, now raising over $100,000 annually for senior class activities, Fall 1988
    - Strong, consistent record of leadership dating to high school
- Acting
    - '21' (Sony Pictures), credited as "Chinatown Dealer," 2007, Kevin Spacey's movie about the MIT Blackjack Team inspired by "Bringing Down the House" by Ben Mezrich, opened nationwide on March 28, 2008. 21 was the number one movie in US for two weeks and number one globally for one week. 21 also topped the DVD sales, Blu-ray sales and DVD rental charts.
    - Spring Lake Theater Company, first New York-area off-broadway production of "A Chorus Line," played role of Mark, Summer 1990
- Former member of the MIT Blackjack team

- Producer for 10,000 Maniacs' 2013 album "Music from the Motion Picture"
- Executive Producer for 10,000 Maniacs' 2015 album "Twice Told Tales"
- Violist, violist, harpist, guitarist, singer, actor: played in many amateur/semi-professional groups including Firebird Pops Orchestra, Reading Symphony Orchestra, MIT Summer Philharmonic Orchestra, Carlisle Chamber Orchestra, Rivers Symphony Orchestra, Opera51 Orchestra, Freisinger Chamber Orchestra, Merrimack Valley Philharmonic, Longwood Symphony, MIT Symphony, and Somerville Community Chorus
- Violist, "Coming Home" album by Karen Phillips, 2014
- Google Scholar citations: 2224, h-index: 22, i10-index: 27 (since 2019: 539/12/12)
- Erdos-Bacon number of 7
- Erdos-Bacon-Sabbath number of 11