

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner

- vs. -

WILDSEED MOBILE LLC

Patent Owner.

IPR2023-00248
U.S. Patent No. 7,376,414

**DECLARATION OF HENRY HOUH,
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW**

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I, Henry Houh, do hereby declare as follows:

I. INTRODUCTION

1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters stated herein.

2. I have been asked by Google LLC (“Google”) to provide my expert opinion in connection with the *Inter Partes* Review of U.S. Patent No. 7,376,414 (“the ’414 patent”) concerning whether the ’414 patent is unpatentable over certain prior art. This declaration is a statement of my opinions on issues relating to the patentability of claims 1–7 and 9–14 (“the Challenged Claims”) of the ’414 patent. As I explain more fully below, it is my opinion that all of the Challenged Claims would have been obvious to a person of ordinary skill in the art (“POSITA”) at the time of the alleged invention.

3. I am being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony, and I have no other interest in this case or the parties thereto.

4. I have reviewed and considered the following documents in connection with my analysis of the ’414 patent:

- a. the ’414 patent, Ex.1001;

- b. the prosecution history of the '414 patent ("’414 file history"),
Ex.1002;
 - c. U.S. Patent No. 6,684,249 ("**Frerichs**"), Ex.1004;
 - d. U.S. Patent No. 6,539,375 ("**Kawasaki**"), Ex.1005;
 - e. U.S. Patent Application Publication No. 2007/0083886
("**Kauffman**"), Ex.1006;
 - f. Microsoft Computer Dictionary (5th ed., excerpts), Ex.1011, and
 - g. any other documents referenced in my analysis below.
5. In forming the opinions expressed below, I have considered:

the documents listed above;

the relevant legal standards, including the standard for obviousness,

and any additional authoritative documents as cited in the body of this

declaration; and

my own knowledge and experience based upon my work in the field

of streaming media as described below.

6. Unless otherwise noted, all emphasis in any quoted material has been added.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

7. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in Exhibit 1009. The

following is a brief summary of my relevant qualifications and professional experience.

8. I received a Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology (“MIT”) in 1998. Beforehand, I received a Master of Science degree in Electrical Engineering and Computer Science in 1991, a Bachelor of Science degree in Electrical Engineering and Computer Science in 1989, and a Bachelor of Science degree in Physics in 1990, all from MIT.

9. I am currently self-employed as an independent technical consultant. Until October 2022, I was also president of a company that provides supplemental science, technology, engineering, and mathematics (“STEM”) education to children of all ages.

10. I first entered telecommunications in 1987 when I worked as a summer intern at AT&T Bell Laboratories as part of a five-year dual degree program at MIT. I continued to work at AT&T Bell Laboratories as part of this MIT program. While at MIT, I was a teaching assistant (“TA”) in the Electrical Engineering and Computer Science Department’s core Computer Architectures course. I first was a TA as a senior for a role typically reserved for graduate students. I later became head TA. The course covered various topics in computer architectures. As a TA, I helped write homework assignments, lab assignments,

and exams. I also taught in the recitation sections.

11. Later, as part of my doctoral research at MIT from 1991-1998, I was a research assistant in the Telemedia Network Systems (“TNS”) group at the Laboratory for Computer Science. The TNS group built a high-speed gigabit network and created applications that ran over the network. Example applications included ones for remote video capture, processing, and display of video on computer terminals. In addition to working on the design of core network components (which was based on FPGAs), designing and building the high-speed links (which included programmable logic devices), and designing and writing the device drivers for the interface cards (which included programmable logic devices), I also set up the group’s web server. Also, I helped to maintain, install, and upgrade the networking devices used within the group, along with other graduate students. When I started with the TNS group, the networking infrastructure consisted of shared coaxial cable-based Ethernet, with bridges and repeaters interconnecting various network segments. I became familiar with the Ethernet specifications in order that we not configure our network improperly, typically by chaining too many repeaters together. We gradually replaced the coaxial Ethernet infrastructure with twisted pair 10BASE-T wiring that were interconnect via hub repeaters, for which we also had to mind the Ethernet specifications. Eventually, many of the hub repeaters were upgrade to switches. I

also studied the various parts of the Ethernet specifications both independently and through graduate course work in networking.

12. I also helped to build the web pages that initiated the above-mentioned video sessions via a web interface. 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 that was built by our group. This toy car device received commands transmitted over a network from a remote computer, and video data from the toy car was transmitted wirelessly then over a computer network back to the user controller. On occasion, we allowed users visiting our web site to drive the toy car from their remote computer while they watched the video on their computer. The video stream was encoded by TNS-designed hardware, streamed over the TNS-designed network, and displayed using TNS-designed software.

13. 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. The traffic flow data included Ethernet, IP, TCP or UDP, and RTP header information, which I analyzed to come to the conclusions in my thesis.

14. While I was in graduate school, I started a company that provided web

site design services and targeted advertising opportunities. We also sold targeted advertising placements. As the web became popular first at colleges and universities, we focused initially on building college recruiting web sites and sold advertisements to companies wishing to target students to recruit at specific colleges. We developed technology that utilized the web user's college affiliation to customize advertisements targeted to students at that college.

15. From 1997 to 1999, I was a Senior Scientist and Engineer at NBX Corporation, a start-up that made business telephone systems for streaming packetized audio over data networks instead of using traditional telephone lines. NBX was later acquired by 3Com Corporation and the phone system is still used today by numerous businesses.

16. As part of my work at NBX, I designed the core audio reconstruction algorithms for the telephones, as well as the packet transmission algorithms. I also designed and validated the core packet transport protocol used by the phone system. The protocol was used for all signaling in the phone system, including for the setup of conference calls. The NBX system also featured a computer interface for initiating phone calls, which could also initiate conference calls. The NBX system also supported the Telephony Application Programming Interface ("TAPI") that allowed other computer programs to integrate with our system telephony features. We obtained U.S. Patent No. 6,967,963, entitled "Telecommunication

method for ensuring on-time delivery of packets containing time-sensitive data,” as part of this work. The first release of the phones had integrated Ethernet repeater hubs embedded in them, and I worked with the documentation and field support people to develop sets of guidelines so that customers would not build their networks to violate the Ethernet specifications, typically by chaining too many hub repeaters and NBX phones together. The first release of the phones also worked using Ethernet-layer packets (without the use of IP). I also programmed the first prototype of our phone which communicated using IP, and I demonstrated our IP phones working over the Internet when we attended a trade show in California. The phone connected over the Internet to our headquarters in Andover, MA.

17. From 1999-2004, I was employed by Empirix or its predecessor company, Teradyne. Empirix was a leader in test tools for telecommunications protocols and systems, providing functional testing tools as well as load testing tools. From 2000-2001, I conceived and built a test platform for testing Voice-over-IP (VoIP). The first application on this new test platform was a cloud emulator for simulating the effects of transmitting VoIP over a busy network. The test platform was based on a network processor chip, which could be programmed to cut-through packets while processing packet data such as various protocol layer headers including addresses included therein and even packet data contents. I also designed a protocol analyzer built on the same platform. The application captured

and performed protocol decoding at various layers in the protocol stacks of captured packets, including detailed Ethernet header decoding, IP header decoding, TCP header decoding, UDP header decoding, RTP header decoding, and many other specified protocols. The application was also designed to reconstruct entire conversations that spanned multiple packets.

18. In 2006, as part of my role at BBN Technologies, I helped found PodZinger Inc., now known as RAMP Inc. PodZinger utilized BBN's speech recognition algorithms to search through the spoken words in audio and video segments. While I was Vice President of Operations and Technology, PodZinger followed its initial prototype with a full streaming audio and video search solution. I also created a social networking web site, which BBN sold to a venture-funded startup company. In the process of creating the web site, I designed and specified the authentication and authorization protocols.

III. LEVEL OF ORDINARY SKILL IN THE ART

19. I understand there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention; (2) the sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems.

20. I have been informed that the earliest alleged priority date for the '414

patent is May 11, 2001, based on a provisional application. However, I have been informed that the '414 patent may not be entitled to claim priority to the provisional application, such that the priority date of the '414 patent may be May 10, 2002, the filing date of the application that matured into the '414 patent.

21. The relevant technical field for the '414 patent is inserting advertisements into broadcast content played on a mobile device. '414 patent, 1:15-17. Based on this, and the factors above, a person of ordinary skill in the art ("POSITA"), as of May 2001, would have had a working knowledge of computer networking and distributed systems generally, and multimedia streaming specifically. Such a person would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or equivalent training, and approximately two years of professional experience working with distributed multimedia systems. More experience may substitute for education, or vice versa.

22. My opinions herein regarding the understanding of a person of ordinary skill in the art and my other opinions set forth herein would remain the same if the person of ordinary skill in the art were determined to have somewhat more or less education and/or experience than I have identified above.

23. For purposes of this Declaration, in general, and unless otherwise noted, my statements and opinions, such as those regarding my experience and the understanding of a POSITA generally (and specifically related to the references I

consulted herein), reflect the knowledge that existed in the field as of the earliest alleged priority date of the '414 patent (i.e., May 11, 2001). However, my opinions regarding the understanding of a person of ordinary skill in the art and my other opinions set forth herein would remain the same if the priority date were determined to be somewhat earlier or later. For instance, my understanding concerning a person of ordinary skill in the art would be the same if it were determined that the priority date of the '414 patent is May 2002, the filing date of the application that matured into the '414 patent.

IV. RELEVANT LEGAL STANDARDS

24. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the '414 patent, I am relying on certain basic legal principles that counsel have explained to me. These principles are discussed below.

25. I understand that a patent contains one or more claims that may be written in independent or dependent form. I further understand that an independent claim is a standalone claim that contains all the limitations necessary to define an invention, whereas a dependent claim refers to a claim previously set forth and further limits that claim. I also understand that a claim in dependent form incorporates all the limitations of the claim that it depends from.

26. I understand that for an invention claimed in a patent to be patentable,

it must be new and not obvious based on what was known before the invention was made. I understand that the information that is used to evaluate whether an invention was new and not obvious when made is generally referred to as “prior art.”

27. I understand that prior art to the '414 patent includes patents and printed publications in the relevant art that predate the priority date of the alleged invention recited in the '414 patent.

28. I understand that in this *inter partes* review proceeding, Petitioner has the burden of proving that the Challenged Claims of the '414 patent are unpatentable in light of the prior art by a preponderance of the evidence. I understand that a preponderance of the evidence is sufficient to show that a fact is more likely true than not true.

29. I understand that in this *inter partes* review proceeding, the information that may be used to demonstrate unpatentability is limited to patents and printed publications. My analysis compares the challenged claims of the '414 patent to patents and printed publications that I understand are prior art to the challenged claims.

30. I have been informed that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

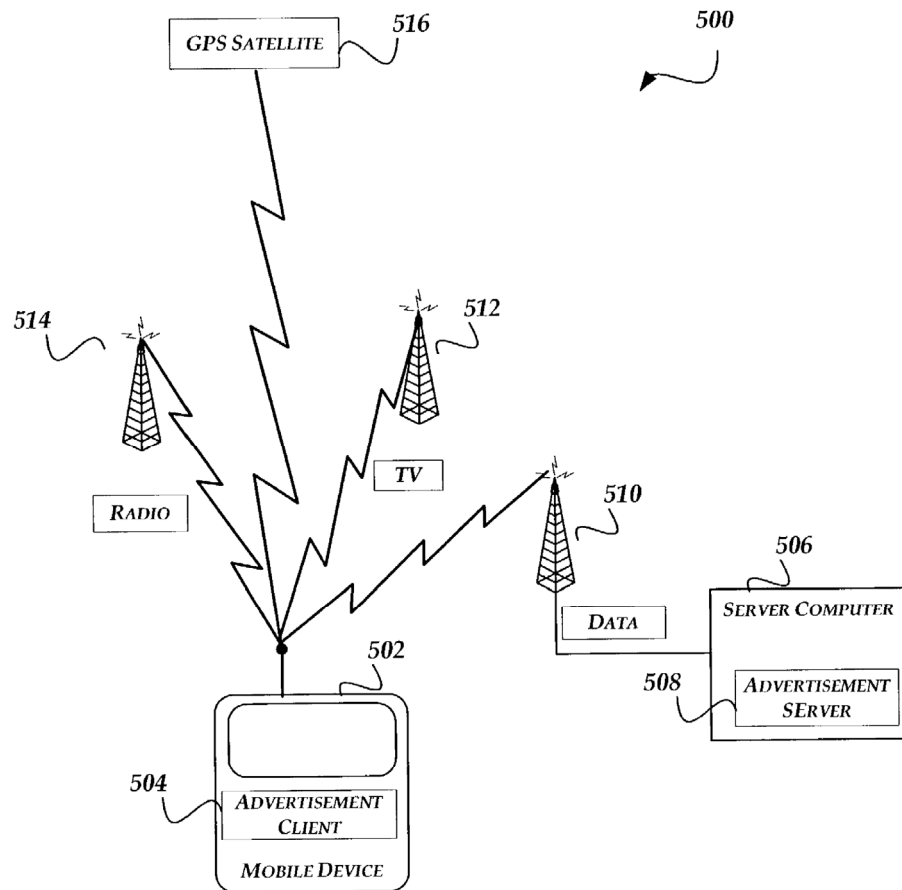
31. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (e) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

V. OVERVIEW OF THE '414 PATENT

32. The '414 patent "is directed to providing advertisements for playing

on a mobile device based on previously provided information regarding the mobile device user.” ’414 patent, Abstract. The patent explains that the mobile device includes an “advertisement client,” that “determines the information about the user for that particular mobile device and provides this information to [an] advertisement server.” ’414 patent, 9:24-27. “The user’s information may include any combination of physical location, preference, user behavior and demographic information.” ’414 patent, 9:28-30. The server uses this information “to determine which advertisements might be suitable for the mobile device user,” and then provides the mobile device with a suitable advertisement for insertion into streaming or broadcast content. ’414 patent, Abstract, 9:12-15, 10:25-34.

33. In more detail, the ’414 patent depicts, in Figure 5, a “functional block diagram generally illustrating an overview of system 500 for inserting advertisements provided by advertisement server 506 into streamed or broadcast content playing on mobile device 502.” ’414 patent, 9:12-15. The “mobile device 502 is a mobile computing device such as the one described” with reference to Figure 4 (’414 patent, 9:18-20), and the ’414 patent explains that the term mobile device may include “cellular telephones, smart phones, pagers” and other devices. ’414 patent, 3:38-43.

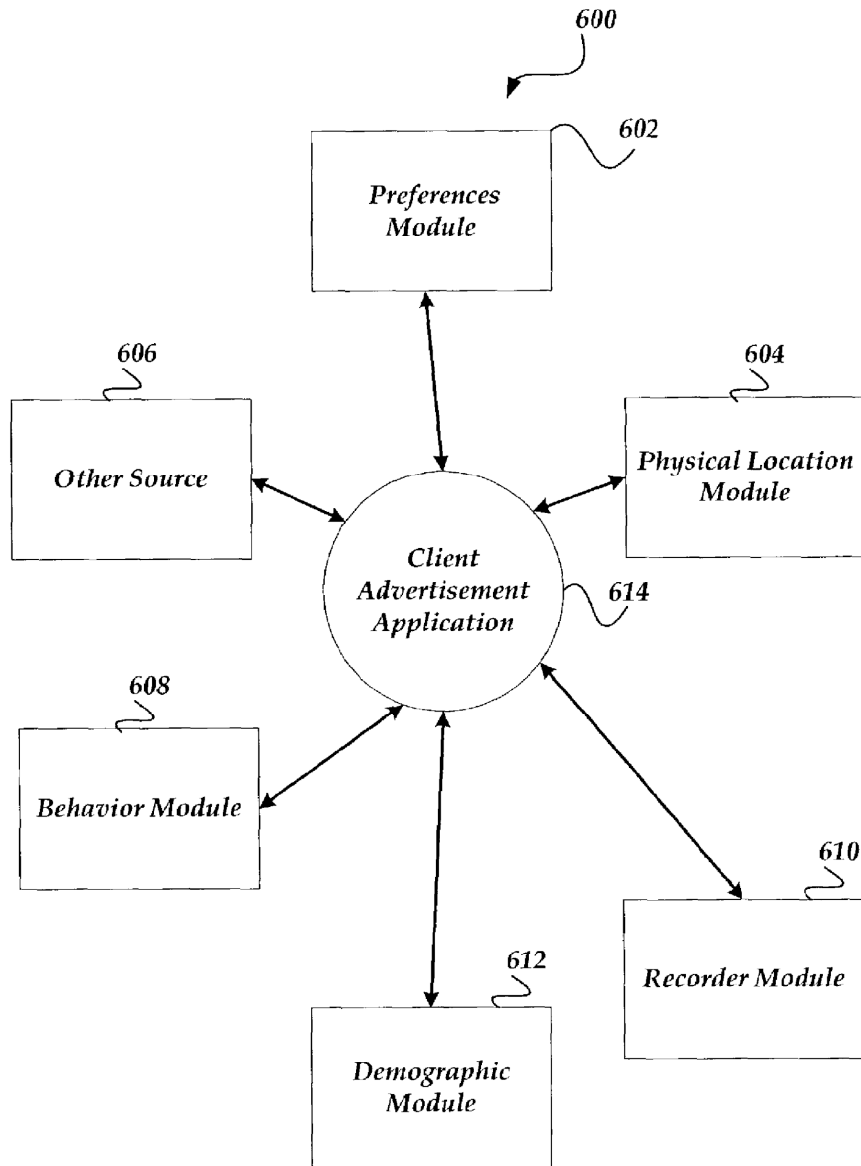


'414 Patent, Fig. 5

34. The '414 patent continues and explains that “Advertisement client 504 is located on mobile device 502 and determines the information about the user for that particular mobile device and provides this information to advertisement server 508 located on server computer 506.” '414 patent, 9:24-27. This “information may include any combination of physical location, preference, user behavior and demographic information.” '414 patent, 9:28-30. The '414 patent explains that “preferences for a user” can include various information; for example,

“information desired to specify likes, dislikes, memberships, affiliations, and the like.” ’414 patent, 9:48-57. A “user preference” can also “include a plurality of elements”; in one example, “a user preference for disco music circa 1980 has at least two elements, i.e., the type of music and the era.” ’414 patent, 3:14-17.

35. A “functional block diagram for an exemplary client advertisement application 614” is depicted in Figure 6. ’414 patent, 9:42-47.



'414 Patent, Fig. 6

36. The '414 patent explains that the client advertisement application 614 “is in communication with several other modules that provide different types of information, which in total are employed to generate information regarding a user of the mobile device.” '414 patent, 9:48-51. For example, “[p]reference module

602 enables manual entry through a user interface of preferences for a user.” ’414 patent, 9:51-53.

37. In addition, “[b]ehavior module 608 enables the user’s behavior in using the mobile device to be determined such as, but not limited to, playing video games, listening to radio station, viewing television channels, participating in chat rooms, and communicating SMS messages.” ’414 patent, 10:12-16. The ’414 patent also explains that “other source module 606 enables other sources to be used to provide information regarding the user, e.g., a message from another user of another mobile device that identifies characteristics of the current user of the mobile device.” ’414 patent, 10:18-22.

38. Also included in the client advertisement application 414 is “[r]ecorder module 610” which “enables an advertisement to be recorded and stored prior to playing on the mobile device. Also, recorder module 610 may be used to record content while an advertisement is playing and subsequently resuming the playing of the content from the point where the advertisement started playing.” ’414 patent, 9:65-10:3.

39. Figure 7 “illustrates a functional block diagram 700 for exemplary advertisement application server 706.” ’414 patent, 10:25-31. Figure 8 then depicts “a flow chart that illustrates an overview 800 of the process for generating information regarding the user of a mobile device.” ’414 patent, 10:45-47.

40. The '414 patent then describes Figure 9, which is a flow diagram “that illustrates an overview 900 of the process for playing advertisements that are determined to be related to information provided about the user of a mobile device.” '414 patent, 11:27-30. The process depicted in Figure 9 corresponds to certain aspects of challenged claim 1.

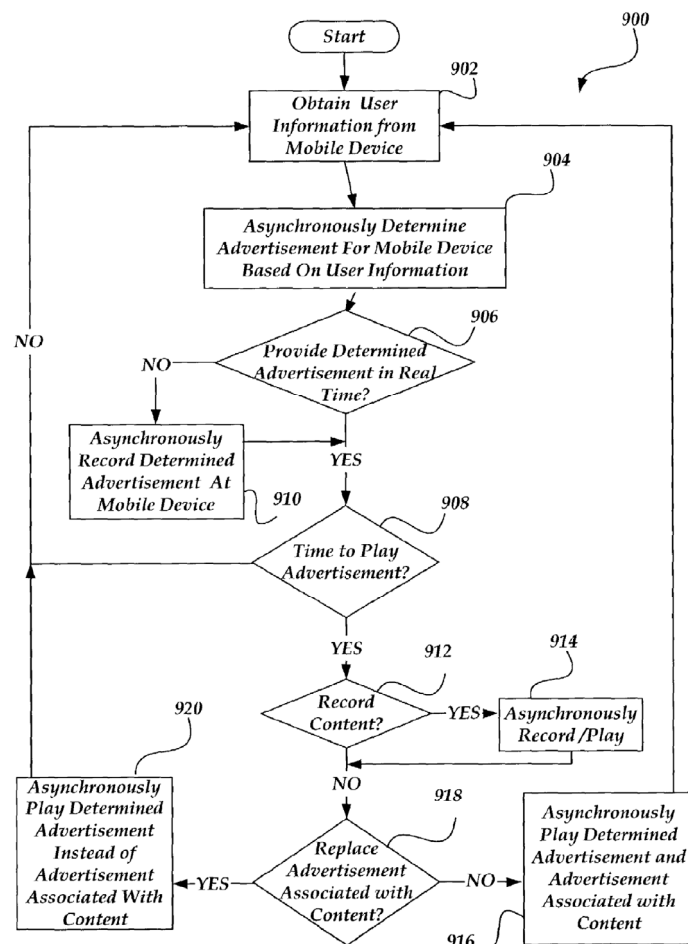


Fig.9

41. However, prior to the '414 patent, it was well-known to collect information regarding a user's preferences and use that information to target advertisements to the user. It was likewise well-known to provide advertisements

to a user's device and cause playback of an advertisement between the output of streaming media content. As I explain in detail below, the limitations of the Challenged Claims of the '414 patent would have been obvious to a POSITA.

VI. CLAIM CONSTRUCTION

42. It is my understanding that in order to properly evaluate the '414 patent, the terms of the claims must first be interpreted. It is my understanding that for the purposes of this *inter partes* review, the claims are to be given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in light of the specification and prosecution history, unless the inventor has set forth a special meaning for a term. It is my opinion that, for purposes of this proceeding, all claim terms should be given their ordinary and customary meaning.

VII. IDENTIFICATION OF HOW THE CLAIMS ARE UNPATENTABLE

43. I have been asked to provide my opinion as to whether the Challenged Claims of the '414 patent would have been obvious in view of the prior art. The discussion below provides a detailed analysis of how the prior art references identified below teach the limitations of the Challenged Claims of the '414 patent.

44. As part of my analysis, I have considered the scope and content of the prior art and any differences between the alleged invention and the prior art. I describe in detail below the scope and content of the prior art, as well as any

differences between the alleged invention and the prior art, on an element-by-element basis for each Challenged Claims of the '414 patent.

45. As described in detail below, the alleged invention of the Challenged Claims would have been obvious in view of the teachings of the identified prior art references as well as the knowledge of a POSITA. I apply the prior art as follows:

Grounds	Claim(s)	Basis
#1	1–7 and 9–14	§ 103 Frerichs, Kawasaki and Kauffman

A. Ground 1: Claims 1–7 and 9–14 are obvious under 35 U.S.C. § 103 over Frerichs in view of Kawasaki and further in view of Kauffman.

1. Summary of Frerichs

46. Frerichs relates to “inserting advertisements into streaming audio.” Frerichs, Abstract. Frerichs’ Abstract describes a method which “includes transmitting audio data from a first server location to a client location.” Frerichs, Abstract. The audio data in Frerichs “include a flag and audio content data.” Frerichs, Abstract. During playback, “the flag on the audio data” is identified and “an advertisement, which is based upon a user profile,” is inserted “into the audio data based upon the flag.” Frerichs, Abstract. Consequently, “the audio content data comprising the advertisement” is output. Frerichs, Abstract.

47. Frerichs further specifies that its method is for “inserting **targeted** advertisement into streaming audio at a client location.” Frerichs, 2:15-17. Frerichs

explains that an “advertisement, which is one of a plurality of advertisements, is based upon a user profile to provide a targeted advertisement to the user.” Frerichs, 2:31-34. This user profile “can be derived from a selected channel (e.g., jazz, rock, blues, Japanese, French) and other factors, e.g., geography, user registration information (e.g., sex, age).” Frerichs, 2:34-37. Frerichs also explains that the “user profile information can also include any other information which can be used to provide a more desirable advertisement or information to the user.” Frerichs, 14:48-51. In one example, “[s]ince the user is at a specific client location, the advertisement can be targeted to the user.” Frerichs, 14:51-52.

48. Frerichs also notes that client devices may include “personal digital assistants, internet appliances, internet radio, cellular phones, and the like.” Frerichs, 1:16-20.

49. In one example of Frerichs, the method includes “inserting an advertisement into the audio data while simultaneously reducing an audio volume level of the audio data and simultaneously outputting the audio data and the advertisement....” Frerichs, 2:25-31. In this example, the method “adds the advertisement information in audio form on top of the streaming audio.” Frerichs, 12:13-15.

50. Frerichs also teaches that the advertisement may be “inserted into a delay or free spot in the streaming audio” based on finding the flag in the

streaming audio. Frerichs, 12:7-8. In such an example, the streaming audio is monitored for the flag and the “method inserts (step 511) the advertisement” at the flagged location such that the “streaming audio, which is output, includes first song, advertisement, and second song, which is output in a continuous manner.” Frerichs, 13:55-57, 16:18-20.

2. Summary of Kawasaki

51. Kawasaki describes an “invention that provides for profiling a user of the Internet.” Kawasaki, Abstract. Kawasaki’s technique “includes scanning content information of an Internet user to generate unknown data and processing unknown data to determine its relevance to predefined categories of interest” to “form a profile of the user that may ultimately be used to target offers” including advertisements “to users based upon the profile.” Kawasaki, Abstract.

52. In Kawasaki “content information of an Internet user” is broadly defined. For example, Kawasaki specifies that the “scanning and analyzing capabilities extend to any type of digital content in systems such as the Web Browsers 11, **E-mail Clients**/Servers 12, UseNet Clients/Servers 13, Personal 14 and Server-based Search Engines 16.” Kawasaki, 4:1-5.

53. With respect to “processing unknown data to determine its relevance to predefined categories of interest” (Kawasaki, Abstract), Kawasaki explains that “content information of an Internet User is scanned to generate unknown data.”

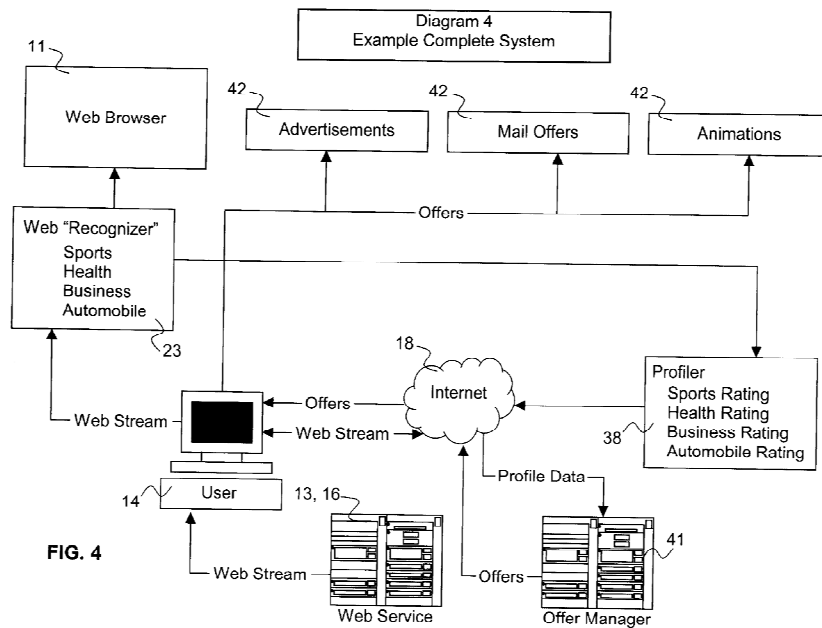
Kawasaki, 2:63-66. This scanning may occur “at any number of locations” including “the client’s server” or “the client’s computer.” Kawasaki, 2:63-66. Subsequently, the “unknown data are processed to determine their relevance to predefined categories of interest” (Kawasaki, 2:66-3:1) using what Kawasaki calls “Recognizers.” Kawasaki’s Recognizers are “algorithms and rules” which “‘recognize’ a match of incoming, unknown data with Data Sets” corresponding to various areas of interest. Kawasaki, 4:6-31. These Recognizers “are executed against incoming unknown data requested by Users” and “the statistical output from Recognizers 23 indicate whether a given set of unknown data received or sent through the Internet 18 has a good match to the installed Recognizers 23.” Kawasaki, 4:32-37. In other words, Recognizers process the scanned content of the user’s incoming unknown data (e.g., scanned content of the user’s e-mail), and determine whether the content is relevant (recognizable) to a certain category of interest. In one example, “if a golfing Recognizer 23 is loaded and the User views golf-related Web Pages 13a, E-mail 12a, User Groups 16a or other digital content, the golfing Recognizer 23 returns a positive match for that Data Set 21.” Kawasaki, 4:37-41. More specifically, “each discrete unit of information newly encountered by Users is analyzed by Recognizers 23 against a set of known Data Sets 21 such as sports, news, health information, etc.” Kawasaki, 5:1-4.

54. After the Recognizers return matches, Kawasaki explains “[a]nother

element” of the invention called the “Profiler.” Kawasaki explains that the “Profiler 26 [] receives the output from the real-time analysis of Recognizers 23. Profiler 26 tracks and builds an aggregate statistical model, ‘Profile,’ of the User including quantitative analysis of the match, frequency, duration, age and other factors between unknown content reviewed by the User and the set of installed Recognizers 23.” Kawasaki, 4:42-48. Kawasaki notes that “profiling may occur in real time or be delayed and may occur on the client's installation or remotely, for example, on a server installation.” Kawasaki, 3:14-17. Thus, Kawasaki explains that analysis and profiling using the generated “unknown data” from the scanning process may take place at a client computer or at a server.

55. Kawasaki explains that the “aggregate result of generating Profiler 26 is a prioritized and rated set of interest categories that is automatically generated for each User through the transparent and dynamic analysis of the frequency and time spent by the Users reviewing content that has a good statistical match with known Data Sets 21. The Profile generated by the system for each User is the output from the system.” Kawasaki, 4:49-56.

56. In Figure 4, Kawaski depicts that “Profile Data” output is sent to an “Offer Manager 41.” Kawasaki also explains that “Profiles ... are stored either on the client installation or the server installation.” Kawasaki, 5:42-46.



57. Kawasaki also provides a “sample list of applications for which the system and method of this invention are used.” Kawasaki, 5:59-60. In one pertinent example, Kawasaki provides as a sample application “E-mail Client/Server Systems” and specifies that its system performs “Analyzing and building Profiles from e-mail information. According to this invention, e-mail systems generate revenue through Offers by analyzing sent and **received e-mail information** and building Profiles based upon its content.” Kawasaki, 5:61-67. Kawasaki explains that “Analysis and Profile building can be accomplished at either the Client or Server location within an e-mail system.” Kawasaki, 5:66-67. Further, Kawasaki clarifies that “Clients refers to any software loaded on desktop PCS, set top boxes and end-user display devices that display e-mail.” Kawasaki, 6:4-5.

58. Thus, to summarize, Kawasaki describes a technique that includes

scanning the content of digital information received by a user's device, like e-mail messages, and developing a profile of the user's interests based on the scanned content, either on the user's device itself or on a server. The user's profile is then sent to an Offer Manager server, which is similar to an advertising server, and is used to target advertising to the user based on the profile.

3. Summary of Kauffman

59. Kauffman relates to an “arrangement for inserting advertisement media into a streaming multimedia file.” Kauffman, Abstract. Kauffman's arrangement “uses a caching inserter including a first cache for storing a loaded advertisement file and a second cache for holding the streaming multimedia file that needs to be buffered as the advertisement file is sent to the end-user.”

Kauffman, Abstract.

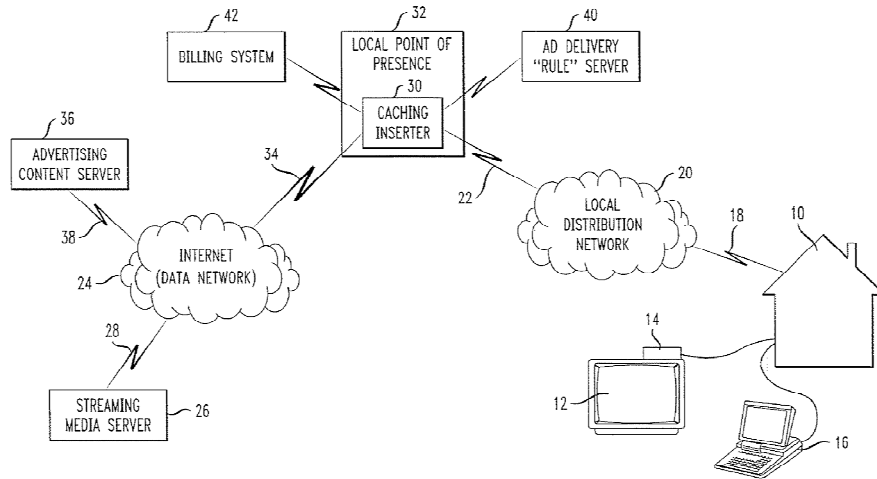
60. Kauffman explains its technique in more detail with reference to Figure 1, and in particular, the caching inserter 30, which is located at a local point of presence. Kauffman also explains that the local point of presence may be located at an end user's device, such as a set-top box. For example, Kauffman explains that the caching inserter in Kauffman “is disposed at a local point of presence (POP) which intercepts a video stream destined for an end user.” Kauffman, ¶ 7. The local point of presence may be “disposed in a communication [] device at an end-user location” such as a “residential set-top box.” Kauffman,

claims 2, 12, 17, 18. Kauffman explains that “[w]hen insertion of advertising ... is desired, the video stream is stored/buffered at the local POP and the advertisement is played. When the ad is completed, the first stream is then played out of the buffer.” Kauffman, ¶ 7.

61. Kauffman explains that the “POP where the advertisement cache is located could be at any convenient place along the signal path between the information source(s) and the end-user.” Kauffman, ¶ 9. In the video example of Kauffman, the client’s device may include the advertisement cache, as it explains that “the advertisement could be part of a set-top box at the end-user location.” Kauffman, ¶ 9.

62. Kauffman also explains that “an end-user 10 is depicted as a residential end-user that is capable of receiving multimedia information through either a television 12 (using a set-top box 14 or other appropriate residential gateway device) or a computer terminal 16 (including appropriate software to convert the received files and play them on the display of computer 16).” Kauffman, ¶ 17. Thus, Kauffman’s techniques are applicable to a wide variety of computing devices, including cellular devices (e.g., cellular phones disclosed by Frerichs), as it was known that such cellular phones could output streaming media files.

FIG. 1



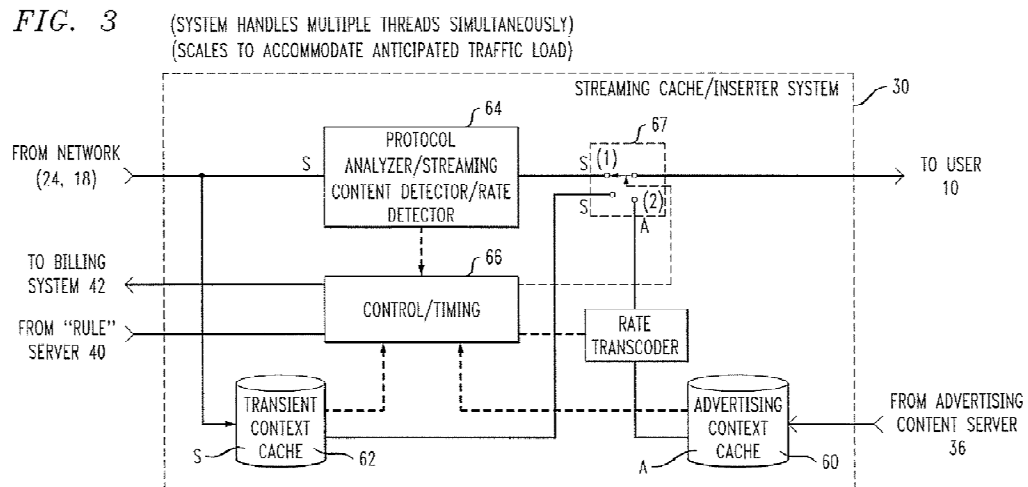
Kauffman, Fig. 1

63. Kauffman explains its technique in more detail with reference to Figure 1, and in particular, the caching inserter 30. As a preliminary step, a link is “established between end-user 10 and the appropriate multimedia server 26 holding the file requested by the end-user[.] With the link established, the requested file is ‘streamed’ down the communication links to end-user 10 in a continuous fashion, allowing for uninterrupted viewing (of, for example, a movie, music video, or the like) of the multimedia content of the file.” Kauffman, ¶ 17.

64. With respect to advertisements, Kauffman explains that “once caching inserter 30 has an advertisement file available (either stored, or available as a stream from the advertisement server), the incoming (requested) multimedia file destined for end-user 10 can be cached, and the advertisement multimedia file streamed in its place to end-user 10 in a seamless manner.” Kauffman, ¶ 20.

Kauffman explains that receipt of the “multimedia file itself is not stopped at any point, but is continuously cached by caching inserter 30 as it is received from streaming media server 26.” Kauffman, ¶ 20; *see also* claim 17 (the second cache storing the multimedia file is at an end-user location). Additionally, “[a]t the end of the advertisement file, the stored multimedia stream is played out and, for the duration of the stream, will continue to pass through a cache, since there will continue to be a time delay between the incoming stream to caching inserter 30 and the outgoing stream to end-user 10 (the ‘delay’ being the length of the inserted advertisement.” Kauffman, ¶ 20. Kauffman further explains that the “streaming multimedia file can merely be appended to the end of the advertisement, allowing the playing of the requested file to recommence in a seamless manner without further action required by caching inserter 30.” Kauffman, ¶ 20.

65. A further example of Kauffman’s caching inserter 30 is depicted in Figure 3.



66. With respect to Figure 3, Kauffman explains that the caching inserter 30 includes a “first cache 60 used to store an incoming specific advertisement file” and a “second cache 62 ... used to store the incoming multimedia stream, designated as stream MM, where as discussed above, cache 62 is used to store incoming stream MM once advertisement stream A has begun to be ‘played out’ toward end-user 10.” Kauffman, ¶ 24. As detailed above, Kauffman contemplates that the caching inserter, having the first and second caches, may be located at the end-user or client device. Kauffman, claims 2, 12, 17, 18. Kauffman further explains that “until a full advertisement file is loaded in first cache 60, multimedia stream MM can be played coupled in real time to end-user 10....When control unit 66 receives a particular indication from first cache 60 (such as ‘EOF’ received), it knows that advertisement stream A is ready to be played out and multimedia stream MM can be held.” Kauffman, ¶ 24. Subsequently, “the cached

advertisement stream A” is “sent to end-user 10” and “multimedia stream MM will begin to be stored in second cache 62.” Kauffman, ¶ 24.

67. Kauffman’s technique can be explained as follows. A user requests a five-minute multimedia file (e.g., a video). The video is streamed to the end-user and continues for two minutes of continuous playback. When the caching inserter has a 30-second advertisement file available (and stored, e.g., in first cache 60), the advertisement file is streamed to the end-user in place of the video while the video continues to be received by the caching inserter. While the advertisement file is played by the end-user device, video content from timestamp 2:00 to 2:30 is stored by the caching inserter (i.e., in second cache 62). After the 30-second advertisement is complete, the video content starting from timestamp 2:00 is played out from the second cache 62 until the termination of the video content. The video content, from timestamp 2:00 until the end (5:00), passes through the second cache 62, based on the 30 second delay caused by the playback of the 30 second advertisement that was inserted.

68. Although Kauffman describes techniques with reference to a “video stream,” a POSITA would have understood it to also be applicable to audio streams, as Kauffman generally relates to “inserting data such as advertising in streaming media” which would be understood to include audio streaming as well. Kauffman, ¶ 1. Additionally, a POSITA would have recognized that video

streaming data is typically of increased complexity as compared to audio streaming data, and thus a POSITA would have recognized Kauffman to teach techniques applicable to audio streaming as well. Finally, Kauffman relates to “streaming multimedia file[s]” and thus, a POSITA would have understood its techniques to be applicable to audio-only streaming applications as well. Kauffman, Abstract.

4. Reasons to Combine Frerichs and Kawasaki

69. It is my opinion that a POSITA would have been motivated to combine the teachings of Frerichs with those of Kawasaki. It would have been obvious, beneficial, and predictable to apply to Kawasaki’s teachings of profiling users based on scanning their received content information into Frerichs’ selection of an advertisement for a user. This combination would, for example, achieve the benefits expressly stated by Kawasaki of “provid[ing] a higher User response rate” to advertisements by improving “the match between User interests and Advertisers’ messages”, i.e., the combination would improve targeting of advertisements to users and provide more effective advertising. Kawasaki, 2:58-59; 2:51-54; 3:34-38. In other words, the combination of Kawasaki’s teachings with Frerichs would improve the targeted advertising in Frerichs. Additionally, the combination would desirably provide for the inclusion of “other information which can be used to provide a more desirable advertisement or information to the user” in Frerichs’ user profile, as Frerichs states. Frerichs, 15:48-50.

70. As an initial matter, a POSITA, when considering the '414 patent, would have looked to the teachings of Frerichs and Kawasaki. The field of endeavor of the '414 patent is “inserting advertisements into broadcast content played on a mobile device.” '414 patent, 1:15-17.

The present invention is directed to **providing advertisements** for playing on a mobile device **based on previously provided information regarding the mobile device user**.

The present invention is directed to a method for playing content and advertisements on a mobile device. A mobile device provides information associated with a user of the mobile device. The provided information is employed to determine at least one advertisement to be played on the mobile device. If a determined time interval occurs, the playing of content by the mobile device is stopped while at least one determined advertisement is played on. The playing of content by the mobile device is resumed when the playing of the determined advertisement is finished.

'414 patent, 3:53-55, 1:51-60.

71. Both Frerichs and Kawasaki are analogous art because both relate to targeted advertising techniques. Frerichs explains:

In a specific embodiment, the method retrieves the advertisement, which has been selected based upon a user profile (step 600). The user profile can include information derived from a user registration process. The user registration process can derive information such as, for

example, sex, age, hobbies, geographic region, race, religion, health, and sexual orientation. Other information can also be derived from the stations being selected as well as use of such stations during the time of day, for example. The user profile information can also include any other information which can be used to provide a more desirable advertisement or information to the user. Since the user is at a specific client location, the **advertisement can be targeted to the user**. Details of such user profile process is provided below.

Frerichs, 14:40-53. Frerichs also relates to “inserting a targeted advertisement based upon a user profile through streaming audio.” Frerichs, 1:10-13. Kawasaki is likewise analogous art:

In view of the foregoing background, one object of the present invention is to **improve the match between User interests and Advertisers' messages** by transparently assessing the type of information that a User reviews over time.

Kawasaki, 2:48-51. Thus, Kawasaki relates to targeting offers and advertisements.

Kawasaki, 1:25-29, 2:55-57. As such, both Frerichs and Kawasaki are analogous art to the '414 patent.

72. As addressed above, a POSITA would have been specifically motivated to incorporate Kawasaki's profiling technique into Frerichs because the references provide an express teaching, suggestion, or motivation to combine the teachings. Frerichs teaches an advertisement “which has been selected based upon

a user profile.” Frerichs, 14:40-42. Frerichs describes some aspects of the user profile it contemplates, and it expressly notes that the “user profile information can also include any other information which can be used to provide a more desirable advertisement or information to the user.” Frerichs, 14:48-51. Thus, a POSITA reviewing Frerichs would have been expressly suggested or motivated to seek out other techniques for providing “user profile information” that provides “desirable advertisement[s]” to users.

73. Such techniques are described in detail in Kawasaki. Kawasaki provides a technique “to form a profile of the user that may ultimately be used to target offers to users based upon the profile” (Kawasaki, Abstract) and it seeks to **“improve the match between User interests and Advertisers’ messages by transparently assessing the type of information that a User reviews over time.”** Kawasaki, 2:47-51. Thus, a POSITA would have recognized Kawasaki as teaching a technique for providing user profile information that provides desirable advertisements to users. Guided by the suggestion in Frerichs to seek out such techniques that provide more desirable advertisements, a POSITA would have been motivated to combine the teachings of Frerichs and Kawasaki to generate user profile information for use in providing an advertisement, as taught by Frerichs, by scanning data received by a user, as taught by Kawasaki.

74. A POSITA would have had a reasonable expectation of success in

combining the teachings of Frerichs and Kawasaki, and more specifically, in using Kawasaki's techniques of scanning content received by a user to develop a user profile. Kawasaki contemplates applicability to a wide variety of client devices. For example, with respect to the e-mail scanning example, Kawasaki notes that "Clients refers to any software loaded on desktop PCS, set top boxes and end-user display devices that display e-mail." Kawasaki, 6:4-5. A POSITA would have recognized that cellular phones, like those in Frerichs, were "end-user display devices that display e-mail." Kawasaki, 6:4-5; *see also* '414 patent, 1:33-36 (explaining the increased functionality of cellular telephones). Kawasaki also notes that "commercially available" software is available to implement its techniques, and the Recognizers used are "very small and compact." Kawasaki, 4:21-32. Kawasaki further describes that its invention "employs methods for scanning, analyzing and handling digital information content" as described in a related patent (U.S. Patent No. 6,266,664) which refers to "source code files" for implementing its techniques. Kawasaki, 4:62-67. Thus, a POSITA would have recognized a reasonable expectation of success in applying Kawasaki's teachings to the devices described in Frerichs.

75. Accordingly, a POSITA would have found it obvious to apply Kawasaki's teachings to Frerichs' methods because the references provide an explicit teaching, suggestion, or motivation to combine the techniques.

5. Reasons to Combine Frerichs with Kauffman

76. It is my opinion that a POSITA would have been motivated to combine the teachings of Kauffman with those of Frerichs. It would have been obvious, beneficial, and predictable to apply Kauffman's teachings of recording streaming content while outputting an advertisement in place of the streaming content with Frerichs' teachings of providing streaming media content and advertising content to a customer—for example, because it was well-known and desirable to store streaming content in a buffer while presenting an advertisement to provide for “advertisements ... to be inserted in streaming multimedia in a seamless fashion.” Kauffman, ¶ 18.

77. As an initial matter, a POSITA, when considering the '414 patent, would have looked to the teachings of Kauffman. Kauffman is analogous art to the '414 patent, as it is within the field of endeavor of inserting targeted advertisements into streamed or broadcast content. '414 patent, 3:52-55, 1:51-60, 9:12-32; Kauffman, Abstract (“inserting advertisement media”), ¶ 16 (“An exemplary architecture for supporting the insertion of an alternative message into streaming multimedia in accordance with the present invention is illustrated in FIG. 1. . . . [T]he ‘alternative message’ will be referred to as an ‘advertisement’ and, in one embodiment, may be advertisements that are targeted to the interests of the specific subscriber/end-user”).

78. A POSITA would have been specifically motivated to incorporate Kauffman's technique of pausing multimedia content and storing that paused multimedia content in a cache, while outputting an advertisement, because doing so would have been no more than the combination of known prior art elements according to known methods with a reasonable expectation of success. Additionally, combining Kauffman's teachings with Frerichs' methods would have been no more than the simple substitution of one known technique for another, and would have thus been obvious to a POSITA.

79. Frerichs suggests that advertisements are played in the process of outputting requested streaming media content, and that such advertisements are output between streaming media content. For example, Frerichs discloses a "method according to an embodiment" that inserts advertisements at flagged locations within streaming audio, and which includes, in one example, steps of "10. Output first song through audio output device; 11. Output advertisement through audio output device; 12. Output second song through audio output device." Frerichs, 6:18-42. Frerichs also explicitly contemplates buffering an advertisement to "provide it for insertion into the streaming audio" and outputting content "in a continuous manner." Frerichs, 7:45-47, 16:18-20, *see also* 14:54-15:6 (describing a technique for playing an advertisement while buffering content data). Kauffman explicitly discloses outputting advertisements in place of streaming media content,

and augments Frerichs by specifically disclosing implementation details for how advertisements may be played in place of streaming media content. Specifically, Kauffman teaches caching streaming media content during the playback of an advertisement, so that the streaming media content can then be resumed after completion of the advertisement content, which is not explicitly taught by Frerichs. *See* Kauffman, ¶ 24. Further, a POSITA would have recognized that Frerichs contemplates a wide variety of insertion techniques: “the method uses an insertion technique such as the one noted above, but can be others.” Frerichs, 12:3-5. Thus, Frerichs explains that in one example, an advertisement may be output at a desired time, and Kauffman teaches one technique for doing so.

80. A POSITA would have also recognized that caching paused streaming media content during the playback of an advertisement, as taught by Kauffman, would have been advantageous. Implementing the teachings of Kauffman would allow the paused content to be immediately resumed after the end of the advertisement’s playback by playing the content from the cache, without further delay caused by retrieval of the streaming media content. This would have been consistent with a POSITA’s knowledge of similar caching and pre-loading techniques known in the relevant art, which explicitly touted advantages of improving response time to a user. For example, Berger describes a technique in information retrieval systems that provides “improvement in response time to the

user by preloading information before it is requested by the user.” Berger, 2:46-48. As Berger explains, this technique “permits the information to be rapidly displayed” and its technique preloads content “based on information that has previously been requested by the user.” Berger, 2:49-52. This is what Kauffman does as well: it caches, or preloads, the streaming media content during the display of an advertisement, and by doing so, Kauffman provides for immediate display of the streaming media content upon completion of the advertisement playback. Thus, given the teachings of Kauffman and the knowledge of a POSITA, it would have been obvious and advantageous to a POSITA that while the advertising was being played, the streaming media would be received and cached, so that the next portion of the streaming media could be played from the buffer as soon as the advertisement concluded.

81. Additionally, a POSITA would have recognized that Kauffman’s techniques were applicable to Frerichs, given Kauffman’s acknowledgement that its techniques may be implemented at a client-side (e.g., in Frerichs’ cellular phone), and Kauffman’s teachings of providing a method for inserting advertisements “at arbitrary locations,” (Kauffman, ¶ 1) consistent with Frerichs’ insertion of advertisements at a flagged location within streaming audio data. Thus, a POSITA would have been motivated to combine Kauffman’s teachings with Frerichs to insert advertisements into streaming media content.

82. In one example of the combined teachings, Frerichs' method disclosed at column 6 may be modified in view of Kauffman's teachings as follows. As noted above, Frerichs teaches one method according to an embodiment that includes the following steps:

6. Transfer advertisement for insertion;
 7. Retrieve advertisement from storage;
 8. Insert advertisement into streaming audio at the flagged location;
 9. Process streaming audio including the advertisement;
 10. Output first song through audio output device;
 11. Output advertisement through audio output device;
 12. Output second song through audio output device;
- Frerichs, 6:18-42.

83. In view of the teachings of Kauffman, a method according to the combined teachings may include the following steps:

6. Transfer advertisement for insertion;
7. Store advertisement in first cache;
- ~~8. Insert advertisement into streaming audio at the flagged location;~~
- ~~9. Process streaming audio including the advertisement;~~
8. Output desired audio data through audio output device;
9. Identify flag in audio;

10. Retrieve advertisement from first cache;
10. Output advertisement through audio output device;
11. Cache and pause desired audio data during output of advertisement;
12. Output desired audio data through audio output device after advertisement output is complete from paused location;

84. This would have represented a straightforward combination of the teachings.

85. A POSITA would have also recognized a reasonable expectation of success in combining the teachings. Kauffman provides sufficient detail to instruct a POSITA regarding how to implement its teachings. Additionally, a POSITA would have recognized that Kauffman's techniques were applicable to many types of computing devices, including those disclosed by Frerichs. For example, a cellular phone would have included sufficient processing power and memory to be able to cache advertisements and portions of streaming media content and selectively output the advertisements or streaming media content according to Kauffman's teachings.

86. For example, in 2001 Nokia released the Nokia 9210 Communicator, which included cellular network access, e-mail functionality, and multimedia playback functionality. The Nokia 9210 Communicator came standard with 16 MB of memory, of which approximately 4 MB was available for use by programs

during operation. A 30 second portion of audio encoded at a 32 kbps bit rate is under 150 KB in size, meaning that storing an advertisement in cache for later playback, combined with caching of streaming media during advertisement playback, would occupy under 300 KB of memory, which is within the capacity of the Nokia 9210 Communicator (as well as other similar devices of that time). *See also* Rothblatt, 7:45-55 (providing 32 kbps bit rate for monophonic music “with near FM quality”). Thus, a POSITA would have recognized technical feasibility of the combination as well.

87. Accordingly, a POSITA would have found it obvious to apply Kauffman’s teachings to Frerichs’ system because the combination merely amounts to combining prior art elements according to known methods to yield predictable results, or simply substituting one known technique for another, and would have thus been obvious.

6. Detailed Claim Mapping

a) Claim 1

[1.0] *A method for playing content and advertisements on a cellular device, comprising:*

88. To the extent the preamble is a limitation, Frerichs teaches a “*method for playing content and advertisements on a cellular device.*” Frerichs explains:

A method for inserting advertisements into streaming audio for transmission over a world wide network of computers. The method

includes transmitting audio data from a first server location to a client location. The audio data include a flag and audio content data. The method also includes monitoring the audio data and identifying the flag on the audio data. A step of inserting an advertisement, which is based upon a user profile, into the audio data based upon the flag is also included. **The method also outputs the audio content data comprising the advertisement.**

Frerichs, 2:13-19; 4:37-38 (“client receives the packets and can decode the packets to then play the audio content.”).

89. Frerichs also states the “invention can be applied to various computing devices, including **cellular phones....**” Frerichs, 1:15-19; 3:52-54 (“The remote computing device can include, for example, a cellular phone, a personal digital assistant, a pager, or the like.”); 11:10-13 (“The client can be a personal computer, cellular phone, personal digital assistant, work station, television set top box, pager, internet radio, an internet appliance, or the like.”).

90. Thus, Frerichs’ method for outputting audio content data and advertisements, which is applicable to computing devices including cellular phones, discloses, or at least renders obvious a “*method for playing content and advertisements on a cellular device,*” as claimed.

[1.1.1] (a) autonomously providing to a server, by the cellular device, information associated with a user of the cellular device

91. Frerichs teaches that its software “provides for targeted

advertisements based upon a user profile.” Frerichs, 9:39-54. Frerichs explains that the “user profile can be derived from a selected channel (e.g., jazz, rock blues, Japanese, French) and other factors, e.g., geography, user registration information (e.g., sex, age).” Frerichs, 2:31-37.

92. Frerichs also states:

In a specific embodiment, the method retrieves the advertisement, which has been selected based upon a user profile (step 600). The user profile can include information derived from a user registration process. The user registration process can derive information such as, for example, sex, age, hobbies, geographic region, race, religion, health, and sexual orientation. **Other information can also be derived from the stations being selected as well as use of such stations during the time of day**, for example. The user profile information can also include any other information which can be used to provide a more desirable advertisement or information to the user.

Frerichs, 14:40-53.

93. Frerichs repeats the same disclosure in the next column with respect to selecting advertisements “based upon a user profile (step 607).” Frerichs, 15:40-52.

94. Frerichs also explains that its advertising technique utilizes software that relies on “an associated demographic.” Frerichs, 9:39-54. This demographic in Frerichs is “built from volunteered information and from **monitoring of user**

listening patterns.” Frerichs, 9:39-54. Frerichs further explains that its “software also checks to see how many times each advertisement has been heard by the user.” Frerichs, 9:49-50.

95. A POSITA would have understood Frerichs as teaching “*autonomously providing to a server, by the cellular device, information associated with a user.*” This is because each of these disclosures of Frerichs teaches to a POSITA a process of data collection without user involvement.

96. For example, a POSITA would have viewed “monitoring of user listening patterns” as indicating that the user’s listening patterns (“*information associated with a user*”) would be detected or monitored, and such information sent to a server (e.g., in Frerichs, “advertisement server 114”), without the user explicitly or manually providing his or her listening patterns (“*autonomously providing to a server*”). This is clear from the context of the sentence, as the disclosed monitoring is contrasted with “volunteered information” which would be provided manually. Frerichs, 9:39-54.

97. Similarly, the portion discussing the user profile differentiates between information provided by the user (e.g., age, hobbies, etc.) and information “derived” (e.g., information determined by a device, and not provided by the user). Frerichs, 14:40-53, 15:40-52.

98. Likewise, software that “checks to see how many times each

advertisement has been heard by the user” (Frerichs, 9:49-50) would be understood to be checking advertisement plays and reporting such information without user involvement (“*autonomously providing to a server ... information associated with a user*”), as it would be impractical for the user to indicate each time the user heard an advertisement – such volunteered information would likely not be accurate, at least because the user would have little incentive to report that he or she heard a given advertisement. Rather, because the advertisements are output by the cellular phone, a POSITA would have understood that the cellular phone would provide an indication of an output advertisement to the server, which would involve no more than a simple message sent from the cellular phone to the server (“*by the cellular device*”). As discussed above in the analysis of the preamble ([1.0]), Frerichs discloses a “*cellular device*” as claimed. Frerichs, 1:15-19; 3:52-54; 11:10-13.

99. Thus, Frerichs teaches “*providing ..., by the cellular device, information associated with a user of the cellular device*” and further teaches doing so “*autonomously*” as claimed.

100. To the extent Frerichs is considered to not explicitly teach “*autonomously providing*” information, Kawasaki does.

101. Kawasaki teaches providing a profile associated with a user (“*information associated with a user*”) from the user’s device (“*providing ..., by the [] device*”) to an offer manager (depicted as a server) (“*to a server*”).

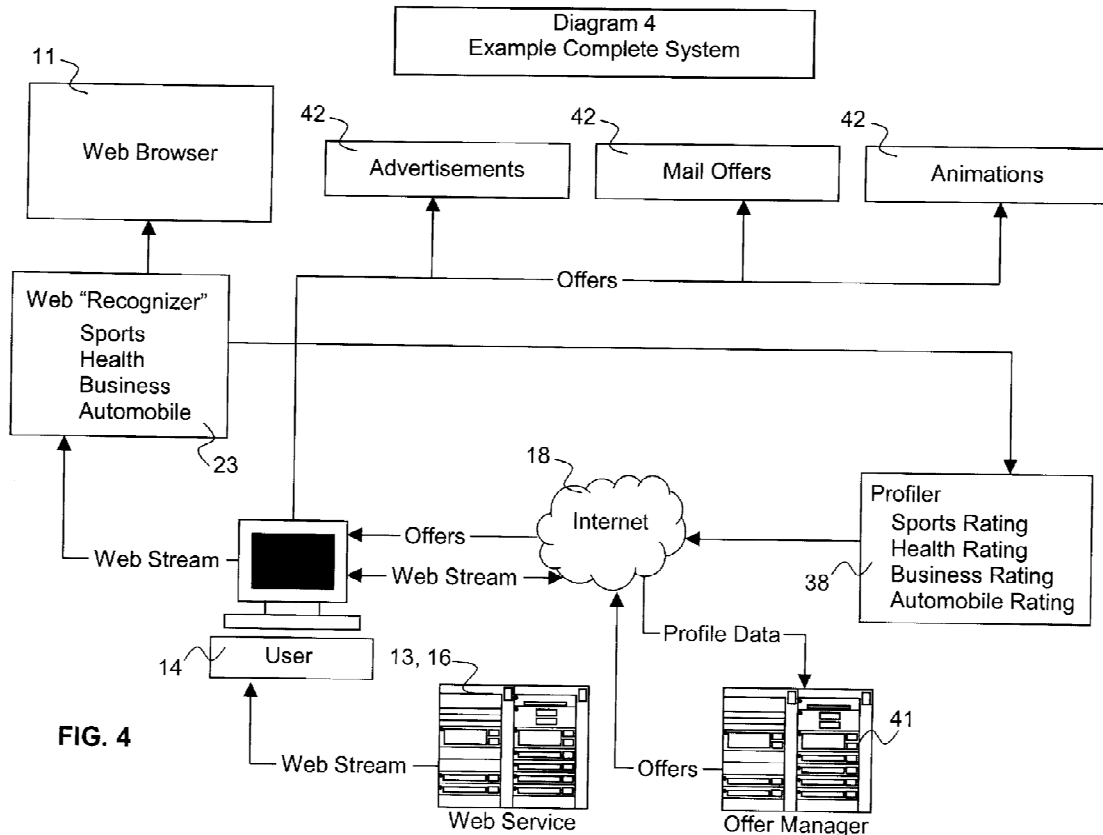
102. Kawasaki discloses:

Another element of this invention is the Profiler **26** that receives the output from the real-time analysis of Recognizers **23**. **Profiler 26 tracks and builds an aggregate statistical model, “Profile,” of the User** including quantitative analysis of the match, frequency, duration, age and other factors between unknown content reviewed by the User and the set of installed Recognizers **23**.

The aggregate result of generating Profiler **26** is a prioritized and rated set of interest categories that is **automatically generated** for each User through the transparent and dynamic analysis of the frequency and time spent by the Users reviewing content that has a good statistical match with known Data Sets **21**. The **Profile generated by the system for each User is the output from the system** and can subsequently be used to make highly targeted Offers.

Kawasaki, 4:42-55.

103. In Figure 4, Kawasaki depicts profile data being transmitted to an “Offer Manager” which is depicted as a server computing device:



104. To summarize, in Kawasaki, the user's computer receives e-mail data, which is processed by an E-mail "Recognizer" 23. See Kawasaki, Fig. 1. As explained below, the E-mail "Recognizer" 23 executes on the user's computer. Data from the recognizer 23 then proceeds to the Profiler, which also executes on the user's computer. The Profile outputs a profile over the Internet to the Offer Manager. Because the Profiler, executing on the user's computer, outputs a profile, the Profile Data output from the Profiler corresponds to "*information associated with a user*" that is output "*by the [] device*" and is therefore "*information associated with a user of the [] device.*" Kawasaki therefore teaches that "*information associated with a user,*" or a profile, is provided "*to a server*".

Combined with the teachings of Frerichs of a cellular phone (or “*cellular device*”), the combined teachings of Frerichs and Kawasaki render obvious “*autonomously providing to a server, by the cellular device, information associated with a user of the cellular device*” as claimed.

105. In another example, Kawasaki teaches that “content information of an Internet User” (e.g., e-mail content, *see* Kawasaki, 4:1-5) “is scanned to generate unknown data.” Kawasaki, 2:63-66. This may take place at “the client’s computer.” Kawasaki, 2:63-66. Subsequently, as discussed above, the information is provided to the Recognizer and Profiler. The profiling “may occur ... remotely, for example, on a server installation.” Kawasaki, 3:10-17; 5:66-67 (“Analysis and Profile building can be accomplished at either the Client or Server location within an e-mail system.”). Thus, in this example as well, Kawasaki teaches that the “unknown data” scanned from the user’s content information, such as e-mail (“*information associated with a user*”), is provided “*to a server*” (the server performing the profiling).

106. Kawasaki further discloses that its method and system “scans information content and **automatically and transparently assesses its subject matter.**” Kawasaki, 3:18-22.

107. Additionally, the profile generated by Kawasaki’s invention is “a prioritized and rated set of interest categories that is **automatically** generated for

each User through the transparent and dynamic analysis of the frequency and time spent by the Users reviewing content that has a good statistical match with known Data Sets 21.” Kawasaki, 4:49-54.

108. Kawasaki further explains that the “Profile generated by the system for each User is the output from the system.” Kawasaki, 4:54-56. By repeatedly disclosing that the profile generation process is automatic, Kawasaki teaches that the profile information is provided “*autonomously*” as recited.

109. Further, contemporaneous research supports that it was known for advertising-related data, such as profile information to be collected “*autonomously*” as recited. For example, the paper by Gallagher et al. details a process of “unobtrusively” collecting and analyzing user data to determine patterns and determine which advertisements to provide to a user. Gallagher, p. 5. This teaches that it was known to collect data “*autonomously*” as claimed.

110. Thus, the combined teachings of Frerichs and Kawasaki of collecting user information based on the stations selected by a user on the user’s cellular phone and providing automatically collected and generated profile data or unknown data to a server, without user involvement, renders obvious “*autonomously providing to a server, by the cellular device, information associated with a user of the cellular device,*” as claimed.

[1.1.2] *the information taken by the cellular device from a message sent to the*

cellular device from another user of another cellular device;

111. As detailed above, the combined teachings of Frerichs and Kawasaki teach sending a profile, or sending unknown data (“*information taken by the cellular device*”) from the cellular phone.

112. Kawasaki also teaches that the profile, which (in one example) corresponds to “*the information taken by the [] device*”, is derived, or “*taken*” “*from a message sent to the*” user “*from another user of another*” device.

113. Specifically, Kawasaki teaches:

First, **content information of an Internet User** is scanned to **generate unknown data**. This step takes place at any number of locations: the client’s server, **the client’s computer** or at an Internet hub.

Kawasaki, 2:63-66.

114. Next, after scanning, Kawasaki teaches that the “unknown data are processed to determine their relevance to predefined categories of interest.”

Kawasaki, 2:66-3:1. Subsequently, “the method generates a match of the unknown data with the predefined categories to **form a profile of the User.**” Kawasaki, 3:7-

9. Kawasaki explains that the “above-described profiling may occur in real time or be delayed and **may occur on the client’s installation...**” Kawasaki, 3:14-17.

Thus, with reference to the golf example described throughout Kawasaki, if a received e-mail includes golfing content, the user’s profile will reflect an interest in golf.

115. By describing that content information is scanned at “the client’s computer”, which, in combination with the teachings of Frerichs, is a cellular phone, and by describing that a profile is built on the client’s installation, Kawasaki teaches that “*the information*” (the profile) is “*taken by the [] device*”.

116. Kawasaki also teaches that the profile is “*taken by the*” device “*from a message ... sent to the [] device from another user of another [] device*” as claimed.

117. Specifically, as detailed above, Kawasaki scans “content information of an Internet User.” Kawasaki, 2:63-66. This content information includes the content of e-mail messages received by the user:

E-mail Client/Server Systems-**Analyzing and building Profiles from e-mail information.** According to this invention, e-mail systems generate revenue through Offers by **analyzing** sent and **received e-mail information** and building Profiles based upon its content.

Analysis and Profile building can be accomplished **at** either **the Client** or Server location within an e-mail system.

Kawasaki, 5:61-67.

Referring to FIG. 1, the Scanning and analyzing capabilities extend to any type of digital content in systems such as the Web Browsers 11, **E-mail Clients/Servers** 12, UseNet Clients/Servers 13, Personal 14 and Server-based Search Engines 16.

Kawasaki, 4:1-5.

118. Kawasaki details the analysis of received e-mails, which are messages “*sent to the [] device from another user of another [] device.*” Further, in one example, Kawasaki describes performing analysis and profile building at the client location (i.e., “*by the [] device*”).

119. In combination with Frerichs and its teaching of a cellular phone, Kawasaki’s e-mail messages render obvious “*a message sent to the **cellular** device from another user of another **cellular** device*” because a POSITA, at the time of the ’414 patent, would have recognized that cellular devices (e.g., the cellular phones of Frerichs) were commonly used to send and receive e-mail (as detailed further below), and that using a cellular device to send and receive e-mail would have been consistent with the disclosure of Kawasaki.

120. For example, Kawasaki contemplates a wide variety of client devices:

Clients refers to any software loaded on desktop PCS, set top boxes and **end-user display devices that display e-mail.**

Kawasaki, 6:4-5.

121. As stated above, at the time of the ’414 patent, it was known that cellular devices were a type of “end-user display device[] that display[s] e-mail” consistent with Kawasaki. For example, the RIM 957, introduced in 2000, provided e-mail access using a cellular data connection. *See* Technical Specifications RIM Wireless Handhelds

(<https://web.archive.org/web/20000619041725/http://rim.net/products/handhelds/tech.html>) (RIM product page listing technical aspects of RIM 957 including

“Integrated email/organizer software) and “900 MHz Mobitex networks”);

Microsoft Computer Dictionary, 63 (“BlackBerry *n.* A wireless handheld device that allows mobile users to send and receive e-mail....Blackberry’s ease of use and its ability to send and receive messages silently have made it a popular device for wireless text messaging in a business environment.”). The Nokia 9210

Communicator, announced in 2000, likewise had cellular phone and e-mail capability, as did other devices, like the Ericsson R380 Smartphone. *See, e.g.,* Nokia

(<https://web.archive.org/web/20120708090016/http://press.nokia.com:80/2000/11/21/the-nokia-9210-communicator-heralds-the-dawn-of-mobile-multimedia/>)

(November 2000 press release concerning Nokia 9210 Communicator stating:

“The Nokia 9210 Communicator is a dual band EGSM900/1800 integrated full service mobile communications terminal combining phone, fax, email, calendar, imaging, WAP and WWW.”), Bowman

(<https://web.archive.org/web/20010216041714/http://www.geek.com/hwswrev/pda/eric380/>) (November 2000 review of Ericsson R380 stating: “Well, it reads e-mail (POP and SMTP)....And now, the major surprise - - you can even make phone calls with it. R380 features include: ... GSM 900/1800 dual band phone.”).

Thus, it was known that cellular devices, or cellular phones, were “end-user display devices that display e-mail” consistent with the teachings of Kawasaki.

122. As also discussed above with respect to limitation [1.1.1], Kawasaki also contemplates that profiling may occur “on a server installation.” Kawasaki, 3:14-17. This profiling is accomplished after “content information of an Internet User is scanned to generate unknown data” which may occur at “the client’s computer.” Kawasaki, 2:63-66. In this example of Kawasaki, the generated “unknown data,” or “*information,*” is taken “*by the [] device from a message sent to the cellular device from another user of another cellular device*” and is then provided to the server for “profiling ... on a server installation.”

123. Given the explicit disclosure in Frerichs of a cellular phone, and the knowledge of a POSITA that cellular phones were “end-user display devices that display e-mail,” it would have been obvious that the combined Frerichs-Kawasaki system would scan “*a message sent to the cellular device from another user of another cellular device*” as recited. For example, it would have been obvious that the combined Frerichs-Kawasaki system would scan messages received by a user using an e-mail client on a cellular device sent from another user using an e-mail client on another cellular device.

124. Accordingly, the combined teachings of Frerichs and Kawasaki render obvious “*the information taken by the cellular device from a message sent to the*

cellular device from another user of another cellular device” as claimed.

[1.1.3] *the message identifying characteristics of the user of the cellular device;*

125. As discussed above, the combined Frerichs-Kawasaki system renders obvious “*a message sent to the cellular device.*” The combined system also renders obvious that the messages scanned include a “*message identifying characteristics of the user of the cellular device*”. For example, Kawasaki explains:

For example, if a golfing Recognizer 23 is loaded and **the User views golf-related Web Pages 13a, E-mail 12a...**the golfing Recognizer 23 returns a positive match for that Data Set 21.

Kawasaki, 4:34-42. A POSITA would have recognized that, because the user views golf-related e-mail, one identifying characteristic of the user is that she is interested in golf. For example, a golf-related e-mail might include text such as: “Let’s go to the driving range today to practice our short game and then hit a quick nine holes” or something similar.

126. As Kawasaki explains, the Recognizers “in essence ‘recognize’ a match of incoming, unknown data with Data Sets 21.” Kawasaki, 4:22-24. Thus, the Recognizers indicate that unknown data extracted from a received message matches an area of interest to the user (the recipient), which in turn is used to form the user’s profile and target advertisements to the user. *See, e.g.,* Kawasaki, 4:25-56. For example, as Kawasaki explains, the recognizer is used “in profiling Internet User interests” and “accumulate[] a ‘profile’ of interests of the User.” Kawasaki,

2:60-3:22. This can “be used to subsequently direct Offers” and enables “Services to target offers to individuals who have indirectly expressed interest in specific subject matter” including “topics such as golf” and others. Kawasaki, 3:23-38.

127. This is consistent with a POSITA’s knowledge at the time of the ’414 patent. For example, a POSITA would have recognized that message content, such as e-mail message content, was commonly relevant to or related to the recipient of the message. Thus, for example, the content of any given e-mail message received by a recipient commonly reflects an interest of the recipient. In other words, the content of an e-mail message received from a friend’s cellular device would commonly be relevant to a topic of interest (e.g., golf) or an event of interest (e.g., a concert) to the recipient. Likewise, a recipient may receive a forwarded message from a friend’s cellular device that originated from a company with advertising for products of potential interest to recipients. Consistent with the Frerichs-Kawasaki combination, the content of such received e-mail messages would contain information “*identifying characteristics of the user of the cellular device,*” for example, the recipient’s interest in the particular sport, the musical style of the concert performer, or the recipient’s shopping habits at the company advertising products to the recipient.

128. Thus, as discussed in Kawasaki, the user may view “golf-related ... E-mail” which indicates that the user of the device has an interest in golf. Kawasaki,

4:37-41. Because Kawasaki discloses e-mail message content that is relevant to an interest of the user receiving that e-mail content, in light of Frerichs' teaching of a cellular phone, the combination of Frerichs and Kawasaki therefore render obvious "*the message identifying characteristics of the user of the cellular device*" as claimed.

[1.2] (b) receiving from the server, by the cellular device, at least one advertisement to be played on the cellular device, wherein the at least one received advertisement is determined by the server based at least in part on the provided information;

129. Frerichs teaches that the client device (a cellular phone, as detailed above in the analysis of the preamble ([1.0])) receives advertisements from an advertisement server:

In each of the servers 105, information such as advertisements can be inserted into the streaming audio for output at any one of the client devices. Information can also be inserted into the streaming audio at server 113. Additionally, **information such as advertisements can be inserted into the streaming audio from an advertisement server 114, which can store advertisements for use with the streaming audio.** The advertisements can be sent using a broadcast model, where the advertisements can be distributed to a group of users. Alternatively, they can be sent to a targeted group of users. Still further, **a specific advertisement can be sent to a specific client, where the advertisement is carried by the streaming media.** Further details of

the processing hardware and software are shown below and illustrated by the Figures.

Frerichs, 4:44-57. As indicated in the above passage, Frerichs teaches that “a specific advertisement can be sent to a specific client,” such as a cellular phone (Frerichs, 1:15-19), and that the advertisements may be sent by an “advertisement server 114,” which is analogous to Kawasaki’s Offer Server. Thus, Frerichs teaches “*receiving from the server, by the cellular device, at least one advertisement to be played on the cellular device*” as claimed.

130. The combined teachings of Frerichs and Kawasaki also render obvious that the advertisement “*is determined by the server based at least in part on the provided information,*” as claimed. For example, Frerichs teaches that advertisements are selected using a user profile:

A method according to an embodiment of the present invention is briefly described below: ...

5. Select advertisement from a user profile;

6. Transfer advertisement for insertion; ...

Frerichs, 6:18-42.

131. Frerichs also explains that “user profile information can also include any other information which can be used to provide a more desirable advertisement or information to the user. Since the user is at a specific client location, the advertisement can be targeted to the user.” Frerichs, 14:48-52. As detailed above in

the analysis of limitations [1.1.1] and [1.1.2], the combination of Frerichs and Kawasaki renders obvious that user profile information provided to the server, or user profile information generated at the server, is built from messages sent to the cellular device from another user of another cellular device.

132. To the extent this is not considered an explicit disclosure of receiving an advertisement that was determined “*based at least in part on the provided information,*” Kawasaki confirms this was known, as it discloses that the profile sent from the user’s device to the server is used to target advertisements:

With comparisons such as these, this invention generates a match of the unknown data with the predefined categories to form a profile of the user that may ultimately be used to **target offers to users based upon the profile.**

Kawasaki, Abstract; *see also id.* at 4:54-56 (“The Profile generated by the system for each User is the output from the system and can subsequently be used to make highly targeted Offers.”); 3:34-38.

133. Similarly, in the example of Kawasaki in which profiling occurs “on a server installation” (Kawasaki, 3:14-17), Kawasaki also teaches that an advertisement is “*determined by the server based at least in part on the provided information*” as recited. This is because the “*provided information,*” or generated unknown data (*see* Kawasaki, 2:63-66), is provided to the server for “profiling ... on a server installation” and to form the profile of the user. As discussed in the

paragraph above, Kawasaki targets offers, or advertisements, to users based upon the profile, which is in turn based upon the provided information, and thus Kawasaki also teaches in this example receiving an advertisement that was determined “*based at least in part on the provided information*” as claimed.

134. Thus, the combined teachings of Frerichs and Kawasaki of receiving an advertisement selected from a user profile and targeting offers (advertisements) to users based upon a profile provided from the user’s device, or based upon a profile generated at a server based on unknown data provided from the user’s device, render obvious “*receiving from the server, by the cellular device, at least one advertisement to be played on the cellular device, wherein the at least one received advertisement is determined by the server based at least in part on the provided information*” as claimed.

[1.3.1] (c) if a determined time interval occurs, stopping playing of content, by the cellular device, and playing at least one of the determined advertisements, by the cellular device, the playing of the at least one determined advertisement comprising:

135. In discussing the output of streaming audio and advertisement, Frerichs teaches that the streaming audio includes a “flag ... that indicates where an advertisement is to be inserted.” Frerichs, 6:57-7:5. In more detail, Frerichs explains:

FIG. 3 is a simplified diagram of a data insertion method 300 according to an embodiment of the present invention. This diagram is merely an

example which should not unduly limit the scope of the claims herein. One of ordinary skill in the art would recognize many other variations, modifications, and alternatives. At a server location, the method 300 provides first audio data for a first song 301 and second audio data for a second song 305. The first audio data is provided at time T0, which is an initial or zero time, as given only for reference purposes. As shown, the method also provides a flag comprising advertisement indication and delay at the server location. The **flag is data that indicates where an advertisement is to be inserted**. The flag often has other information such as the length of the advertisement, current content type (e.g. music/talk), and current ad frequency on this stream (e.g. 2 per hour).

Frerichs, 6:57-7:5. In Frerichs, the “flag is data that indicates where an advertisement is to be inserted” and “often has other information such as the length of the advertisement.” Frerichs, 7:1-5. In the context of Frerichs, therefore, the flag indicates the time at which to locate, within streaming audio, the start of an advertisement, along with the length of the advertisement (e.g., 30 seconds).

136. Frerichs also explains:

Here, the method **monitors the streaming audio for the flag. Once the flag has been found, the method inserts the advertisement** between the first audio data and the second audio data. The streaming audio data is now ready for output at an audio output device, which is coupled to the client device. Depending upon the form of the streaming audio, the method can process streaming audio including the

advertisement to make it suitable for output. Many conventional techniques can be used for converting the streaming audio into an analog signal for output on a conventional speaker, for example.

Frerichs, 15:66-16:9; *see also* 12:5-11 (“In a preferred alternative embodiment, the method monitors for a selected time to insert the advertisement. Here, the advertisement is not inserted into a delay or free spot in the streaming audio. The method finds a desired time, such as top of hour (e.g., 1:00 p.m., 2:00 p.m.) or half an hour, and outputs an advertisement at such time.”), 13:65-14:3 (describing an example in which advertisements are inserted at a desired time interval).

137. The ’414 patent does not explicitly define what is meant by a “time interval.” The ’414 patent states, in one example, that “[i]f a determined time interval occurs, the playing of content by the mobile device is stopped while at least one determined advertisement is played on.” ’414 patent, 1:56-58. In another example, the ’414 patent describes “recording at least one determined advertisement on the mobile device for play back later, i.e., when the determined interval occurs.” ’414 patent, 2:7-9. Additionally, the ’414 patent explains, with reference to Figure 9, that “a determination is made as to whether the determined advertisement is to be provided in real time (during a time interval scheduled for the playing of advertisements).” ’414 patent, 11:38-41.

138. Given these examples, a POSITA would have recognized Frerichs’

“flag” that indicates where an advertisement is to be inserted, and its teaching of finding the flag, to disclose and/or render obvious that a “*determined time interval occurs*” as claimed, because locating Frerichs’ flag determines when to play an advertisement, consistent with the examples disclosed in the ’414 patent.

139. Frerichs then teaches playing the advertisement. For example, Frerichs states:

Next, the method outputs the first song through audio output device. The method output the advertisement through audio output device; and the method output the second song through audio output device. As shown, the first song is outputted at second time T2, where $T2 > T0$, which signifies a delay 317 between the first time and the second time. The delay can be caused by a variety of factors such as latency in the network or the like. The delay also can be selectively caused by way of a buffer or cache and the like. As shown, **the streaming audio**, which is output, includes first song 301, **advertisement 309**, and second song 305, which is output in a continuous manner. Depending upon the embodiment, the method continues to perform additional steps, as desired, or even repeats previous steps.

Frerichs, 16:10-23.

140. While Frerichs teaches “*playing at least one of the determined advertisements, by the cellular device*” when “*a determined time interval occurs*” (e.g., after detection of the flag), to the extent Frerichs does not explicitly disclose “*stopping playing of content, by the cellular device*” as the claim recites, this

would have been obvious to a POSITA, as confirmed by Kauffman.

141. For example, stopping the playback of content during the output of an advertisement was a well-known technique in the art. A POSITA would have recognized that, prior to the advent of streaming, it was known to pause or stop the playback of continuous content, play an advertisement, and then resume the content from where the content was stopped. As one example, TV networks frequently broadcast movies, which are not made with deliberate breaks for commercial advertisements. During the broadcast of such a movie, the movie is paused at a given location, one or more advertisements are output, and then the movie is resumed from the paused location. It would have also been obvious to a POSITA that while the advertising was being played, the next segment of media would be received and cached, so that the next segment could be played from the buffer as soon as the advertisement concluded.

142. Further, the combined teachings of Frerichs and Kauffman render obvious a technique of “*stopping playing of content, by the cellular device, and playing at least one of the determined advertisements, by the cellular device*” at the flagged location (i.e., at the “*determined time interval*”), Kauffman explicitly teaches that, when advertisement content is ready to be output, during play-out of the advertisement, content is stopped. This teaches “*stopping playing of content, by the cellular device, and playing at least one of the determined advertisements.*”

Specifically, Kauffman teaches that, when an advertisement file is available for playback, the multimedia file (i.e., “*content*”) is cached at the client device, and in its place, the advertisement file (“*the determined advertisement*”) is streamed (“*play[ed]*”) to the end-user:

In accordance with the present invention, once caching inserter 30 has an advertisement file available (either stored, or available as a stream from the advertisement server), **the incoming (requested) multimedia file destined for end-user 10 can be cached, and the advertisement multimedia file streamed in its place to end-user 10** in a seamless manner. The multimedia file itself is not stopped at any point, but is continuously cached by caching inserter 30 as it is received from streaming media server 26. **At the end of the advertisement file, the stored multimedia stream is played** out and, for the duration of the stream, will continue to pass through a cache, since there will continue to be a time delay between the incoming stream to caching inserter 30 and the outgoing stream to end-user 10 (the “delay” being the length of the inserted advertisement). Since the end time of the advertisement is known by caching inserter 30, **the streaming multimedia file can merely be appended to the end of the advertisement, allowing the playing of the requested file to recommence** in a seamless manner without further action required by caching inserter 30.

Kauffman, ¶ 20.

143. By disclosing that the “advertisement multimedia file” is “streamed” in place of “the incoming (requested) multimedia file”, Kauffman teaches that the

“*content*” (the requested multimedia file) is “*stopp[ed]*” and the advertisement is instead played (“*playing at least one of the determined advertisements*”). While Kauffman teaches outputting the advertisement when the advertisement file is available, when combined with the teachings of Frerichs, the advertisement would be output at the location indicated by the flag, or at “*a determined time interval*” as recited.

144. Note that, although Kauffman states the “multimedia file itself is not stopped at any point”, this use of the word “stop” in this sentence does not refer to playback or output. Rather, a POSITA would have recognized this sentence to be referring to the transmission (streaming) of the multimedia file, in the sense that Kauffman explains that the multimedia file’s receipt is not stopped during playback of the advertisement, but is rather continuously received and stored in the cache instead of being output. This is particularly so because Kauffman states that the content (the requested file) is **recommended** after the advertisement, indicating that its output/playback was stopped, and then re-started.

145. Further, it would not be logical to a POSITA to interpret Kauffman as teaching that the multimedia file would be played during the advertisement. A POSITA would have recognized that in traditional advertising (e.g., TV or radio), playback of user-desired content (e.g., a sports event or a news broadcast) is stopped and in its place advertisements are played. This is how Kauffman would

operate as well.

146. Thus, the combined teachings of Frerichs and Kauffman of playing advertisements on a cellular phone based on an advertisement flag, and playing an advertisement file in place of multimedia content, renders obvious “*if a determined time interval occurs, stopping playing of content, by the cellular device, and playing at least one of the determined advertisements, by the cellular device, the playing of the at least one determined advertisement comprising*” as claimed.

[1.3.2] recording, by the cellular device, the content which playing was stopped, while the at least one determined advertisement is playing; and

147. As detailed above, Frerichs provides teachings of a “*cellular device.*” Kauffman teaches that, while an advertisement is played to the end-user, the multimedia file is cached:

In accordance with the present invention, once caching inserter 30 has an advertisement file available (either stored, or available as a stream from the advertisement server), **the incoming (requested) multimedia file destined for end-user 10 can be cached**, and the advertisement multimedia file streamed in its place to end-user 10 in a seamless manner. The multimedia file itself is not stopped at any point, but is continuously cached by caching inserter 30 as it is received from streaming media server 26. At the end of the advertisement file, the stored multimedia stream is played out and, for the duration of the stream, will continue to pass through a cache, since there will continue to be a time delay between the incoming stream to caching inserter 30

and the outgoing stream to end-user 10 (the “delay” being the length of the inserted advertisement). Since the end time of the advertisement is known by caching inserter 30, the streaming multimedia file can merely be appended to the end of the advertisement, allowing the playing of the requested file to recommence in a seamless manner without further action required by caching inserter 30.

Kauffman, ¶ 20.

148. Kauffman describes that the multimedia file (“*the content which playing was stopped*”) is stored (“*recording*”) in a second cache during the play-out of an advertisement (“*while the at least one determined advertisement is playing*”):

FIG. 3 illustrates an exemplary caching inserter 30 that may be used in the system of the present invention as described above in association with FIG. 1. Included within caching inserter 30 is a first cache 60 used to store an incoming specific advertisement file, designated as stream A, from advertisement content server 60. **A second cache 62 is used to store the incoming multimedia stream, designated as stream MM, where as discussed above, cache 62 is used to store incoming stream MM once advertisement stream A has begun to be “played out” toward end-user 10.**

Kauffman, ¶ 24.

In accordance with the present invention, a “caching inserter” system is disposed at a local point of presence (POP) which intercepts a video stream destined for an end user. When insertion of advertising (or other

information—such as a “news” bulletin weather information, for example) is desired, **the video stream is stored/buffered** at the local POP and the advertisement is played. When the ad is completed, **the first stream is then played out of the buffer**. Once the video has begun to enter and fill the buffer (that is once an ad is inserted in the stream), the buffer must remain in the signal path for the duration of the video stream.

Kauffman, ¶ 7.

149. Kauffman’s description of **storing** the incoming multimedia stream would have been understood to correspond to “*recording*” as recited, as a computer dictionary defines “record” as “to retain information, usually in a file,” and “storage” as “any device in or on which information can be kept.” Microsoft Computer Dictionary, pp. 443, 498. Thus, a POSITA would have understood Kauffman’s “storing” to teach “*recording*”. Further, Kauffman’s storing occurs when “the advertisement is played” (“*while the at least one determined advertisement is playing*”).

150. Kauffman teaches that this process of caching the multimedia content while playing an advertisement is performed by a caching inserter, which may be located at an end-user device. In particular, Kauffman explains that this caching inserter, and the cache, may be implemented “at a local point of presence (POP).” Kauffman, ¶ 7. The local point of presence may be located at any point between

the source and the end-user, including at the end-user location (i.e., at a client device):

The POP where the advertisement cache is located could be at any convenient place along the signal path between the information source(s) and the end-user. For example, the advertisement cache could be at the headend, or at a FTTH node in a neighborhood. At the extreme, **the advertisement cache could be part of a set-top box at the end-user location.**

Kauffman, ¶ 9; *see also* Kauffman, claims 2, 12, 17, 18. As detailed in these claims of Kauffman, a first cache for storing a received alternative media file (e.g., an advertisement) and a second cache for storing a streaming multimedia file (the content) may be included at a local point of presence in a communication network, which may be disposed in a communication device at an end-user location like a residential set-top box. *See* Kauffman, claims 2, 12, 17, 18; *see also* Ex.1023, 312-14 (claims 1, 12, 17, 18 of Kauffman application containing same teachings).

151. The caching inserter performs the functions of recording content and playing content from the cache, and as noted above, the caching inserter may be implemented at the end-user device:

Additionally, as noted above, **the caching inserter** of the present invention may be disposed at any location between the various content servers and **the end-user.**

Kauffman, ¶ 25.

In accordance with the present invention, once caching inserter 30 has an advertisement file available (either stored, or available as a stream from the advertisement server), **the incoming (requested) multimedia file destined for end-user 10 can be cached**, and the advertisement multimedia file streamed in its place to end-user 10 in a seamless manner.

Kauffman, ¶ 20.

Moreover, caching inserter 30 itself is capable of **caching any desired number of separate advertisements** and controlling the insertion of the advertisements in the proper streaming multimedia files, while at the same time **caching and then controlling the sending out of the cached multimedia files** to the appropriate end-users.

Kauffman, ¶ 22.

FIG. 3 illustrates an **exemplary caching inserter 30** that may be used in the system of the present invention as described above in association with FIG. 1. Included within caching inserter 30 is **a first cache 60 used to store an incoming specific advertisement file**, designated as stream A, from advertisement content server 60. A **second cache 62 is used to store the incoming multimedia stream**, designated as stream MM, where as discussed above, **cache 62 is used to store incoming stream MM once advertisement stream A has begun to be “played out” toward end-user 10**.

Kauffman, ¶ 24.

152. A POSITA would have incorporated this teaching of Kauffman with

the teachings of Frerichs to provide “an arrangement capable of inserting” advertisement content “into a streaming media download” that is played on a cellular phone for the reasons set forth above. Kauffman, ¶ 5. Further, I note that Kauffman, like Frerichs, discloses an advantage that “content can be targeted to particular end users.” Kauffman, ¶ 9. As detailed above, a POSITA would have also understood that Frerichs’ cellular phone would be capable of performing caching of advertisements and streaming media content consistent with the teachings of Kauffman, because Frerichs contemplates holding an advertisement in a buffer or cache (*see* Frerichs, 15:61-63) and teaches the use of hardware capable of caching as taught by Kauffman (e.g., a cellular phone, as detailed above in the Reasons to Combine Frerichs and Kauffman section). Thus, incorporating Kauffman’s teachings would have been no more than applying one known technique (Kauffman’s caching of streaming media content and advertisement) to a known device ready for improvement (Frerichs’ cellular device for outputting such content) with predictable results and a reasonable expectation of success.

153. Thus, the combined teachings of Kauffman and Frerichs of storing multimedia content in a client-side cache while an advertisement is playing and cellular phones, renders obvious “*recording, by the cellular device, the content which playing was stopped, while the at least one determined advertisement is playing*” as claimed.

[1.3.3] when the playing of the at least one determined advertisement is completed, resuming the playing of the stopped content, by the cellular device, from where the stopping of the playing of the content occurred, using the recorded content.

154. Kauffman teaches that, at the end of an advertisement, the multimedia stream that was originally destined for the end-user is played out again (i.e., recommenced):

In accordance with the present invention, once caching inserter 30 has an advertisement file available (either stored, or available as a stream from the advertisement server), the incoming (requested) multimedia file destined for end-user 10 can be cached, and the advertisement multimedia file streamed in its place to end-user 10 in a seamless manner. The multimedia file itself is not stopped at any point, but is continuously cached by caching inserter 30 as it is received from streaming media server 26. **At the end of the advertisement file, the stored multimedia stream is played out and, for the duration of the stream, will continue to pass through a cache, since there will continue to be a time delay between the incoming stream to caching inserter 30 and the outgoing stream to end-user 10 (the “delay” being the length of the inserted advertisement).** Since the end time of the advertisement is known by caching inserter 30, the streaming multimedia file can merely be appended to the end of the advertisement, **allowing the playing of the requested file to recommence in a seamless manner** without further action required by caching inserter 30.

Kauffman, ¶ 20. Because Kauffman describes that playing of the requested file is

“recommence[d]” and that a delay exists between the incoming stream to the device and the outgoing stream to the user, and that the delay is the length of the inserted advertisement, a POSITA would have interpreted Kauffman to teach “*resuming*” as recited. In other words, this passage of Kauffman teaches that, at a given point in the streaming content, the streaming content is paused for a length of time (e.g., the content is paused for 30 seconds for a corresponding 30 second advertisement), the content for that length of time is stored in the cache, and then the content is restarted after the 30 second advertisement ends (“*resuming the playing of the stopped content*”) from where the content was paused (“*from where the stopping of the playing of the content occurred*”) using the content stored in the cache.

155. Kauffman further explains:

For example, unless and until a full advertisement file is loaded in first cache 60, **multimedia stream MM can be played coupled in real time to end-user 10**, indicated as position (1) of switch 67 of inserter 30. When control unit 66 receives a particular indication from first cache 60 (such as “EOF” received), it knows that advertisement stream A is ready to be played out and multimedia stream MM can be held. A signal is then sent from timing and control unit 66 to switch 67, requesting the switch to move to position (2), allowing the cached advertisement stream A to be sent to end-user 10. Once this process begins, multimedia stream MM will begin to be stored in second

cache 62. **When timing and control unit 66 receives a command that the end of the advertisement has been reached, a signal to move switch 67 to position (3) will be sent, allowing the cached multimedia stream to be sent to end-user 10.** If the advertisement is inserted at the beginning of or during the multimedia stream, the received multimedia stream will need to be stored in, then played out of, second cache 62 for the duration of the multimedia file. A rate and/or format transcoder 68 may also be included in the signal path between first cache 60 and end-user 10 to insure that the advertisement is transmitted at the same data rate and format as the requested multimedia file, where this information has previously been retrieved by analyzer 64, or by some other means.

Kauffman, ¶ 24. Because the content is sent to the user from the “second cache 62” at the user device Kauffman teaches “*using the recorded content*” as recited.

Further, because “the cached multimedia stream” is sent to the user after the end of the advertisement has been reached (i.e., after completion of playback of the advertisement), Kauffman teaches playing the multimedia stream “*from where the stopping of the playing of the content occurred.*”

156. That is, Kauffman teaches that, after an advertisement is complete (“*when the playing of the at least one determined advertisement is completed*”), the playback of the multimedia file that was stored in the cache during the playout of the advertisement is recommenced and the file is output to the end-user (“*resuming the playing of the stopped content ... from where the stopping of the playing of the*

content occurred, using the recorded content”). In combination with Frerichs’ teaching of a cellular phone for playing content and advertisements, Kauffman and Frerichs thus render obvious “*when the playing of the at least one determined advertisement is completed, resuming the playing of the stopped content, by the cellular device, from where the stopping of the playing of the content occurred, using the recorded content*” as claimed.

b) Claim 2

[2.0] *The method of claim 1, wherein the provided information additionally includes at least one of the group consisting of a preference of a user of the cellular device, a demographic data of the cellular device, content played on the cellular device, or a geographic location of the cellular device.*

157. As detailed above in the analysis of limitation [1.1.1], Frerichs teaches that information in the user profile, which information is provided from the cellular phone, may be “derived from the stations being selected as well as **use of such stations during the time of day.**” Frerichs, 15:40-52.

158. The “use of such stations during the time of day” as disclosed by Frerichs corresponds to the recited “*preference of a user of the cellular device*”, or alternatively, “*content played on the cellular device*” for example, because such information would indicate that the user prefers to listen to a given station at a certain time of day or that the user listens to particular content (e.g., a particular

radio station).¹ Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its invention can be applied to devices including cellular phones (“*the cellular device*”).

159. Thus, Frerichs’ teaching of information in the profile that is derived from the use of stations at a certain time of day renders obvious “*the provided information additionally includes at least one of the group consisting of a preference of a user of the cellular device ...[or] content played on the cellular device*” as claimed.

c) Claim 3

[3.0] *The method of claim 2 wherein the provided information additionally includes at least one selected from the group consisting of a game played on the cellular device, a radio station broadcast received by the cellular device, or a television station broadcast received by the cellular device.*

160. As detailed above in the analysis of claim 2, Frerichs teaches that the

¹ Additionally, as detailed above with respect to the content of email messages received from a friend in limitation [1.1.2] and [1.1.3] as taught by the combination of Frerichs and Kauffman, a POSITA would have recognized that such messages received from a friend would include “*a preference of a user of the cellular device*”; for example, the user’s preference for particular music, or preference for a sport such as golf.

information provided from the cellular device may be “**derived from the stations being selected** as well as use of such stations during the time of day.” Frerichs, 15:40-52.

161. In Frerichs, the “stations being selected” are radio stations: “a plurality of content servers 105, each corresponding to a **radio station** with call letter, e.g., BBC, WKRZ, KQED, KGO.” Frerichs, 4:19-22. Further, Frerichs “generally relates to techniques for broadcasting information through a wide area network of computers.” Frerichs, 1:9-11. Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its invention can be applied to devices including cellular phones (“*the cellular device*”).

162. Thus, Frerichs’ teaching of obtaining information on the stations being selected, which stations are radio stations broadcasting information, renders obvious “*the provided information additionally includes ... a radio station broadcast received by the cellular device*” as claimed.

d) Claim 4

[4.0] *The method of claim 1, wherein the playing of at least one determined advertisement further comprises: (a) receiving from the server, by the cellular device, the at least one determined advertisement prior to the playing of the at least one determined advertisement; and*

163. As detailed above, the combined teachings of Frerichs and Kauffman render obvious “*the playing of at least one determined advertisement*” as is recited

in limitation [1.3.1].

164. With respect to this dependent claim, Frerichs also describes one “method according to an embodiment of the present invention” that includes 13 enumerated steps as follows:

A method according to an embodiment of the present invention is briefly described below:

1. Provide first audio data for first song and second audio data for second song at a server location;
2. Provide flag comprising advertisement indication and delay at the server location;
3. Add flag onto first audio data, which is now between the first song and second song at the server location (or other location);
4. Transfer flagged first audio data and second audio data from server location to client location as streaming audio;
5. Select advertisement from a user profile;
- 6. Transfer advertisement for insertion;**
7. Retrieve advertisement from storage;
8. Insert advertisement into streaming audio at the flagged location;
9. Process streaming audio including the advertisement;
10. Output first song through audio output device;
- 11. Output advertisement through audio output device;**
12. Output second song through audio output device; and

13. Perform additional steps, as desired.

Frerichs, 6:18-42.

165. As shown above, step 6 of Frerichs' method includes transferring the advertisement for insertion. In the context of this method, to "transfer" means to send from the server to the client, as indicated by step 4 of the method ("from server location to client location"), such that the client receives the advertisement (*"receiving, from the server, by the cellular device, the at least one determined advertisement"*). Further, the transferring step, step 6, occurs before step 11, which is to output or play the advertisement transferred from the server to the client (*"prior to the playing of the at least one determined advertisement"*). Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its invention can be applied to devices including cellular phones (*"the cellular device"*).

166. Thus, the combined teachings of Frerichs and Kauffman of transferring an advertisement to the client, a cellular phone, before outputting the advertisement renders obvious *"receiving from the server, by the cellular device, the at least one determined advertisement prior to the playing of the at least one determined advertisement"* as claimed.

[4.1] (b) recording, by the cellular device, at least one of the at least one determined advertisement on the cellular device for play back when the determined time interval occurs.

167. Frerichs teaches that, before the advertisement is played, the method “retrieves an advertisement 309 from storage. Here, the advertisement can be retrieved from location storage 313, which can be at the client location.” Frerichs, 7:41-43.

168. A POSITA would have recognized that, for the advertisement to be retrieved from storage at the client location (the cellular phone), the advertisement was stored at the client location (“*recording, by the cellular device, at least one of the at least one determined advertisement on the cellular device*”). Further, because in step 11 the advertisement is output, Frerichs teaches that the advertisement is recorded “*for play back when the determined time interval occurs.*”

169. To the extent this is not an explicit teaching of “*recording ... at least one of the at least one determined advertisement,*” Kauffman explicitly teaches that its caching inserter 30 includes “a first cache 60 used to **store an incoming specific advertisement file**” (Kauffman, ¶ 24) and thus teaches “*recording*” as recited. Kauffman also contemplates that the caching inserter may be located at an end-user device, which in the combination of Frerichs and Kauffman, would be a “*cellular device*” as recited.

170. Thus, Frerichs’ teaching of retrieving an advertisement from storage for playback, alone or combined with Kauffman’s teachings of storing an

advertisement file, renders obvious “*recording, by the cellular device, at least one of the at least one determined advertisement on the cellular device for play back when the determined time interval occurs*” as claimed.

e) Claim 5

[5.0] *The method of claim 1, further comprising employing the cellular device to receive the content as a stream of content.*

171. Frerichs teaches that audio information “is converted into a digital streaming format for transmission through the wide area network of computers.” Frerichs, 7:15-17. Frerichs further teaches that the “audio data ... is provided through streaming media software” and the “streaming media software provides the audio data to clients which request a connection to the audio data” and does so by sending “the encoded audio to the client as **a sequence of data packets**. The client receives the packets and can decode the packets to then play the audio content.” Frerichs, 7:17-25; *see also, e.g.,* Frerichs, Abstract (“**streaming** audio”), 2:12-13 (“technique including a method and device for **streaming** audio output is provided”). Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its invention can be applied to devices including cellular phones (“*the cellular device*”).

172. Frerichs’ operation is consistent with technical dictionary definitions of the term “stream” and “streaming”. For example, a technical dictionary defines

“streaming” as “On the Internet, the process of delivering information, especially multimedia sound or video, in a steady flow that the recipient can access as the file is being transmitted.” Microsoft Computer Dictionary, p. 499. Frerichs describes sending a “sequence of data packets” which is consistent with this definition of “streaming.”

173. Thus, Frerichs’ teaching of a digital streaming format for transmission and the client’s receipt of a sequence of data packets renders obvious “*employing the cellular device to receive the content as a stream of content*” as claimed.

f) Claim 6

[6.0] *The method of claim 1, further comprising receiving the content as a broadcast of content for playing on the cellular device.*

174. The ’414 patent explains that the “term ‘broadcast’ includes but is not limited to commercial and non-commercial radio and television stations, Internet radio and the like.” ’414 patent, 3:11-14.

175. Frerichs teaches that its invention “generally relates to techniques for broadcasting information through a wide area network of computers.” Frerichs, 1:8-10. Further, Frerichs broadcasts radio stations: “the network is also coupled to a plurality of content server 105, each corresponding to a radio station with call letter, e.g., BBC, WKRZ, KQED, KGO.” Frerichs, 7:6-8. Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its

invention can be applied to devices including cellular phones (*“the cellular device”*).

176. Thus, by describing the broadcasting of content, including radio stations, to the client devices (including cellular phones), Frerichs renders obvious *“receiving the content as a broadcast of content for playing on the cellular device”* as claimed.

g) Claim 7

[7.0] *The method of claim 1, further comprising employing the cellular device to receive a stream for the at least one determined advertisement.*

177. As discussed in the analysis of limitation [1.2], the combined teachings of Frerichs and Kawasaki render obvious *“at least one determined advertisement.”* Frerichs also teaches that *“a specific advertisement can be sent to a specific client, where the **advertisement is carried by the streaming media.**”* Frerichs, 4:54-56. Frerichs also teaches that *“information such as advertisements can be inserted into the streaming audio.”* Frerichs, 4:44-46. Additionally, as discussed above in the analysis of the preamble ([1.0]), Frerichs teaches that its invention can be applied to devices including cellular phones (*“the cellular device”*). Thus, Frerichs’ cellular phone receives *“a stream for the at least one determined advertisement”* as claimed.

178. To the extent this is not considered an explicit teaching of a cellular

phone receiving a “*stream for the at least one determined advertisement*,”

Kauffman explicitly teaches this, as it discloses that its first cache, located at the client device, is “used to store an incoming specific advertisement file, **designated as stream A**, from advertisement content server 60.” Kauffman, ¶ 24. Kauffman also teaches that the “advertisement file” may be “**available as a stream** from the advertisement server.” Kauffman, ¶ 20.

179. Thus, Frerichs alone, or in view of the teachings of Kauffman, renders obvious “*employing the cellular device to receive a stream for the at least one determined advertisement*” as claimed.

h) **Claim 9**

[9.0] A cellular device, comprising:

180. Frerichs teaches that its “invention can be applied to other computing devices, such as cellular phones” Frerichs, 1:8-20; *see also* 2:13-20 (“invention also can be applied to other types of client devices such as ... **cellular phones**”), 3:28-32, 3:33-54 (“remote computing device can include, for example, a **cellular phone**”); 10:19-24 (“Connect client (e.g., personal computer, **cellular phone**, ...”); 11:10-13 (“client can be a personal computer, **cellular phone**, ...”), 12:57-60.

181. Thus, Frerichs’ teaching of client devices including cellular phones renders obvious a “*cellular device*”, as claimed.

[9.1] (a) a memory for storing logical instructions;

182. In Figure 2, Frerichs shows a “simplified diagram of a computing device for processing streaming audio information.” Frerichs, 4:58-60.

183. Frerichs further provides in Figure 2A “an illustration of basic subsystems in computer system 210 of FIG. 2.” Frerichs, 5:34-35.

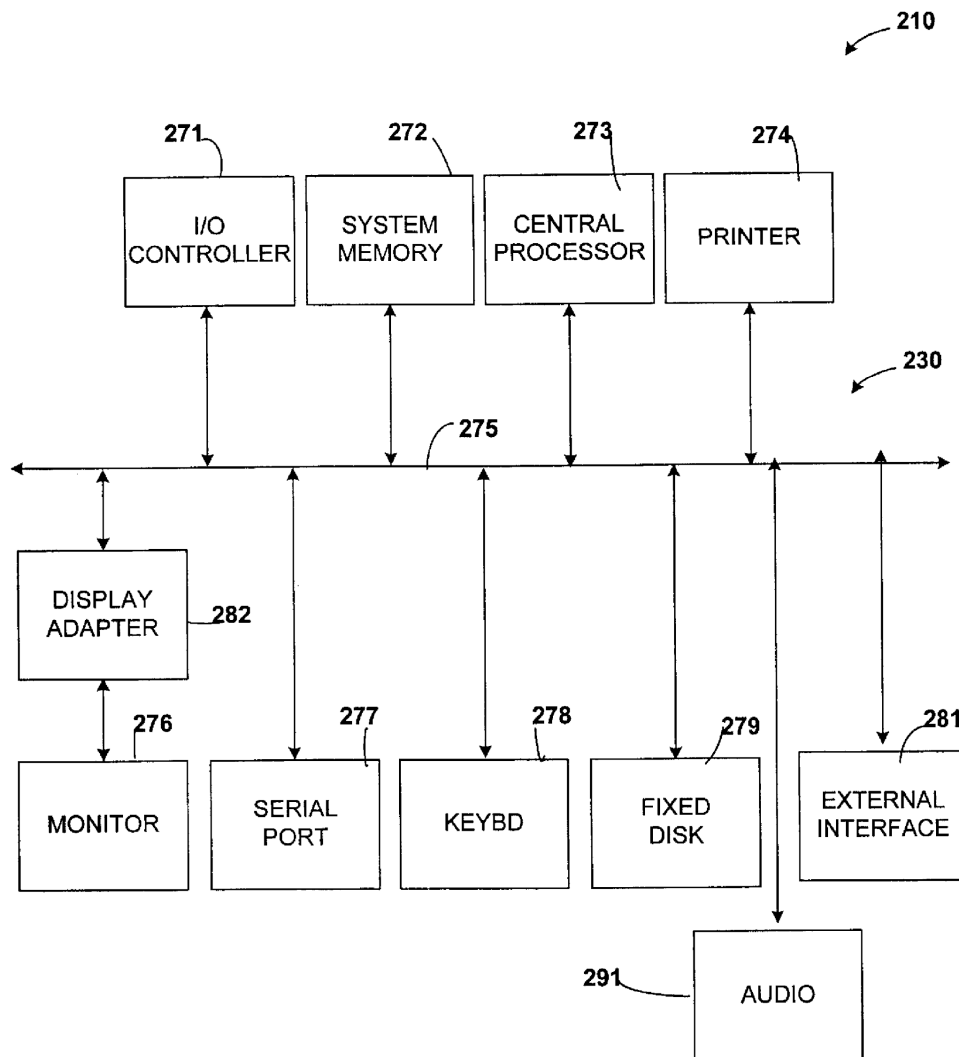


FIG. 2A

184. As shown above, the computer depicted in Figure 2A includes

“system memory 272” and “fixed disk 279.” Frerichs, FIG. 2A. These components are connected “via system bus” 275 to “central processor 273.” Frerichs, 5:38-39. Frerichs explains that this interconnection “allows central processor 273 to communicate with each subsystem and to control **the execution of instructions from system memory 272 or the fixed disk 279...**” and thus teaches that the memory or disk stores “*instructions.*” Frerichs, 5:48-52; *see also* 5:55-61 (“System memory, and the fixed disk are examples of tangible media for **storage of computer programs**, other types of tangible media include floppy disks, removable hard disks, optical storage media such as CD-ROMs and bar codes, and semiconductor memories such as flash memory, read-only-memories (“ROM”), and battery backed memory.”)

185. Thus, Frerichs’ description of system memory 272 and fixed disk 279 renders obvious “*a memory for storing logical instructions*” as claimed.

[9.2] (b) *a wireless interface unit for sending and receiving data; and*

186. Frerichs discloses that the computing devices used in its invention may be “coupled to the Internet in a wireless manner.” Frerichs, 3:49-52.

187. This teaches, to a POSITA, that Frerichs’ computing devices, such as its cellular phones, include “*a wireless interface unit for sending and receiving data*” so that the devices may be coupled to the Internet wirelessly.

188. Frerichs’ disclosure of cellular phones also teaches to a POSITA “*a*

wireless interface unit for sending and receiving data” because a POSITA would have recognized that cellular phones at the time of the ’414 Patent included wireless transceivers (e.g., CDMA or GSM transceivers) to communicate over a cellular network. *See also, e.g.,* Microsoft Computer Dictionary, p. 572 (“wireless ... Of, pertaining to, or characteristic of communications that take place without the use of interconnecting wires or cables, such as by radio, microwave, or infrared.”), 92 (“Cellular Digital Packet Data *n.* A wireless standard providing two-way, 19.2-Kbps packet data transmission over existing cellular telephone channels.”); *see also* analysis of limitation [1.1.2] (describing wireless technologies of cellular devices at the time of the ’414 patent).

189. Thus, Frerichs renders obvious “*a wireless interface unit for sending and receiving data*” as claimed.

[9.3] (c) *a processor for executing the logical instructions stored in the memory, the execution of the logical instructions causing actions to be performed, including:*

190. As detailed above in the analysis of limitation [9.1], Frerichs shows components of a computer in Figure 2A.

191. This computer includes “central processor 273” which executes instructions from the memory. Frerichs, 5:48-53 (“The interconnection via system bus allows central processor 273 to communicate with each subsystem and to control the **execution of instructions** from system memory 272 or the fixed disk

279....”); 4:1-5 (“software processes executing on the machines”).

192. Thus, Frerichs description of central processor 273 renders obvious “*a processor for executing the logical instructions stored in the memory, the execution of the logical instructions causing actions to be performed*” as claimed.

193. The “*actions to be performed*” recited in the limitations that follow are rendered obvious by the combined teachings of Frerichs, Kawasaki, and Kauffman, as set forth below.

[9.4] (i) *autonomously providing to a server information associated with a user of the cellular device, the information taken by the cellular device from a message sent to the cellular device from another user of another cellular device, the message identifying characteristics of the user of the cellular device;*

194. This limitation is substantively similar to limitations [1.1.1]–[1.1.3] and is thus rendered obvious by the combined teachings of Frerichs and Kawasaki.

[9.5] (ii) *receiving from the server at least one advertisement, wherein the at least one received advertisement is determined by the server based at least in part on the provided information;*

195. This limitation is substantively similar to limitation [1.2] and is thus rendered obvious by the combined teachings of Frerichs and Kawasaki.

[9.6.1] (iii) *if a determined time interval occurs, stopping playing of content, and playing the at least one determined advertisement, the playing of the at least one determined advertisement comprising:*

196. This limitation is substantively similar to limitation [1.3.1] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[9.6.2] *recording the content which playing was stopped while the at least one*

determined advertisement is playing; and

197. This limitation is substantively similar to limitation [1.3.2] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[9.6.3] *when the playing of the at least one determined advertisement is completed, resuming the playing of the stopped content from where the stopping of the playing of the content occurred, using the recorded content.*

198. This limitation is substantively similar to limitation [1.3.3] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

i) Claim 10

[10.0] *The cellular device of claim 9, wherein the provided information additionally includes at least one from the group consisting of a user preference of the cellular device, a user demographic of the cellular device, a user behavior of the cellular device, content played on the cellular device, or a geographic location of the cellular device.*

199. This limitation is substantively similar to limitation [2.0] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

j) Claim 11

[11.0] *The cellular device of claim 9, wherein the playing of at least one determined advertisement further comprises: (a) receiving from the server the at least one determined advertisement prior to the playing of the at least one determined advertisement; and*

200. This limitation is substantively similar to limitation [4.0] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[11.1] *(b) recording the at least one determined advertisement on the cellular device for play back if the determined time interval occurs.*

201. This limitation is substantively similar to limitation [4.1] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

k) Claim 12

[12.0] *An article of manufacture comprising:*

202. To the extent the preamble of claim 12 is limiting, Frerichs discloses it, or at least renders it obvious. For example, Frerichs teaches “a computing device for processing streaming audio information” in Figure 2 (Frerichs, 4:58-60) and describes it in more detail in Figure 2A. *See* Frerichs, 5:34-35. Additionally, Frerichs teaches that this computing device may be, in one example, a cellular phone. *See* Frerichs, 1:15-19. A POSITA would have recognized Frerichs’ computing device to correspond to, and teach, an “*article of manufacture*” as claimed. Thus, Frerichs discloses, or at least renders obvious, the preamble of claim 12.

[12.1] *a storage medium; and*

203. Frerichs teaches that the computer system in Figure 2A includes “system memory 272” and “fixed disk 279”. Frerichs further explains:

System memory, and the fixed disk are examples of **tangible media for storage of computer programs**, other types of tangible media include **floppy disks, removable hard disks, optical storage media** such as CD-ROMs and bar codes, and semiconductor memories such as flash memory, read-only-memories (“ROM”), and battery backed memory.⌘

Frerichs, 5:55-61. Frerichs teaches multiple examples of storage media, such as “floppy disks, removable hard disks, optical storage media” and “semiconductor memories.” Frerichs, 5:55-61. Frerichs therefore renders obvious “*a storage medium*” as claimed.

[12.2] *a plurality of programming instructions stored on the storage medium and adapted to instantiate a client for playing content and advertisements on cellular devices, the client configured to cause actions to be performed, the actions including*

204. As detailed above in the analysis of limitation [12.1], the storage medium in Frerichs stores “computer programs” which corresponds to “*a plurality of programming instructions stored on the storage medium*” as claimed. Frerichs, 5:55-61; *see also* 5:48-52 (“execution of instructions from system memory 272 or the fixed disk 279”).

205. Frerichs further teaches that the instructions are used by a client, such as a cellular phone.

Connected to the wide area network 109 is an audio tuning server 113, with terminal 102 and database 106. The wide area network allows for communication of other computers such as a **client unit 112**. Client can be configured with many different hardware components and can be made in many dimensions, styles and locations (e.g., laptop, palmtop, pen, server, workstation and mainframe). As shown, the system includes a lap top computer 119, which is coupled to the Internet, and a remote computing device 117, which is coupled to the Internet in a

wireless manner. The remote computing device can include, for example, a **cellular phone**, a personal digital assistant, a pager, or the like.

Frerichs, 3:42-54.

Frerichs additionally discloses:

The invention also can be applied to other types of **client devices** such as personal digital assistants, internet appliances, internet radio, **cellular phones**, and the like.

Frerichs, 3:28-32. Thus, Frerichs teaches “*cellular devices*” acting as “*a client*”.

206. Frerichs also teaches:

In certain embodiments, the audio tuning server 113 and database 106 store information and **disseminate it to client devices** over wide area network 109. The concepts of “client” and “server,” as used in this application and the industry, are loosely defined and, in fact, are not fixed with respect to machines or **software processes executing on the machines**. Typically, a server is a machine, e.g., or process that is providing information to another machine or process, i.e., **the “client,” e.g., that requests the information.**

Frerichs, 3:66-4:11. From the above, a POSITA would have recognized that Frerichs teaches that software (i.e., “*programming instructions*”) is executed by a machine (e.g., a cellular phone) to cause the cellular phone to act as a client device. Thus, Frerichs teaches “*programming instructions stored on the storage medium and adapted to instantiate a client ... on cellular devices*” as claimed.

207. Frerichs further teaches that the client is “*for playing content and advertisements*” as detailed in the analysis of limitation [1.0]:

A method for inserting advertisements into streaming audio for transmission over a world wide network of computers. The method includes transmitting audio data from a first server location to a client location. The audio data include a flag and audio content data. The method also includes monitoring the audio data and identifying the flag on the audio data. A step of inserting an advertisement, which is based upon a user profile, into the audio data based upon the flag is also included. **The method also outputs the audio content data comprising the advertisement.**

Frerichs, 3:13-19.

208. Thus, Frerichs’ teaching of computer programs, a cellular phone acting as a client device, and outputting audio content data and advertisements, renders obvious “*a plurality of programming instructions stored on the storage medium and adapted to instantiate a client for playing content and advertisements on cellular devices, the client configured to cause actions to be performed*” as claimed.

209. The “*actions to be performed*” recited in the limitations that follow are rendered obvious by the combined teachings of Frerichs, Kawasaki, and Kauffman, as set forth below.

[12.3.1] (a) *autonomously providing to a server information associated with a*

user of a cellular device,

210. This limitation is substantively similar to limitation [1.1.1] and is therefore rendered obvious by the combined teachings of Frerichs and Kawasaki.

[12.3.2] *the information taken by the cellular device from a message sent to the cellular device from another user of another cellular device,*

211. This limitation is substantively similar to limitation [1.1.2] and is therefore rendered obvious by the combined teachings of Frerichs and Kawasaki.

[12.3.3] *the message identifying characteristics of the cellular device,*

212. As detailed above, I have reviewed the prosecution history of the '414 patent. From my review of the prosecution history, it is my understanding that this claim limitation issued with a typographical error, and should instead read "*the message identifying characteristics of the user of the cellular device*", similar to the recitation in limitation [1.1.3]. *See, e.g.,* '414 prosecution history, pp. 53 (showing amendment to claim 15 to recite "the message identifying characteristics of the user of the cellular device"), 41 (showing renumbering of claim 15 to claim 12). Thus, this limitation is substantively similar to limitation [1.1.3] and is therefore rendered obvious by the combined teachings of Frerichs and Kawasaki.

213. In the event this claim is interpreted differently, however, and as detailed above in the analysis of limitation [1.1.3], at the time of the '414 patent, it was known that e-mail message content was commonly related to the recipient of the e-mail message; thus, an e-mail message that identifies "*characteristics of the*

cellular device” was obvious given that a recipient could receive e-mail including information from a sender relevant to the user’s device; for example, a sender could write in a message “I like the black color of your Nokia 9210” which would indicate multiple “*characteristics*” of the cellular device.

214. Thus, Frerichs in view of the knowledge of a POSITA renders obvious “*the message identifying characteristics of the cellular device*” as claimed.

[12.4] (b) receiving from the server at least one advertisement, wherein the at least one received advertisement is determined by the server based at least in part on the provided information,

215. This limitation is substantively similar to limitation [1.2] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[12.5.1] (c) if a determined time interval occurs, stopping playing of the content on the cellular device and playing the at least one determined advertisement, the playing of the at least one determined advertisement including:

216. This limitation is substantively similar to limitation [1.3.1] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[12.5.2] recording the content which playing was stopped while the at least one determined advertisement is playing, and

217. This limitation is substantively similar to limitation [1.3.2] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[12.5.3] when the playing of the at least one determined advertisement is completed, resuming the playing of the stopped content from where the stopping of the playing of the content occurred, using the recorded content.

218. This limitation is substantively similar to limitation [1.3.3] and is

therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

l) **Claim 13**

[13.0] *The article of claim 12, wherein the provided information additionally includes at least one from the group consisting of a user preference of the cellular device, a user demographic of the cellular device, a user behavior of the cellular device, content played on the cellular device, or a geographic location of the cellular device.*

219. This limitation is substantively similar to limitation [2.0] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

m) **Claim 14**

[14.0] *An article of manufacture comprising:*

220. To the extent the preamble of claim 14 is limiting, Frerichs discloses it. Frerichs discloses, for example, an “audio tuning server 113.” Frerichs, 3:66-4:1, Fig. 1. A POSITA would have recognized Frerichs’ audio tuning server to correspond to, and teach, an “*article of manufacture*” as claimed. Thus, Frerichs discloses, or at least renders obvious, the preamble of claim 14.

[14.1] *a storage medium; and*

221. Frerichs teaches that a “server is a machine ... that is providing information to another machine or process” and that some computers “are referred to as ‘servers’ because they usually act as a repository for a large amount of information.” Frerichs explains that server computers have “a **large storage capacity**.” Frerichs, 4:5-18.

222. Thus, Frerichs renders obvious “*a storage medium*” as claimed.

[14.2] *a plurality of programming instructions stored on the storage medium and adapted to instantiate a server for providing content and advertisements to cellular devices, the server configured to cause actions to be performed, the actions including*

223. This limitation is substantively similar to limitation [12.2] except that limitation [12.2] recites a “*client*” and limitation [14.2] recites a “*server*”.

224. Frerichs teaches:

In certain embodiments, the **audio tuning server 113** and database 106 store information and **disseminate it to client devices** over wide area network 109. The concepts of “client” and “server,” as used in this application and the industry, are loosely defined and, in fact, are not fixed with respect to machines or **software processes executing on the machines**. Typically, **a server is a machine, e.g., or process that is providing information to another machine or process, i.e., the “client,” e.g., that requests the information.**

Frerichs, 3:66-4:11.

225. Thus, Frerichs teaches software (“*a plurality of programming instructions*”) executing to provide information to another machine or process (“*adapted to instantiate a server for providing*”).

226. Frerichs also teaches that the server provides “*content*” as it discloses transmitting audio data from the server:

A method for inserting advertisements into streaming audio for transmission over a world wide network of computers. The method

includes **transmitting audio data from a first server location to a client location**. The audio data include a flag and audio content data. The method also includes monitoring the audio data and identifying the flag on the audio data. A step of inserting an advertisement, which is based upon a user profile, into the audio data based upon the flag is also included. The method also outputs the audio content data comprising the advertisement.

Frerichs, 3:13-19.

227. Frerichs also teaches the server providing “*advertisements*”:

In each of the servers 105, information such as advertisements can be inserted into the streaming audio for output at any one of the client devices. Information can also be inserted into the streaming audio at server 113. Additionally, information such as advertisements can be inserted into the streaming audio from an advertisement server 114, which can store advertisements for use with the streaming audio. The advertisements can be sent using a broadcast model, where the advertisements can be distributed to a group of users. Alternatively, they can be sent to a targeted group of users. Still further, a specific advertisement can be sent to a specific client, where the advertisement is carried by the streaming media. Further details of the processing hardware and software are shown below and illustrated by the Figures.

Frerichs, 4:44-57.

228. Thus, Frerichs teaches “*a plurality of programming instructions stored on the storage medium and adapted to instantiate a server for providing*

content and advertisements” as claimed.

229. Frerichs also teaches providing such content and advertisements to “*cellular devices*” as it describes that the “invention can be applied to other computing devices, such as **cellular phones**....” Frerichs, 1:15-19.

230. Finally, a POSITA would have recognized that the software processes executing on the server machine in Frerichs are “*configured to cause actions to be performed*” and, more specifically, the server machine is configured to “provid[e] information to another machine or process, i.e., the ‘client,’ e.g., that requests the information” (Frerichs, 3:66-4:11) by following the steps described throughout Frerichs and detailed in the analysis that follows.

231. Thus, by describing software processes executing on a machine to provide information to a client, including streaming audio and advertisements, Frerichs teaches “*a plurality of programming instructions stored on the storage medium and adapted to instantiate a server for providing content and advertisements to cellular devices, the server configured to cause actions to be performed*” as claimed.

[14.3.1] (a) receiving information associated with a user of a cellular device from the cellular device, independent of user input,

232. The analysis of limitation [1.1] above details how the combined teachings of Frerichs and Kawasaki render obvious a cellular phone “*providing to*

a server ... information associated with a user of the cellular device” as recited in claim 1. Because this information is provided to a server according to claim 1, and as taught by Frerichs and Kawasaki, a POSITA would have understood that the information is received by the server, which therefore renders obvious “*receiving information associated with a user of a cellular device from the cellular device*” as recited.

233. Frerichs and Kawasaki further teach that the server receives the information “*independent of user input*” as recited. This is because, as detailed above in the analysis of limitation [1.1.1], the combined teachings of Frerichs and Kawasaki render obvious that information is provided to a server without the user manually providing such data, and render obvious the automatic reception and generation of unknown data and profiles. Because Frerichs and Kawasaki teach that the user’s cellular device provides information without user involvement, the combined teachings likewise render obvious that information is received from the cellular device “*independent of user input*” as claimed.

[14.3.2] *the information taken by the cellular device from a message sent to the cellular device from another user of another cellular device,*

234. This limitation is substantively similar to limitation [1.1.2] and is thus rendered obvious by the combined teachings of Frerichs and Kawasaki.

[14.3.3] *the message identifying characteristics of the user of cellular device,*

235. This limitation is substantively similar to limitation [1.1.3] and is thus

rendered obvious by the combined teachings of Frerichs and Kawasaki.

[14.4] (b) *employing the received information to determine at least one advertisement to be played on the cellular device, and*

236. Frerichs discloses that it provides targeted advertisements based on a user's profile:

In a specific embodiment, the customized software also provides for targeted advertisements based upon a user profile. Here, the software recognizes a unique identification number (ID) on the server and an associated demographic. The demographic is built from volunteered information and from monitoring of user listening patterns. When the streaming audio begins, the software checks for the most recent list of advertisement sequences available for that user. The list of sequences is generated by first matching the user demographic with the currently running advertisement sequences, for example. The software also checks to see how many times each advertisement has been heard by the user. The information is summarized in an available advertisement list that contains the relevant ad sequences, their associated audio tracks, and the number of times each track can still be heard by this listener before they expire.

Frerichs, 9:41-54.

237. As detailed above, the combined teachings of Frerichs and Kawasaki render obvious that the user profile, or unknown data, as generated by the Kawasaki client (e.g., a cellular phone as taught by Frerichs), corresponds to “*the received information*” as claimed. This is because Kawasaki teaches building a

profile and transmitting the profile to an offer server, which uses the profile to “target offers to users based upon the profile.” Kawasaki, Abstract. Additionally, Kawasaki also teaches generating unknown data and sending unknown data to create a user profile and targeting offers using the profile. When combined with the teachings of Frerichs, the references thus teach “*employing the received information to determine at least one advertisement*” as claimed.

238. Frerichs also teaches that advertisements are “*to be played on the cellular device*” because it describes that output streaming audio may include “first song 301, **advertisement** 309, and second song 305” “in a continuous manner.” Frerichs, 16:10-23.

239. Thus, Frerichs’ disclosure of providing “targeted advertisements based upon a user profile” in light of Kawasaki’s teachings of generating and transmitting a user profile teaches “*employing the received information*” (the unknown data or user profile) “*to determine at least one advertisement to be played on the cellular device*” (the targeted advertisement) as claimed.

[14.5] (c) providing the at least one determined advertisement to the cellular device,

240. As detailed in the analysis of limitation [1.2], Frerichs teaches that the cellular device receives advertisements from an advertisement server. *See* Frerichs, 4:44-57.

241. Thus, because Frerichs teaches that the advertisement server provides advertisements, Frerichs renders obvious “*providing the at least one determined advertisement to the cellular device*” as claimed.

[14.6.1] *wherein if a determined time interval occurs, playing of the content by the cellular device is stopped and the at least one determined advertisement is played on the cellular device, the playing of the at least one determined advertisement including:*

242. This limitation is substantively similar to limitation [1.3.1] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[14.6.2] *recording the content which the playing was stopped while the at least one determined advertisement is playing, and*

243. This limitation is substantively similar to limitation [1.3.2] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

[14.6.3] *when the playing of the at least one determined advertisement is completed, resuming the playing of the stopped content from where the stopping of the playing of the content occurred, using the recorded content.*

244. This limitation is substantively similar to limitation [1.3.3] and is therefore rendered obvious by the combined teachings of Frerichs and Kauffman.

VIII. CONCLUSION

245. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

Date: _____

11/29/22

Henry H. Houh

Henry H. Houh