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In re Patent of:	Graham Merrett	
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Title:	MESSAGING SERVICE IN A WIRELESS COMMUNICATIONS NETWORK	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 11,089,450 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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LISTING OF CLAIMS

Claim 1	
1pre	A method comprising:
1a	receiving a first message, by a first mobile wireless device from a second mobile wireless device, via a mobile operator base station, wherein the first message is formatted according to a short message service (SMS) format;
1b	subscribing, by the first mobile wireless device, to a service for transmitting and receiving packet switched messages, via the Internet and the mobile operator base station;
1c	transmitting, by the first mobile wireless device, after the subscribing, a request including at least information corresponding to at least one mobile phone number of the second mobile wireless device, to determine whether the second mobile wireless device corresponds to a subscriber of the service;
1d	receiving, by the first mobile wireless device, a response to the request indicating that the second mobile wireless device corresponds to a subscriber of the service; and
1e	formatting a second message in accordance with a message format of the service, subsequent to the subscribing and based at least in part on the response;
1f	wherein the message format of the service is not a short message service (SMS) message format, a multimedia message service (MMS) message format or an enhanced message service (EMS) message format;
1g	wherein the first message is received prior to the subscribing.
Claim 2	
2	The method of claim 1, further comprising: formatting the second message for transmission over a wireless personal area network (WPAN).

Claim 3	
3	The method of claim 1, further comprising: formatting the second message for transmission over a wireless local area network (WLAN).
Claim 4	
4	The method of claim 1, further comprising: transmitting, after a change of the first mobile wireless device to a new handset, information indicating that subscribers of the service should no longer be formatting messages of the service for the first mobile wireless device.
Claim 5	
5	The method of claim 1, wherein the formatting the second message is further based at least in part upon a status indicating that an undelivered message parameter has not been exceeded.
Claim 6	
6	The method of claim 1, further comprising: displaying, by the first mobile wireless device, in a single interface, the second message and an MMS message.
Claim 7	
7	The method claim 1, further comprising: authenticating a mobile phone number of the first mobile wireless device to the service prior to receiving the response.
Claim 8	
8	The method of claim 6, wherein the single interface provides an option to add, to a message, a voice attachment for subsequent playback by the second mobile wireless device, after the subscribing; wherein the single interface does not provide the option to add, to a message, a voice attachment for subsequent playback by the second mobile wireless device, before the subscribing.
Claim 9	
9pre	A method performed by a first mobile wireless device, the method comprising:

9a	receiving a first message, from a second mobile wireless device, wherein the first message is formatted according to a short message service (SMS) format;
9b	subscribing to a service for transmitting and receiving packet switched messages, via the Internet;
9c	transmitting a request, after the subscribing, including at least information corresponding to at least one mobile phone number of the second mobile wireless device, to determine whether the second mobile wireless device corresponds to a subscriber of the service;
9d	receiving a response to the request indicating that the second mobile wireless device corresponds to a subscriber of the service; and
9e	formatting a second message in accordance with a message format of the service, subsequent to the subscribing and based at least in part on the response;
9f	wherein the message format of the service is not a short message service (SMS) message format, a multimedia message service (MMS) message format or an enhanced message service (EMS) message format;
9g	wherein the first message is received prior to the subscribing.
Claim 10	
10	The method of claim 9, wherein at the time of transmitting the request, the first mobile wireless device does not have in memory a user name or email address associated with the second mobile wireless device.
Claim 11	
11	The method of claim 9, further comprising: formatting the second message for transmission over a wireless local area network (WLAN).
Claim 12	
12	The method of claim 9, wherein the information corresponding to at least one mobile phone number of the second mobile wireless device is retrieved from the first message.

Claim 13	
13pre	The method of claim 9, further comprising:
13a	receiving presence information associated with the second mobile wireless device after the subscribing; and
13b	displaying the presence information associated with the second mobile wireless device.
Claim 14	
14	The method of claim 9, further comprising: receiving an over the air (OTA) configuration message, wherein the OTA configuration message includes at least one parameter for establishing a server connection with a server of the service.
Claim 15	
15pre	A method comprising:
15a	receiving a first message, by a first mobile wireless device from a second mobile wireless device, via a mobile operator base station, wherein the first message is formatted according to a multimedia message service (MMS) format;
15b	subscribing, by the first mobile wireless device, to a service for transmitting and receiving packet switched messages, via the Internet and the mobile operator base station;
15c	transmitting, by the first mobile wireless device, after the subscribing, a request including at least information corresponding to at least one mobile phone number of the second mobile wireless device, to determine whether the second mobile wireless device corresponds to a subscriber of the service;
15d	receiving, by the first mobile wireless device, a response to the request indicating that the second mobile wireless device corresponds to a subscriber of the service; and
15e	formatting a second message in accordance with a message format of the service, subsequent to the subscribing and based at least in part on;

15f	wherein the message format of the service is not a short message service (SMS) message format, a multimedia message service (MMS) message format or an enhanced message service (EMS) message format;
15g	wherein the first message is received prior to the subscribing.
Claim 16	
16	The method of claim 15, further comprising: formatting the second message is for transmission over a wireless personal area network (WPAN).
Claim 17	
17	The method of claim 15, further comprising: retrieving information representative of at least one electronic mail (email) address corresponding to a third mobile wireless device; wherein the third mobile wireless device is a wireless device of a third subscriber of the service.
Claim 18	
18	The method of claim 17, further comprising: transmitting a message to the second mobile wireless device and to the third mobile wireless device, via the service.
Claim 19	
19	The method of claim 15, further comprising: transmitting, by the first mobile wireless device, a short message service (SMS) message for authentication to the service.
Claim 20	
20	The method of claim 15, wherein the first mobile wireless device is authenticated to the service via SMS.
Claim 21	
21pre	The method of claim 15, further comprising:

21a	receiving, in a single interface, the second message and an SMS message;
21b	wherein the single interface provides an option to add a voice attachment for subsequent playback by the second mobile wireless device, after the subscribing.
Claim 22	
22	The method of claim 15, further comprising: transmitting, via hypertext transfer protocol, after a change of the first mobile wireless device to a new handset, information indicating that subscribers of the service should no longer be formatting messages of the service for the first mobile wireless device.
Claim 23	
23	The method of claim 21, further comprising: displaying an option to add one or more attachments, based at least in part on the response.
Claim 24	
24pre	A method performed by a first mobile wireless device, the method comprising:
24a	receiving a first message, from a second mobile wireless device, via a mobile operator base station, wherein the first message is formatted according to a multimedia message service (MMS) format;
24b	subscribing to a service for transmitting and receiving packet switched messages, via the Internet;
24c	transmitting a request, after the subscribing, including at least information corresponding to at least one mobile phone number of the second mobile wireless device, to determine whether the second mobile wireless device corresponds to a subscriber of the service;
24d	receiving a response to the request indicating that the second mobile wireless device corresponds to a subscriber of the service; and
24e	formatting a second message in accordance with a message format of the service, based at least in part on the response;

24f	wherein the message format of the service is not a short message service (SMS) message format, a multimedia message service (MMS) message format or an enhanced message service (EMS) message format;
24g	wherein the first message is received prior to the subscribing.
Claim 25	
25pre	The method of claim 24, further comprising:
25a	formatting the second message for transmission over a wireless local area network (WLAN); and
25b	displaying an option to add, to a message being created, a voice attachment for subsequent playback by the second mobile wireless device, after the subscribing;
25c	wherein the option is not displayed before the subscribing.
Claim 26	
26	The method of claim 24, wherein at the time of transmitting the request, the first mobile wireless device does not have in memory a user name or email address associated with the second mobile wireless device.
Claim 27	
27	The method of claim 24, further comprising: registering a user name or email address with the service.
Claim 28	
28	The method of claim 24, further comprising: receiving an indication that the mobile phone number of the second mobile wireless device is authenticated to the service.
Claim 29	
29	The method of claim 24, further comprising: transmitting, by the first mobile wireless device, an indication that a user of the first mobile wireless device has changed a handset.

Claim 30	
30	The method of claim 24, wherein the subscribing includes transmitting an SMS message for authentication to the service.

I. INTRODUCTION

Apple Inc. ("Apple" or "Petitioner") petitions for IPR of claims 1-30 ("Challenged Claims") of U.S. Patent No. 11,089,450 ("the '450 patent"). As explained in this Petition, there exists a reasonable likelihood that Petitioner will prevail with respect to at least one of the Challenged Claims.

II. REQUIREMENTS FOR IPR

A. Grounds for Standing

Apple Inc. certifies that the '450 patent is available for IPR. The present Petition is being filed within one year of service of a complaint *HBCU Messaging US LP v. Apple, Inc. et al.*, 1-24-cv-01199 (WDTX). APPLE-1100. Petitioner is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Petitioner requests institution of IPR and cancellation of the Challenged Claims based on the following grounds:

Ground	'450 Patent Claims	§ 103 Basis
Ground 1A	1, 3-4, 7, 9-13, 15, 22, 24, 26-29	Horvath-Tsampalis-Chatterjee
Ground 1B	6, 8, 17-18, 21, 23, 25	Horvath-Tsampalis-Chatterjee-Kansal

Ground	'450 Patent Claims	§ 103 Basis
Ground 1C	2, 16	Horvath-Tsampalis-Chatterjee-Ribaudo
Ground 1D	5	Horvath-Tsampalis-Chatterjee-BenYoseph
Ground 1E	14, 19-20, 30	Horvath-Tsampalis-Chatterjee-Lin

Grounds 1A-1E are further supported by the expert testimony of Dr. Patrick Traynor (APPLE-1003) and additional corroborating evidence cited throughout the Petition.

The '450 Patent claims priority through multiple intervening applications to Australian Patent Application No. 2007903979, filed July 24, 2007, and Australian Patent Application No. 2007906230, filed November 13, 2007. APPLE-1001, Cover, 1:7-22. Petitioner does not concede that any '450 Patent claim is entitled to the benefit of the alleged priority application filing dates, but nonetheless, all references forming the basis of the grounds predate the filing of each of the applications identified in the priority chain. Petitioner accordingly treats July 24, 2007 as the Critical Date, solely for purposes of the analysis in this Petition. APPLE-1003, ¶21.

Reference	Filing Date	Publication Date	Pre-AIA Prior Art Status
Horvath (APPLE-1004)	May 1, 2006	Nov. 1, 2007	§102(e)

Tsampalis (APPLE-1005)	Dec. 31, 2002	Oct. 14, 2004	§§102(a)-(b), (e)
Chatterjee (APPLE-1007)	N/A	June 2005	§§102(a)-(b)
Kansal (APPLE-1042)	Dec. 19, 2006	Jun. 26, 2008	§102(e)
Ribaudo (APPLE-1042)	Aug. 8, 2006	Feb. 8, 2007	§§102(a)-(b), (e)
BenYoseph (APPLE-1049	Dec. 30, 2002	Dec. 20, 2008	§102(e)
Lin (APPLE-1045)	Mar. 28, 2005	Oct. 20, 2005	§§102(a)-(b), (e)

Horvath, Tsampalis, Chatterjee, Kansal, Ribaudo, BenYoseph, and Lin are all analogous art to the '450 Patent, each being in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the '450 Patent (e.g., mobile messaging). APPLE-1003, ¶¶53, 62, 109, 124, 129, 135. For example, like the '450 Patent, each of the prior art references applied in Grounds 1A-1E describes methods and systems for messaging over wireless networks. *Id.*; APPLE-1001, Title, Abstract; *infra*, §IV; *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art relating to the subject matter of the '450 Patent as of the Critical Date ("POSITA") would have had at least a bachelor's degree in computer science, electrical engineering, computer engineering, or a related field, with 2-3 years of industry experience in computer networking and

wireless telecommunications. APPLE-1003, ¶21. Additional graduate education could substitute for professional experience, and *vice versa*. *Id*.

III. SUMMARY OF THE '450 PATENT

A. Brief Description

The '450 patent generally describes techniques for messaging on mobile devices. *See* APPPLE-1001; APPLE-1003, ¶¶24-26. FIG. 3 illustrates a process by which a messaging client determines a messaging format (e.g., SMS, MMS, EMS) to apply to a message that is to be transmitted from a wireless device based on an indication of whether the intended recipient is capable of receiving the message on a packet-switched bearer:

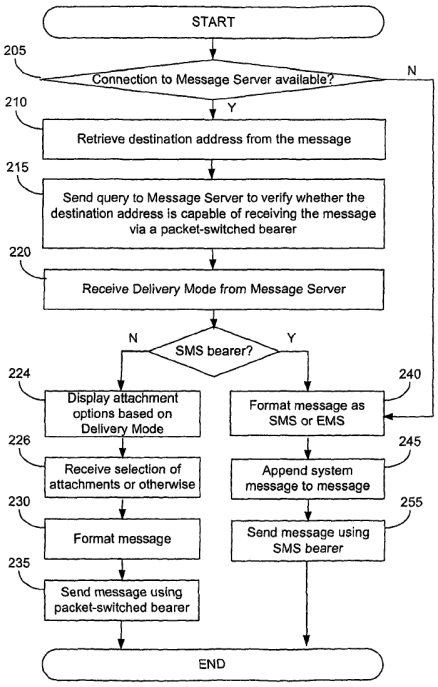


FIG. 3

APPLE-1001, FIG. 3

B. Prosecution History

During prosecution, the Examiner allowed the claims without a prior art rejection and did not consider any of the art applied in this Petition. APPLE -1002; APPLE-1003, ¶26. However, as discussed in §IV, the application never should have been allowed.

C. Claim Construction

All claim terms should be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100. Petitioner submits that no formal constructions are presently necessary. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("claim terms need only be construed to the extent necessary to resolve the controversy") (internal quotations omitted). This Petition applies the prior art in a manner consistent with Patent Owner's allegations of infringement before the district court. APPLE-1003, ¶23.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. GROUND 1A – Horvath-Tsampalis-Chatterjee Renders Obvious Claims 1, 3-4, 7, 9-13, 15, 22, 24, and 26-29

1. Prior Art and Proposed Combination

(a) Horvath[1] (APPLE-1004)

Horvath discloses a method and system for "transmitting short message service messages" with "a wireless device such as a mobile phone" over "a packet data network 102 and a circuit services network 104." *See e.g.*, APPLE-1004, Title, [0001]-[0002], [0007], [0024]-[0026], [0033], FIGS. 1, 2. Horvath's wireless device (*e.g.*, "wireless device 106") is "a dual mode device capable of communicating on either the packet data network 102 or the circuit services network 104," "based on [a] registration status of the wireless device." *Id.*, [0007]-[0008], [0024], [0061], FIGS. 1 (below), 2, 4. APPLE-1003, ¶¶27-32.

[1] The general descriptions of this and other references and combinations are incorporated into each subsection and mapping of the claims that includes citations to these references. All emphasis is added unless otherwise indicated.

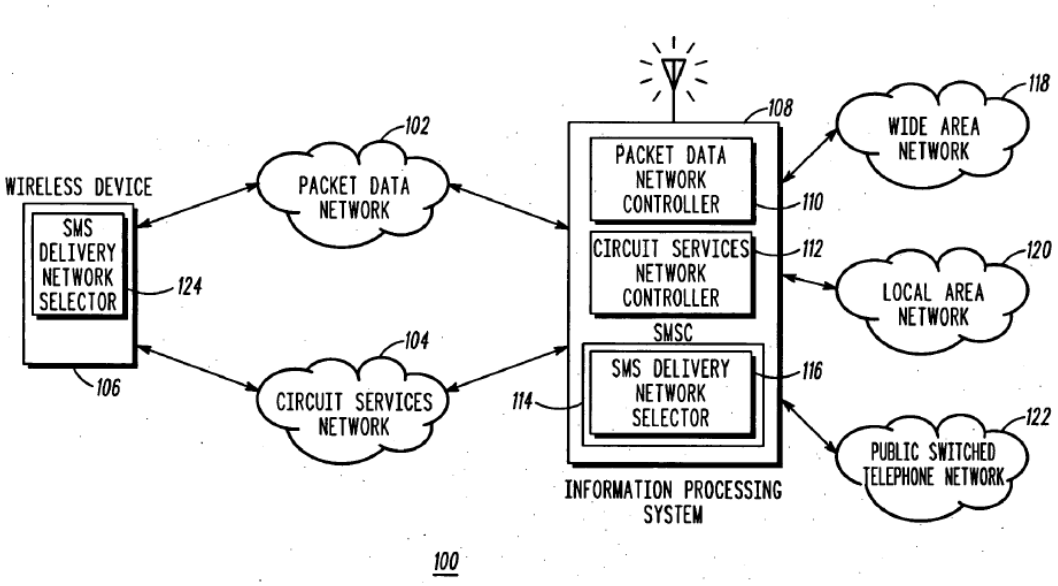


FIG. 1

APPLE-1004, FIG. 1

FIG. 6 is a flowchart that illustrates "an exemplary process of a SMSC selecting either a circuit services network or a packet data network for delivery of a SMS message to a wireless device" (APPLE-1004, [0016]):

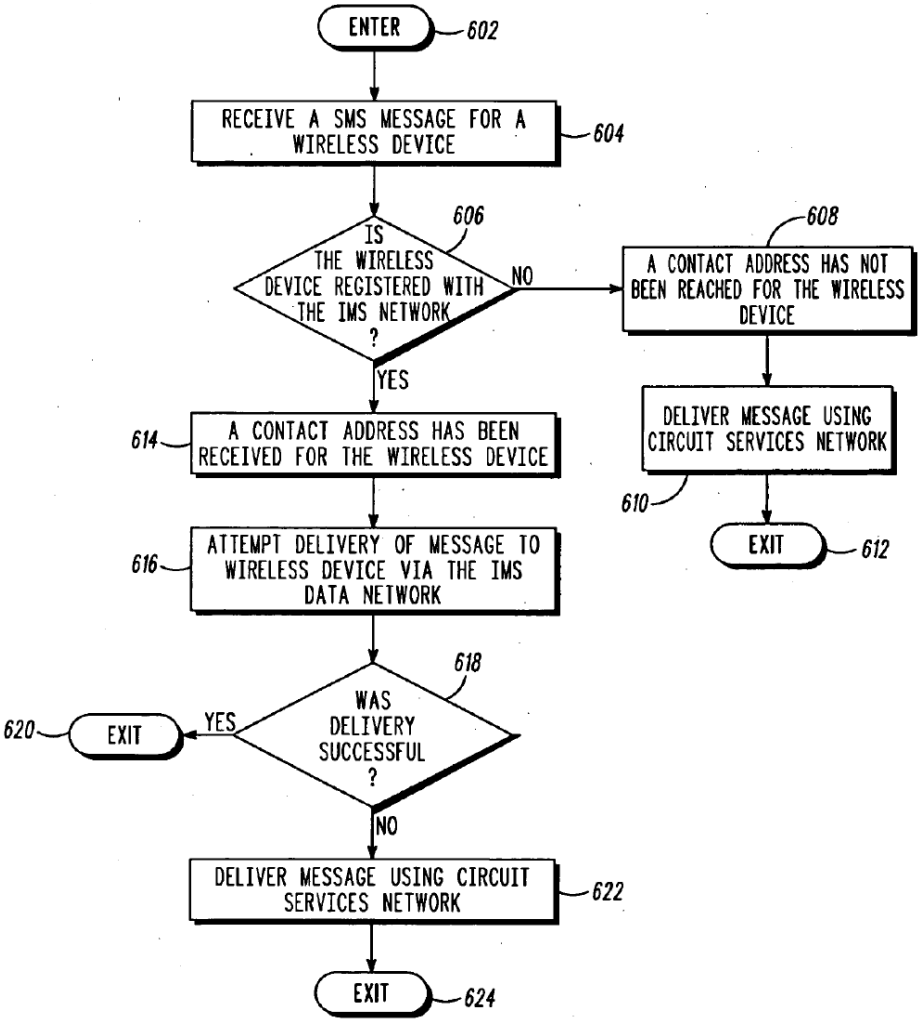


FIG. 6

APPLE-1004, FIG. 6 (server perspective)

FIG. 8 is a flowchart that illustrates "an exemplary process of a wireless device receiving a SMS message" (APPLE-1004, [0016], *see also id.* [0080]):

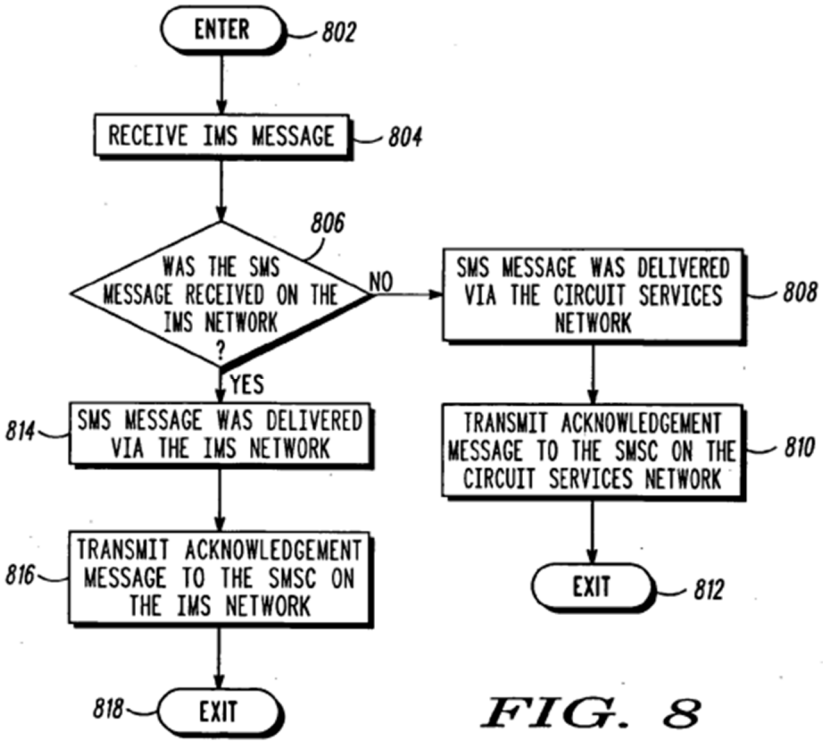


FIG. 8

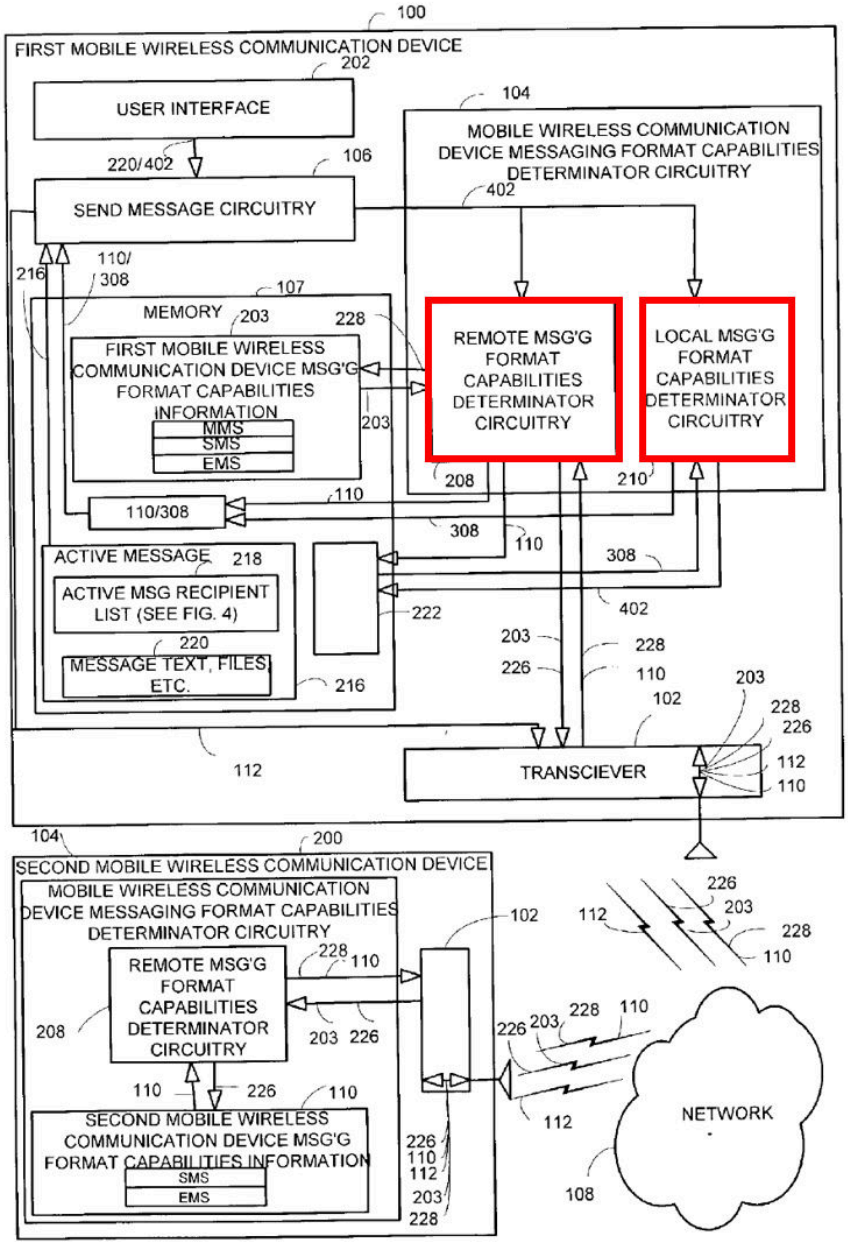
APPLE-1004, FIG. 8 (wireless device perspective)

(b) Tsampalis (APPLE-1005)

Tsampalis describes a "method and apparatus for providing wireless messaging" in which a first mobile wireless communication device 100 (*i.e.*, a sender device) obtains, either locally or via "a web server" or other "network element," "messaging format capabilities information 110" of a second mobile wireless communication device 200 (*i.e.*, a recipient device) before the sender device sends a message. *See e.g.*, APPLE-1005, Title, Abstract, [0029]-[0039], FIGS. 1, 2 (below, highlighting the local and remote messaging format capabilities determinator circuitries residing on the first wireless device), 5-7. The messaging

format capabilities information 110 (MFCI) indicates the types of messages (e.g., SMS, MMS, EMS) that the intended recipient device is capable of processing. APPLE-1005, [0022]-[0024]. APPLE-1003, ¶¶33-36.

FIG. 2



APPLE-1005, FIG. 2 (annotated)

(c) Chatterjee (APPLE-1006)

Chatterjee is an IEEE article that provides a brief history of the development of instant messaging and presence ("IM&P") technologies and a summary of various standards, where "[i]nstant messaging is an application that enables networked users to send and receive short messages. Presence provides information about users' reachability and willingness to accept/reject a brief chat session."[2] APPLE-1007, Abstract. Chatterjee explains, "IM systems, with the ability of providing presence information, enables a user to know the availability of other users. By using presence information, an IM system enables us to search for a specific user, check the user's status, and send short messages." APPLE-1007, 4. According to Chatterjee, which was published back in 2005, "[p]opular IM applications include AOL™ Instant Messenger (AIM), ICQ™ ("I Seek You"), MSN™ or WindowsXP™ Messenger, and Yahoo™ Messenger." APPLE-1007, 4, Table 1 (below). APPLE-1003, ¶37.

[2] The evidence here confirms that Chatterjee was published by IEEE in June 2005—more than two years before the Critical Date of the '450 Patent. *See* APPLE-1102, ¶¶1-11.

IM solutions	Characteristics	Vendor examples
Public services	Available to anybody; often free; use a centralized third-party server to relay messages	AOL Instant Messenger™, MSN Messenger™, Yahoo! Messenger™
Private services	IM systems designed for enterprise and corporate use; secure IM, message logging, enterprise-class service, corporate control	AOL Enterprise AIM™, Yahoo Messenger Enterprise™, Microsoft Messenger Connect for Enterprise™, IBM Lotus Sametime™
Collaboration tools	These collaborative systems include presence technology	IBM Lotus Sametime™, Groove Network Inc's Groove Workspace™
Carrier/network services	Convergence products that are now IM&P-enabled	Bantu Inc, Comverse Inc,. DynamicSoft Inc., FaceTime Communications, Invertix Corp., NotePage Inc., PresenceWorks Inc., Vayusphere Inc.
Open source tools	Based on open source	Jabber Inc., Jabber.Org

Table 1. *Instant messaging systems.*

APPLE-1007, Table 1

(d) The Horvath-Tsampalis-Chatterjee Combination

Combining Horvath with Tsampalis

As discussed above, Horvath describes techniques for diverting SMS message transmissions from the circuit switched network to the packet data network when a device is registered on a packet data network. *Supra*, §IV.A.1.(a). Horvath explains that the diversion of SMS messages to the packet data network is beneficial to reduce load and "unnecessary overhead" on the circuit switched network. APPLE-1004, [0004], [0009]. Notwithstanding this benefit, however, Horvath's system was still ripe for improvement. APPLE-1003, ¶44. For example, although Horvath acknowledges additional messaging services apart from SMS (e.g., MMS, EMS, IM), Horvath leaves many implementation details for these services to a POSITA. APPLE-1005, [0025], [0039]. Additionally, a POSITA would have appreciated that

some users did not necessarily subscribe to each of these messaging services and users often had limited messaging capabilities that precluded them from receiving or processing richer media formats beyond SMS (*e.g.*, MMS, EMS, IM). APPLE-1003, ¶44. Consequently, the sender risked sending a message in a format that the recipient would be incapable of processing or presenting to a user. *Id.* This, in turn, resulted in failed message deliveries, re-transmission attempts that further burdened the network, increased processing load on messaging servers, and frustration by users who expected messages to be delivered in one format but which ultimately could not be delivered as expected. APPLE-1005, [0003]-[0004]; APPLE-1003, ¶44.

In view of these known problems with a multi-modal messaging environment like Horvath's in which different mobile device users subscribed to messaging services (*e.g.*, SMS, MMS, EMS, IM), a POSITA would have turned to Tsampalis for specific guidance on how to improve the user experience and better manage and coordinate messaging formats in such an environment. *Supra*, §IV.A.1(a) (Horvath); §IV.A.1(b) (Tsampalis). Tsampalis describes techniques for improving sharing the recipient's messaging format capabilities information with the sender. *Supra*, §IV.A.1(b). A POSITA reviewing Horvath and Tsampalis would have found it obvious to implement Horvath's system in accordance with Tsampalis's suggestions for a sender device to obtain and use messaging format capabilities

information of a recipient device to determine how to format and transmit an outgoing message to the recipient. APPLE-1003, ¶45. Multiple reasons would have prompted a POSITA to combine Horvath's and Tsampalis's teachings in this manner well before the Critical Date of the '450 Patent (July 24, 2007). *Id.*, ¶¶42-53.

First, a POSITA would have combined Horvath and Tsampalis such that the sender would obtain and use a recipient's messaging format capabilities information to enhance users' messaging experiences and ensure that the format of outgoing messages is compatible with the messaging format capability of the recipients' device before the message is sent. APPLE-1003, ¶46. Tsampalis itself expressly acknowledges the benefits flowing from these techniques, noting that "the determining of the message capabilities of a target mobile wireless communication device before sending a message to such target device[] … can enhance a user's experience by allowing a user to determine whether to attempt to send or modify a message based on the messaging capabilities of the intended recipient(s) of the message" and "by providing the user the ability to select a format in which to send a message based upon the messaging capabilities of the intended recipient(s) of the message." APPLE-1005, [0065], [0050]. APPLE-1003, ¶46.

Second, a POSITA would have sought to leverage Tsampalis-like messaging format capabilities information in Horvath's system to permit the sender to make more frequent and reliable use of enhanced messaging formats such as MMS and

IM. APPLE-1003, ¶47. Enhanced messaging formats such as MMS and IM generally offer richer messaging capabilities than SMS, such as the ability to support extended character counts for longer messages and the ability to attach/include multimedia files with the message. APPLE-1003, ¶47 (citing APPLE-1007, 8; APPLE-1025, Introduction). A POSITA would have understood that the enhanced messaging capabilities of MMS and IM were often desirable for situations where users desired to communicate more than the short, text-based messages that could be accommodated by SMS. *Id.* If the recipient's messaging capabilities are unknown, however, some senders are biased toward not using any of the enhanced messaging features of MMS or IM to ensure the message is successfully delivered to the recipient using a more basic service (*e.g.*, SMS). *Id.* But intentional avoidance of enhanced messaging features offered by MMS or IM is unnecessary if the recipient is in fact capable of receiving MMS or IM messages, and Tsampalis's proposal to share the recipients' messaging format capabilities information with the sender would allow a sender to use these rich messaging features more frequently and reliably with confidence that the recipient can successfully receive them. *Id.*

Third, a POSITA would have sought to leverage Tsampalis-like messaging format capabilities information in Horvath's system to make better, more selective use of SMS when the recipient has limited messaging capabilities. APPLE-1003, ¶48. As Tsampalis explains, some users do not subscribe to MMS and are incapable

of receiving or processing messages other than SMS or similar text-based messages. APPLE-1005, [0061]-[0063]. By obtaining the recipients' messaging format capabilities information in advance of sending a message, the sender can ensure the message is appropriately sized and formatted according to the restrictions imposed by SMS and the limited messaging capabilities of the recipient. APPLE-1003, ¶48. Likewise, the sender can avoid making use of richer features associated with formats such as MMS or IM that the recipient could not receive or process. *Id.*

Fourth, a POSITA would have been motivated to apply Tsampalis's teachings to Horvath in the manner described above to ensure the sender could recognize any incompatibilities between the format of an outgoing message and the messaging format capabilities of the intended recipient of the message *before* the message is sent. APPLE-1003, ¶49. In addition to enhancing the user's experience, Tsampalis's approach to making use of messaging format capabilities information before a message is sent would beneficially reduce occurrences of failed message deliveries resulting from attempts to send incompatible message formats. *Id.* It would likewise reduce network traffic and corresponding load on the system by reducing the number of re-transmission attempts stemming from failed message deliveries. APPLE-1005, [0003], [0004], [0022]-[0023], [0025]; APPLE-1003, ¶49.

Fifth, a POSITA would have been motivated to apply Tsampalis-like messaging format capabilities information to Horvath's system to advance

Horvath's express objectives of reducing "unnecessary overhead for the system" and "dynamic optimization of [] resources." APPLE-1004, [0004], [0081]; APPLE-1003, ¶50. For example, a POSITA would have appreciated that integration of Tsampalis's techniques in the combination would further optimize the sender's determination of a transmission mode (*e.g.*, whether to send an SMS, MMS, or IM, whether to attach any multimedia files, and/or whether to transmit over the packet data network or the circuit services network), while reducing unnecessary burden on the remote server by having the sender device process/format the outgoing message according to the selected transmission mode. APPLE-1003, ¶50.

Sixth, a POSITA reviewing Horvath would have naturally looked to Tsampalis's techniques for sharing messaging format capabilities information because, like Horvath, Tsampalis describes communications networks that support multi-modal messaging formats, including "a cellular wireless network, internet or other suitable network." APPLE-1005, [0028]; *see also id.*, [0024]-[0027]; APPLE-1003, ¶51.

Seventh, a POSITA would have found it obvious to combine the teachings of Horvath with Tsampalis because the combination merely involves the application of a known technique to a known system to achieve predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (a supposed invention that "simply arranges old elements with each performing the same function it had been known to

perform" is obvious). The law is clear that "[i]t's enough… to show that there was a known problem… in the art, that [another known teaching] … helped address that issue, and that combining the teachings … wasn't beyond the skill of an ordinary artisan. Nothing more is required to show a motivation to combine under *KSR*." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023). Here, Tsampalis recognized a known problem with dynamic messaging environments like Horvath's in which users have different messaging format capabilities, and yet, Tsampalis's teachings would help address this problem in a straightforward manner that was well within the skill of a POSITA. APPLE-1003, ¶52. A POSITA would have further recognized that at the time of the claimed invention, some users were still charged on a per SMS basis, and being selective about how messages were sent could save costs for both the sender and the receiver. APPLE-1003, ¶52 (citing APPLE-1009, 1). Accordingly, the combination would have been obvious. *Id.*

Likewise, a POSITA would have reasonably expected success implementing the combination, especially since the resulting system could be implemented with conventional software and hardware techniques (*e.g.*, general-purpose processors on mobile devices executing programmable instructions) with messaging formats (*e.g.*, SMS, MMS, IM) that were well-defined and commonly implemented by the Critical Date of the '450 Patent. *KSR* at 401. Further, the techniques that would be integrated from Tsampalis in the Horvath-Tsampalis combination are fully compatible with

Horvath's and would not disturb the ability of Horvath's system to transmit or deliver SMS messages over either a packet-based or circuit switched network. APPLE-1003, ¶53. Indeed, Horvath and Tsampalis both describe multi-modal wireless devices that are physically and logically compatible with each other. APPLE-1003, ¶53[3]

Combining Horvath-Tsampalis with Chatterjee

Horvath and Tsampalis each describe conventional mobile messaging services for wireless devices, including SMS, MMS, and EMS. APPLE-1004, [0025] ("Text messaging standards such as Short Message Service ('SMS'), Enhanced Messaging Service ('EMS'), Multimedia Messaging Service ('MMS'), and the like are also included in the networks 102, 104."); APPLE-1005, [0002] [0024] ("FIG. 1 illustrates a mobile wireless communication device such as a cellular telephone, two-way pager, or other device employing non-real-time store-and-

[3] The overview of the Horvath-Tsampalis-Chatterjee combination described in this section is incorporated in the analysis of each claim element in Grounds 1A-1E below. For claim elements in which the Petition cites Horvath's teachings alone, it is understood that those teachings are applicable in the combination and are not negated by the combination with Tsampalis and Chatterjee. APPLE-1003, ¶53.

forward messaging (e.g., SMS, EMS, MMS).”). While SMS, MMS, and EMS feature prominently in Horvath and Tsampalis, a POSITA would have appreciated that additional services were also commonly used for messaging on wireless devices by the Critical Date. For example, Horvath notes that its “IMS system also includes application servers that host and execute services for the wireless device 106,” where the services can include “SMS, MMS, caller ID, call waiting, push-to-talk, voicemail, and the like.” APPLE-1005, [0039]. Horvath also explains that “[t]he SIP network is used for establishing instant messaging, telephone calls, and other real-time communications over the Internet.” *Id.*, [0033]. Notably, Horvath acknowledges the option for additional messaging services such as instant messaging, although Horvath leaves many of the implementation details of these additional services to a POSITA. A POSITA interested in pursuing additional messaging services as suggested by Horvath would have turned to references like Chatterjee for further detail about the capabilities of these services and how to implement them. APPLE-1003, ¶54.

As discussed above, Chatterjee describes various frameworks for instant messaging and presence (“IM&P”) services that were in widespread use long before the Critical Date. *Supra*, §IV.A.1(c). A POSITA reviewing Chatterjee would have found it obvious to apply Chatterjee’s suggestions for implementing an IM&P service in the Horvath-Tsampalis system such that the wireless device (e.g., wireless

device 106) in the resulting Horvath-Tsampalis-Chatterjee system would be further configured to send and receive instant messages, and to send and receive presence information indicating the availability of devices for receiving IMs. APPLE-1003, ¶55. In the combination, the messaging format capabilities information shared with the sender device based on Tsampalis's teachings would further include an indication of whether the intended recipient of a message is capable of receiving IMs in addition to other messaging formats such as SMS, MMS, and EMS. Id. Multiple reasons would have prompted a POSITA to implement the combination. APPLE-1003, ¶¶55-62.

First, a POSITA would have implemented instant messaging in the combination system to "enable[] short message exchanges between online users … in real time" and "independent of locale." APPLE-1007, 4, APPLE-1003, ¶56. Chatterjee explains that the "real-time" nature of instant messaging services "differentiates IM" from other conventional messaging services, and IM beneficially allows users to "engage in real-time discussions" that facilitate "collaboration" and "improve[d] decision making." APPLE-1007, 4, 8; *cf.* APPLE-1005, [0002], [0024] (describing SMS, MMS, and EMS as "non-real-time store-and-forward messaging").

Second, a POSITA would have implemented instant messaging in the combination system to expand the capabilities of the device and keep current with

the growing popularity of instant messaging in the timeframe leading up to the '450 Patent. APPLE-1007, 4 ("quickly adopted … new phenomenon."); APPLE-1003, ¶57.

Third, a POSITA would have implemented instant messaging in the combination system to promote the ability of organizations to readily "distribute various information including emergency news, [] events, and other important announcements" to users of the IM service. APPLE-1007, 8; APPLE-1003, ¶58. Chatterjee specifically observes that "[u]sing IM increases efficiency and productivity if it is ubiquitous (i.e., available on the cell phone and used extensively …)." APPLE-1007, 10.

Fourth, a POSITA would have considered IM to be a desirable messaging format to implement in the combination system because it "is more media-rich than traditional applications such as mail, phone, and email," and IMs can deliver not only text but also "voice, video, and data together to various endpoints." APPLE-1007, 8; APPLE-1003, ¶59. Further, "the delivered messages" can "integrate … with existing systems and infrastructure" thereby "sav[ing] both time and money." APPLE-1007, 8; APPLE-1003, ¶59.

Fifth, a POSITA would have implemented presence capabilities in the combination system to better inform users of the instant messaging service when other users are available to receive instant messages. APPLE-1007, 4 ("By using

presence information, an IM system enables us to search for a specific user, check the user's status, and send short messages. … We are also aware, in this case, whether or not the user is open to communicating at this time."); APPLE-1003, ¶60. To the extent presence is not obvious given that it is part of the SIP standard, Chatterjee makes it explicit. APPLE-1003, ¶60 (citing APPLE-1056, Abstract); APPLE-1007, 4.

Sixth, it would have been obvious in view of Chatterjee to extend Tsampalis's messaging format capabilities information in the combination system to further indicate an intended recipient's instant messaging capability (e.g., in addition to SMS, MMS, EMS capabilities). APPLE-1003, ¶61. A POSITA would have understood that identifying additional messaging capabilities of the intended recipient of a message, including information indicating whether the intended recipient is capable of receiving instant messages, would further Tsampalis's goal of enabling the sending device to select an optimal message format before sending a message, thereby enhancing the user's experience and reducing attempts to transmit a message in a format that the recipient is either incapable of receiving or that does not make best use of the recipients' messaging capabilities. APPLE-1005, [0065], [0003]-[0004]; APPLE-1003, ¶61. Tsampalis identifies SMS, MMS, and EMS as "non-real-time store and-forward messaging format capabilities," but Tsampalis does not restrict the messaging format capabilities information from

further including other messaging formats. APPLE-1005, [0022] (describing non-real time store-and-forward as a mere example of messaging format capabilities information ("such as")), [0025] ("or another suitable format"); APPLE-1003, ¶61. Indeed, a POSITA would have desired to inform the sender of all messaging format capabilities of the recipient, including IM, to provide the sender with comprehensive information that would better allow the sender to optimize its selection of a format for messaging the recipient. APPLE-1003, ¶61; *see also* APPLE-1007, 6 (describing known option for "store-and-forward" IM services).

Finally, a POSITA would have found it obvious to apply an IM&P service based on Chatterjee in combination with Horvath-Tsampalis because the combination merely involves the use of well-known techniques for instant messaging and presence to a known system to achieve predictable results. *KSR*, 550 U.S. at 417 (2007); APPLE-1003, ¶62. A POSITA would have reasonably expected success implementing the combination, especially since the resulting system could be implemented with conventional software and hardware on mobile devices using IM&P services that were well-established by the Critical Date. APPLE-1007, 10 (describing IM "available on the cell phone"), 4 (IM has been "quickly adopted"); APPLE-1045, [0002] (describing known techniques for "establish[ing] an instant messaging conferencing session … among multiple mobile devices"). Notably, Horvath explicitly describes the option of using a SIP network for instant messaging,

and Chatterjee expands on IM&P services such as SIMPLE that were specifically developed to operate on SIP networks, or Jabber that was capable of interfacing with an SIP server. APPLE-1007, 5-8, FIG. 2 (depicting "SIMPLE components"), FIG. 3 (depicting "Foreign IM gateway (Jabber to SIP)"). APPLE-1003, ¶62.

2. Claim 1

[1pre]

To the extent the preamble is limiting, the Horvath-Tsampalis-Chatterjee combination renders obvious [1pre][4]. APPLE-1003, ¶63. For example, Horvath is titled "method and system for delivery of short message service messages." APPLE-1004, Title. Horvath describes a "method and device for transmitting at least one short messaging service message" where the method includes a wireless device "receiving at least one short message service message request associated with a short message service message" (e.g., an SMS message). APPLE-1004, Abstract; *see also id.* [0002], [0006]-[0007], [0045]-[0048], [0050], [0074]-[0080], FIGs. 1, 5-7. Horvath likewise describes an ability of the wireless device to transmit enhanced messaging service ("EMS") messages, multimedia messaging service ("MMS")

[4] This Petition incorporates the description of the Horvath-Tsampalis-Chatterjee combination from §IV.A.1(d) into the analysis of each element of the Challenged Claims.

messages, and instant messages. APPLE-1004, [0025], [0033]; APPLE-1003, ¶63.

[1a]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1a]. APPLE-1003, ¶64. As discussed above, Horvath discloses methods for transmitting and receiving SMS messages from a wireless device. *Supra* [1pre]; §IV.A.1.(a).

For example, Horvath discloses a "wireless device 106" that communicates on "either the packet data network 102 or the circuit services network 104." APPLE-1004, Title, [0001]-[0002], [0007], [0014], [0021], [0024]-[0026], [0031], [0033], [0039]-[0040], [0044]-[0050], [0060]-[0070], [0077]-[0080] FIGs. 1 (shown below), 2, 4, 6-8; APPLE-1003, ¶65.

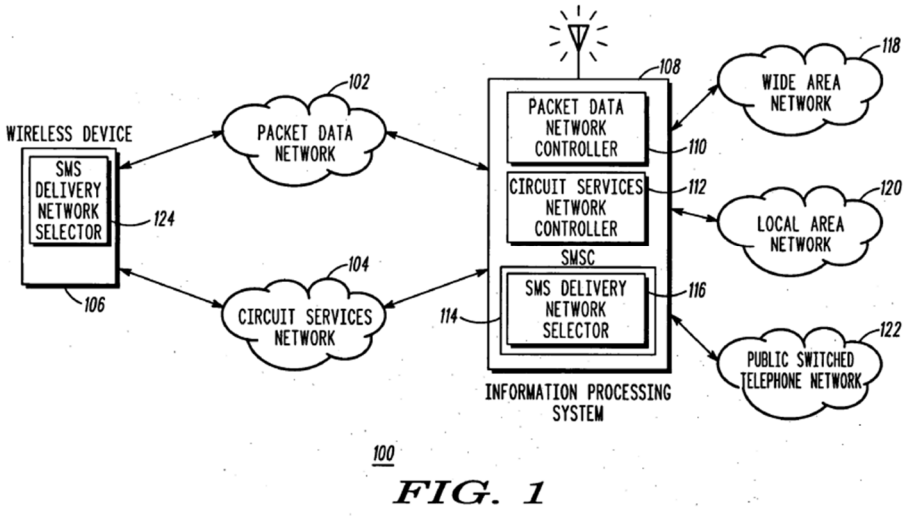


FIG. 1

APPLE-1004, FIG. 1

Horvath's receiving wireless device (***first mobile wireless device***) receives an SMS message from another wireless device (***second mobile wireless device***) via

either the "packet data network" or the "circuit services network." APPLE-1004, [0045]-[0046] (explaining that the "SMS message" can be delivered to the "recipient device through the packet data network"); [0047]-[0048] (explaining that the :"SMS message" can be delivered "to the recipient device through the traditional circuit services network method") [0079]-[0080] (describing an example method for a "Wireless Device Receiving a SMS Message" over either a "packet data network" or a "circuit services network."), FIG. 8; *see also id.* [0002], [0033], [0050], [0062]-[0063], FIGs. 1, 4, 7. The SMS message is formatted according to an SMS format. APPLE-1003, ¶66; APPLE-1004, [0025] ([t]ext messaging standards such as Short Message Service ('SMS')"); *see also* [0002], [0021].

Finally, Horvath teaches that the receiving wireless device (***first mobile wireless device***) can receive an SMS message ***via a mobile operator base station.*** APPLE-1003, ¶67. For example, Horvath explains that both the "packet data network 102" and the "circuit services network 104" can be operated over cellular and other mobile networks. APPLE-1004, [0024]-[0027] (describing EV-DO, GPRS, UMTS, CDMA, GSM mobile networks); [0029] ("communicatively couples the wireless communications device 106 to … a public switched telephone network 122 through the packet data network 102 and the circuit services network 104"), FIGs. 1-3; *see also id.,* [0002]. A POSITA would have understood and at least found obvious that receiving an SMS message over a cellular network would be received

"via a mobile operator base station." APPLE-1003, ¶67 (citing APPLE-1055, 1 ("base station (BS)[] … acts as a relay of the signals it receives"), 2-5).

[1b]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1b]. APPLE-1003, ¶68. As further described below, the receiving wireless device (***first mobile wireless device***) in the combination subscribes to an instant messaging service (***service for transmitting and receiving packet switched messages***) via the Internet and the mobile operator base station. APPLE-1003, ¶68.

In more detail, Horvath discloses a "session initiation protocol ('SIP') network" that is "used for establishing **instant messaging**." APPLE-1004, [0033], *see also id.* [0025], [0038]-[0039] ("An IMS system also includes application servers that host and execute services for the wireless device 106."). Horvath also describes determining "which application server(s) to forward the SIP message associated with the wireless device 106 so that the services **subscribed** to by the device 106 can be provided." APPLE-1004, [0038], *see also id.* [0031] ("service(s) **subscribed** to by the wireless device 106."), [0039], *see also id.* [0033], [0041], [0050], FIG. 5. "[R]egistration events" are sent to the "SMSC 114, which is acting as an SIP application server." APPLE-1004, [0041]. Horvath describes using a "subscriber profile" as part of the registration/authentication process of the wireless device to determine which application servers "are to be notified that they are to provide

services for the wireless device." *Id. see also id.,* [0050], [0071]-[0073], FIG. 5 (Step 510). A POSITA would have understood or at least found obvious from these disclosures that for a device to "establish[] instant messaging" as described in Horvath, the device would have a corresponding subscription to the IMS core and IM service. APPLE-1003, ¶69 (citing APPLE-1046, [0003], [0027], [0034], [0093], FIG. 2); *see also* APPLE-1007, Table 1 (disclosing various example IM services), p. 5 (describing users of IM services as "subscribers"); APPLE-1050, 1 ("A present and instant messaging system allows users to **subscribe** to each other …").

A POSITA also would have understood based on Horvath's and Chatterjee's teachings that an instant messaging service is a service for transmitting and receiving packet switched messages. APPLE-1003, ¶70; *cf.* APPLE-1001, 1:66-2:1 ('450 Patent admitting that "instant messaging" is performed "via an IP network"). Indeed, Horvath's "SIP network" is a type of packet data network. APPLE-1004, [0024] ("In one embodiment, the packet data network 102 is an Internet Protocol ('IP') connectivity network, which provides data connections at much higher transfer rates then [*sic*] a traditional circuit services network."), [0033]-[0034], [0037] (messages are sent over the SIP network in "**SIP packets**"), [0046]; *see also id.* [0004], [0074]-[0076], FIG. 6; .APPLE-1003, ¶70. Moreover, Chatterjee teaches well-known protocols for IM including SIP/SIMPLE and Jabber/XMPP, both of which enable transmitting and receiving packet switched messages from a wireless

device. APPLE-1007, 1, 7-8 ("the network packet with message Hello! sent from Alice@foobar.com to Bob@foobar.com is represented in Box 1. The network packet was captured on the source machine (Alice's machine) using Ethereal Network Protocol Analyzer available at http://www.ethereal.com. The packet is not an exact illustration of all the details. It just gives an overview of how the information is stored and transferred on the network…."), Boxes 1, 2); APPLE-1003, ¶70.

Finally, Horvath's and Chatterjee's teachings would have rendered obvious subscribing to the IM service "via the Internet and the mobile operator base station." APPLE-1003, ¶71. For example, Horvath expressly teaches that "[t]he **SIP network** is used for establishing **instant messaging**, telephone calls, and other real-time communications **over the Internet**."; *see also* APPLE-1004, [0033]; APPLE-1007, 1, 5, 7-8 (Box 1; Box 2). Because SIP operates on the packet data network 102 for establishing instant messaging over the Internet, a POSITA would have understood or at least found it obvious that subscriptions to the IM service would also be made over the Internet as was common before the Critical Date. APPLE-1007, 4 ("IM systems exist in various Internet communities"), 6 ("interoperate across the Internet"); APPLE-1003, ¶71. Further, Horvath explains that the wireless device can communicate over the packet data network 102 using a cellular or mobile operator network such as EV-DO, GPRS, UMTS, or the like, in which case it would have been obvious that the subscription to the IM service would be made via the

Internet and a mobile operator base station of the network. *Supra* [1a]; APPLE-1004, [0026]-[0027], *see also id.,* [0002].

[1c]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1c]. APPLE-1003, ¶72. As discussed above, Horvath's wireless device 106 (***first mobile wireless device***) in the combination implements Tsampalis's technique for sending a "second mobile wireless communication device messaging format capabilities information request" to determine the second device's messaging capabilities. *Supra* §§IV.A.1.(b)-(c), IV.A.1.(d); APPLE-1005, [0024], [0027], [0042], [0034], [0056]-[0057], FIGs. 6 (step "602"), 7; *see also id.* Title, Abstract, [0001], [0022]-[0024][0029]-[0039] FIGs. 1-2, 5-7, 13). Tsampalis explains that the wireless device generates the "messaging format capabilities information request" by entering a "recipient ID," which is illustrated as being a phone number. APPLE-1005, [0033], FIGs. 3-4 (showing the recipient ID in the phone number format); *see also id.* [0024], [0027], [0031]-[0032], [0034]-[0037], [0039] [0042] (both generation of the request and reception of the response "may be accomplished using the remote messaging format capabilities determinator circuitry 208" or "other suitable circuitry"); [0046]; [0056]-[0060] ("request and retrieve the second mobile wireless communication device messaging format capabilities information 110," "a second mobile wireless communication device messaging format request 226," "new

capabilities signal one 1326 [including] at least the second mobile wireless communication device messaging format capabilities information 110"), FIGS. 6 (below, step 602), 13-15.

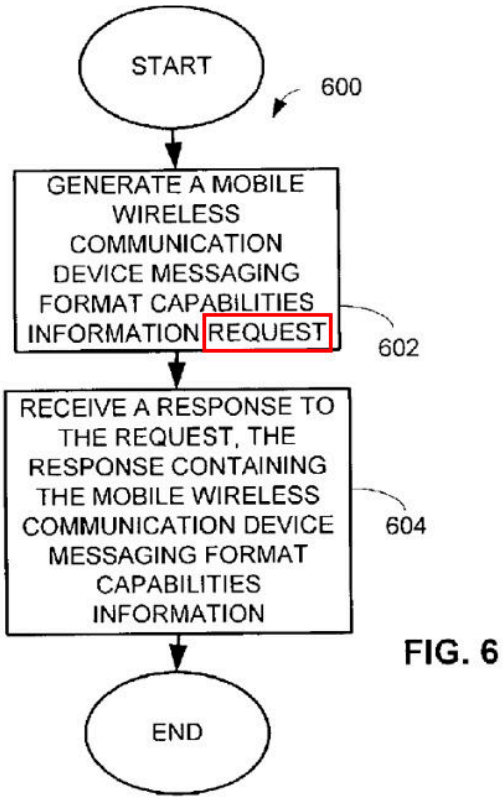


FIG. 6

APPLE-1005, FIG. 6 (annotated)

As explained above in the overview of the Horvath-Tsampalis-Chatterjee combination, it would have been obvious to implement Tsampalis's messaging format capabilities information request, which includes information corresponding to a phone number of the recipient (e.g., second mobile wireless device), to determine whether the second mobile wireless device is also subscribed to the instant messaging service, and hence to determine whether the second mobile wireless

device corresponds to a subscriber of the service." APPLE-1003, ¶73; *supra* §IV.A.1(d); *infra*, [1d]. As discussed above in [1b] (and below in [1d]), and explained by Dr. Traynor, a POSITA would have understood or at least found obvious that capabilities information for a second device indicating that a device is capable of receiving and processing IMs would have also served as an indication that the device corresponds to a subscriber of the IM service (i.e., a service for transmitting/receiving packet switched messages) since receiving/processing IMs requires an IM subscription. APPLE-1003, ¶73-73A; *supra*, [1b]; *infra*, [1d]. Accordingly, determining whether a target device's messaging format capabilities information includes IM is tantamount to determining whether the device corresponds to a subscriber of an IM service (i.e., a service for receiving an outgoing message on a packet-switched bearer). Requesting a recipient's messaging format capabilities information after the subscribing also would have been obvious because a user of the first mobile wireless device would naturally be interested in the intended recipient's IM capability after subscribing to the IM service, which is when the sender would actually be able to send IMs as a suitable messaging format if the intended recipient was also capable of receiving IMs. APPLE-1003, ¶73.

As another example, Chatterjee discloses that after a user has subscribed to an IM service, the user can use his/her device to transmit a request to subscribe to presence information for a contact. APPLE-1007, 7 ("When users add contacts to

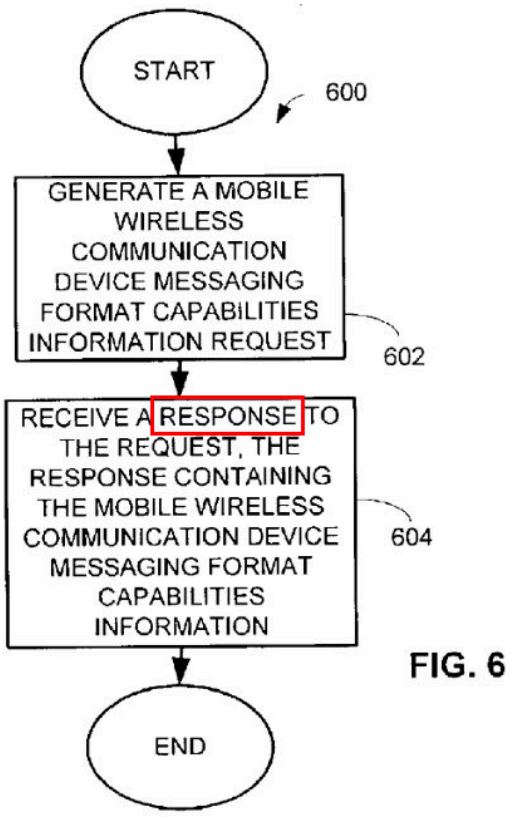
their list, they subscribe to these contacts' presence information. In this case, a watcher sends a SUBSCRIBE request to a PA. Once the subscription has been made, any change to the contact's presence information is conveyed to the user who added the contact. This is done by transferring a NOTIFY message using SIP from PA to watcher [15].”), 8 (“A contact in the roster item indicates that the user has subscribed to the contact's presence information.”), Table 2 (showing functionality is implemented in both SIP/SIMPLE and Jabber/XMPP); APPLE-1003, ¶74; *see also supra* §§IV.A.1.(c)-(d); *infra* [1d]. A POSITA also would have known that conventional IM services like those disclosed in Horvath and Chatterjee allowed users to fetch a contact's current presence status by transmitting requests. APPLE-1007, 5 (“Fetchers pull the value of presence information for a specific presentity.”); APPLE-1003, ¶74 (citing APPLE-1050 (“A special kind of FETCHER is one that fetches information on a regular basis. This is called a POLLER.”); APPLE-1053, 11 (“Each transaction consists of a request …”)). The contact can be identified in the request by a phone number of the contact's mobile device (e.g., the second mobile wireless device), for example. APPLE-1003, ¶74; APPLE-1004, [0035] (“A tel-URI, for example is the telephone number assigned to the wireless device 106.”); APPLE-1005, [0031]-[0033], [0042], FIGs. 3 and 6 (disclosing requests for capabilities information including “recipient IDs” as phone numbers). A request for presence information for a contact in this context renders obvious a type of request

to determine whether the second mobile wireless device corresponds to a subscriber of the IM service at least because the contact would not be present on the IM service if the contact were not a subscriber. APPLE-1004, [0035] (explaining that "subscription related information" for authorized users must be stored), [0038] ("services subscribed to by the device 106"); APPLE-1003, ¶74. Thus, an indication that the contact is present would indicate that the contact has subscribed to the IM service. *Id.* Furthermore, a POSITA would have known or at least found obvious that presence indications that a user is not available can also indicate that a user is not subscribed, for example, due to expiration of the contact's registration or subscription, deactivation of the subscriber, or due to the subscriber affirmatively deregistering and unsubscribing. APPLE-10004, ¶74 (citing APPLE-1048, 9). In fact, Chatterjee explains that "subscribed" and "unsubscribed" were two known present status indicators. APPLE-1007, 8.

[1d]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1d]. APPLE-1003, ¶75. For example, Tsampalis discloses receiving a response to the "messaging format capabilities request," discussed above. *See supra* [1c]; *see also* APPLE-1005, [0024], [0027], [0034], [0042]-[0043], [0056]-[0057], FIGs. 6 (below step 604), 7, 13. Tsampalis explains that this response "contains the second mobile

wireless communication device messaging format capabilities information." APPLE-1005, [0042]-[0043], *see also id.* [0022]-[0024], [0027].



APPLE-1005, FIG. 6 (annotated)

As discussed above, it would have been obvious that the response's "messaging format capabilities information" for the second device would indicate whether the second wireless device corresponds to a subscriber of the instant messaging service (i.e., a service for transmitting and receiving packet switched messages). APPLE-1003, ¶¶73-73A, 76, 69; *supra*, §IV.A.1.(d). For example, based on Tsampalis's teachings, a POSITA would have understood and found obvious that the wireless device in the Horvath-Tsampalis-Chatterjee system

determines whether the destination address (*e.g.*, phone number) of the intended recipient of an outgoing message is a subscriber of the IM service (*i.e.,* ***to determine whether the second mobile wireless device corresponds to a subscriber of the service***) by checking whether IM is an available message format for the intended recipient as indicated by the recipient's messaging format capabilities information. *Id.*; *Supra* §§IV.A.1(c); IV.A.1(d). Because a wireless device subscribes to an IM service to receive IM messages, it would have been apparent or at least obvious to a POSITA that the transmitting wireless device in the Horvath-Tsampalis-Chatterjee combination determines whether the destination address (*e.g.*, phone number) of the intended recipient of an outgoing message is a subscriber of an IM service when it checks whether IM is an available message format for the intended recipient as indicated by the recipient's messaging format capabilities information, consistent with Tsampalis's teachings. APPLE-1005, [0022]-[0025], [0041], [0056]-[0065], FIGS. 5-6, 13; *supra*, §IV.A.1(c); APPLE-1003, ¶76.

It also would have been obvious for the first mobile device to receive a response to a request for the presence information of a contact associated with the second mobile wireless device that indicates whether the second device corresponds to a subscriber of the IM service, as discussed above in connection with [1c]. *Supra*, [1c]; APPLE-1007, 7 ("Once the subscription has been made,

any change to the contact's presence information is conveyed to the user who added the contact. This is done by transferring a NOTIFY message using SIP from PA to watcher [15].”), 8 (“A contact in the roster item indicates that the user has subscribed to the contact's presence information.”), 8 (“subscribed,” “unsubscribed” presence indicators), Table 2; APPLE-1003, ¶77 (citing APPLE-1050, 14 (“notify it immediately of changes in the PRESENCE INFORMATION”), 3 (“fetches [presence] information on a regular basis”)).

[1e]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1e]. APPLE-1003, ¶78. For example, Tsampalis discloses that a first mobile wireless device, “using the messaging format capabilities information, then send[s] a message to a target mobile wireless communication device in a format that can be processed by the target mobile wireless communication device.” APPLE-1005, [0022]; *see also id.*, [0025] (“sends message 112, in a format identified in the second mobile wireless communication device messaging format capabilities information 110”), [0041], FIG. 5 (504), FIG. 8 (504), FIG. 9 (504). In the combination, which integrates an IM service as taught in Horvath and Chatterjee, it would have been obvious based on Tsampalis to configure the first mobile wireless device to format messages in accordance with the recipient device's capabilities. *Id.*; *supra*, §IV.A.1.(d); APPLE-1003, ¶78. Thus, the first mobile wireless device would format

the second message as an instant message, based on the intended recipient device's messaging format capabilities information (***response***) indicating that the second device is capable of receiving instant messages as a subscriber of an IM service. *Id.* For example, if the intended recipient is able to receive IMs, it would have been obvious that the sender would often prefer to send IMs as opposed to other message formats due to the comparatively lower cost of transmitting messages over packet data networks and the ability to achieve real-time communications through instant messaging. APPLE-1003, ¶78. Similarly, if presence information (an alternative mapping of "***response***") returned to the first mobile wireless device indicates that the intended recipient of the second message is currently active on the IM service, it would have been obvious to format the second message as an IM for similar reasons, including to establish real-time communications with the intended recipient while the intended recipient is presently available to receive IMs. *Id.*

Finally, it would have been obvious to a POSITA to format the second message as an IM in accordance with the IM message format of the IM service *subsequent to the subscribing* because subscribing to the IM service would be an ordinary predicate to sending the message as an IM over the IM service. APPLE-1003, ¶79; *supra*, [1b]. A wireless device would not ordinarily format a message according to a service it is not capable of using to the send the message when it is not subscribed. APPLE 1003 ¶79; *supra*, §IV.A.1.(c)-(d).

[1f]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1f]. APPLE-1003, ¶80. As discussed above, the second message is formatted according to an IM format as taught in Horvath and Chatterjee. *Supra* [1e]; *see also supra* §§IV.A.1.(c)-(d). The various IM formats disclosed in Chatterjee include SIP/SIMPLE and Jabber/XXMP, for example, which are plainly not SMS/MMS/EMS message formats. APPLE-1003, ¶80.

[1g]

The Horvath-Tsampalis-Chatterjee combination renders obvious [1g]. APPLE-1003, ¶81. To start, Horvath expressly describes a scenario where it would have been obvious for the first message (SMS message) to be received prior to subscribing. In particular, Horvath explains that "[i]f the recipient wireless device is not registered on the packet data network 102, the SMSC 114 delivers the SMS message to the recipient wireless device through the traditional circuit services network method." APPLE-1004, [0047]. As explained above the SIP network/packet data network is "used for establishing instant messaging." APPLE-1004, [0033]. A POSITA would have understood that one reason that the recipient wireless device may not be registered on the packet data network 102 is because the recipient wireless device has not subscribed to services on the packet data network, such as instant messaging or packet-based SMS services. APPLE-1003, ¶81.

Accordingly, it would have been obvious that the SMS message (e.g., the first message) in this scenario would be received prior to the subscribing to the IM service. APPLE-1003, ¶81.

Moreover, a POSITA would have understood that many mobile messaging users receive messages on a frequent basis from a variety of contacts at various times. Indeed, a contact may decide to send a first user a message at any time for any reason. Accordingly, it would have been obvious for the first message to be received by the first mobile wireless device before the subscribing as a predictable and natural consequence of the user of the second mobile wireless device deciding to send the first message at any time before a user of the first mobile wireless device decides to subscribe to the service. APPLE-1003, ¶82.

3. Claim 3

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 3. APPLE-1003, ¶83. As explained above, Horvath's first mobile wireless device formats the second message in an IM format for transmission over Horvath's "packet data network 102." *Supra* [1b], [1f]. Horvath explains that "packet data network 102 is an Internet Protocol ('IP') connectivity network, which provides data connections at much higher transfer rates then [*sic*] a traditional circuit services network," and the "SIP network" on the packet data network 102 is "used for establishing instant messaging…and other real-time communications over the Internet." APPLE-1004,

[0024], [0033]. Horvath explicitly discloses that the packet data network 102 can include "an 802.11 network," commonly known as Wi-Fi (a ***WLAN*** that operates based on the IEEE 802.11 standards). APPLE-1004, [0021], [0024], [0033]-[0034], [0050]; APPLE-1003, ¶83. Accordingly, it would have been obvious that, by formatting the the second message as an IM message, the second message would be formatted for transmission over a WLAN. APPLE-1003, ¶83 (citing APPLE-1009, 3; APPLE-1011; APPLE-1037); *see also* APPLE-1004, [0033]-[0034] ("The wireless device 106 can connect to the IMS network using different methods, which all use standard IP.").

4. Claim 4

The Horvath-Tsampalis-Chatterjee renders obvious Claim 4. APPLE-1003, ¶84. Horvath explains how a wireless device can "deregister" from the IMS core, which as explained below, occurs when the device transmits a deregistration message (*e.g.*, a SIP REGISTER message with Expire=0), thereby leaving the device unable to receive messages on the packet data network. APPLE-1004, [0047], [0053], [0075]. For example, a predictable scenario in which the first mobile wireless device would deregister from the IMS core is when a user of the first mobile wireless device changes to a new handset. APPLE-1003, ¶84. This is because users often register with the IMS core using a phone number, e.g., a phone number associated with the first device, and the user would deregister the phone number of

the first device in favor of registration for a new number associated with the new handset when the handset is changed. *Id.* To this point, a POSITA would have appreciated that IMS users are assigned IMS Public User Identifies (IMPUs) that "are used by any user to request communications to other users. A user might for example include an IMPU … on a business card," and an IMPU can use "telecom numbering" in "the form of a SIP URI … or the 'tel:'-URI format." APPLE-1003, ¶84 (quoting APPLE-1046, [0017]-[0019]); *see also* APPLE-1004, [0035] ("tel-URI, for example is the telephone number assigned to the wireless device 105"); APPLE-1046, [0006]-[0030], FIG. 2. When a user's IMPU is defined according his/her phone number ("telecom numbering"), it would have been obvious that a user would seek to update his/her IMPU upon obtaining a new handset associated with a new phone number so that the IMPU would correspond to the new phone number of the new handset rather than the old phone number of the first wireless device. APPLE-1003, ¶84.

Updating an IMPU involves registering the new IMPU defined by the new phone number and deregistering (also referred to as "unregistering") the IMPU defined by the old phone number. APPLE-1003, ¶85. De/unregistering from an IMS and SIP network conventionally transmission of an unregister message from the user's device (e.g., the first mobile wireless device) to the IMS core, such as a SIP REGISTER message with Expires=0, to indicate that a user of the first mobile

device has changed handsets. APPLE-1003, ¶85 (citing APPLE-1047 ("If expires header is set to be Zero in REGISTER message, it means 'DeREGISTER'."); APPLE-1048, 9 ("The unregistered event occurs when a REGISTER request sets the expiration time of that contact to zero."). A POSITA would have recognized that the transmitted message to de/unregister the phone number of the first device from the IMS represents an indication that subscribers of the service should no longer format messages of the service for the first mobile wireless device. APPLE-1003, ¶85. For instance, by requesting to de/unregister the phone number of the first device, the transmitted message would indicate that subscribers should not format IM messages to be addressed to the IMPU defined by the retired phone number of the first device as the IMS core would automatically notify other subscribers of the de/unregistration of the IMPU associated with the prior device (e.g., the first mobile wireless device). APPLE-1003, ¶85 (citing APPLE-1048, 9 ("a NOTIFY is sent"), FIG. 2 ("unregistered")); APPLE-1004, [0043] ("registration notification"), [0075].

5. Claim 7

The Horvath-Tsampalis-Chatterjee renders obvious Claim 7. APPLE-1003, ¶86. For example, Horvath describes authenticating its wireless devices 106, *e.g.*, through authenticating an identifier such as a phone number of wireless device 106 during registration with the SIP/IMS network. APPLE-1004, FIG. 5 ("S-CSCF authenticates and registers the wireless device" at step 508), [0035] ("The HSS 210

comprises a database including profiles associated with each wireless device 106 registered with the IMS. A profile, for example, includes subscription related information. The **HSS 210 also performs authentication and authorization** of the wireless device 106.…The HSS 210 also includes **information to identify** each registered wireless device 106 such as a telephone uniform resource identifier ('tel-URI') …. A tel-URI, for example is the **telephone number assigned to the wireless device 106**."), [0036], [0040]; APPLE-1003, ¶86 (citing APPLE-1046, [0004] ("IMS authenticates the user")).

In more detail, Horvath explains the SIP registration process for the wireless device 106 with the S-CSCF component of the remote server(s), during which "authentication and authorization" of the wireless device 106, through the database HSS containing "profiles associated with each wireless device 106" identified by *e.g.*, "the telephone number assigned to the wireless device 106," is also performed. APPLE-1004, [0035]-[0036], [0038], [0040]- [0041], [0072]-[0073], [0076], FIGS. 2, 5; *supra*, §IV.A.1(c); APPLE-1003, ¶87.

Through authentication with the remote server(s), wireless device 106 is also authenticated to the instant messaging service (***authenticating…to the service***), which is a service for sending and receiving packet switched messages real time. APPLE-1004, [0033], [0038]-[0039] ("An application server [providing messaging service(s) such as instant messaging] interfaces with the S-CSCF component of the

I, S-CSCF 20S using SIP."), [0041] ("A subscriber profile sent to the S-CSCF includes the filter criteria which are used by the S-CSCF to determine the application servers that are to be notified that they are to provide services for the wireless device 106. In one embodiment, part of the filter criteria includes conditions such that, when the conditions are satisfied, the S-CSCF notifies the SMSC 114 that the wireless device 106 has registered with the packet data network 102…. The SMSC 114 does not have to authenticate the wireless device 106 because the S-CSCF 206 has already done so."), [0073]; APPLE-1007, 4 ("Instant messaging (IM)…enables [message] exchanges in real time"), 7, Boxes 1 & 2; APPLE-1003, ¶88. Horvath's teachings in this regard are consistent with conventional techniques for authenticating users to an IM service by the Critical Date. APPLE-1003, ¶88 (citing APPLE-1043, §3 ("May require authentication" of multiple entities); APPLE-1009); *see also* APPLE-1004, [0033] ("The SIP network is used for establishing instant messaging…and other real-time communications over the Internet."). When the phone number of the first mobile wireless device (e.g., tel-URI) is registered in SIP or other network implementing the IM service, it would have been obvious for that phone number to be authenticated according to Horvath's teachings. APPLE-1004, [0035]; APPLE-1003, ¶88.

Because the first mobile wireless device in the Horvath-Tsampalis-Chatterjee combination transmits the request and receives the response after the subscribing

(*supra*, [1c]-[1d]), and because authentication occurs during the subscribing and subsequent registrations to the network (as described above in the analysis of this claim element and *supra* with respect to [1b]), it would have been obvious that authentication would occur prior to receiving the response. APPLE-1004, [0033], [0035]-[0036], [0038]-[0039], [0040]-[0041], [0072]-[0073], [0076], FIGS. 2, 5, APPLE-1003, ¶89. This would also be obvious to improve security by ensuring the phone number of the first mobile wireless device was properly authenticated before the device requests or obtains messaging format capabilities information or presence information about the second device. APPLE-1003, ¶89.

6. Claim 9

[9pre]-[9g]

Supra, [1pre]-[1g][5]; APPLE-1003, ¶90.

7. Claim 10

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 10. APPLE-1003, ¶91. As discussed above, Tsampalis teaches transmitting a "second mobile wireless communication device messaging format capabilities information

[5] This Petition addresses in the analysis of all corresponding limitations of claim 1 how those limitations are rendered obvious even when performed by the first mobile wireless device, as recited in the preambles of claims 9 and 24.

request" using a recipient ID (e.g., a phone number) for the second user device. *Supra* [1c]-[1d]; §IV.A.1.(b), (d). Likewise, Horvath discusses registering the wireless devices phone numbers to allow the S-CSCF to forward messages to the associated application servers (such as an IM server). APPLE-1004, [0035] ("tel-URI"), [0038]-[0039], [0041], [0073]. Accordingly, both Tsampalis and Horvath describe a system that at the time of transmitting the request, the wireless device would only need a phone number associated with the second wireless device to transmit the request. APPLE-1003, ¶91. As there is no need for the first wireless device to have a separate user name or email address of the second wireless device to transmit the request, it would have been obvious that in many cases the first wireless device would not have these items stored in memory when transmitting the request (e.g., if the user has not yet fully populated an entry in an address book with these items). APPLE-1003, ¶91.

8. Claim 11

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 11. APPLE-1003, ¶92; *supra*, Claim 3.

9. Claim 12

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 12. APPLE-1003, ¶93. As discussed above, Horvath teaches receiving an SMS message

as the first message before subscribing to the IM service. *Supra*, [1a], [1c], [1g]. As also discussed, the combination implements Tsampalis' teachings for sending a "second mobile wireless communication device messaging format capabilities information request," including a phone number corresponding to the second device, to determine the second device's messaging capabilities. APPLE-1005, [0024]-[0025], FIGs. 2-3, 6; *supra* [1c]-[1d]; §IV.A.1.(b). Because the first message is an SMS message that originated from the second mobile wireless device, SMS messages conventionally indicate the phone number of the device that originated the message, and the first mobile wireless device transmits a request that includes information corresponding to the phone number of the second mobile wires device, it would have been obvious to use second device's phone number from the SMS message as the phone number used to send the request per Tsampalis' teachings (or as a tel-URI to send a presence request per Horvath's and Chatterjee's teachings). APPLE-1003, ¶93. This would have been an obvious way to obtain contact information that specifies the second wireless device as the first device has already received a message from the second device containing the second device's phone number. *Id.* It was well known how to retrieve a phone number from an SMS message. APPLE-1003, ¶93 (citing APPLE-1051, [0035] ("When the recipient's phone receives the SMS message, the recipient's phone recognizes that the SMS message includes contact information by analyzing the arrangement of the SMS

message. The recipient's phone automatically prompts the recipient to add the caller's contact information to the recipient's contact information.")).

10. Claim 13

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 13. APPLE-1003, ¶94. For example, Chatterjee describes various IM and presence applications and standards. APPLE-1007, Title ("instant messaging and presence technologies for college campuses"), Abstract ("Presence provides information about users' reachability and willingness to accept/reject a brief chat session"), 4 ("By using presence information, an IM system enables us to search for a specific user, check the user's status, and send short messages."); *see also supra* §§IV.A.1.(c)-(d). A POSITA would have known that "[a] presence and instant messaging system allows users to subscribe to each other and be notified of changes in state," and therefore it would have been understood or at least obvious that presence information would be received by first mobile device after subscribing to the IM service. APPLE-1003, ¶94. It was also well known before the Critical Date to display presence information of other subscribers of an IM service such as the second mobile wireless device, e.g., in a buddy list or message, and a POSITA would have been motivated to implement the first mobile wireless device to display such information to inform a user of the first device of the presence status of the second device and its availability to receive IMs. APPLE-1003, ¶94 (citing APPLE-1052,

[0012] ("display presence information"), FIGs. 3, 6A-6B); APPLE-1010, 8:52-54; APPLE-1019, 9:30-31, APPLE-1020, 1:40-45; APPLE-1016, [0015], [0025]-[0026]).

11. Claim 15

[15pre], [15b]-[15f]

Supra, [1pre], [1b]-[1f]; APPLE-1003, ¶95.

[15a]

The Horvath-Tsampalis-Chatterjee combination renders obvious [15a]. As discussed above, Horvath's wireless device receives can receive messages on a packet data network. *Supra*, [1a]. Horvath also explains that the messages delivered over the packet data network can be formatted according to an MMS format. APPLE-1004, [0025], [0039]. As also explained above, Horvath teaches and renders obvious receipt of messages including MMS messages over a packet data network on *via* ***a mobile operator base station*** (e.g., GPRS)**.** *Supra* [1a]; APPLE-1004, [0024]-[0027], *see also id.,* [0002]; APPLE-1005, [0002]-[0003], [0024], [0026] (Tsampalis further describing receipt of MMS messages by a mobile wireless device); APPLE-1003, ¶96.

[15g]

A POSITA would have found it obvious that the first message formatted as an MMS message would be received prior to the subscribing for the same reasons

as the first message formatted as an SMS message being received before the subscribing as described above with respect to [1g]. *Supra*, [1g], APPLE-1003, ¶97. Indeed, the first mobile wireless device would be capable of receiving an MMS message at any time, including before the subscribing, just as an SMS message. *Id.*

12. Claim 22

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 22 for the reasons described with respect to Claim 4. APPLE-1003, ¶98; *supra*, Claim 4. Additionally, a POSITA would have found it obvious to transmit the message to de/unregister the phone number of the first device from the IMS (***information indicating that subscribers of the service should no longer be formatting messages of the service for the first mobile wireless device***) *via hypertext transfer protocol (HTTP)* because the IMS operates on the Internet, where HTTP is used for request/response interactions between clients and servers, and on a SIP network that uses HTTP-based protocols. APPLE-1003, ¶98 (citing APPLE-1053, §7 ("much of SIP's message and header field syntax is identical to HTTP/1.1")).

13. Claim 24

[24pre], [24b]-[24f]

Supra, [1pre][6], [1b]-[1f]; APPLE-1003, ¶99.

[24a]

Supra, [15a]; APPLE-1003, ¶100.

[24g]

Supra, [15g]; APPLE-1003, ¶101.

14. Claim 26

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 26. APPLE-1003, ¶102; *supra* Claim 10.

15. Claim 27

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 27. APPLE-1003, ¶103. For example, Horvath discloses that "the wireless device 106 registers with the IMS network," and that the registered information can include "a telephone uniform resource identifier ('tel-URI') and/or a SIP uniform resource identifier ('SIP-URI'). APPLE-1004, [0034]-[0035]. Chatterjee further discloses that each user of the service is associated with a user name, and the user names can be in the form of an e-mail address. APPLE-1007, 7-8 ("Alice@foobar.com,"

[6] This Petition addresses in the analysis of all corresponding limitations of claim 1 how those limitations are rendered obvious even when performed by the first mobile wireless device, as recited in the preamble of claim 24.

"Bob@foobar.com") Box 1, Box 2. A POSITA would have understood or at least found obvious that the user names or email addresses for the IM service would be registered with the service to permit later authentication or recognition of particular users, e.g., by maintaining the user names or email addresses in a home subscriber server or similar database of registered information. APPLE-1004, [0035] ("HSS 210 comprises a database …"); APPLE-1007, 7 ("Each of these SIMPLE components registers with the SIMPLE provider to send and receive messages" over the IM servers.); APPLE-1003, ¶103.

16. Claim 28

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 28. APPLE-1003, ¶104. When the second receiving mobile device is capable of receiving IMs, the second device would be authenticated on the IM service. APPLE-1003, ¶104. For example, Chatterjee explains that in the SIMPLE IM service, "[e]ach of the[] SIMPLE components registers with the SIMPLE provider to send and receive messages." APPLE-1007, 7. Horvath further teaches that an IMS core that implements an IM service includes a P-CSCF 206 that "authenticates" wireless devices to the network. APPLE-1004, [0036], [0072]; *see also id.*, [0033] ("The SIP network is used for establishing instant messaging[] …"), FIG. 5 (508). Because a mobile device first authenticates to access applications and services (e.g., instant messaging) on the network as taught in Horvath, an indication received by the first

mobile wireless device that the second mobile wireless device is on the IM service would indicate that the second device is authenticated to the service. APPLE-1003, ¶104. For example, as Chatterjee teaches, a presence watcher on a first mobile wireless device can receive an indication from a presence agent that a second device is currently active/available to receive IMs. APPLE-1007, p. 7, FIGS. 1-2. The received active/available presence information indicates that the second device is active/available, which means that the second device has authenticated with the service. *Id.*; APPLE-1003, ¶104.

17. Claim 29

The Horvath-Tsampalis-Chatterjee combination renders obvious Claim 29. APPLE-1003, ¶105; *supra*, Claims 4, 22.

B. GROUND 1B – The Horvath-Tsampalis- Chatterjee-Kansal Combination Renders Obvious Claims 6, 8, 17-18, 21, 23, and 25

1. Prior Art and Proposed Combination

(a) Kansal (APPLE-1042)

Kansal describes mobile messaging services for sending and receiving messages of different formats. APPLE-1042, Abstract, [0009], [0035] ("an IM application," "an SMS application," and "an MMS application"). Kansal describes arranging and correlating received messages of different types with a particular recipient. APPLE-1042, [0009]; [0040]-[0043]; [0066]-[0069]. The wireless device

can display a "messaging user interface" that "display[s] a messaging thread comprising correlated messages of different message types." APPLE-1042, [0009], [0045]-[0046], [0054]-[0056], [0062]-[0064], [0070], [0077]-[0078], FIGs. 2-3 (shown below). APPLE-1003, ¶38.

FIG. 2

APPLE-1042, FIG. 2

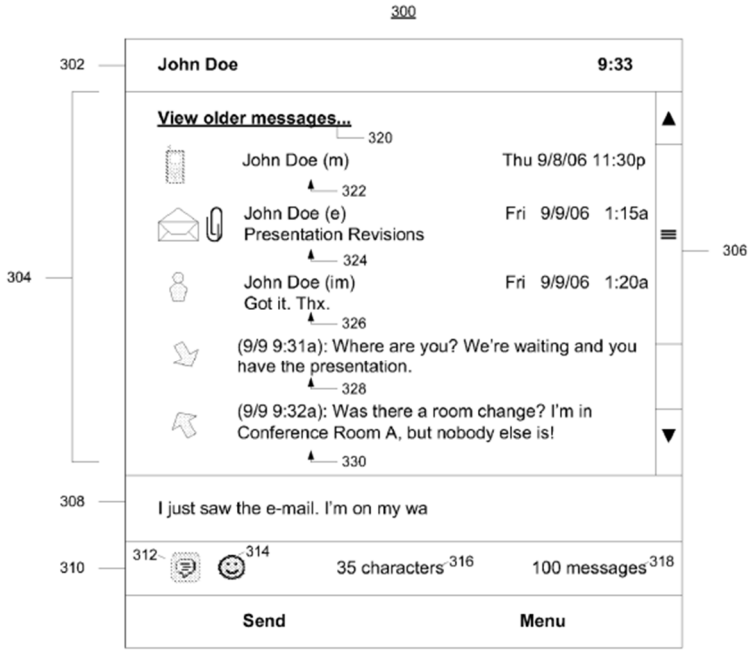


FIG. 3

APPLE-1042, FIG. 3

(b) The Horvath-Tsampalis-Chatterjee-Kansal Combination

As discussed above, the Horvath-Tsampalis- Chatterjee combination provides a wireless mobile device capable of messaging using different messaging services including, SMS, MMS, and IM. *Supra*, §IV.A.1. It would have been obvious to apply Kansal's suggestion for a messaging UI to display messages formatted according to these different formats within a single application UI. APPLE-1003, ¶106. In fact, multiple reasons would have prompted a POSITA to implement this combination. APPLE-1003, ¶106.

First, a POSITA would have been motivated to apply Kansal's suggested user interface to the wireless device in the resulting combination to improve the user's experience with mobile messaging services involving messages of different types (e.g., SMS, MMS, IM). APPLE-1003, ¶107. This would have predictably achieved Kansal's stated goals to meet the "need for an improved apparatus and methods for providing enhanced mobile messaging services. APPLE-1042, [0002]. For example, correlating messages in a manner that allows a user to view all messages of various types with a particular user at a glance in a single thread would be advantageous in allowing a user to see all messages sent to particular recipients or received from particular senders within a single interface without needing to navigate to different messaging applications or interfaces for each different message type. APPLE-1003, ¶107; APPLE-1042, [0009]; [0045]-[0046]; [0054]-[0056]; [0062]-[0064]; [0070]; [0077]-[0078]. FIGs. 2-3.

Second, providing a single thread of messages would have predictably improved the user interface by providing additional contextual information for a user of the wireless device. APPLE-1003, ¶108. For example, Kansal explains that the thread can be "sorted in various ways such as by time of receipt." APPLE-1042, [0049]; *see* FIGs. 2-3. In addition to improving the user experience (as described in the first reason), Kansal's UI suggestions would provide additional contextual information that would otherwise not be readily conveyed. For example, as shown

in FIG. 3 of Kansal, the chronologically ordered communication events (e.g., missed call at 218 and urgent email request at 216) would beneficially provide additional context for the later received text message (e.g., at 214). APPLE-1042, FIG. 3; APPLE-1003, ¶108. As another example, the same user interface in FIG. 3 includes a "message count 208" indicating the number of messages and unread items across services. APPLE-1042, [0048]; APPLE-1003, ¶108. A POSITA would have sought to implement Kansal's user interface to provide this additional contextual information to a user. APPLE-1003, ¶108.

Third, Kansal's techniques are fully compatible with the types of messaging formats disclosed in each of Horvath, Tsampalis, and Chatterjee (e.g., SMS, MMS, IM), and these formats are expressly identified in Kansal as services that can be integrated within its messaging interface. *See supra* §§IV.A.1.(a)-(b), (d); IV.B.1.(a); APPLE-1003, ¶109. Applying Kansal's suggestion for a unified messaging interface for each of these services in the context of references with the same services to obtain a substantially similar result would have been obvious as a matter of law. *KSR*, 550 U.S. at 417 (2007); *Intel*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023). APPLE-1003, ¶109. A POSITA would have reasonably expected success implementing the combination as the messaging and communication protocols involved were all well known before the Critical Date. *Id.*

2. Claim 6

The Horvath-Tsampalis-Chatterjee-Kansal combination renders obvious Claim 6. APPLE-1003, ¶110. As discussed above, the combination implements Kansal's messaging user interface, which displays a message thread of various types including "MMS messages" and "IM messages" within a single interface at the mobile wireless device. APPLE-1042, [0046]; *see also id.*, [0009]; [0045]-[0046]; [0054]-[0056]; [0062]-[0064]; [0070]; [0077]-[0078]. FIGs. 2, 3 (shown below); APPLE-1003, ¶110. For example, the message thread 304 "includes a message 326 comprising a sent IM message" (***second message***) and other types of messages that can include "MMS messages" as well. APPLE-1042, [0062]-[0064], [0046].

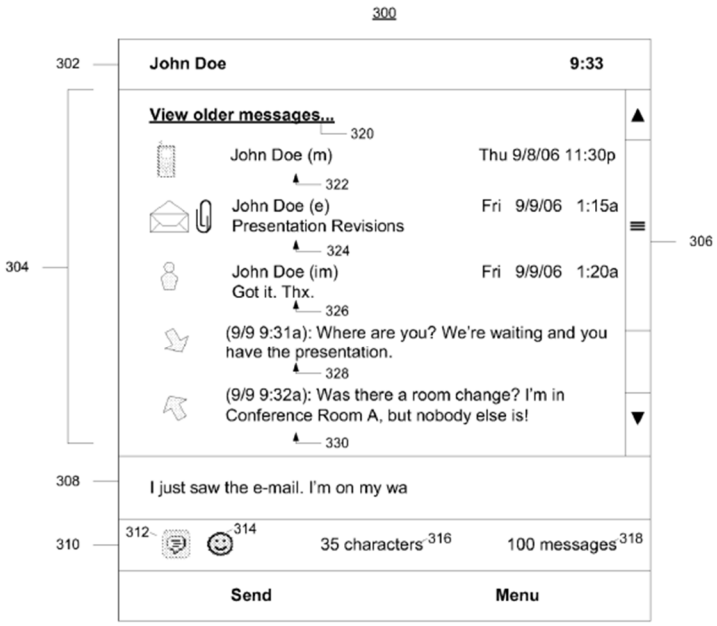


FIG. 3

APPLE-1042, FIG. 3

3. Claim 8

The Horvath-Tsampalis-Chatterjee-Kansal combination renders obvious Claim 6. APPLE-1003, ¶111. For example, the combination incorporates Horvath's and Chatterjee's teachings for implementing an instant messaging service. *Supra* §IV.A.1(a), (c)-(d). Chatterjee explains that the IM service "is more media-rich" because it can be used to deliver "deliver voice, video, and data together." APPLE-1007, 8, 11 ("integrated voice, video, and data services in IM systems."). These teachings are supplemented by Kansal's express disclosure for including a selectable menu item to "Record Sound" as an option to add a voice recording attachment to a message. APPLE-1042, [0073], FIG. 5; *see also id.*, [0074]-[0078] ("add media"), [0060], FIG. 3 (314). The "messaging UI 500" can be a "unified messaging UI" for "messages of different types of formats." *Id.*, [0077]-[0078]. Like Chatterjee, Kansal explains that the message (e.g., the message with the voice recording attachment) can be an IM message. APPLE-1042, [0078] ("the user may compose a message in one format (e.g., SMS) and then convert or send the message in another format (e.g., MMS, e-mail, IM, etc.)"); *see also id.* [0045] ("the messaging UI used to display the message thread generally may be supported by a particular messaging application such as … IM application 135"). [0064] ("using various types of messages"); [0071] ("the embodiments, however, are not limited in [the SMS] context.").

Kansal explains that "the messaging UI 500 may automatically or seamless convert" between messaging formats based on whether a user has attached a media file to the message. APPLE-1042, [0077]-[0078]. However, Kansal's ability to seamlessly convert messaging formats assumes that the user currently subscribes to a messaging service having a messaging format capable of handling multimedia attachments (e.g., MMS, IM). Before the user subscribes to the IM service, if the user were only subscribed to SMS, the voice recording or other media file could not be attached to an SMS message. APPLE-1005, [0062]; APPLE-1042, [0077]. In this context, it would have been obvious not to provide the option to add to the SMS message a voice attachment (Sound Recording) before the user subscribes to the IM service or other service capable of handling media attachments. APPLE-1003, ¶112. For example, Tsampalis discloses techniques for blocking attachments on messages transmitted to devices having limited messaging capabilities. APPLE-1005, [0062]. The teachings of Tsampalis, as applied in the combination, thus renders obvious the features recited in claim 8. Moreover, under a narrower interpretation, a POSITA still would have recognized that the options of (i) permitting the attachment of a media file (e.g., voice attachment) during message composition that would be removed before sending (e.g., sending as an SMS message), or (ii) preventing the attachment of a media file during message composition in the first instance would be a matter of obvious design choice. APPLE-1003, ¶112. For example, a POSITA

would have chosen the latter option in at least some cases to provide an earlier indication to the user that the message will not be able to be sent with a voice attachment. *Id.* A POSITA would have desired to restrict attachments during message composition if either the sender or receiver had limited messaging capabilities since the attachments could not be delivered in either case. *Id.* Thus, it would have been obvious to provide the option of adding a voice attachment after subscribing to the IM service, and not to provide that option before the subscribing. *Id.* In fact, imposing restrictions/constraints on message attachments was well known before the Critical Date. APPLE-1003, ¶112 (citing APPLE-1054, [0011] ("attachment constraints can be specified"), [0022]-[0025]).

4. Claim 17

The Horvath-Tsampalis-Chatterjee-Kansal combination renders obvious Claim 17. APPLE-1003, ¶113. For example, Kansal discloses a "contact database 142" that stores contact records for wireless devices (e.g., including a contact record associated with a "***third mobile wireless device***."). APPLE-1042, [0037]-[0038]. The contact record can include "identifying information such as … e-mail address" and "IM screen names." *Id.* That a contact record for a single contact can include both an e-mail address and IM screen name would have indicated or at least rendered obvious to a POSITA that the contact (*e.g.*, a third subscriber) can have an email

address corresponding to a third mobile device that is also a subscriber to the IM service. APPLE-1003, ¶113; *see also* APPLE-1042, [0042], [0051]; APPLE-1005, [0041], [0060]-[0064], FIGs. 5, 16.

5. Claim 18

The Horvath-Tsampalis-Chatterjee-Kansal combination renders obvious Claim 18. APPLE-1003, ¶114. As discussed, both the claimed "second mobile wireless device" and "third mobile wireless device" can be subscribers to the service. *Supra*, Ground 1A at [1d]-[1f], Ground 1B at Claim 17. Accordingly, it would have been obvious to transmit IM messages to both the second and third devices from the first device using an IM service like that described in Horvath, Chatterjee, and Kansal. For example, Tsampalis explicitly teaches that a message can be sent to multiple users who are subscribers to a particular service. APPLE-1005, [0061]-[0063] ("multiple remote recipients"), FIG. 16; *see also* APPLE-1007, 4, 8.

6. Claim 21

[21a]

The Horvath-Tsampalis-Chatterjee-Kansal combination renders obvious Element [21a] for similar reasons to those described above with respect to Claim 6. APPLE-1003, ¶115; *supra*, Claim 6. As discussed above, the combination implements Kansal's messaging user interface, which displays a message thread of

various types including "SMS messages" and "IM messages" (*i.e.,* the claimed "second message") within a single interface at the mobile wireless device. APPLE-1042, [0046]; *see also id.*, [0009]; [0045]-[0046]; [0054]-[0056]; [0062]-[0064]; [0070]; [0077]-[0078]. FIGs. 2-3; APPLE-1003, ¶115.

[21b]

The Horvath-Tsampalis-Chatterjee combination renders obvious Element [21b] for the reasons described above with respect to Claim 8. APPLE-1003, ¶116; *supra*, Claim 8.

7. Claim 23

The Horvath-Tsampalis-Chatterjee-Kansal combination provides the additional features recited in Claim 23 for the same reasons described above with respect to Claim 8 that it would have been obvious to display an option to add attachments (e.g., a voice attachment). APPLE-1003, ¶117; *supra*, Claim 8, [1d]. For example, it would have been obvious to restrict the ability to add attachments to a message if the response indicates that the intended recipient of the message has limited messaging capabilities and cannot receive message formats (e.g., IM) that support attachments. APPLE-1005, [0062] (attachments "will be lost"); APPLE-1042, [0077]-[0078]; APPLE-1003, ¶117.

8. Claim 25

[25pre]-[25a]

Supra, Claim 3; APPLE-1003, ¶118.

[25b]-[25c]

Supra, Claim 8; APPLE-1003, ¶119.

C. GROUND 1C – The Horvath-Tsampalis-Chatterjee-Ribaudo Combination Renders Obvious Claims 2 and 16

1. Prior Art and Proposed Combination

(a) Ribaudo (APPLE-1044)

Ribaudo describes techniques for providing a messaging communication connection between mobile devices based on a proximity determination. APPLE-1044, Title, Abstract, [0079]. Ribaudo describes using the same XMPP messaging and presence protocol discussed in Chatterjee to provide a "decentralized" instant messaging between devices. APPLE-1044, [0079], [0140], [0170], [0220]. Ribaudo explains that the instant "messaging connection" between devices can use "BLUETOOTH." APPLE-1044, [0079]; *see also* [0066] ("BLUETOOTH-enabled mobile devices 12 on the same personal area network."). APPLE-1003, ¶39.

(b) The Horvath-Tsampalis-Chatterjee-Ribaudo Combination

As discussed above, the Horvath-Tsampalis- Chatterjee combination provides a wireless mobile device with various messaging services including, SMS, MMS, and IM. *Supra*, §IV.A.1.(d). It would have been obvious to further integrate in the combination Ribaudo's teaching for transmitting IM messages directly over

Bluetooth when the first device and second device are in sufficient proximity of each other. APPLE-1003, ¶120. In fact, multiple reasons would have prompted a POSITA to implement this combination. APPLE-1003, ¶120.

First, a POSITA would have been motivated to incorporate Ribaudo's teachings teaching for transmitting IM messages over Bluetooth because doing so would beneficially reduce the load and unnecessary overhead on the packet switched network by diverting IM messages from the packet switched network when the devices are in proximity to establish a Bluetooth connection. APPLE-1004, [0004], [0009]; APPLE-1003, ¶121.

Second, a POSITA would have been motivated to incorporate Ribaudo's teachings for transmitting IM messages over Bluetooth to beneficially provide messaging capability for wireless devices in situations where the devices are unable to access a cellular and/or Wi-Fi/WLAN network. APPLE-1003, ¶122. Moreover, because Bluetooth provides a direct P2P connection, it often facilitates higher data transmission speeds and lower latency than transmission over remote networks. *Id.*

Third, Chatterjee describes instant messaging services using the same well known XMPP protocol that Ribaudo implements for establishing a proximity based instant messaging connection. *See supra* §§IV.A.1.(c); IV.C.1.(a); APPLE-1003, ¶123.

Fourth, applying Ribaudo technique involving the same IM protocol disclosed in Chatterjee's to achieve nothing more than predictable results would have been obvious as a matter of law. *KSR*, 550 U.S. at 417 (2007); *Intel*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023). A POSITA would have reasonably expected success implementing the combination as the messaging and communication protocols involved were all well known before the Critical Date. APPLE-1003, ¶124.

2. Claims 2, 16

The Horvath-Tsampalis-Chatterjee-Ribaudo combination renders obvious Claims 2, 16. APPLE-1003, ¶125. For example, as discussed above, the combination integrates Ribaudo's teachings for providing instant messaging between devices over a "BLUETOOTH" connection. APPLE-1044, [0079]; *see supra* §§IV.C.1(a)-b. This includes formatting the instant message (*i.e.,* the claimed "second message") for transmission over Bluetooth (*i.e.,* the claimed "wireless personal area network (WPAN)"). *Id. see also id.* [0066]; APPLE-1003, ¶125.

D. GROUND 1D – The Horvath-Tsampalis-Chatterjee-BenYoseph Combination Renders Obvious Claim 5

1. Prior Art and Proposed Combination

(a) BenYoseph (APPLE-1049)

BenYoseph describes techniques for "providing a set of bulk sender behavior policies and monitoring compliance by a bulk message sender with the set of

policies." EX1049, Abstract. "The bulk sender behavior policies may include a requirement that the bulk sender … not send more than a predetermined amount of digital communications that are returned to the bulk message sender as undeliverable over a predetermined time interval" and "accept more than a predetermined amount of digital communications that are returned to the bulk message sender as undeliverable over a predetermined time interval." *Id.*, 2:15-35. "The bulk sender behavior policies may further include a requirement that the bulk message sender not send future e-mails to an e-mail address of a recipient if an e-mail sent to the e-mail address is designated as undeliverable to a permanent delivery failure." *Id.*, 2:36-58, 7:47-58, 11:15-33 ("mailbox … may be full and unable to accept more emails"), 32:14-40; *generally id.*, 4:31-6:9; APPLE-1003, ¶40.

(b) The Horvath-Tsampalis-Chatterjee-BenYoseph Combination

It would have been obvious to further modify the Horvath-Tsampalis-Chatterjee combination as described in Ground 1A by integrating BenYoseph's suggested policies that forbid a sender from sending more than a predetermined amount of messages returned as undeliverable and that require a sender to accept more than a predetermined amount of undeliverable messages. *Supra*, §§IV.A.1.(d), IV.D.1.(a); APPLE-1003, ¶126. Multiple reasons would have prompted a POSITA to implement this combination. APPLE-1003, ¶126.

First, a POSITA would have implemented BenYoseph's suggested techniques in the combination to permit a sending device to send bulk messages while ensuring that the sender acts responsibly and does not overload the system with undeliverable messages. APPLE-1049, 14:44-53 ("does not overload"); APPLE-1003, ¶127.

Second, a POSITA would have implemented BenYoseph's suggested techniques in the combination to provide a framework by which messages from a compliant sending device can be differentiated from messages from non-compliant senders or from messages of a different type (e.g., non-bulk messages). APPLE-1049, 4:31-6:9; APPLE-1003, ¶128.

Third, applying BenYoseph's suggested techniques in the combination would have achieved merely predictable results and would have been obvious as a matter of law. *KSR*, 550 U.S. at 417 (2007); *Intel*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023). Like the Horvath-Tsampalis-Chatterjee system described in Ground 1A, BenYoseph's techniques are specifically applicable to instant messaging, confirming that the techniques are entirely compatible. APPLE-1049, 5:65-6:9 APPLE-1003, ¶129. A POSITA would have reasonably expected success implementing the combination as the messaging and communication protocols involved were all well known before the Critical Date. *Id.*

2. Claim 5

BenYoseph teaches policies that forbid a sender from sending more than a predetermined amount of instant messages returned as undeliverable and that require a sender to accept more than a predetermined amount of undeliverable instant messages. APPLE-1049, 2:15-58, 5:65-6:9, 7:47-58, 11:15-33, 32:14-40. As applied in the combination, the first mobile device predictably formats the second message as an instant message based at least in part on an indication that it is compliant with BenYoseph's undeliverable message policies (***a status indicating that an undelivered message parameter has not been exceeded***). *Supra*, §IV.D.1.(a)-(b); APPLE-1003, ¶130.

E. GROUND 1E – The Horvath-Tsampalis-Chatterjee- Lin Combination Renders Obvious Claims 14, 19-20, and 30

1. Prior Art and Proposed Combination

(a) Lin (APPLE-1045)

Lin discloses "a method for establishing a real-time session-based IM system or data exchange system between mobile devices over a digital mobile network system that supports data packet-based communications." APPLE-1045, [0006]. As part of Lin's method, "[t]he initiating mobile device [] transmits its IP address, including its TCP port number, the user's personal conference number and the user's PIN (to authenticate the user as the moderator) in an SMS text message to [a]

telephone number of [a] server 420." *Id.*, [0017], FIG. 4; *see also id.*, Abstract, [0014]-[0016], FIGs.2-3; APPLE-1003, ¶41.

(b) The Horvath-Tsampalis-Chatterjee-Lin Combination

It would have been obvious to further modify the Horvath-Tsampalis-Chatterjee combination as described in Ground 1A by integrating Lin's suggested techniques for establishing real-time instant messaging sessions between mobile devices by sending SMS messages to invite participants to join the IM session and by sending an SMS message to authenticate with an IM server. *Supra*, §§IV.A.1.(d), IV.E.1.(a); APPLE-1003, ¶131. Multiple reasons would have prompted a POSITA to implement this combination. APPLE-1003, ¶131.

First, a POSITA would have implemented Lin's suggested techniques in the combination to provide a convenient method for mobile devices to readily initiate and join instant messaging sessions—even when the users are not all initially logged into a same IM service. APPLE-1045, [0003], [0006]; APPLE-1003, ¶132.

Second, a POSITA would have implemented Lin's suggested techniques in the combination because Lin explains that its server-based architecture for mobile IM is more efficient than P2P architectures for more than two devices, while also allowing mobile devices to join the IM session from outside a private network. APPLE-1045,[0005]-[0006]; APPLE-1003, ¶133.

Third, a POSITA would have implemented Lin's suggested techniques in the combination because it would allow a mobile device initiating an IM session to securely authenticate with a server as a moderator using a commonly available messaging format (SMS), thereby improving security and convenience. APPLE-1045, [0017]; APPLE-1003, ¶134.

Fourth, applying Lin's suggested techniques in the combination would have achieved merely predictable results and would have been obvious as a matter of law. *KSR*, 550 U.S. at 417 (2007); *Intel*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023). Like the Horvath-Tsampalis-Chatterjee system described in Ground 1A, Lin's techniques are specifically applicable to instant messaging and would have been entirely compatible. APPLE-1045, Abstract, [0006]; APPLE-1003, ¶135. A POSITA would have reasonably expected success implementing the combination as the messaging and communication protocols involved were all well known before the Critical Date. *Id.*

2. Claim 14

The Horvath-Tsampalis-Chatterjee-Lin combination renders obvious Claim 14. APPLE-1003, ¶136. For example, based on Lin's teachings, to initiate or join an IM session, the first mobile wireless device receives "through an offline process (e.g., email, phone call, letter, etc.), … a phone number associated with the server (e.g., a toll-free number), a personal conference number, and a PIN." APPLE-

1045, [0018]-[0019], FIG. 4. The server's phone number is a "unique identification number … that may be used by the mobile devices to contact the server through the page-mode messaging service (e.g., SMS)." *Id.*, [0018]. When the first mobile device receives the server's unique identification number by a phone call or other over-the-air (OTA) process (e.g., SMS, mobile email), it receives an OTA configuration message that includes at least one parameter (e.g., the unique identification number of the server) for establishing a server connection with a server of the IM service. *Id.*; APPLE-1003, ¶136.

3. Claims 19-20, 30

The Horvath-Tsampalis-Chatterjee-Lin combination renders obvious Claims 19, 20, and 30. APPLE-1003, ¶137. For example, as applied in the combination, Lin discloses a first mobile wireless device that initiates an instant messaging session by performing operations that include transmitting an SMS message for authentication to the IM service such that the first mobile wireless device is authenticated to the IM service via SMS. APPLE-1045, [0017] ("The initiating mobile device [] transmits its IP address, including its TCP port number, the user's personal conference number and the user's PIN (to ***authenticate*** the user as the moderator) in an SMS text message to [a] telephone number of [a] server 420."; *see also id.*, Abstract, [0014]-[0016], FIG. 4; *supra*, §§IV.E.1.(a)-(b); APPLE-1004,

FIG. 5 ("S-CSCF authenticates and registers the wireless device" at step 508), [0035], [0036], [0040]; APPLE-1003, ¶137.

V. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

Petitioner believes that discretionary denial is unwarranted, and yet, Petitioner intends to utilize the bifurcated briefing process contemplated by the March 26, 2025, Stewart Memorandum to rebut contentions if offered by Patent Owner to the contrary.

VI. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Please charge fees to Deposit Account 06-1050.

VII. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Apple Inc. is the Petitioner and the real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

Petitioner is not aware of any disclaimers, reexamination certificates or petitions for *inter partes* review for the '450 Patent. The '450 Patent is the subject of a number of civil actions including: *HBCU Messaging US LP v. Apple, Inc. et al.*, 1-24-cv-01199 (WDTX), filed October 7, 2024.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

Lead Counsel	Backup counsel
W. Karl Renner, Reg. No. 41,265 Fish & Richardson P.C. 60 South Sixth Street Suite 3200 Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR50095-0264IP1@fr.com	David Holt, Reg. No. 65,161 Nicholas Stephens, Reg. No. 74,320 Fish & Richardson P.C. 60 South Sixth Street Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR50095-0264IP1@fr.com

D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR50095-0264IP1@fr.com.

Respectfully submitted,

Dated: August 29, 2025

/W. Karl Renner/
W. Karl Renner, Reg. No. 41,265
David Holt, Reg. No. 65,161
Nicholas Stephens, Reg. No. 74,320
Fish & Richardson P.C.
60 South Sixth Street
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

(Control No. IPR2025-01493)

Attorneys for Petitioner

CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,718 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: August 29, 2025

/W. Karl Renner/

W. Karl Renner, Reg. No. 41,265
David Holt, Reg. No. 65,161
Nicholas Stephens, Reg. No. 74,320
Fish & Richardson P.C.
60 South Sixth Street
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

(Control No. IPR2025-01493)

Attorneys for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on August 29, 2025, a complete and entire copy of this Petition for *Inter partes* Review, Power of Attorney, and all supporting exhibits were provided via Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES
(215) 568-6400

/Crena Pacheco/
Crena Pacheco
Fish & Richardson P.C.
60 South Sixth Street
Minneapolis, MN 55402
pacheco@fr.com