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In re Patent of:	Graham Merrett	
U.S. Patent No.:	11,653,182	Attorney Docket No. 50095-0261IP1
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Appl. Serial No.:	17/959,687	
Filing Date:	October 4, 2022	
Title:	SERVER THAT SENDS A RESPONSE WHEN A MOBILE PHONE HAS AN ACTIVE STATUS WITH A PACKET SWITCHED MESSAGE SERVICE	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 11,653,182 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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LIST OF EXHIBITS

APPLE-1001	U.S. Patent No. 11,653,182 ("the '182 Patent")
APPLE-1002	File History of U.S. Patent No. 11,653,182
APPLE-1003	Expert Declaration of Dr. Patrick Traynor, Ph.D.
APPLE-1004	U.S. Pub. No. 2007/0254681 ("Horvath")
APPLE-1005	U.S. Pub. No. 2004/0203956 ("Tsampalis")
APPLE-1006	RESERVED
APPLE-1007	Chatterjee et al., "Instant Messaging and Presence Technologies for College Campuses." IEEE Network, May/June 2005. ("Chatterjee")
APPLE-1008	U.S. Pub. No. 2005/0243978 ("Son")
APPLE-1009	UK Pub. No. 2432482 ("Beaumont")
APPLE-1010	U.S. Patent No. 9,408,077 ("David")
APPLE-1011	U.S. Patent No. 6,940,844 ("Purkayastha")
APPLE-1012	U.S. Patent No. 7,702,342 ("Duan")
APPLE-1013	U.S. Patent No. 8,819,145 ("Gailloux")
APPLE-1014	U.S. Pub. No. 2006/0286984 ("Bonner")
APPLE-1015	U.S. Pub. No. 2005/0197142 ("Major")
APPLE-1016	U.S. Pub. No. 2005/0037762 ("Gurbani")
APPLE-1017	U.S. Patent No. 9,167,401 ("Helferich")
APPLE-1018	U.S. Patent No. 6,430,604 ("Ogle")
APPLE-1019	International Pub. No. WO 2006/029331 ("Henderson")
APPLE-1020	U.S. Patent No. 7,236,472 ("Lazaridis")

APPLE-1021 – APPLE-1024 RESERVED

APPLE-1025 Qi et al., 2004, July. "Multimedia Messaging Service." Available at https://www.zte.com.cn/global/about/magazine/zte-communications/2004/1/en_68/162264.html ("Qi")

APPLE-1026 RFC 3261 – SIP: Session Initiation Protocol. Available at http://www.faqs.org/rfcs/rfc3261.html. June 2002.

APPLE-1027 RESERVED

APPLE-1028 "How do I sign in to Messenger?" Yahoo! Messenger 6.0. 2004. Available at https://web.archive.org/web/20040528072514/http:/help.yahoo.com/help/us/messenger/win/signin/signin-03.html

APPLE-1029 – APPLE-1031 RESERVED

APPLE-1032 U.S. Pub. No. 2008/0261577 (claiming priority to Provisional App. No. 60/913,187) ("Celik")

APPLE-1033 U.S. Provisional App. No. 60/913,187

APPLE-1034 – APPLE-1035 RESERVED

APPLE-1036 International Pub. No. WO 2007/052264 ("Agiv")

APPLE-1037 T-Mobile webpage https://www.t-mobile.com/home-internet/the-signal/internet-help/the-complete-wifi-history

APPLE-1038 – APPLE1041 RESERVED

APPLE-1042 U.S. Pub. No. US 2008/0153459 ("Kansal")

APPLE-1043 RFC 2778 – A Model for Presence and Instant Messaging. Available at https://datatracker.ietf.org/doc/html/rfc2778. February 2000.

APPLE-1044 RFC 3856 – A Presence Event Package for the Session Initiation Protocol (SIP). Available at https://datatracker.ietf.org/doc/html/rfc3856. August 2004.

APPLE-1045	Trillian Pro v1.0 webpage ("Trillian")
APPLE-1046	U.S. Pub. No. 2007/0054627 ("Wormald")
APPLE-1047	U.S. Pub. No. 2008/0120427 ("Ramanathan")
APPLE-1048	U.S. Pub. No. 2002/0062345 ("Guedalia")
APPLE-1049	U.S. Patent No. 7,472,163 ("Ben-Yoseph")
APPLE-1050	U.S. Pub. No. 2005/0233737 ("Lin")
APPLE-1051 – APPLE-1099	RESERVED
APPLE-1100	Complaint, *HBCU Messaging US LP v. Apple, Inc. et al.*, 1-24-cv-01199 (WDTX) (Oct. 7, 2024)
APPLE-1101	Infringement Charts of the '182 Patent
APPLE-1102	Declaration of June Ann Munford
APPLE-1103	U.S. Pub. No. 2007/0299930 ("Wendelrup")

LISTING OF CLAIMS

Claim 1	
1pre	A system comprising:
1a	a sending mobile phone that transmits short message service (SMS) messages via a cellular network and packet switched messages via a packet switched message service (PSMS); and
1b	at least one server that supports the PSMS and maintains status information;
1c	wherein: the sending mobile phone retrieves a destination address of a first message from the first message, wherein the destination address of the first message is a phone number of a first receiving mobile phone;
1d	the sending mobile phone sends first information representing the phone number of the first receiving mobile phone to the at least one server;
1e	the at least one server, in response to receipt of the first information, sends a first response to the sending mobile phone when the phone number of the first receiving mobile phone is not identified as a subscriber of the PSMS;
1f	after the first response is received by the sending mobile phone, the sending mobile phone sends the first message as an SMS message to the first receiving mobile phone;
1g	the sending mobile phone retrieves a destination address of a second message from the second message, wherein the destination address of the second message is a phone number of a second receiving mobile phone;
1h	the sending mobile phone sends second information representing the phone number of the second receiving mobile phone to the at least one server;

1i	the at least one server, in response to receipt of the second information and conditioned on the phone number of the second receiving mobile phone being identified as a subscriber of the PSMS and the second receiving mobile phone having an active status with the PSMS, sends a second response to the sending mobile phone;
1j1	after the second response is received by the sending mobile phone, the sending mobile phone sends the second message as a packet switched message, via a wireless local area network (WLAN) and the PSMS, to the second receiving mobile phone,
1j2	wherein at the time the packet switched message is sent, the second receiving mobile phone is not connected to the at least one server, wherein the packet switched message is queued until the second receiving mobile phone connects to the at least one server;
1k	the PSMS is a service for sending and receiving packet switched messages other than SMS, enhanced message service (EMS) and multimedia message service (MMS) messages; and
1l	content of the SMS message and content of the packet switched message is displayed by a same messaging client.
Claim 2	
2	The system of claim 1, wherein the second receiving mobile phone has an active status with the PSMS in at least one case when the second receiving mobile phone is not connected to the at least one server.
Claim 3	
3	The system of claim 1, wherein the second receiving mobile phone has an active status with the PSMS in at least one case when the second receiving mobile phone is connected to the at least one server and the second receiving mobile phone has an active status with the PSMS in at least one case when the second receiving mobile phone is not connected to the at least one server.
Claim 4	

4	The system of claim 1, wherein the second receiving mobile phone has an inactive status with the PSMS subsequent to a plurality of messages being queued for the second receiving mobile phone; wherein the PSMS routes at least some messages between PSMS subscribers according to an email address.
Claim 5	
5	The system of claim 1, wherein the status information maintained by the at least one server is maintained in accordance with an undelivered message queue.
Claim 6	
6	The system of claim 1, wherein the second receiving mobile phone has an inactive status with the PSMS when an inactivity parameter associated with the second receiving mobile phone exceeds a threshold.
Claim 7	
7	The system of claim 1, wherein the second receiving mobile phone has an active status with the PSMS after a message queued for the second receiving mobile phone is delivered to the second receiving mobile phone.
Claim 8	
8	The system of claim 1, wherein the second receiving mobile phone has an active status with the PSMS at a point in time subsequent to a message queued for the second receiving mobile phone being delivered to the second receiving mobile phone.
Claim 9	

9	The system of claim 1, wherein the second receiving mobile phone has an active status with the PSMS when the second receiving mobile phone is connected to the at least one server and the second receiving mobile phone remains active for a time period after the second receiving mobile phone is not connected to the at least one server, after which the second receiving mobile phone has an inactive status with the PSMS, wherein a plurality of undelivered messages are queued for the second receiving mobile phone during the time period.
Claim 10	
10pre	The system of claim 1, wherein:
10a	the sending mobile phone sends the SMS message to the first receiving mobile phone in accordance with the first response;
10b	the sending mobile phone sends the packet switched message to the second receiving mobile phone in accordance with the second response.
Claim 11	
11	The system of claim 4, wherein at least one of the plurality of messages queued for the second receiving mobile phone is a picture message.
Claim 12	
12	The system of claim 4, wherein at least one of the plurality of messages queued for the second receiving mobile phone is a video message.
Claim 13	
13	The system of claim 4, wherein at least one of the plurality of messages queued for the second receiving mobile phone is a voice message; wherein the messaging client does not provide a voice message attachment option during a period of time between when the first information is received by the messaging client and when the second information is received by the messaging client; wherein the messaging client provides a voice messaging attachment option at a time subsequent to when the second information is received by the messaging client.

Claim 14	
14	The system of claim 1, wherein the messaging client displays an indication of a bearer used for transmission of the packet switched message, prior to transmission of the packet switched message.
Claim 15	
15	The system of claim 1, wherein the messaging client displays an indication of a bearer used for transmission of the SMS message, prior to transmission of the SMS message.
Claim 16	
16	The system of claim 1, wherein at the time the packet switched message is sent, the second receiving mobile phone has an active status with the PSMS; wherein the second response communicates a different query result than the first response.
Claim 17	
17pre1	A method performed by
17pre2	a sending mobile phone that transmits short message service (SMS) messages via a cellular network and packet switched messages via a packet switched message service (PSMS), the method comprising:
17a	authenticating a phone number of the sending mobile phone with the PSMS;
17b	sending first information representing a phone number of a first receiving mobile phone to a server of the PSMS;
17c	receiving a first response when the phone number of the first receiving mobile phone is not identified as a subscriber of the PSMS;
17d	sending, after the first response is received by the sending mobile phone, an SMS message to the first receiving mobile phone;
17e	sending second information representing a phone number of a second receiving mobile phone to the server;

17f	receiving a second response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone has an active status with the PSMS; and
17g	sending a message, after the second response is received by the sending mobile phone, via a wireless local area network (WLAN) and the PSMS, to the second receiving mobile phone;
17h	wherein the second response communicates different information than the first response;
17i	wherein the PSMS is a service for sending and receiving packet switched messages other than SMS, enhanced message service (EMS) and multimedia message service (MMS) messages;
17j	wherein the SMS message sent to the first receiving mobile phone and the message sent to the second receiving mobile phone are originated via a same messaging client.
Claim 18	
18pre	The method of claim 17, further comprising:
18a	sending third information representing a phone number of the second receiving mobile phone to the server;
18b	receiving a third response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone does not have an active status with the PSMS;
18c	and sending, after the third response is received, an SMS message to the second receiving mobile phone;
18d	wherein the third response communicates a same query result as the first response, and the third response communicates a different query result than the second response.
Claim 19	

19	The method of claim 18, further comprising: sending, after the third response is received, a multimedia message service (MMS) message to the second receiving mobile phone.
Claim 20	
20	The method of claim 17, wherein when the second response is received, the second receiving mobile phone is offline from the PSMS, wherein the PSMS routes at least some messages between PSMS subscribers according to an email address.
Claim 21	
21	The method of claim 17, wherein the server is located outside of the cellular network, wherein the PSMS receives and queues messages addressed to a message recipient when the message recipient is not connected to the PSMS.
Claim 22	
22pre1	A method performed by
22pre2	a sending mobile phone that transmits short message service (SMS) messages via a cellular network and packet switched messages via a packet switched message service (PSMS), the method comprising:
22a	sending first information representing a phone number of a first receiving mobile phone to a server of the PSMS;
22b	receiving a first response when the phone number of the first receiving mobile phone is not identified as a subscriber of the PSMS;
22c	sending, after the first response is received by the sending mobile phone, an SMS message to the first receiving mobile phone;
22d	sending second information representing a phone number of a second receiving mobile phone to the server;

22e	receiving a second response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone has an active status with the PSMS;
22f	sending a message, after the second response is received by the sending mobile phone, via a wireless local area network (WLAN) and the PSMS, to the second receiving mobile phone;
22g	sending third information representing the phone number of the second receiving mobile phone to the server;
22h	receiving a third response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone does not have an active status with the PSMS; and
22i	sending, after the third response is received by the sending mobile phone, an SMS message to the second receiving mobile phone;
22j	wherein the second response communicates different information than the third response; and
22k	wherein content of the SMS message sent to the first receiving mobile phone, content of the message sent via the WLAN and the PSMS to the second receiving mobile phone and content of the SMS message sent to the second receiving mobile phone is displayed by a same messaging applicaion [*sic*] client;
22l	wherein the PSMS routes at least some messages between PSMS subscribers according to an email address.
Claim 23	
23	The method of claim 22, wherein the sending mobile phone is authenticated to the PSMS via SMS.
Claim 24	

24	The method of claim 22, wherein content of the message sent via the WLAN to the second receiving mobile phone and content of the SMS message sent to the second receiving mobile phone is displayed in a same interface.
Claim 25	
25pre1	A method performed by
25pre2	a sending mobile phone that transmits short message service (SMS) messages via a cellular network and packet switched messages via a packet switched message service (PSMS), the method comprising:
25a	retrieving, by a messaging client, a destination address of a first message from the first message, wherein the destination address of the first message represents a phone number of a first receiving mobile phone;
25b	sending first information representing the phone number of the first receiving mobile phone to a server of the PSMS;
25c	receiving a first response when the phone number of the first receiving mobile phone is not identified as a subscriber of the PSMS;
25d	sending, after the first response is received by the sending mobile phone, the first message as an SMS message to the first receiving mobile phone;
25e	retrieving, by the messaging client, a destination address of a second message from the second message, wherein the destination address of the second message is a phone number of a second receiving mobile phone;
25f	sending second information representing the phone number of the second receiving mobile phone to the server;
25g	receiving a second response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone has an active status with the PSMS;

25h	sending the second message, after the second response is received by the sending mobile phone, via a wireless local area network (WLAN) and the PSMS, to the second receiving mobile phone;
25i	sending third information representing the phone number of the second receiving mobile phone to the server;
25j	receiving a third response, when the phone number of the second receiving mobile phone is identified as a subscriber of the PSMS and when the second receiving mobile phone does not have an active status with the PSMS; and
25k	sending, after the third response is received by the sending mobile phone, an SMS message to the second receiving mobile phone;
25l	wherein the second response communicates different information than the third response
25m	wherein content of the SMS message sent to the first receiving mobile phone, content of the second message and content of the SMS message sent to the second receiving mobile phone is displayed by a same messaging client.
Claim 26	
26	The method of claim 25, wherein: the SMS message sent to the first receiving mobile phone is sent in accordance with the first response; the second message is sent in accordance with the second response; the SMS message sent to the second receiving mobile phone is sent in accordance with the third response; the server is located outside of a cellular network.
Claim 27	
27	The method of claim 25, wherein the first information represents a plurality of phone numbers, wherein the messaging client provides a single interface for sending and receiving both text and multimedia messages.

Claim 28	
28	The method of claim 25, wherein at the time when a status of the second receiving mobile phone is determined by the PSMS, the second receiving mobile phone is not connected to the PSMS.
Claim 29	
29	The method of claim 25, wherein the messaging client displays an indication of a bearer used for transmission of the second message sent to the second receiving mobile phone, prior to the sending of the second message to the second receiving mobile phone.
Claim 30	
30	The method of claim 25, wherein the messaging client displays an indication of a bearer used for transmission of the SMS message sent to the first receiving mobile phone, prior to the sending of the SMS message to the first receiving mobile phone.

I. INTRODUCTION

Apple Inc. ("Apple" or "Petitioner") petitions for IPR of claims 1-30 ("Challenged Claims") of U.S. Patent No. 11,653,182 ("the '182 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 '182 Patent is available for IPR. Petitioner is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Apple requests institution of IPR and cancellation of the Challenged Claims based on the following grounds, supported by corroborated testimony from Dr. Traynor (APPLE-1003).

Ground	'182 Patent Claims	§ 103 Basis
1	1-30	Horvath-Tsampalis-Chatterjee-Kansal

This Petition accounts for a July 24, 2007 proclaimed Critical Date, without concession and instead solely for purposes of the analysis in this Petition. APPLE-1003, ¶21.

Reference	Filing Date	Publication Date
Horvath (APPLE-1004)	5/1/2006	11/1/2007
Tsampalis (APPLE-1005)	12/31/2002	10/14/ 2004
Chatterjee (APPLE-1007)	NA	May/June 2005
Kansal (APPLE-1042)	12/19/2006	6/26/2008

Horvath, Tsampalis, Chatterjee, and Kansal are all analogous art to the ’182 Patent, each being in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the ’182 Patent. APPLE-1003, ¶¶50, 59, 63, 214. For example, like the ’182 Patent, each describes mobile messaging over wireless networks. *Id.*; APPLE-1001, Title, Abstract; *infra*, §IV; *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

III. ’182 PATENT

A. Overview

The ’182 Patent describes messaging over wireless networks in which a sending wireless device selects a transmission mode for sending an outgoing message based on information indicating whether an intended message recipient is a subscriber of a service for receiving messages via a packet-switched bearer. APPLE-1001, Abstract, 2:30-3:2, 8:5-10:8; APPLE-1003, ¶¶24-25.

B. Construction

For the limited purposes of assessing obviousness based on Ground 1 in this petition, Petitioner construes all claim terms according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100; *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).

IV. CHALLENGED CLAIMS ARE UNPATENTABLE

A. GROUND 1 – Claim 1-30: Horvath-Tsampalis-Chatterjee-Kansal

1. 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

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[1] Section headings are for convenience alone; descriptions advanced are thus incorporated into each subsection and mapping of the claims. All emphasis added unless indicated.

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. 1-2, 4. APPLE-1003, ¶¶27-31.

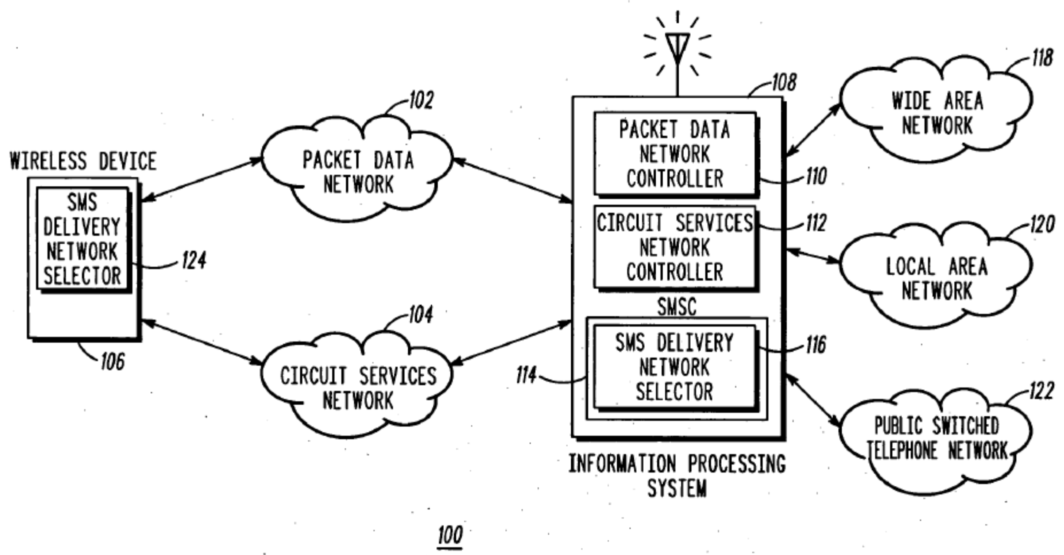


FIG. 1

APPLE-1004, FIG. 1

As shown above, when wireless device 106 desires to transmit/send a SMS message (as a sender) to another device, "the wireless device 106 first determines if it [*i.e.*, the sender] is registered on the packet data network 102," and based on this determination, an "SMS delivery network selector 124" residing on the wireless device 106 "selects a network 102, 104 for the wireless device 106 to transmit [the] SMS message on." APPLE-1004, [0050], [0062], [0078], FIGS. 1, 4, 7.

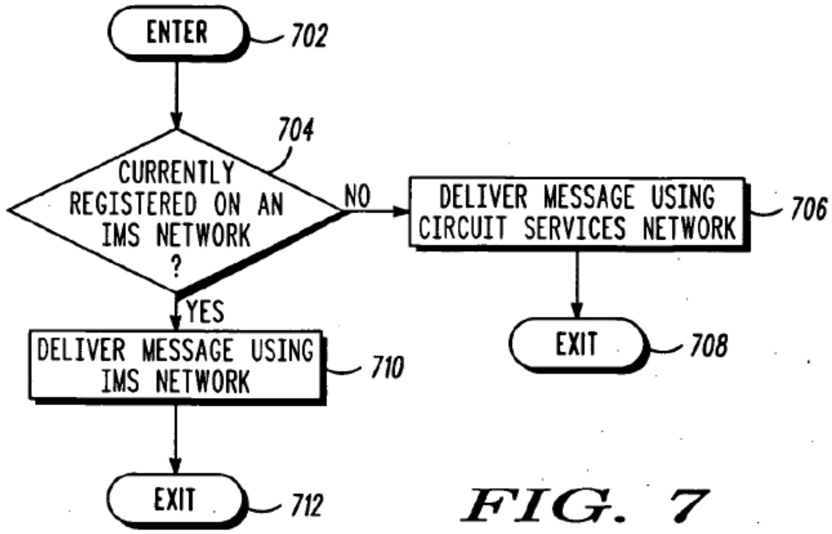


FIG. 7

APPLE-1004, FIG. 7 (sender perspective)

Although Horvath focuses on the selective use of packet switched or circuit switched bearers for delivery of SMS messages, Horvath notes that wireless device 106 can transmit other types of messages as well, including enhanced messaging service ("EMS") messages, multimedia service ("MMS") messages, and instant messages ("IM"). APPLE-1004, [0025], [0033], [0038]-[0039]. A session initiation protocol ("SIP") network operates atop the packet data network 102 to establish communication sessions and carry encapsulated messages between wireless devices and a server when the circuit switched network 104 is not used. *Id.* [0041], [0033], [0050], FIG. 5.

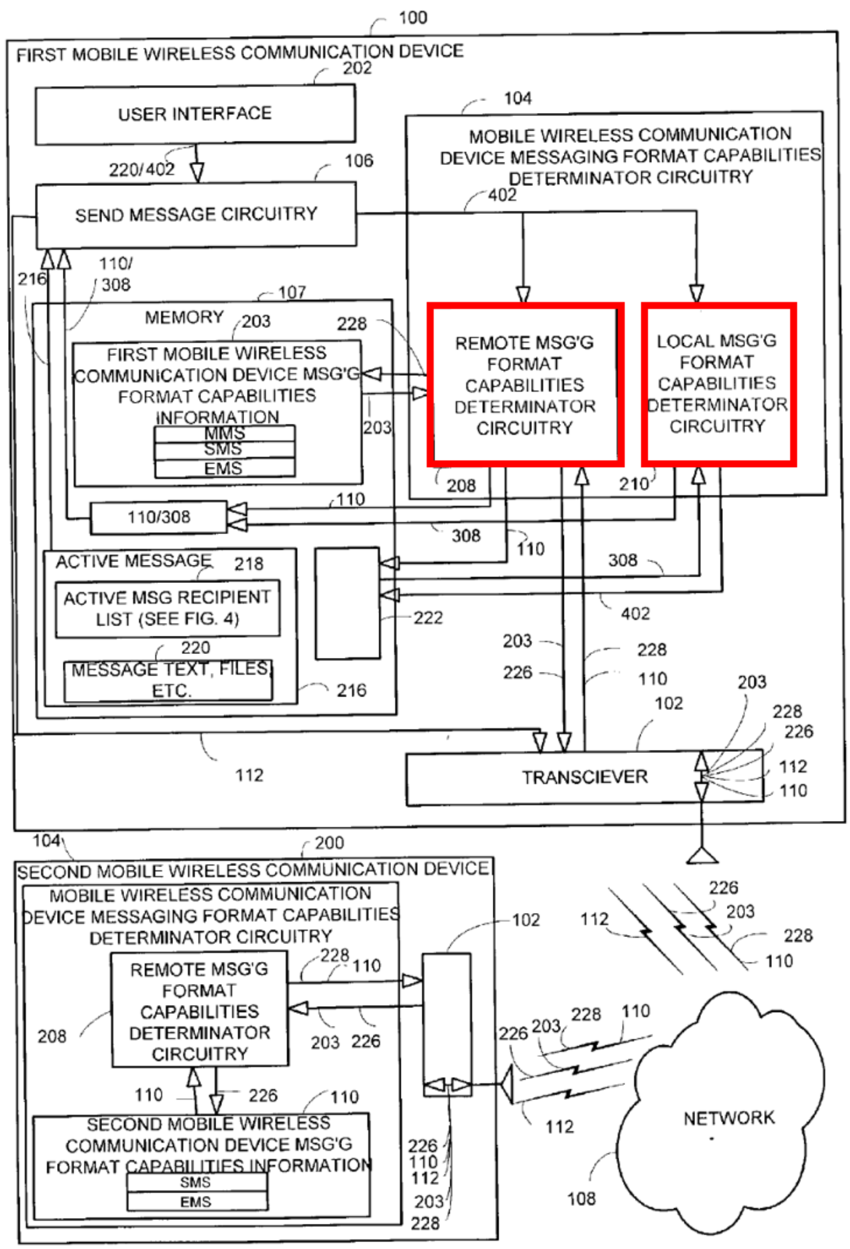
When a message is requested to be sent to a wireless device , the message request is first routed to a server system including a "Short Message Service Center ('SMSC' [114])." APPLE-1004, [0045]-[0047], FIGS. 1-2. SMSC 114 includes an "SMS delivery network selector 116" that "selects either the packet data network 102 or the circuit services network 104 for delivery of a SMS message" based on whether the recipient is registered on the packet data network 102. *Id.*, [0053], FIG. 3; *id.*, [0028], [0045]-[0047], FIGS. 1-2. By delivering messages over a packet data network rather than a circuit switched network, Horvath's system reduces the amount of traffic transmitted over the circuit switched network. APPLE-1004, [0009], [0021], [0039], [0050].

APPLE-1004, FIG. 6 (server 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), 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, ¶¶32-35.

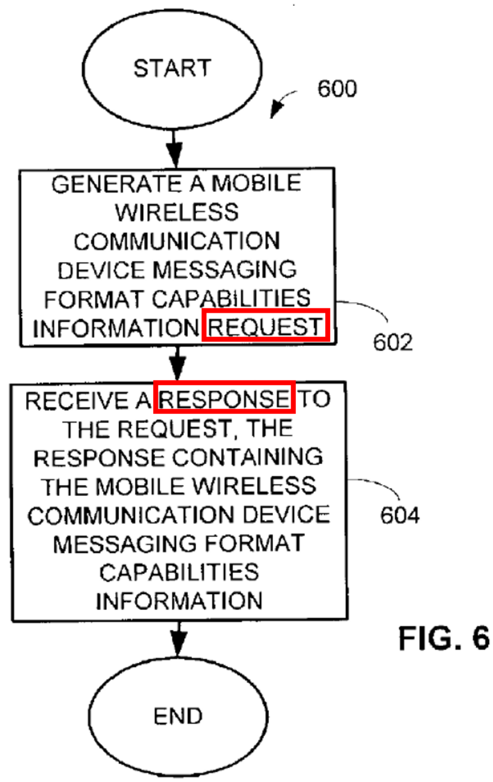
FIG. 2



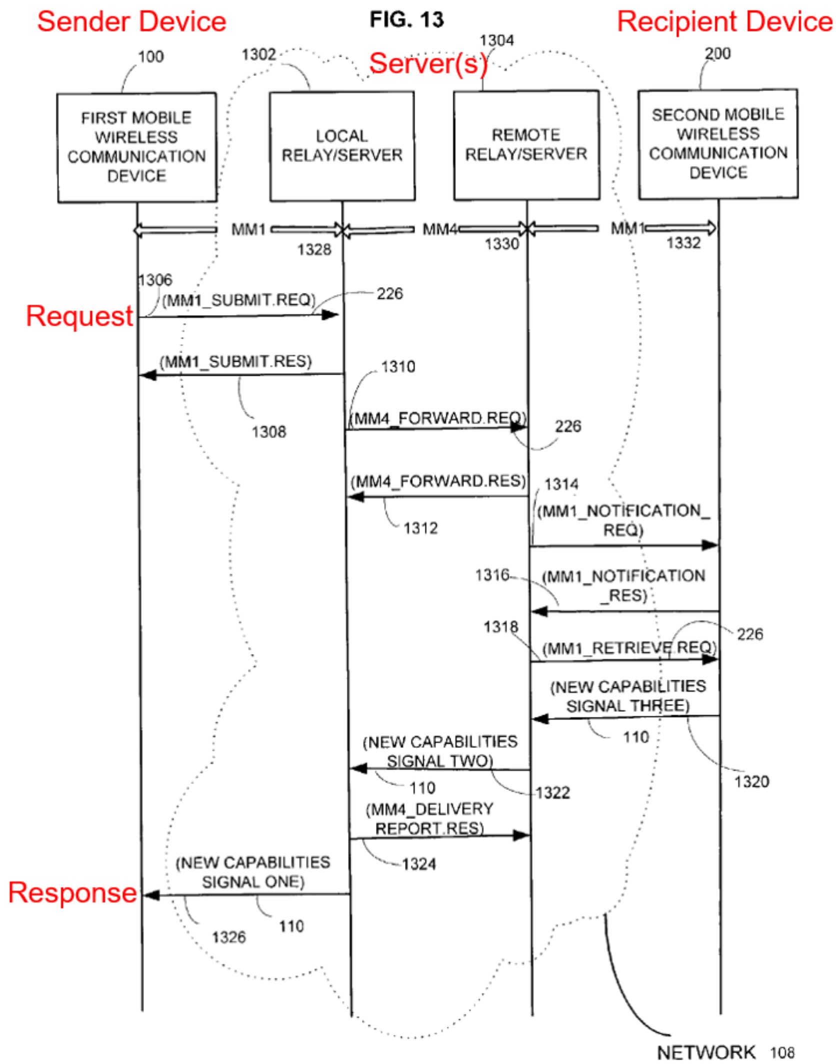
APPLE-1005, FIG. 2 (annotated)

According to Tsampalis, when recipient device 200's format capabilities information 110 "must be retrieved remotely," the sender device 100 generates and sends a "mobile wireless communication device messaging format capabilities information **request**" to a remote web server, and "receiv[es] a **response** [*e.g.*, from the web server] to the request where the response contains the second mobile wireless communication device messaging format capabilities information 110." APPLE-1005, [0024], [0027], [0042], [0034], [0056]-[0057], FIGS. 6, 13.

In some examples, Tsampalis explains that "the second mobile wireless communication device messaging format capabilities information 110 is stored" in "a network element within the network 108" such as "a web server." *Id.*, [0039], [0057] ("stor[ing] the second mobile wireless communication device messaging format capabilities information 110 at the remote relay/server 1304"). In such cases, the first (sender) device can retrieve the second (recipient) device's MFCI 110 from a remote server using signaling like that shown in FIG. 13. *Id.*; *see also id.*, [0056]-[0060], FIGS. 13-15.



APPLE-1005, FIG. 6 (annotated)



APPLE-1005, FIG. 13, (annotated)

Tsampalis further explains that the sender device can store the recipient device's MFCI 110 in a phonebook, and can use the recipient device's MFCI 110 to select a suitable message format and corresponding transmission mode (e.g., an SMS, MMS, or EMS transmission) for sending the message based on the recipient) device's capabilities. APPLE-1005, [0041], [0060]-[0064], FIGS. 5, 16.

(c) Horvath-Tsampalis

Horvath describes selective transmission of wireless messages via different transmission bearers, including techniques for transmitting messages over either a packet data network or a circuit services network. APPLE-1001, 3:7-38; APPLE-1004, [0001], [0007], [0024]-[0026], [0050], [0061]-[0062], FIGS. 1, 4, 7; *supra*, §IV.A.1(a) (Horvath). Horvath is concerned with the circuit services network being "unnecessarily burdened with SMS traffic," and proposes to ameliorate this problem by using a packet data network for the transmission of SMS messages by default whenever the sending and receiving devices are registered with a message delivery service on the packet data network. *See e.g.*, APPLE-1004, [0004], [0006]-[0009], [0021], [0039] (goal to provide "capacity relief on the circuit services network 104"), [0081]. APPLE-1003, ¶39. Notwithstanding these benefits, however, a person of ordinary skill in the art (POSITA)[2] would have recognized that Horvath's system was still ripe for improvement. APPLE-1003, ¶41.

For example, although Horvath acknowledges additional messaging services apart from SMS (e.g., MMS, EMS, IM), Horvath provides little detail about these messaging services. APPLE-1005, [0025], [0039]. Additionally, a POSITA would

[2] Defined by Dr. Traynor at EX1003, ¶21.

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, ¶41. 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 when messages could not be delivered as expected. APPLE-1005, [0003]-[0004]; APPLE-1003, ¶41.

In view of these known problems, a POSITA would have turned to Tsampalis for specific guidance on how to improve the user experience and better manage and coordinate messaging formats. *Supra*, §IV.A.1(a)(Horvath); §IV.A.1(b)(Tsampalis). Specifically, Tsampalis describes an effective solution for improving messaging in such an environment by sharing the recipient's MFCI 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 MFCI of a recipient device to determine how to format and transmit an outgoing message to the recipient. APPLE-1003, ¶42. A POSITA had multiple reasons for this combination.

First, a POSITA would have combined Horvath and Tsampalis such that the sender would obtain and use a recipient's MFCI 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, ¶43. 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]. Horvath also already considers the challenge of encoding in different network standards, which would further prompt a POSITA to combine with Tsampalis for teachings on formatting compatibility. *See e.g.*, APPLE-1004, [0050] (describing message encoding using "IS-637" versus very different "ANSI-41" standard). APPLE-1003, ¶43.

Second, a POSITA would have sought to leverage Tsampalis-like MFCI 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, ¶44. Enhanced messaging formats such as MMS and IM generally offer richer messaging capabilities than SMS, such as the ability to support extended character counts and attach/include multimedia files. APPLE-1003, ¶44 (APPLE-1007, 8; APPLE-1025, Introduction). 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 delivery (*e.g.*, using SMS). *Id.* But this may not be necessary, as Tsampalis's proposal to share messaging format capabilities would allow a sender to use these rich messaging features more frequently and reliably. *Id.*

Third, a POSITA would have sought to leverage Tsampalis-like MFCI in Horvath's system to make better, more selective use of SMS when the recipient has limited messaging capabilities. APPLE-1003, ¶45. Some users can only receive SMS. APPLE-1005, [0061]-[0063]. By obtaining the recipients' MFCI 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, ¶45.

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, ¶46. This 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, ¶46.

Fifth, a POSITA would have been motivated to apply Tsampalis-like MFCI 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, ¶47.

Sixth, a POSITA reviewing Horvath would have naturally looked to Tsampalis's techniques 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, ¶48.

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). "It'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." *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, ¶49. 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, ¶49 (APPLE-1009, 1).

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 '182 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, ¶50.

(d) Chatterjee (APPLE-1007)

Chatterjee provides a brief history of the development of instant messaging and presence ("IM&P") technology 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." 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. APPLE-1003, ¶36.

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

(e) Horvath-Tsampalis-Chatterjee Combination

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-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. APPLE-1003, ¶51. 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 IM, although Horvath leaves many of the implementations 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, ¶51.

Chatterjee describes various frameworks for IM and presence ("IM&P") services that were in widespread use long before the Critical Date. *Supra*, §IV.A.1(d). 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 IMs, and to send and receive presence information indicating the availability of devices for receiving IMs. APPLE-1003, ¶52. In the combination, the MFCI 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, ¶52.

First, a POSITA would have implemented IM in the combination system to "enable[] short message exchanges between online users…in real time" and "independent of locale." APPLE-1007, 4, APPLE-1003, ¶53. Chatterjee explains that the "real-time" nature of IM 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 IM in the combination system to expand the capabilities of the device and keep current with the growing popularity of IM in the timeframe leading up to the '182 Patent. APPLE-1007, 4 ("Although IM started as a consumer-grade technology, it was quickly adopted by many businesses that saw its advantages in enabling quick communications and providing presence information…This new phenomenon is now impacting schools and college campuses."); APPLE-1003, ¶54.

Third, a POSITA would have implemented IM 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, ¶55. 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, ¶56. Further, "the delivered messages" can "integrate…with existing systems and infrastructure" thereby "sav[ing] both time and money." APPLE-1007, 8; APPLE-1003, ¶56.

Fifth, to the extent presence is not obvious given that it is part of the SIP standard, Chatterjee makes it explicit, as a POSITA would have implemented presence capabilities in the combination system to better inform users of the IM service when other users are available to receive IMs. APPLE-1003, ¶57 (APPLE-1044 (a 2004 RFC already establishing the availability of presence functionality for SIP), Abstract); 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.").

Sixth, it would have been obvious in view of Chatterjee to extend Tsampalis's MFCI in the combination system to further indicate an intended recipient's IM capability (*e.g.*, in addition to SMS, MMS, EMS capabilities). APPLE-1003, ¶58. 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 IMs, 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, ¶58. Tsampalis identifies SMS, MMS, and EMS as "non-real-time store and-forward messaging format capabilities," but Tsampalis does not restrict the MFCI from further including other messaging formats. APPLE-1005, [0022] (describing non-real time store-and-forward as a mere example of MFCI ("such as")); APPLE-1003, ¶58. Indeed, a POSITA would have preferred 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, ¶58*;* 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 IM and presence to a known system to achieve predictable results. *KSR*, 550 U.S. at 417 (2007); APPLE-1003, ¶59. 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"). Notably, Horvath explicitly describes the option of using a SIP network for IM, 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)"). Chatterjee is also analogous art to the '182 Patent and fully compatible with Horvath and Tsampalis, each being in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the '182 Patent. APPLE-1003, ¶59. For example, like the '182 Patent, Tsampalis describes methods and systems for mobile messaging over wireless networks (*e.g.*, using IM). *Id.*

(f) Kansal (APPLE-1042)

Like the Horvath-Tsampalis-Chatterjee combination, Kansal provides 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," including "SMS messages, MMS messages, as well as, telephone messages, voicemail messages, fax messages, video conferencing messages, IM messages, and e-mail messages." APPLE-1042, [0009], [0045]-[0046], [0054]-[0056], [0062]-[0064], [0070], [0077]-[0078], FIGs. 2-3. APPLE-1003, ¶37.

FIG. 2

APPLE-1042, FIG. 2

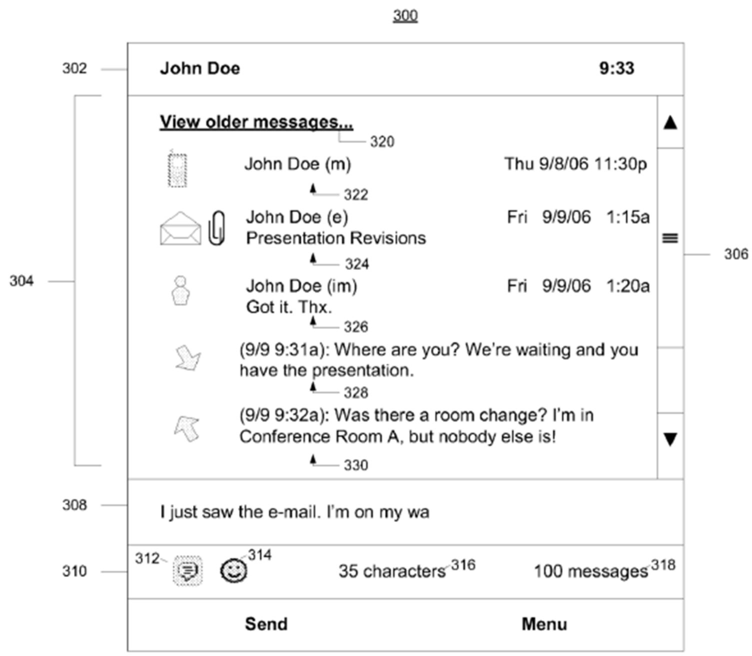


FIG. 3

APPLE-1042, FIG. 3

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

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(e). 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, ¶60. To the extent Kansal does not explicitly describe its messaging and displaying functions implemented by a same messaging application, it an obvious[3] design choice. APPLE-1003, ¶60; APPLE-1042, FIG. 1 (using term "IM App 135" without differentiating whether it can be implemented by a single IM application or multiple IM applications). Indeed, technologies for displaying messages of different formats on a unified interface by a single messaging application was well known by the Critical Date. APPLE-1003, ¶60 (APPLE-1045, 1-3 (describing "Trillian Pro v1.0" as a multi-protocol messaging application released back in 2002, which incorporated various IM protocols and SMS on mobile phones, "all within one new powerful and professional interface")). Multiple reasons would have prompted a POSITA to implement this combination. APPLE-1003, ¶60.

First, a POSITA would have been motivated to apply Kansal's suggested unified messaging 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, ¶61. 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

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[3] References to obviousness throughout are a POSITA's perspective.

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, ¶61 (APPLE-1045, 1-2 (a multi-protocol messaging application providing "a powerful and efficient user experience.")); 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, ¶62. 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, ¶62. 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, ¶62. A POSITA would have sought to implement Kansal's user interface to provide this additional contextual information to a user. APPLE-1003, ¶62.

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), (f); APPLE-1003, ¶63. 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). Moreover, Kansal is analogous art to both the '182 Patent and Horvath, Tsampalis, and Chatterjee, especially as each are in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the '182 Patent (e.g., mobile messaging). APPLE-1003, ¶63. 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 1

[1pre]

To the extent the preamble is limiting, the Horvath-Tsampalis-Chatterjee-Kansal combination provides [1pre][4]. APPLE-1003, ¶64. For example, Horvath discloses a variety of methods and systems for wireless communication, such as wireless messaging. *See e.g.*, APPLE-1004, Title ("METHOD AND SYSTEM FOR DELIVERY OF SHORT MESSAGE SERVICE MESSAGES"), Abstract, [0011][5], [0021]; APPLE-1005, [0001], [0006]; APPLE-1003, ¶64.

[1a]

For example, Horvath discloses "a wireless device such as a mobile phone" (*e.g.*, "wireless device 106") (***a sending mobile phone***[6]) capable of "transmitting short message service messages" (SMS) 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; APPLE-1005, [0022] ("mobile wireless

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

[5] Emphasis added throughout unless otherwise noted.

[6] Bold and italicized text corresponds to claim language.

communication devices (e.g., cell phones…)"), [0024]; APPLE-1007, 5 ("mobile IM&P services (IMPS)"), 10 (IM "available on the cell phone"). APPLE-1003, ¶65.

Horvath's FIG. 4 further shows an example "wireless device 106" that communicates on "either the packet data network 102 or the circuit services network 104." APPLE-1004, [0014], [0060]-[0070]; APPLE-1003, ¶66. "The SMS delivery network selector 124 selects a network 102, 104 for the wireless device 106 to transmit a SMS message on." APPLE-1004, [0062].

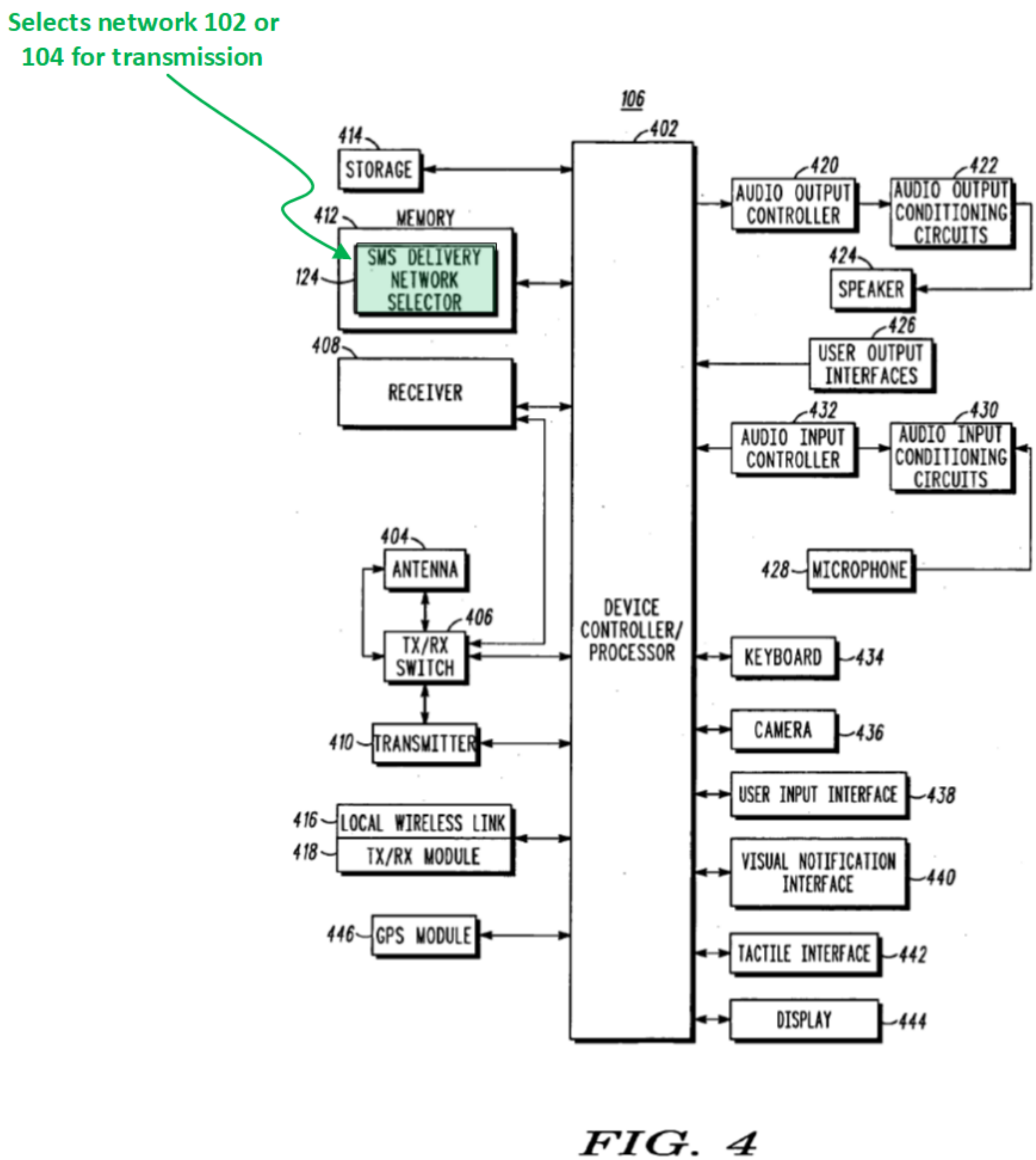


FIG. 4

APPLE-1004, FIG. 4

As shown in Horvath's FIG. 7, the sending mobile phone "select[s] a network for transmitting a SMS message based on what network the wireless device is registered with." APPLE-1004, [0007]-[0008], [0017], [0024], [0061], [0078]; *supra*, §IV.A.1(a) (Horvath); APPLE-1003, ¶67.

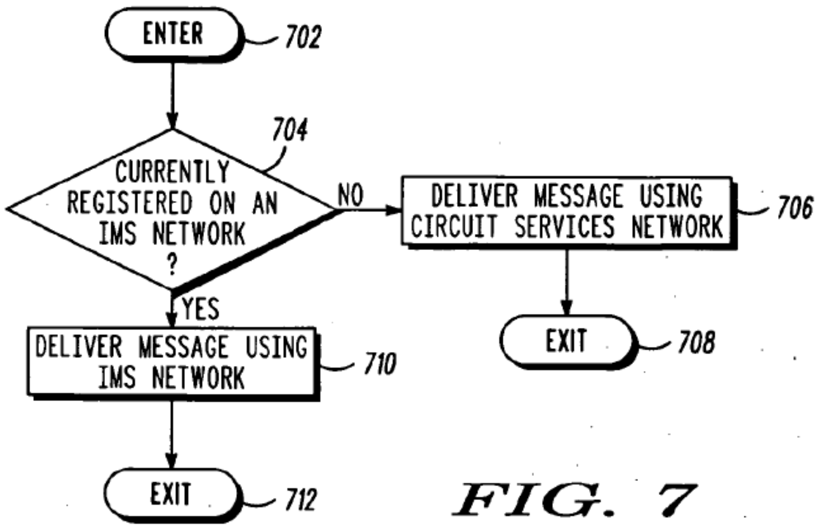


FIG. 7

APPLE-1004, FIG. 7 (sender device perspective)

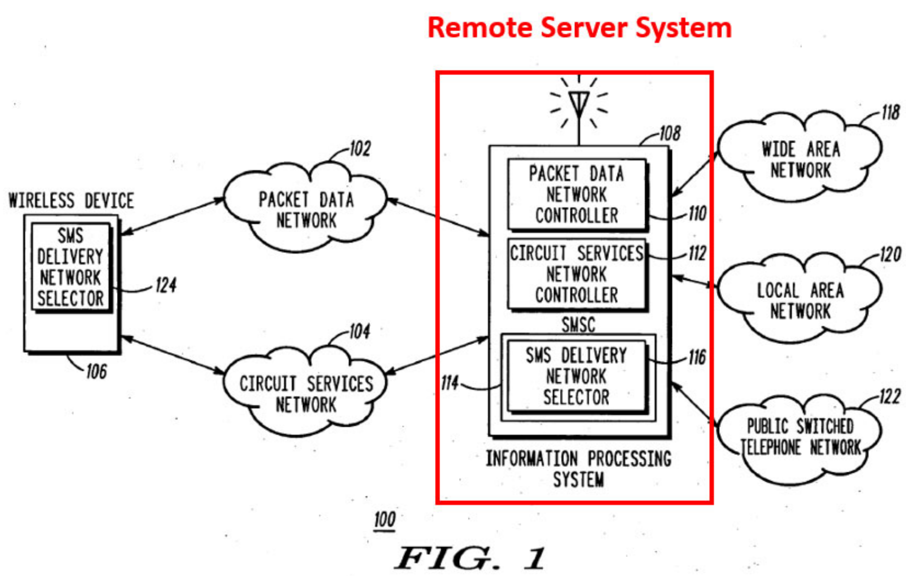
In more detail, wireless device 106 sends messages, *e.g.*, short message service (SMS) messages, "through a circuit services network" (***via a cellular network***) if wireless device 106 "is unregistered with" "a registrar associated with a session initiation protocol [SIP] network for communicating over a packet data network." APPLE-1004, [0002], [0006]-[0007]; APPLE-1003, ¶68.

On the other hand, device 106 sends messages in "SIP packets" (***packet switched messages***) "through the session initiation protocol [SIP] network communicating over the packet data network," *e.g.*, via "instant messaging" (***via a packet switched message service (PSMS)***) established by the "SIP network," if device 106 "[is] registered with the [SIP] registrar" and subscribed to an IM service. APPLE-1004, [0002], [0006]-[0007], [0017], [0024], [0033] ("The SIP network is used for establishing instant messaging"), [0034] ("an Internet Protocol multimedia subsystem ('IMS') core that supports the SIP network…IMS…runs over the standard IP. The wireless device 106 can connect to the IMS network using different methods, which all use standard IP."), [0037] ("**SIP packets**"), [0038] ("SIP message"), [0039], [0041], [0078], FIG. 7; APPLE-1007, 4 ("a large number of IM systems exist in various Internet communities"), 7 ("the network packet," Boxes 1 & 2, Table 1; *supra*, §IV.A.1(a)(Horvath), §IV.A.1(d)(Chatterjee), §IV.A.1(e)(Horvath-Tsampalis-Chatterjee combination); APPLE-1003, ¶69.

To be clear, Horvath's traditional circuit services networks 104 include traditional "CDMA" or "GSM" type of cellular networks. APPLE-1004, FIGS. 1, 2, [0002], [0026], [0039]; APPLE-1003, ¶70 (APPLE-1014, [0006] ("cellular network (*e.g.*, GSM-global system for mobile communications)"), [0047] ("other cellular network technologies (*e.g.*, UMTS, CDMA…)").

[1b]

It was obvious that Horvath-Tsampalis-Chatterjee-Kansal's remote server system (*e.g.*, "information processing system 108") supports packet switched "instant messaging" service (***the PSMS***) and maintains status information. *See e.g.*, APPLE-1004, [0033], [0038], [0046], [0052], FIGS. 1, 2, 3; APPLE-1007, 4, 5, 10, Table 1, FIG.1; *supra*, §IV.A.1(d)-(e), [1a]; *infra*, [1k] (limiting PSMS). APPLE-1003, ¶71.



APPLE-1004, FIG. 1 (annotated)

Specifically, Horvath describes a set of remote servers, *e.g.*, a "Short Message Service Center ('SMSC' [114])," a "proxy call session control function ('P-CSCF') 206," an "interrogating/serving call session control function ('I, S-CSCF') 208," and a "registrar such as a home subscriber server ('HSS')," which could be implemented as a single "information processing system" (***at least one server***). *Supra*, §IV.A.1(a), (c); APPLE-1004, Abstract, [0002], [0006], [0008],

[0028], [0033]-[0038], [0075]-[0076], FIGS. 1-3, 6. Horvath explains that "[a]lthough, the SMSC 114, C-CSCF 206, I, S-CSCF 208, and HSS 210 are shown as separate components, each respective component can reside on the same or separate information processing system." APPLE-1004, [0038]; APPLE-1003, ¶72.

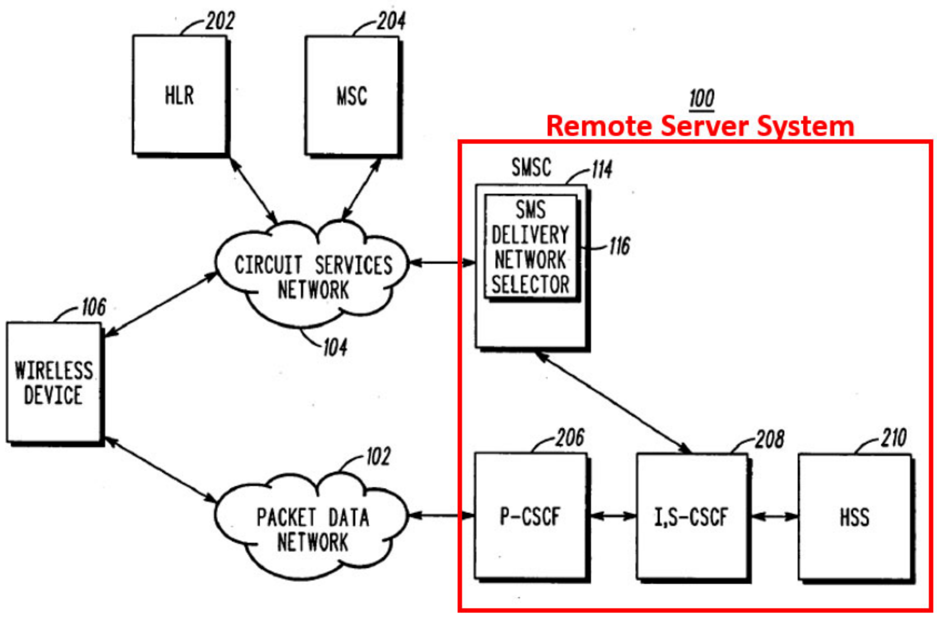


FIG. 2

APPLE-1004, FIG. 2 (annotated)

Horvath's remote server(s) supports "instant messaging" (***supports the PSMS***), as Horvath explains, "[t]he P-CSCF 206, I, S-CSCF 20S, and HSS 210 also comprise part of an Internet Protocol multimedia subsystem ('IMS') core that supports the SIP network," which is "used for establishing instant messaging," and "[i]n one embodiment, the SMSC 114 is also part of the IMS core." APPLE-1004, [0033]-[0034]; APPLE-1003, ¶73.

Horvath further discloses "application server(s)" as part of the IMS system that provide messaging "services subscribed to by the wireless device 106," such as "instant messaging" (IM) service, which is a type of packet switched message service (***PSMS***). APPLE-1004, [0033] ("The SIP network is used for establishing instant messaging"), [0038], [0039]; APPLE-1003, ¶74.

Horvath explains that "[i]n one embodiment of the present invention, the SMSC 114 acts as an application server for transmitting/delivering SMS messages to the wireless device 106 through the packet data network 102 using the IMS network." APPLE-1004, [0039], [0041]; APPLE-1003, ¶75.

Additionally, Chatterjee describes various IM and presence applications/standards, for example, "[a]mong IM clients, MSN Messenger™ was the dominant technology for IM followed by AIM™ and then Yahoo Messenger™." APPLE-1007, 10. Chatterjee further describes various servers that provide the IM and presence service. *See e.g.*, APPLE-1007, 4 ("AIM servers"), 5 ("an IM client and server"), 7 ("interconnected servers…Jabber servers"), Table 1 ("a centralized third-party server"), FIG. 3; APPLE-1003, ¶76.

Moreover, it was obvious that Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) (*e.g.*, "information processing system 108") ***maintains status information*** (*e.g.*, online presence status of whether a phone is online, offline, etc.) for its registered mobile phones that are subscribers of IM. *See e.g.*, APPLE-1007, Title, Abstract ("Presence provides information about users' reachability and willingness to accept/reject a brief chat session"), 4; *supra*, §IV.A.1(d)-(e); APPLE-1003, ¶77.

Indeed, providing presence status along with IM was a common practice well known in the field before the Critical Date to facilitate real time communication among subscribers. APPLE-1003, ¶78 (APPLE-1010, 8:52-54 ("Presence status"); APPLE-1019, 9, lines 30-31 ("presence information from other client devices and/or a server"); APPLE-1020, 1:40-45 ("An instant messaging server keeps track of the online status of each of its subscribed users"); APPLE-1016, [0015], [0025]-[0026] ("status of a user's IM connection"), [0028]).

[1c]

It was obvious that Horvath-Tsampalis-Chatterjee-Kansal's wireless device 106 (***the sending mobile phone***) ***retrieves a destination address of a first message from the first message, wherein the destination address of the first message is a phone number of a first receiving mobile phone***, *e.g.*, when the sender enters a phone number of a first recipient for a first active message that the sender is composing. *See e.g.*, APPLE-1004, Abstract, [0040], [0072]-[0073]; APPLE-1005, [0024], [0027], [0033], [0046], [0064], FIGS. 4, 10; APPLE-1003, ¶79.

For example, Horvath explains that the sending mobile phone, *e.g.*, wireless device 106, sends messages to recipient wireless devices over one or more packet data networks 102 and/or circuit switched networks 104. APPLE-1004, [0050] ("wireless device 106[]…is configured to transmit SMS messages to another device"), [0078], FIG. 7. From Horvath's disclosures in this regard, it was obvious that the sending mobile phone retrieves a destination address of a receiving mobile phone, especially since the intended recipient would need to be addressed in the message to be delivered to the desired receiving mobile phone. APPLE-1003, ¶80.

Horvath discloses "information to identify" each wireless device registered to the remote server system, *e.g.*, a "destination address" (also referred to as "contact address" or "IMS contact address"), "such as a telephone uniform resource identifier ('tel-URI')," *e.g.*, "the telephone number assigned to the wireless device 106." APPLE-1004, [0035] ("The HSS 210 also includes information to identify each registered wireless device 106 such as a telephone uniform resource identifier ('tel-URI') and/or a SIP uniform resource identifier ('SIP-URI'). A tel-URI, for example is the telephone number assigned to the wireless device 106."), [0045], [0050] ("In one embodiment, the destination address of the recipient device is a SIP URI formed out of the normal address (for example, tel:MDN).”), [0073], [0076]; APPLE-1003, ¶81.

Horvath’s functionality for receiving information associated with a destination address of a recipient is maintained in the combination with Tsampalis, which similarly describes conventional addressing techniques where the sender receives phone numbers of intended messaging recipients while composing an active message. APPLE-1005, [0061] (“first mobile wireless communication device 100 will transparently contact the network talking to the address(es), (e.g., the MSISDN(s)), of the recipient(s)”). Tsampalis teaches that an “active message” being composed by a user of the sending mobile phone contains a “recipient ID” received from the user, *e.g.*, a phone number. APPLE-1005, [0032]-[0033] (“As the active message recipient list 218 is populated with each recipient ID 402…”), [0046] (“the receiving of a next recipient ID 402 as the recipient ID is entered”), [0064] (“the user is composing a [text] message”), FIGS. 3-4 (below, showing phone numbers as recipient IDs), 7, 10; APPLE-1003, ¶82.

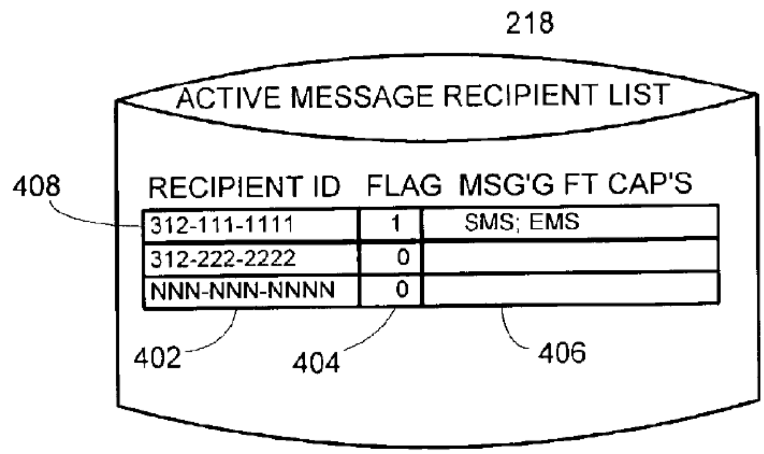
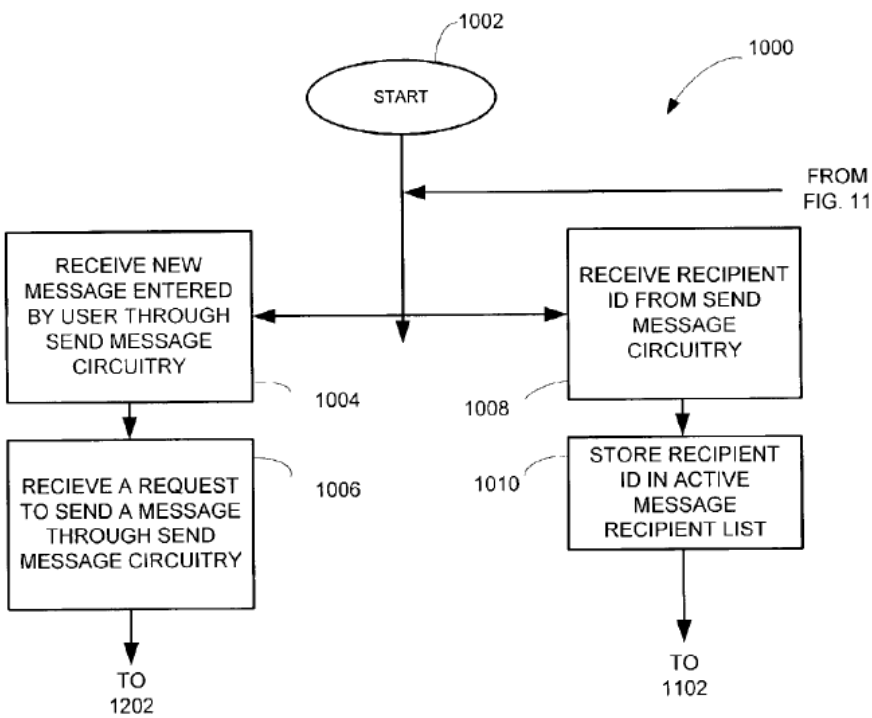


FIG. 4

APPLE-1005, FIG. 4

Tsampalis explains, referring to FIG. 10, "[a]s shown in Block 1004, the method includes the receiving a new unformatted message 110 entered by a user" and "Block 1008 demonstrates the method including the receiving of a next recipient ID 402 as the recipient ID is entered in the send message circuitry 106." APPLE-1005, [0046], FIG. 10; APPLE-1003, ¶83.

FIG. 10



APPLE-1005, FIG. 10

These functions can be performed using Tsampalis's "send message circuitry 106" or "other suitable circuitry," "preferably software modules," where steps (Blocks) 1004 and 1008 can be performed "in any chosen sequence." APPLE-1005, [0046], [0024]; APPLE-1003, ¶84.

From these and related descriptions, it was obvious that the Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone ("wireless device 106") retrieves a destination address (*e.g.*, a phone number of a receiving mobile phone) of a first active message (*e.g.*, ***first message***) being composed by the user of the sending mobile phone from the first active message (***from the first message***) addressed to the first receiving mobile phone, using suitable circuitry such as software modules running on the sending mobile phone. APPLE-1003, ¶85.

[1d]

As further described below, the sending mobile phone in the Horvath-Tsampalis-Chatterjee-Kansal combination determines whether the destination address corresponds to a subscriber of the IM service through the remote server system supporting IM. *Supra*, §IV.A.1(c), [1b]; APPLE-1003, ¶86.

In the combination, Tsampalis confirms that it would have been obvious for the sending mobile phone to determine whether the destination address corresponds to a subscriber of an IM service by sending a request to the remote server system and receiving a response from the server system indicating the same. APPLE-1003, ¶87; *supra*, §IV.A.1(b)-(c). For example, based on Tsampalis's express teachings, the sending mobile phone in the Horvath-Tsampalis-Chatterjee-Kansal combination would send a request to the remote server system for the recipient's MFCI and would receive a response that indicates whether the recipient indicated by the destination address (*e.g.*, phone number) is capable of receiving/processing IM messages—and thus whether the recipient is a subscriber of an IM service. *Id.*; APPLE-1005, [0022]-[0025], [0041], [0056]-[0065], FIGS. 5-6, 13; APPLE-1004, [0038] ("the services subscribed to by the device 106"); APPLE-1007, 5 (providing IM subscription examples); *supra*, §IV.A.1(b)-(e).

As described above for [1c], Horvath discloses provision of "information to identify" each wireless device registered to the remote server system, *e.g.*, a "destination address" (or "contact address," "IMS contact address"), "such as a telephone uniform resource identifier ('tel-URI')," *e.g.*, "the telephone number assigned to the wireless device 106." APPLE-1004, [0035], [0045], [0050], [0073], [0076]; APPLE-1003, ¶88. Further, Horvath describes that the home subscriber server ("HSS") 210 portion of the information processing system "comprises a database including profiles associated with each wireless device 106 registered with the IMS." APPLE-1004, [0035]. "The HSS 210 also includes information to identify each registered wireless device 106 such as a telephone uniform resource identifier ('tel-URI') and/or a SIP uniform resource identifier ('SIP-URI')." *Id.* In other words, the HSS 210 includes a profile for each mobile device that may include both its telephone number (*i.e.*, "tel-URI") and an SIP uniform resource identifier, which is an identifier for the SIP network. APPLE-1003, ¶88. Thus, the profiles for each registered wireless device 106 is configured associate a user's tel-URI and SIP-URI. APPLE-1003, ¶88. It was obvious that this allows a given device to query the remote server system (which includes the HSS) based on either the tel-URI or the SIP-URI. APPLE-1003, ¶88 (APPLE-1032, [0025], [0029], [0033] ("user's ID [for example] an e-mail address, telephone number, userID..."), supported by APPLE-1033, 3:29 –4:31, 14:11-14; APPLE-1036, 3:25-28.

Thus, it was obvious that Horvath-Tsampalis-Chatterjee's sending mobile phone sends a first request (***first information***) including the phone number identifying (***representing the phone number of***) the first receiving mobile phone to the remote server system, such request containing a query for the MFCI of the first receiver mobile phone, when such information is not already stored locally in the sending mobile phone. *supra*, §IV.A.1(b)-(c); APPLE-1003, ¶89.

[1e]

Horvath-Tsampalis-Chatterjee-Kansal's remote server system, in response to receipt of the first request (***first information***), sends a response (***a first response***) to the request back to the sending mobile phone, when the phone number of the first receiving mobile phone does not have the messaging format capabilities of IM (***not identified as a subscriber of the PSMS***), for example, when the first receiving mobile phone does not have a subscription with an IM service and registration to the packet data "SIP network" (supported by an "IMS core") "used for establishing instant messaging." *Supra*, [1d]; APPLE-1004, [0033]-[0034], [0038] ("the services subscribed to by the device 106 can be provided" by "application server(s)"), [0039]-[0041], [0045], [0047], [0073], [0076]; APPLE-1007, 5; *supra*, §IV.A.1(a)-(c); APPLE-1003, ¶90.

In more detail, the improved system's remote server(s) sends a response to the request made by the sending mobile phone, which includes information about the receiving mobile phone messaging format capabilities (*e.g.*, SMS/MMS/IM), thereby allowing the sending phone to obtain such information about the receiving phone prior to sending a message, in accordance with Tsampalis. *Supra*, §IV.A.1(b)-(c), [1c]-[1d]; APPLE-1004, [0033], [0035], [0039], [0050], [0072]-[0073], [0076]; APPLE-1005, [0033]-[0035] (sending mobile phone "determine[s] the message format capabilities of the corresponding recipient ID" of a receiving mobile phone, *e.g.*, through a remote server), [0045], [0056]-[0057], [0060]-[0065], FIGS. 4, 5, 6, 13; APPLE-1003, ¶91.

It was obvious that the Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) determines messaging service subscriptions information, *e.g.*, with IM service(s), of the receiving mobile phone (***subscriber of the PSMS***), as it receives the request from the sending mobile phone, as Horvath explains that "[t]he HSS

210 [as part of the remote server(s)] comprises a database including profiles associated with each wireless device 106 registered with the IMS" and identified by their respective identifiers such as phone numbers, where "[a] profile, for example, includes **subscription related information**." APPLE-1004, APPLE-1004, [0031] ("Subscriber information…comprises access right(s) and/or a service(s) subscribed to by the wireless device 106."), [0033], [0035]; *see also id.*, [0072]-[0073] ("the S-CSCF receives a profile associated with the wireless device 106 from the HSS 210 to authenticate the wireless device 106," and at "regist[ration] with the IMS core," SMSC 114 is notified "of the contact address (for example, tel-URI) of the wireless device 106," and "specific application servers" are also notified that "the wireless device has registered with the packet data network 102"); APPLE-1003, ¶92.

Again, Tsampalis similarly teaches a remote server making determination of a receiving mobile phone (identified by a "recipient ID" such as phone number) MFCI. APPLE-1005, [0033]-[0035], [0045], [0056]-[0057], [0060]-[0065], FIGS. 4, 5, 6, 13. To be clear, it was obvious that such MFCI reflects the receiving mobile phone's subscription(s) with the messaging service(s) that support the corresponding messaging format(s) as well as necessary registration to network(s) supporting the corresponding messaging format(s). APPLE-1003, ¶93.

Thus, in the combined system of Horvath-Tsampalis-Chatterjee-Kansal, when the response from the remote server (***first response***) indicates that the receiving mobile phone's (***first receiving mobile phone***) MFCI contained in the response (***first response***) does not include a format of IM, then the phone number of the receiving mobile phone (***first receiving mobile phone***) is not identified as a subscriber of the IM service (***the PSMS***). APPLE-1004, [0031]; APPLE-1003, ¶94.

A mobile phone needs both access to the packet data network and subscription with an IM service (*e.g.,* that the SIP network establishes and supports) to send or receive IMs. APPLE-1004, [0033] ("The SIP network is used for establishing instant messaging"); APPLE-1007, 7 (IM transmitted as "network packet"), Boxes 1-2; APPLE-1005, [0002] ("non-real-time store-and-forward messaging" such as "SMS," "EMS," and "MMS" messaging), [0022], [0024]; APPLE-1003, ¶95.

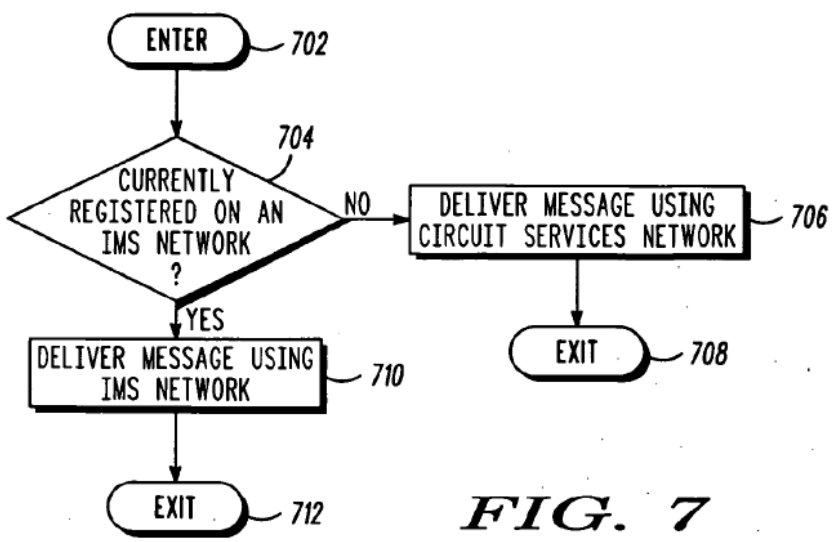
[1f]

It was obvious that after the first response (indicating the first receiving mobile phone is not a subscriber of IM, as described for [1e], *supra*) is received by the sending mobile phone, the sending mobile phone sends the first message ***as an SMS message*** to the first receiving mobile phone. APPLE-1003, ¶96.

To be clear, the first receiving mobile phone could be registered and connected to the packet data network but not subscribed to any IM service, in which case the SMS message could be sent as packeted data over the packet data network both upstream (from sending mobile phone to the remote serve system) and downstream (from the remote server system to the recipient mobile phone); while if the first receiving phone is not registered with the packet data network or registered but lost connection, then the SMS message is first sent as data packet upstream then relayed by the remote server system over the circuit services network downstream. *Supra*, §IV.A.1(a), (c), [1e]; APPLE-1003, ¶97.

Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone determines and selects a transmission mode shaped by at least messaging format and transmission network for sending an outgoing message to a receiving mobile phone. *Supra*, §IV.A.1(c); APPLE-1004, Abstract, [0004], [0006]-[0009], [0024]-[0026], [0028], [0033]-[0039], [0045], [0050], [0061]-[0063], [0074]-[0076], [0078], [0080]-[0081], FIGS. 1-4, 6-8; APPLE-1005, Abstract, [0004], [0022], [0024], [0027], [0033]-[0035], [0039], [0041]-[0042], [0045], [0056]-[0057], [0060]-[0065], FIGS. 2, 5, 6, 9, 13; APPLE-1003, ¶98. The determination of transmission mode is based on factors including the sending mobile phone's network registration status and the receiving mobile phone messaging format capabilities. *Id.*

Again, Horvath discloses the sending mobile phone determining a transmission network, and associated messaging format, for an outgoing message, based on factors including a mobile phone's (the sending phone) registration with a packet data network and subscription with certain messaging service(s). APPLE-1004, [0050], [0062], [0078], FIGS. 1, 4, 7; *supra*, §IV.A.1(a),(c), [1e]; APPLE-1003, ¶99.



APPLE-1004, FIG. 7 (sender device perspective)

Also discussed above, in the improved system of Horvath-Tsampalis-Chatterjee-Kansal, the sending mobile phone makes a more dynamic and optimized transmission mode determination based further on the receiving mobile phone's MFCI, which the sending mobile phone receives prior to sending a message in a compatible messaging format, in accordance with Tsampalis. *Supra*, §IV.A.1(b)-(c), [1d]-[1e]; APPLE-1004, [0004], [0081]; APPLE-1005, [0065]; APPLE-1003, ¶100.

For example, when the first receiving mobile phone has SMS messaging format capabilities but not IM (***not identified as a subscriber of the PSMS***, as recited in [1e]), then at least in one case the sending mobile phone sends the first message ***as an SMS message***, which is a compatible format between the sending phone and the first receiving phone, instead of an IM message (an incompatible format in this case) to the first receiving mobile phone. *Supra*, §IV.A.1(c), [1e]; APPLE-1003, ¶101.

[1g]

According to the same procedure described above for [1c], it was obvious that when the user of Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone composes ***a second*** active ***message*** addressed to ***a second receiving mobile phone***, the sending mobile phone retrieves the destination address from the second active message being composed, wherein the destination address of the second active message is the phone number of the second receiving mobile phone. *Supra*, [1c]; APPLE-1004, [0027] ("The packet data network 102 and the circuit services network 104 support any number of wireless devices 106.”), [0029], [0031]; APPLE-1005, [0009] (“an active message recipient list”), [0032]-[0040], [0062]-[0063] (“where there are multiple remote recipients”), FIG. 4; APPLE-1003, ¶102.

More specifically, Horvath describes that at least the HSS 210 portion of the remote server system includes “profiles associated with each wireless device 106 registered with the IMS,” which obviously meant that there were many wireless devices within the system and that each wireless device would have been configured to send messages to any of the other wireless devices within the system. APPLE-1004, [0035]; *see also id.*, [0039] (“the SMSC 114 includes SIP/IMS capabilities to deliver SMS message**s** to the wireless device 106”); APPLE-1003, ¶103. This is further confirmed by Tsampalis, which describes that a wireless device may send multiple messages, each of which may indicate one or more recipient IDs. *See* APPLE-1005, [0046] (“For example, the user may begin by entering one recipient ID…entering a second recipient ID”), [0036] (“looping through of the recipient IDs 402 in the active message recipient list 218 to send messages to each designated recipient”). From these teachings, it was obvious that the user of Horvath-Tsampalis-Chatterjee-Kansal’s sending mobile phone would have sent multiple messages (including a ***first message*** and a ***second message***) to multiple different recipients (including a ***first receiving mobile phone*** and a ***second receiving mobile phone***). APPLE-1003, ¶103.

[1h]

According to the same procedure described above for [1d], it was obvious that Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone sends a second request (***second information***) representing the phone number of the second receiving mobile phone to the remote server(s), the second request including a query of MFCI of the second receiving mobile phone. *Supra*, [1d]-[1e], [1g]; APPLE-1003, ¶104.

[1i]

Following the same procedure as described above for [1e], Horvath-Tsampalis-Chatterjee-Kansal's remote server(s), in response to receipt of the second request (***second information***), sends ***a second response*** to the sending mobile phone, the second response containing the second receiving mobile phone's MFCI. *Supra*, §IV.A.1(b)-(c), [1e]; APPLE-1003, ¶105.

As also discussed above, Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) maintains presence status information for all registered IM subscribers. *Supra*, [1b]. It was obvious that a response would have further included the presence status of the inquired receiving mobile phone with IM (***status with the***

PSMS) if the receiving mobile phone is a subscriber of IM, as explained in more detail below. APPLE-1003, ¶106.

Again, the improved method and system of Horvath-Tsampalis-Chatterjee-Kansal makes more dynamic and optimized transmission mode determinations (and selections), based on not only the network registration status and messaging format capabilities of the sending mobile phone, but also at least the messaging format capabilities of the receiving mobile phone, by the sending mobile phone obtaining such information about the receiving mobile phone prior to sending a message, in accordance with Tsampalis. *Supra*, §IV.A.1(b)-(c), [1d]-[1e]; APPLE-1004, [0004], [0081]; APPLE-1005, [0004], [0026], [0062], [0065]; APPLE-1003, ¶107.

Based on Horvath, it was obvious that the subscriber status of the second receiving mobile phone is determined through identifying information, *e.g.*, the phone number of the second receiving mobile phone, as part of a profile stored in the remote server(s) (*e.g.*, the HSS 210) at registration, such profile also contain "subscription related information. APPLE-[0033]-[0035], [0038]-[0041] ("subscriber profile"); APPLE-1003, ¶108. Consistent with Horvath, Tsampalis teaches determining a recipient device's messaging format capabilities, which reflect subscriptions to various messaging services, through "recipient ID" such as the phone number. APPLE-1005, [0033]-[0035] (sending device "determine[s] the message format capabilities of the corresponding recipient ID" of a receiving mobile phone, *e.g.*, through a remote server), [0045], [0056]-[0057], [0060]-[0065], FIGS. 4, 5, 6, 13; APPLE-1003, ¶108.

Based on the teachings of Chatterjee, it was obvious that the status of the receiving mobile phone is another factor that would be relevant to a user's optimized transmission determination in the Horvath-Tsampalis-Chatterjee-Kansal system. APPLE-1003, ¶109. For example, Chatterjee describes that "[p]resence provides information about users' reachability and willingness to accept/reject a brief chat session." APPLE-1007, 1. Like message format capability, it was obvious that such presence information would have been useful to a user of a sending mobile device in determining whether and when to send message to a given recipient mobile device. APPLE-1003, ¶109. Thus, when a receiving mobile phone (*e.g.*, second receiving mobile phone) is registered with the SIP/IMS packet data network and subscribed to an IM service (***the second receiving mobile phone being identified as a subscriber of the PSMS***), the status (*e.g.*, offline/inactive, online/active) of the receiving mobile phone with IM also affects its messaging capabilities using IM, *i.e.*, whether it is capable of sending or receiving IM messages at the moment (*e.g.*, when the receiving mobile phone is offline, an IM would not be delivered to it successfully). *Supra*, §IV.A.1(c)-(e), [1b], [1e]; APPLE-1003, ¶109.

It was obvious to configure the sending mobile phone in the Horvath-Tsampalis-Chatterjee-Kansal combination to determine whether a receiving mobile phone has an active status (*e.g.*, online and available), in accordance with Chatterjee. *Supra*, §IV.A.1(d)-(e). Although Horvath describes examples that focus on SMSC 114 receiving information about the recipient's current registration status, it would have been obvious for the sending mobile phone also to request and receive from a remote server (*e.g.*, HSS 210 or SMSC 114) the recipient's presence status on the SIP network. APPLE-1003, ¶110. By the Critical Date of the '182 Patent, it was well known how to implement an IM client that polled a server for the current registration status (*e.g.*, presence information) of another IM client, and a POSITA would have possessed motivation to poll a server for such information before sending an IM to ensure the recipient was available to receive the message and participate in a real-time IM session. *Supra*, §IV.A.1(d)-(e), [1b]; APPLE-1003, ¶110. Tsampalis's teaching to provide the recipient's messaging capabilities information in a response to the sender also underscores the obviousness of allowing the sender to poll the server for the recipient's current presence status, *e.g.*, through the same response, because it shows how the sender can use information about the recipient to more effectively tailor messaging strategies to the recipient. APPLE-1003, ¶110.

Thus, it was obvious that in the combined system, in response to receipt of the second request (***second information***), and conditioned on the phone number of the second receiving mobile phone being ***identified as a subscriber of*** IM (***the PSMS***) (having both registration with the packet data network and subscription with an IM service) and the second receiving mobile phone ***having an active status with*** IM (***the PSMS***), the remote server(s) sends ***a second response*** to the sending mobile phone, where the second response contains IM MFCI and represents an active status of the second receiving mobile phone with IM, together indicating that the second receiving mobile phone is online and capable of IM. APPLE-1003, ¶111.

[1j1]

It was obvious that, after the second response indicating that the second receiving mobile phone is capable of IM is received by the sending mobile phone, the sending mobile phone sends the second message as an IM (***a packet switched message***), via the packet data network, such as "an 802.11 network" (***a wireless local area network (WLAN***)), and the IM service (***PSMS***), to the second receiving mobile phone. APPLE-1003, ¶112.

Specifically, Horvath teaches that, "if the wireless device 106 is registered on the packet data network 102, the SMS delivery network selector 124 selects the packet data network 102 for transmission of the" message. APPLE-1004, [0062]. Horvath teaches that the packet data network 102 may include an SIP network, which is "used for establishing instant messaging." APPLE-1004, [0033], [0046]. And as described in Section IV.A.1(e), *supra*, the MFCI shared with the sender device based on Tsampalis's and Chatterjee'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. APPLE-1003, ¶113. Thus, where the sender and receiver were both capable of IM established by Horvath's SIP network, it was obvious that the user could select to send the message as an IM (***a packet switched message***) via the IM service (***PSMS***), consistent with the teachings of Tsampalis. *See* APPLE-1005, [0037] ("If the user chooses to send the active message 216 in a format of the recipient list messaging format capabilities 406, the active message 216 is formatted in the selected messaging format capability, (e.g., message 112), and is sent to the second mobile wireless communication device 200"); APPLE-1003, ¶113.

Further, it was obvious that the packet data network 102 would have been ***a wireless local area network (WLAN)***. APPLE-1003, ¶114. In Horvath, "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 can comprise "an 802.11 network." APPLE-1004, [0024]. It was obvious that a common type of 802.11 network was a wireless LAN. APPLE-1003, ¶114 citing APPLE-1011, 5:1-33, 6:27-32, FIG. 5B; APPLE-1009, 1, 3 , 4; APPLE-1037; APPLE-1004, [0033]-[0034].

[1j2]

It was obvious that, when Horvath-Tsampalis-Chatterjee-Kansal's second receiving mobile phone became disconnected from the IM service implemented by Horvath's SIP network (***PSMS***), the second message would not have been able to be delivered to the second receiving mobile phone. *Supra*, §IV.A.1, [1e], [1i]. Instead of abandoning the second message completely, it was obvious that the remote server(s) queues the second message until the receiving mobile phone reconnects. APPLE-1003, ¶115. Indeed, it was a known problem that mobile devices connected to wireless networks often experienced "unreliable" connections in which "[n]etworking equipment between two connected users may frequently fail and recover." APPLE-1047, [0007]; APPLE-1003, ¶115. "In environments where network connections are unreliable, messages sent by real-time messaging clients often fail to get delivered to the recipient." *Id.* "[T]he user may see multiple error messages, contributing to a poor experience for the user." *Id.* One known way for a real-time messaging system to deal with these issues is to utilize a message cache that "caches any messages sent while the connection is unavailable." *See, e.g.*, APPLE-1047, [0017]; APPLE-1046, [0035]; APPLE-1048, [0053]; APPLE-1003, ¶115; APPLE-1048, [0053]; APPLE-1003, ¶115. "[B]y caching the messages, the reliable messaging system can send the messages to the receiving participant once the connection is restored." APPLE-1047, [0017].

Accordingly, it was obvious that, when ***the second receiving mobile phone is not connected to the at least one server***, the IM message (***packet switched message***) ***is queued until the second receiving mobile phone connects to the at least one server***. APPLE-1003, ¶116.

[1k]

Horvath-Tsampalis-Chatterjee-Kansal's "instant messaging" (IM) is a packet switched message service (***the PSMS***) that is for sending and receiving packet switched messages other than SMS, EMS, and MMS messages, over the packet data network (*e.g.*, the "SIP network" / "IMS network"). APPLE-1004, [0033]; APPLE-1003, ¶117. For example, Chatterjee explains that IM messages can be formatted using formats for, among others, the SIP/SIMPLE or Jabber/XXMP standards. APPLE-1007, 8 (Box 1, Box 2). Each of SIP/SIMPLE and Jabber/XXMP are different formats from the SMS/MMS/EMS message formats. APPLE-1003, ¶117. Accordingly, it was obvious that the IM service (***PSMS***) implemented by Horvath's SIP network would have been ***for sending and receiving packet switched messages other than SMS, EMS and MMS messages***. APPLE-1003, ¶117 (APPLE-1008, [0004]; APPLE-1009, 3; APPLE-1021, 9:57-64, 10:3-50).

[1l]

The combination implements Kansal's messaging user interface, which displays a message thread of various types including "SMS messages" and "IM messages" (***packet switched message***) within a single messaging client interface at the mobile wireless device. §§IV.A.1(f)-(g); APPLE-1042, [0046], [0009], [0045]-[0046], [0054]-[0056], [0062]-[0064], [0070], [0077]-[0078]. FIGs. 2-3; APPLE-1003, ¶118.

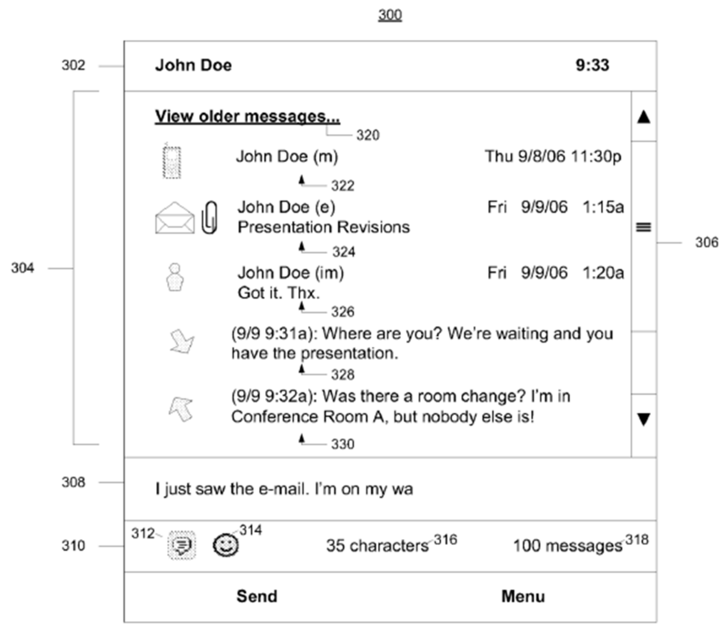


FIG. 3

APPLE-1042, FIG. 3

3. Claim 2

[2]

As described above ([1j2]), mobile devices connected to wireless networks were known to often experience “unreliable” connections in which “[n]etworking equipment between two connected users may frequently fail and recover.” APPLE-1047, [0007]; APPLE-1003, ¶119. For at least temporary disconnections, it was further known to delay changing status to avoid the poor user experience of seeing constant disconnection and error messages. *See, e.g.*, APPLE-1047, [0016](“delay displaying any error message to the user for a certain amount of time while the reliable messaging system attempts to restore the connection," so that "real-time communication appears more reliable to the user, because the user will see fewer delivery errors when a connection can be reestablished"); APPLE-1046, [0035]; APPLE-1003, ¶119. Based on these common practices, a POSITA would have expected the ***second receiving mobile phone to have an active status with the*** IM service (***PSMS***) ***in at least one case when the second receiving mobile phone is not connected to the at least one server*** (*e.g.*, during temporary disconnections due to unreliable wireless network service). APPLE-1003, ¶119.

4. Claim 3

[3]

As discussed above for [2], for at least temporary disconnections, it was known to delay changing status to avoid the poor user experience of seeing constant disconnection and error messages. *See, e.g.*, APPLE-1047, [0016]; APPLE-1046, [0035]. Thus the IM service (***PSMS***) would show an active status for a user both when the user's mobile device is connected to the remote server that provides access to the SIP network hosting the IM service (***the second receiving mobile phone has an active status with the PSMS in at least one case when the second receiving mobile phone is connected to the at least one server***) and also when the mobile device is temporarily disconnected to the remote server (***the second receiving mobile phone has an active status with the PSMS in at least one***

case when the second receiving mobile phone is not connected to the at least one server). APPLE-1003, ¶120.

5. Claim 4

[4]

The claim does not link the first and second "wherein" clauses of [4]. Further, the second "wherein" clause simply uses the email address as part of routing some messages—not that the message itself is an e-mail.

As discussed for [2], it was obvious that during a period between when a receiving device goes offline and when its status changes from active to inactive, the sending mobile phone continues to send messages using IM (***the PSMS***) while the remote server(s) queues these received messages for the second receiving mobile phone. *Supra*, §IV.A.2-3, [1j2], [2]; APPLE-1003, ¶121.

It was obvious that, upon the expiration of that time period, which is defined by a certain event (*e.g.*, a user input), a specified time period, or by another threshold parameter such as a certain maximum number of messages being queued (*e.g.*, due to limited storage capacity), depending on the design, the status updates from active to inactive (***the second receiving mobile phone has an inactive status with the PSMS subsequent to a plurality of messages being queued for the second receiving mobile phone***). *Supra*, [2]-[3]; APPLE-1003, ¶122 (APPLE-

1009, FIG. 2, 2("the message will be **queued**…**within a specified time period**."); APPLE-1010, 8:51-9:12, 11:24-36 ("The presence status…**may be updated** continuously, **periodically, or upon user input**."); APPLE-1017, 34:66-35:33; APPLE-1049, Abstract, 2:15-35(describing that "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."), 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).

Moreover, Horvath describes "profiles associated with each wireless device 106 registered with the IMS" stored on the database HSS including "information to identify each registered wireless device 106," such as a telephone number" and "IP address" of the wireless device 106, which is bound with the "SIP address" by the S-CSCF during "SIP registrations." APPLE-1004, [0035], [0038]; APPLE-1003, ¶123.

It was obvious that other than telephone number and IP address, the information used to identify each registered wireless device 106 stored in the HSS and bound with the SIP address during registration include "e-mail type of addresses," and as a SIP address or other identifier, it would be used to route the message. APPLE-1005, [0061]; APPLE-1004, [0050] ("the destination address of the recipient device is a SIP URI formed out of the normal address"); APPLE-1003, ¶¶124-125 (APPLE-1026, §4, §19.1; APPLE-1021, 10:3-50; APPLE-1028; APPLE-1032, [0017], [0025] ("the user ID that is associated with the user's virtual community account (e.g., an e-mail address"), FIGS. 2 ("UserID (e.g., e-mail address) for this account"), 5, supported by APPLE-1033, 3:4-5, 4:2-6; APPLE-1036, 3:25-28.

6. Claim 5

[5]

It was obvious that the status information maintained by Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) is maintained in accordance with a period defined by either a specific event (*e.g.*, user input) or a relevant threshold parameter such as a specified time or a maximum number of undelivered messages being queued (***an undelivered message queue***). *Supra*, [2]-[4]; APPLE-1003, ¶126.

7. Claim 6

[6]

As discussed for [2], it was a known problem that mobile devices connected to wireless networks often experienced "unreliable" connections in which "[n]etworking equipment between two connected users may frequently fail and recover." APPLE-1047, [0007]; APPLE-1003, ¶127. For at least temporary disconnections, it was further known to delay changing status to avoid the poor user experience of seeing constant disconnection and error messages. *See, e.g.*, APPLE-1047, [0016]; APPLE-1046, [0035]. However, after the user's device had been disconnected for longer than the certain amount of time (***an inactivity parameter associated with the second receiving mobile phone exceeds a threshold***), it was obvious that ***the second receiving mobile phone has an inactive status with the*** IM service (PSMS). *See* APPLE-1047, [0016], [0020] ("If the receiving participant is disconnected, the sending participant may receive other responses, such as '480 Temporarily Unavailable' or '504 Server Timeout,'…"); APPLE-1003, ¶127.

8. Claim 7

[7]

As described for [1j2], it was a known problem that mobile devices connected to wireless networks often experienced "unreliable" connections in which "[n]etworking equipment between two connected users may frequently fail and recover." APPLE-1047, [0007]; APPLE-1003, ¶128. One known way for a real-time messaging system to deal with these issues is to utilize a message cache that "caches any messages sent while the connection is unavailable." *See, e.g.*, APPLE-1047, [0017]; APPLE-1046, [0035]; APPLE-1048, [0053]; APPLE-1003, ¶128.

As discussed for [2], for at least temporary disconnections, it was further known to delay changing status to avoid the poor user experience of seeing constant disconnection and error messages. *See, e.g.*, APPLE-1047, [0016]; APPLE-1046, [0035]; APPLE-1003, ¶129. Accordingly, for messages sent to a receiving mobile device during a temporary disconnection, it was obvious to store the messages in a message cache until the receiving mobile device was able to reconnect and keep the status active throughout the process. APPLE-1003, ¶129. Because the active status never changed, ***the second receiving mobile phone has an active status with the PSMS after a message queued for the second receiving mobile phone is delivered to the second receiving mobile phone***. APPLE-1003, ¶129.

The claim language reciting "***after***" simply does not imply causality or otherwise require that the status have been anything other than "active" before a message queued for the second receiving mobile phone is delivered to the second receiving mobile phone. APPLE-1003, ¶130. Nor does the word "***after***" impose a limit to how long after. *Id.*

9. Claim 8

[8]

Supra, [7]. Note that "***at a point in time subsequent to***" recited here is similarly unbound as "***after***" recited in Claim [7]. APPLE-1003, ¶131.

10. Claim 9

[9]

As described for [1j2], it was obvious for mobile devices connected to wireless networks to experience "unreliable" connections in which "[n]etworking equipment between two connected users may frequently fail and recover." APPLE-1047, [0007]; APPLE-1003, ¶132. As described for [2] and [6], for at least temporary disconnections, it was further known to delay changing status to avoid the poor user experience of seeing constant disconnection and error messages. *See, e.g.*, APPLE-1047, [0016]; APPLE-1046, [0035]. Accordingly, it was obvious that ***the second receiving mobile phone has an active status with the*** IM service (***PSMS***) ***when the second receiving mobile phone is connected to the*** remote server (***at least one server***) connecting the receiving device to the SIP network implementing the IM service, ***and the second receiving mobile phone remains active for a time period after the second receiving mobile phone is not***

connected to the at least one server. APPLE-1003, ¶132. However, after the user's device had been disconnected for longer than the "certain amount of time" (***a time period after the second receiving mobile phone is not connected to the at least one server***), it was obvious that ***the second receiving mobile phone has an inactive status with the*** IM service (***PSMS***). APPLE-1003, ¶132.

Further, as discussed for [1j2], one known way for a real-time messaging system to deal with unreliable connection issues is to utilize a message cache that "caches any messages sent while the connection is unavailable." *See, e.g.*, APPLE-1047, [0017]; APPLE-1046, [0035]; APPLE-1048, [0053]; APPLE-1003, ¶133. Correspondingly, it was obvious that ***a plurality of undelivered messages are queued for the second receiving mobile phone during*** the time while the receiving mobile device attempts to reconnect (***the time period***). APPLE-1003, ¶133.

11. Claim 10

[10]

Supra, §IV.A.1(c), [1j1], [1f].

12. Claim 11

[11]

For example, Horvath, Tsampalis and Chatterjee all disclose messaging text as well as multimedia messages, which include images, audio (*i.e.*, voice) and video messages. APPLE-1004, [0025], [0029], [0034], [0068]-[0069]; APPLE-1007, 8; APPLE-1003, ¶135.

Thus, it was obvious that, in Horvath-Tsampalis-Chatterjee-Kansal, at least one of the plurality of IM messages queued for the second receiving mobile phone contain image(s) (***is a picture message***). APPLE-1003, ¶136 (APPLE-1008, [0002]).

13. Claim 12

[12]

Supra, [11].

14. Claim 13

[13]

As discussed above, at least one of the plurality of messages queued for the second receiving mobile phone in Horvath-Tsampalis-Chatterjee-Kansal is an audio multimedia (***voice***) message. *Supra*, [11]; APPLE-1003, ¶138.

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. 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]-[0078], [0060], FIGs. 3 (314), 5. Like Chatterjee, Kansal explains that this message (e.g., the message with the voice recording attachment) can be an IM message. APPLE-1042, [0078], [0045], [0064] ("using various types of messages"), [0071]. Tsampalis also recognized that some messaging formats are capable of handling multimedia attachments, and that "any attached/inserted multimedia files" to be sent as an SMS message "will be lost." APPLE-1005, [0062]. APPLE-1003, ¶139.

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, ¶140. For example, Tsampalis describes the option of removing a media file from a composed/active message before it is sent as an SMS, but a POSITA 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, ¶140. 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 if the receiver is a subscriber of either MMS or IM, and not to provide that option if the receiver is not a subscriber of either. *Id.* In fact, imposing restrictions/constraints on message attachments was well known before the Critical Date. APPLE-1003, ¶140 (APPLE-1054, [0011] ("attachment constraints can be specified"), [0022]-[0025]).

15. Claim 14

[14]

The combination implements Kansal's messaging user interface, which displays a message thread of various types including "SMS messages" and "IM messages" within a single messaging client interface at the mobile wireless device. *Supra* §§IV.A.1(f)-(g); APPLE-1042, [0009], [00450077]-[0078], FIGs. 2-3; APPLE-1003, ¶¶141-142.

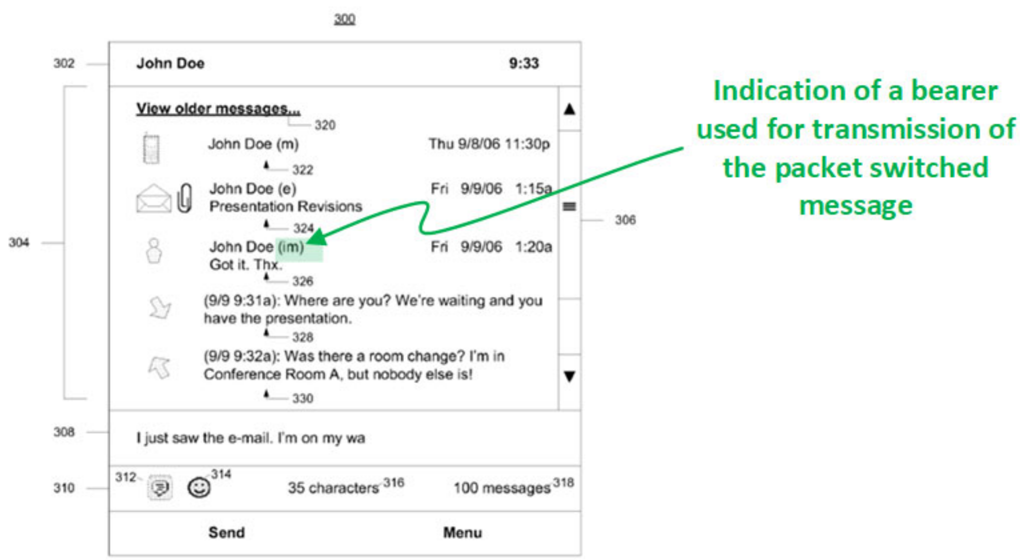


FIG. 3

APPLE-1042, FIG. 3

As annotated above, the interface described by Kansal ***displays an indication of a bearer used for transmission of the packet switched message***. *Id.*; APPLE-1003, ¶143. It would therefore have been obvious to display this information to the sender ***prior to transmission of the packet switched message***, as that would help the user know which bearer they have selected for delivery.

APPLE-1003, ¶143. Tsampalis describes determining messaging format capabilities so that a user may select their preferred messaging format for delivering a message. APPLE-1005, [0037]. A POSITA would have been motivated to display the messaging format information to the user while they were composing a message and prior to transmission—consistent with Tsampalis and Kansal—because it would have helped the user keep track of the format they selected and help them ensure they are utilizing the format they intended. APPLE-1003, ¶143.

16. Claim 15

[15]

Supra, [14].

17. Claim 16

[16]

Supra, [1e] (the first response indicating the first receiving mobile phone is not a subscriber and thus incapable of IM), [1i] (the second response indicating the second receiving mobile phone is a subscriber and has an active status, thus capable of IM), [1j1] (at the time the packet switched IM is sent, the second receiving mobile phone has an active status with IM). APPLE-1003, ¶145.

18. Claim 17

[17pre1]-[17pre2]

Supra, [1pre], [1a], respectively.

[17a]

For example, Horvath describes authenticating its wireless devices 106 (***the sending mobile phone***) *e.g.*, through authenticating an identifier such as a phone number of wireless device 106, both during registration with the SIP/IMS network and for transmitting subsequent messages. APPLE-1004, FIG. 5 ("S-CSCF authenticates and registers the wireless device" at step 508), [0035] ("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') and/or a SIP uniform resource identifier ('SIP-URI'). A tel-URI, for example is the **telephone number** assigned to the wireless device 106."), [0036], [0040]; *supra*, [1c]; APPLE-1003, ¶148.

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] (The S-CSCF also handles **SIP registrations** which allows the S-CSCF to bind the location of the wireless device 106…and the SIP address”), [0040] (“The wireless device 106 registers with the S-CSCF component of the I, S-CSCF 208. When the S-CSCF receives a registration request from the wireless device 106, the **S-CSCF contacts the HSS 210 for authentication and authorization** of the wireless device 106.”), [0041], [0072]-[0073], [0076], FIGS. 2, 5; APPLE-1003, ¶149.

Once registration is complete, the P-CSCF of the remote server(s) “authenticate[s] subsequent messages.” APPLE-1004, [0036]; APPLE-1003, ¶150.

Through authentication with the remote server(s), wireless device 106 is also authenticated with the IM service (***authenticating…with the PSMS***). APPLE-1004, [0033], [0038]-[0039] (“An application server [providing messaging service(s) such as IM] 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…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; *supra*, [1k]-[1l]; APPLE-1003, ¶151.

Horvath's teachings in this regard are consistent with conventional techniques for authentication, *e.g.*, through a phone number, of a mobile phone for using SIP-based messaging service (such as IM), by the Critical Date. APPLE-1003, ¶152 (APPLE-1009, 1 ("A user…would **authenticate with the remote registration server**"), 3, 5 ("authenticating remote mobile devices via IP and **identifying the device via a unique identifier** which can be related to the devices GSM **mobile number**"), 6; APPLE-1043, §3 ("INSTANT MESSAGE SERVICE…May require authentication of SENDER USER AGENTS and/or INSTANT INBOXES…PRESENCE SERVICE…May require authentication of PRESENTITIES, and/or WATCHERS")); *see also* APPLE-1004, [0033]; *supra*, §IV.A.1(d)-(e). 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, ¶152.

[17b]

Supra, [1b] (Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) supports the PSMS), [1d]; APPLE-1004, [0039], [0041]. APPLE-1003, ¶153.

[17c]-[17f]

Supra, [1e], [1f], [1h], [1i], respectively.

[17g]

Supra, [1j1] ("a message" of [17g] corresponds to "the second message" of [1j1]).

[17h]

Supra, [1e]/[17c] (first response indicating the first receiving mobile phone is not a subscriber, thus incapable of IM) and [1i]/[17f] (second response indicating the second receiving mobile phone is a subscriber and has an active status, thus capable of IM). APPLE-1003, ¶159.

[17i]

Supra, [1k].

[17j]

Supra, [1l].

19. Claim 18

[18pre]

Supra, [1pre], [17].

[18a]

As discussed above, Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone retrieves a destination address of an active message from the active message being composed by the user of the sending mobile phone, wherein the destination address of the active message is a phone number of a receiving mobile phone, and the sending mobile phone sends a request to the remote server(s). *Supra*, [1c]-[1d] (regarding composing a first message addressed to a first receiving mobile phone and sending first information in the form of a first request), [1g]-[1h] (regarding composing a second message addressed to a second receiving mobile phone and sending second information in the form of a second request). APPLE-1003, ¶163.

It was obvious that at least in one instance, the user of the sending mobile phone composes a third active message addressed to the second receiving mobile phone when the second receiving mobile phone does not have an active status with IM (***the PSMS***), *e.g.*, due to loss of connection with the remote server(s) for a long enough period for its status to change to inactive. *Supra*, [1b]-[1d], [1g]-[1i], [1j2]; APPLE-1003, ¶164. The sending mobile phone sends a third request (***third information***) representing the phone number of the second receiving mobile phone to the remote server(s) querying the MFCI and active/inactive status of the second receiving mobile phone. *Id.*

[18b]

At least in one instance, the user of the sending mobile phone composes a third active message addressed to the second receiving mobile phone when the second receiving mobile phone does not have an active status. *Supra*, [18a]. It was obvious that in such instance, Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) sends a third response to the sending mobile phone (***receiving a third response***) indicating that the second receiving mobile phone is a subscriber of IM (***the PSMS***) and that the second receiving mobile phone does not have an active status with IM. *Id.*; *supra*, [1b], [1i]; APPLE-1003, ¶165.

[18c]

It was obvious that when the third response indicates that the second receiving mobile phone does not have an active status, thus not capable of sending or receiving IMs, at least in one instance the sending mobile phone sends the third message as an SMS message to the second receiving mobile phone, after learning from the received third response that any IMs cannot be received by the second mobile phone. *Supra*, [18b]; APPLE-1003, ¶166.

[18d]

The third response communicates a same query result as the first response, both indicating a lack of IM capabilities of a receiving mobile phone, which is different from the query result of the second response which indicates an existence of IM capabilities of a receiving mobile phone. *Supra*, [1e], [1i], [18b]; APPLE-1003, ¶167.

20. Claim 19

[19]

The Horvath-Tsampalis-Chatterjee-Kansal's wireless devices are capable of various messaging formats through subscriptions to various messaging services, *e.g.*, SMS, EMS, MMS, and IM. *Supra*, §IV.A.1(a) (Horvath); APPLE-1004, [0025], [0039]; *see also* APPLE-1005, [0002], [0024], [0056]-[0064]. APPLE-1003, ¶168.

It was obvious that at least in one instance, the sending mobile phone, after the third response is received indicating a lack of IM capabilities due to an inactive status with IM, sends an MMS message to the second receiving mobile phone. *Supra*, [18]; APPLE-1003, ¶169.

21. Claim 20

[20]

Supra, [2], [4], [17].

22. Claim 21

[21]

Horvath-Tsampalis-Chatterjee-Kansal's remote server(s) is located outside of the circuit services network (***cellular network***) with "an interface to the packet data network 102 and the circuit services network 104." *Supra*, [1a]; APPLE-1004, [0058], FIGS. 1-3; APPLE-1003, ¶171.

It was obvious that Horvath-Tsampalis-Chatterjee-Kansal's IM service (***the PSMS***), *e.g.*, through the remote server(s), receives and queues messages addressed to a message recipient for later delivery if the outgoing messages cannot be delivered to the message recipient, *e.g.*, when the message recipient is not connected to IM. *Supra*, [1]; APPLE-1003, ¶172.

23. Claim 22

[22pre1]

Supra, [1pre].

[22pre2]

Supra, [17pre2], [1a].

[22a]-[22e]

Supra, [1d], [1e], [1f], [1h], [1i], respectively.

[22f]

Supra, [1j1] (***a message*** of [22f] corresponds to ***the second message*** of [1j1]).

[22g]-[22j]

Supra, [18a]-[18d], respectively.

[22k]

Supra, [11].

[22l]

Supra, [4].

24. Claim 23

[23]

Horvath-Tsampalis-Chatterjee-Kansal's sending mobile phone is authenticated to IM both at SIP registration and during subsequent messaging. *Supra*, [17a]. It was obvious that at least prior to the completion of the SIP registration with the IP-based packet data network, the sending mobile phone does not have access to the SIP or Internet protocol, such that the sending mobile phone is authenticated via SMS protocol. APPLE-1003, ¶187. Moreover, it was known to authenticate a user device initiating an IM session through SMS text message between the user and the IM server. *See, e.g.*, APPLE-1050, [0006], [0017] , FIG. 4; *see also id.*, Abstract, [0014]-[0016], FIGs. 2-3; APPLE-1003, ¶38, ¶187.

25. Claim 24

[24]

Supra, [11].

26. Claim 25

[25pre1]

Supra, [1pre].

[25pre2]

Supra, [17pre2].

[25a]

Supra, [1c].

[25b]

Supra, [1d].

[25c]

Supra, [1e].

[25d]

Supra, [1f].

[25e]

Supra, [1g].

[25f]

Supra, [1h].

[25g]

Supra, [1i].

[25h]

Supra, [1j1].

[25i]

Supra, [18a].

[25j]

Supra, [18b].

[25k]

Supra, [18c].

[25l]

Supra, [18d].

[25m]

Supra, [1l].

27. Claim 26

[26]

Supra, [1f] (the SMS message sent to the first receiving mobile phone is sent in accordance with the first response), [1j1] (the second message is sent in accordance with the second response); [18c] (the SMS message sent to the second receiving mobile phone is sent in accordance with the third response), [21] (the server is located outside of a cellular network) and [25]. APPLE-1003, ¶204.

28. Claim 27

[27]

Tsampalis teaches "the use of an active message recipient list" having a plurality of recipients in a single active message, each recipient having a "recipient ID" that the user enters in the form of phone numbers for the same active message being composed. *See e.g.*, APPLE-1005, [0004], [0009], [0032], [0055], FIG. 4. Thus, it was obvious that in at least one case the first information represents a plurality of phone numbers, when the first message is addressed to a plurality of recipients each identified by their respective phone number. *Supra*, [1c]-[1d]; APPLE-1003, ¶205.

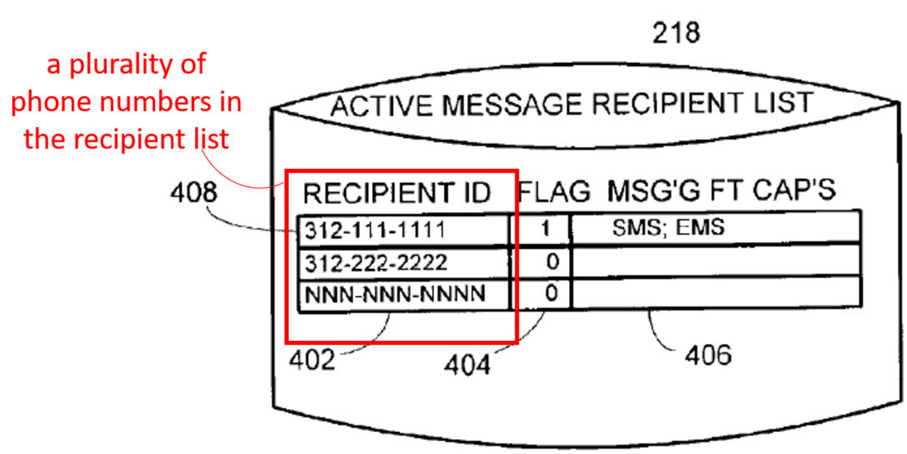


FIG. 4

APPLE-1005, FIG. 4 (annotated)

It was obvious that the messaging service application supporting IM (***messaging client***) operative on the Horvath-Tsampalis-Chatterjee-Kansal's mobile phone provides a single interface for sending and receiving both text and multimedia messages, as the IM service supports both text and multimedia messages. *Supra*, [11]; APPLE-1003, ¶206.

29. Claim 28

[28]

Supra, [1b] (server supports IM (***the PSMS***) and maintains status), [1i] (second receiving mobile phone having an active status when it is online), [2] (second receiving mobile phone having an active status in at least one case when the second receiving mobile phone loses connection, before status updates to reflect the change (***determined by the PSMS***)), [18a]-[18b] (second receiving mobile phone's status is determined by the IM service to be inactive, *e.g.*, when the second receiving mobile phone is offline or disconnected for a long enough time), [25]. APPLE-1003, ¶207.

30. Claim 29

[29]

Supra, [14].

31. Claim 30

[30]

Supra, [15].

V. CONCLUSION/FEES

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

VI. 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 '182 patent. The '182 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.

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D. Service Information

Please address all correspondence and service to the address listed above. Petitioner consents to electronic service by email at IPR50095-0261IP1@fr.com.

Respectfully submitted,

Dated: August 29, 2025

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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 13,986 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: August 29, 2025

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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:

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