IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Graham Merrett	
U.S. Patent No.:	8,918,127	Attorney Docket No. 50095-0260IP1
Issue Date:	December 23, 2014	
Application No.:	13/762,347	
Filing Date:	February 7, 2013	
Title:	MESSAGING SERVICE IN A WIRELESS COMMUNICATIONS NETWORK	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 8,918,127 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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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")
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APPLE-1023	U.S. Pub. No. 2006/0056309 (“Maaniitty”)
APPLE-1024	U.S. Patent No. 7,171,190 (“Ye”)
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-1026-1035	RESERVED
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APPLE-1037	T-Mobile webpage https://www.t-mobile.com/home-internet/the-signal/internet-help/the-complete-wifi-history
APPLE-1038	U.S. Pub. No. 2010/0009704 (“Fan”)
APPLE-1039	U.S. Pub. No. 2004/0087305 (“Jiang”)
APPLE-1040	U.S. Pub. No. 2007/0178895 (“Bot”)
APPLE-1041	Kumar et al., Special Delivery: An Increase in MMS Adoption, IEEE Potentials (January/February 2009)
APPLE-1042	Brugge, MSS-Multimedia Messaging and MMS-Interconnection, ECC Report 62 (November 2004)
APPLE-1043	U.S. Pub. No. 2008/0176538 (“Terrill”)
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-1045-1099	RESERVED
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APPLE-1101 Infringement Charts of the ’127 Patent

LISTING OF CLAIMS

Claim 1	
1pre	A method of providing a messaging service for use in a wireless device of a sender, the method comprising:
1a1	receiving, by a message client running on the wireless device of the sender, information associated with a destination address of a wireless device of a recipient,
1a2	the message client capable of determining a transmission mode for sending an outgoing message to the wireless device of the recipient,
1a3	wherein the wireless device of the sender is capable of sending messages in a plurality of transmission modes comprising a first transmission mode and a second transmission mode;
1b1	determining, by the wireless device of the sender, whether the destination address corresponds to a subscriber of a service for receiving the outgoing message via a packet switched bearer
1b2	by sending a request via a packet switched wireless local area network (WLAN) base station to a server,
1b3	and receiving a response from the server via the packet switched WLAN base station, the response providing an indication of whether the destination address corresponds to a subscriber of the service;
1c1	selecting, by the wireless device of the sender, a transmission mode from the plurality of transmission modes,
1c2	wherein the wireless device of the sender selects the first transmission mode when the indication corresponds to a subscriber of the service,
1c3	and the wireless device of the sender is capable of selecting the second transmission mode when the indication does not correspond to a subscriber of the service;
1d	sending, by the wireless device of the sender, the outgoing message using the selected transmission mode,

1e	wherein, when the selected transmission mode is the first transmission mode, the wireless device of the sender sends the outgoing message as one or more Internet protocol (IP) packets to the wireless device of the recipient via the packet switched WLAN base station,
1f	wherein, when the selected transmission mode is the second transmission mode, the wireless device of the sender sends the outgoing message as a short message service (SMS) message to the wireless device of the recipient using the destination address via a base station that is associated with a cellular core network that is independent of the packet switched WLAN base station, and
1g	wherein the request sent to the server and the response received from the server do not traverse the cellular core network.
Claim 2	
2	The method of claim 1, further comprising: displaying, by the wireless device of the sender, a result of the indication of whether the destination address corresponds to a subscriber of the service.
Claim 3	
3	The method of claim 1, further comprising: selecting, by the wireless device of the sender, at least one type of permissible attachment based on whether the destination address corresponds to a subscriber of the service.
Claim 4	
4	The method of claim 1, further comprising: denying, by the wireless device of the sender, when the destination address does not correspond to a subscriber of the service, any type of attachment.
Claim 5	
5	The method of claim 1, wherein the destination address is a mobile phone number.
Claim 6	

6	The method of claim 1, further comprising: queuing the outgoing message for later delivery if the outgoing message cannot be delivered to the wireless device of the recipient.
Claim 7	
7	The method of claim 1, further comprising: receiving, by the wireless device of the sender, a delivery confirmation message, via the packet switched WLAN base station, if the outgoing message is successfully delivered to the wireless device of the recipient, when the destination address corresponds to a subscriber of the service.
Claim 8	
8	The method of claim 7, further comprising: displaying, by the wireless device of the sender, a delivery indication based on the received delivery confirmation message.
Claim 9	
9	The method of claim 1, further comprising: displaying, by the wireless device of the sender, sent messages and received messages, wherein sent messages are displayed with a first characteristic and received message are displayed with a second different characteristic so as to distinguish the sent messages from the received messages.
Claim 10	
10	The method of claim 1, further comprising: receiving, by the wireless device of the sender, presence information associated with the wireless device of the recipient if the destination address corresponds to a subscriber of the service; and displaying, by the wireless device of the sender, the presence information associated with the wireless device of the recipient.
Claim 11	
11pre	A method of providing a messaging service for use in a wireless device of a sender, the method comprising:

11a1	receiving, by a message client running on the wireless device of the sender, information associated with a destination address of a wireless device of a recipient,
11a2	the message client capable of determining a transmission mode for sending an outgoing message to the wireless device of the recipient,
11a3	wherein the wireless device of the sender is capable of sending messages in a plurality of transmission modes comprising a first transmission mode and a second transmission mode;
11b1	determining, by the wireless device of the sender, whether the destination address corresponds to a subscriber of a service for receiving the outgoing message via a packet switched bearer
11b2	by sending a request via a packet switched wireless local area network (WLAN) base station to a server,
11b3	and receiving a response from the server via the packet switched WLAN base station, the response providing an indication of whether the destination address corresponds to a subscriber of the service;
11c1	selecting, by the wireless device of the sender, a transmission mode for sending the outgoing message to the wireless device of the recipient from the plurality of transmission modes,
11c2	wherein the wireless device of the sender selects the first transmission mode when the indication corresponds to a subscriber of the service,
11c3	and the wireless device of the sender is capable of selecting the second transmission mode when the indication does not correspond to a subscriber of the service,
11d	wherein the wireless device of the sender is capable of sending, in the first transmission mode, the outgoing message as one or more Internet protocol (IP) packets to the wireless device of the recipient via the packet switched WLAN base station,

11e	wherein the wireless device of the sender is capable of sending, in the second transmission mode, the outgoing message as a short message service (SMS) message to the wireless device of the recipient using the destination address via a base station that is associated with a cellular core network that is independent of the packet switched WLAN base station, and
11f	wherein the request sent to the server and the response received from the server do not traverse the cellular core network.
Claim 12	
12	The method of claim 11, further comprising: displaying, by the wireless device of the sender, a result of the indication of whether the destination address corresponds to a subscriber of the service.
Claim 13	
13	The method of claim 11, further comprising: selecting, by the wireless device of the sender, at least one type of permissible attachment based on whether the destination address corresponds to a subscriber of the service.
Claim 14	
14	The method of claim 11, further comprising: denying, by the wireless device of the sender, when the destination address does not correspond to a subscriber of the service, any type of attachment.
Claim 15	
15	The method of claim 11, wherein the destination address is a mobile phone number.
Claim 16	
16	The method of claim 11, further comprising: queuing the outgoing message for later delivery if the outgoing message cannot be delivered to the wireless device of the recipient.
Claim 17	

17	The method of claim 11, further comprising: receiving, by the wireless device of the sender, a delivery confirmation message, via the packet switched WLAN base station, if the outgoing message is successfully delivered to the wireless device of the recipient, when the destination address corresponds to a subscriber of the service.
Claim 18	
18	The method of claim 17, further comprising: displaying, by the wireless device of the sender, a delivery indication based on the received delivery confirmation message.
Claim 19	
19	The method of claim 11, further comprising: displaying, by the wireless device of the sender, sent messages and received messages, wherein sent messages are displayed with a first characteristic and received message are displayed with a second different characteristic so as to distinguish the sent messages from the received messages.
Claim 20	
20	The method of claim 11, further comprising: receiving, by the wireless device of the sender, presence information associated with the wireless device of the recipient if the destination address corresponds to a subscriber of the service; and displaying, by the wireless device of the sender, the presence information associated with the wireless device of the recipient.

I. INTRODUCTION

Apple Inc. ("Apple" or "Petitioner") petitions for IPR of claims 1-20 ("Challenged Claims") of U.S. Patent No. 8,918,127 ("the '127 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 '127 Patent is available for IPR. The present Petition is being filed within one year of service of a complaint in *HBCU Messaging US LP v. Apple, Inc. et al.*, 1-24-cv-01199 (WDTX). APPLE-1100. Petitioner is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Apple requests institution of IPR and cancellation of the Challenged Claims based on the following ground:

Ground	'127 Patent Claims	§ 103 Basis
1	1-20	Horvath-Tsampalis

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

The ’127 Patent claims priority through several intervening applications to Australian Patent Application No. 2007903979 filed July 24, 2007 and Australian Patent Application No. 2007906230 filed November 13, 2007. APPLE-1001, Cover, 1:5-20. Petitioner does not concede that any ’127 Patent claim is entitled to the benefit of the alleged priority application filing dates, but nonetheless, all references forming the basis of the grounds predate the filing of each of the applications identified in the priority chain. Petitioner accordingly treats July 24, 2007 as the Critical Date solely for purposes of the analysis in this Petition. APPLE-1003, ¶¶18, 21.

Reference	Filing Date	Publication Date	Pre-AIA Prior Art Status
Horvath (APPLE-1004)	May 1, 2006	Nov. 1, 2007	§102(e)
Tsampalis (APPLE-1005)	Dec. 31, 2002	Oct. 14, 2004	§§102(a)-(b), (e)

Horvath and Tsampalis are both analogous art to the ’127 Patent, each being in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the ’127 Patent. APPLE-1003, ¶48. For example, like the ’127 Patent, each of the prior art references applied in Ground 1 describes methods and systems for mobile messaging over wireless networks. APPLE-1003, ¶48; APPLE-1001, Title, Abstract; *infra*, §IV; *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art relating to the subject matter of the ’127 Patent as of the Critical Date (“POSITA”) would have had at least a bachelor’s degree in computer science, electrical engineering, computer engineering, or a related field, with 2-3 years of industry experience in computer networking and wireless telecommunications. APPLE-1003, ¶21. Additional graduate education could substitute for professional experience, and *vice versa*. *Id*.

III. SUMMARY OF THE ’127 PATENT

A. Brief Description

The ’127 Patent describes techniques for 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 recipient of the message is a subscriber of a service for receiving messages via a packet-switched bearer. APPLE-1001, 2:43-3:12, 7:36-9:35, Abstract; APPLE-1003, ¶¶24-27. The Abstract summarizes the disclosed techniques as follows, for example:

> A method of providing a message service in a sender’s wireless device is disclosed. The sender's wireless device may be capable of sending messages via a packet switched base station in a first mode, or via a short message service (SMS) base station that is independent of the packet switched base station, in a

> second mode. The sender's wireless device determines whether a destination address corresponds to a subscriber of a service for receiving the outgoing message via a packet switched bearer. The sender's wireless device sends, if the destination address corresponds to a subscriber of the service, the outgoing message to the recipient's wireless device via the packet switched base station in the first mode. If the destination address does not correspond to a subscriber of the service, the outgoing message may be sent via the SMS base station in the second mode.

APPLE-1001, Abstract.

FIG. 3 is a flowchart that illustrates an example process for selecting a transmission mode for an outgoing message based on information about the recipient:

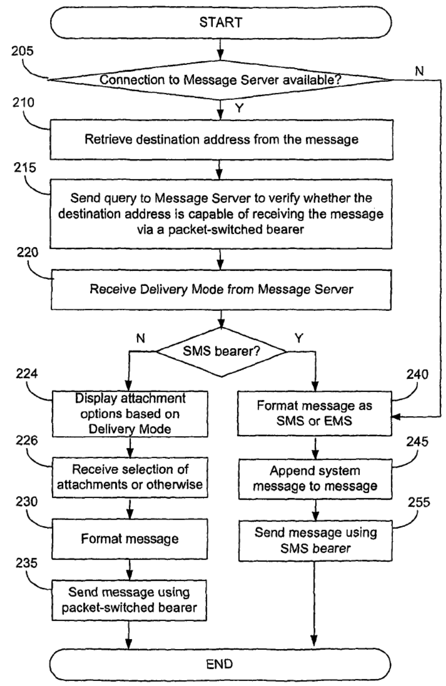

FIG. 3

APPLE-1001, FIG. 3

B. Claim Construction

All claim terms should be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100. Petitioner submits that no formal constructions are presently necessary for purposes of demonstrating obviousness of the Challenged Claims based on Ground 1. *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).

Petitioner reserves the right to respond to any constructions offered by Patent Owner or adopted by the Board. Petitioner is not conceding that the

Challenged Claims satisfy all statutory requirements, nor is Petitioner waiving any arguments concerning indefiniteness or claim scope that can only be raised in district court or otherwise outside the context of an IPR. IPR2018-00272, Paper 35, 6-8 (PTAB 2019). The Board has regularly compared indefinite claims to the prior art for purposes of considering unpatentability. *See, e.g.,* CBM2013-00027, Paper 33, 3 (PTAB 2014); CBM2013-00013, Paper 61, 29 (PTAB 2014). For this Petition, Petitioner applies prior art in a manner consistent with disclosure of the claimed features in the '127 Patent itself and Patent Owner's allegations of infringement before the district court.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. GROUND 1 – Horvath-Tsampalis Renders Obvious Claims 1-20

1. Prior Art and Proposed Combination

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

Horvath discloses a method and system for "transmitting short message service messages" with "a wireless device" over "a packet data network 102 and a circuit services network 104." *See e.g.*, APPLE-1004, Title, [0001]-[0002],

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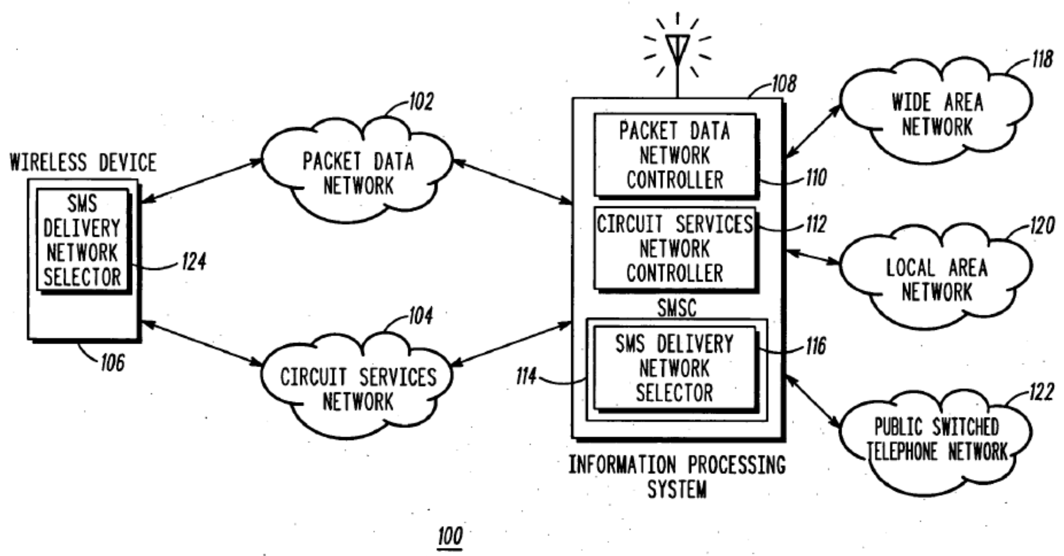
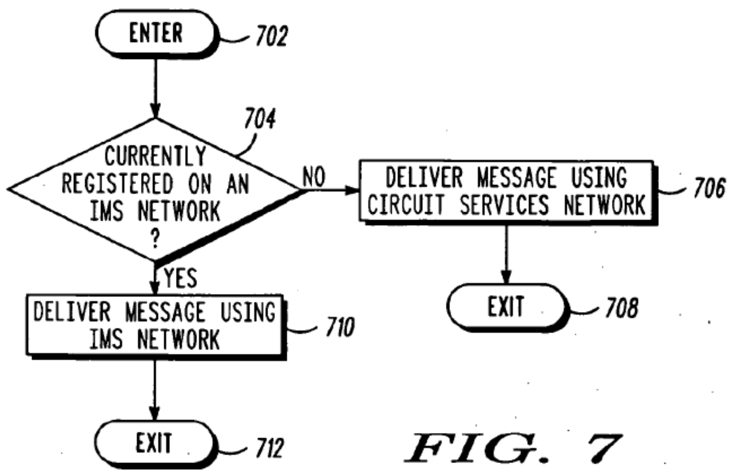
[1] General descriptions provided for this and other references and combinations are incorporated into each subsection and mapping of the claims that includes citations to these references. All emphasis is added unless otherwise indicated.

[0007], [0024]-[0026], [0033], FIGS. 1, 2; APPLE-1003, ¶¶28-32. Horvath's wireless device (*e.g.*, "wireless device 106") is "a dual mode device capable of communicating on either the packet data network 102 or the circuit services network 104," "based on [a] registration status of the wireless device." APPLE-1004, [0007]-[0008], [0024], [0061], FIGS. 1 (below), 2, 4.



APPLE-1004, FIG. 1

As shown in FIG. 1, wireless device 106 can function both as a sender device that sends messages destined for remote recipient device(s) and as a recipient device that receives message(s) sent from remote sender device(s). When wireless device 106 is instructed to send an SMS message (operating as a sender device), "the wireless device 106 first determines if it [*i.e.*, the sending wireless device] 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] ("[I]f 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 SMS message. If the wireless device is not registered on the packet data network 102, the SMS delivery network selector 124 selects the circuit services network 104 for transmission of the SMS message."), [0078], FIGS. 1, 4, 7.



APPLE-1004, FIG. 7 (sender device 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], [0038]-[0039] ("An IMS system also includes application servers that host and execute services for the wireless device 106. A service for example, is SMS, MMS, …and the like.”). A session initiation protocol (“SIP”) network operates atop the packet data network 102 to establish communication sessions and carry encapsulated SMS messages between wireless devices and a server when the circuit switched network 104 is not used. *Id.* [0041], [0033] (“The SIP network is used for establishing instant messaging, … and other real-time communications over the Internet.”), [0050], FIG. 5.

When a message is requested to be sent to a wireless device (e.g., wireless device 106) in Horvath’s system, the message request is first routed to a server system (e.g., information processing system 108) 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 intended recipient of the message is currently registered on the packet data network 102. *Id.*, [0053], FIG. 3; *see also id.*, [0028], [0045]-[0047], FIGS. 1-2. SMSC 114, with SMS delivery network selector 116, determines the registration status of the recipient wireless device by checking whether the recipient is currently registered with an SIP network on the packet data network 102.[2] *Id.*, Abstract, [0002], [0006], [0008], [0028], [0033]-[0038], [0075]-[0076], FIGS. 1, 2, 3, 6. By delivering messages to wireless devices over a packet data network rather than a circuit switched network when a recipient device is registered with the packet data network, Horvath's system reduces the amount of traffic transmitted over the circuit switched network, thereby freeing bandwidth for voice calls or other services on the circuit switched network. APPLE-1004, [0009], [0021], [0039], [0050].

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

[2] The SIP network is supported by an "Internet Protocol multimedia subsystem" (IMS) core and is capable of transmitting rich **multimedia** data. APPLE-1004, [0034]; *see also* APPLE-1012 (describing IMS networks in further detail); APPLE-1003, ¶31.

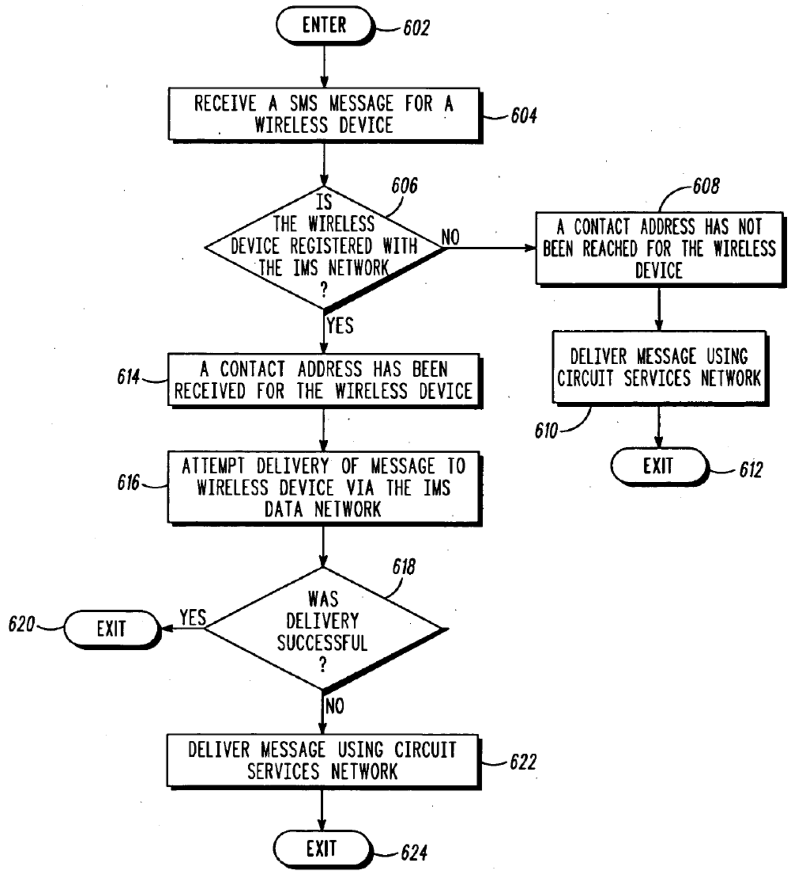


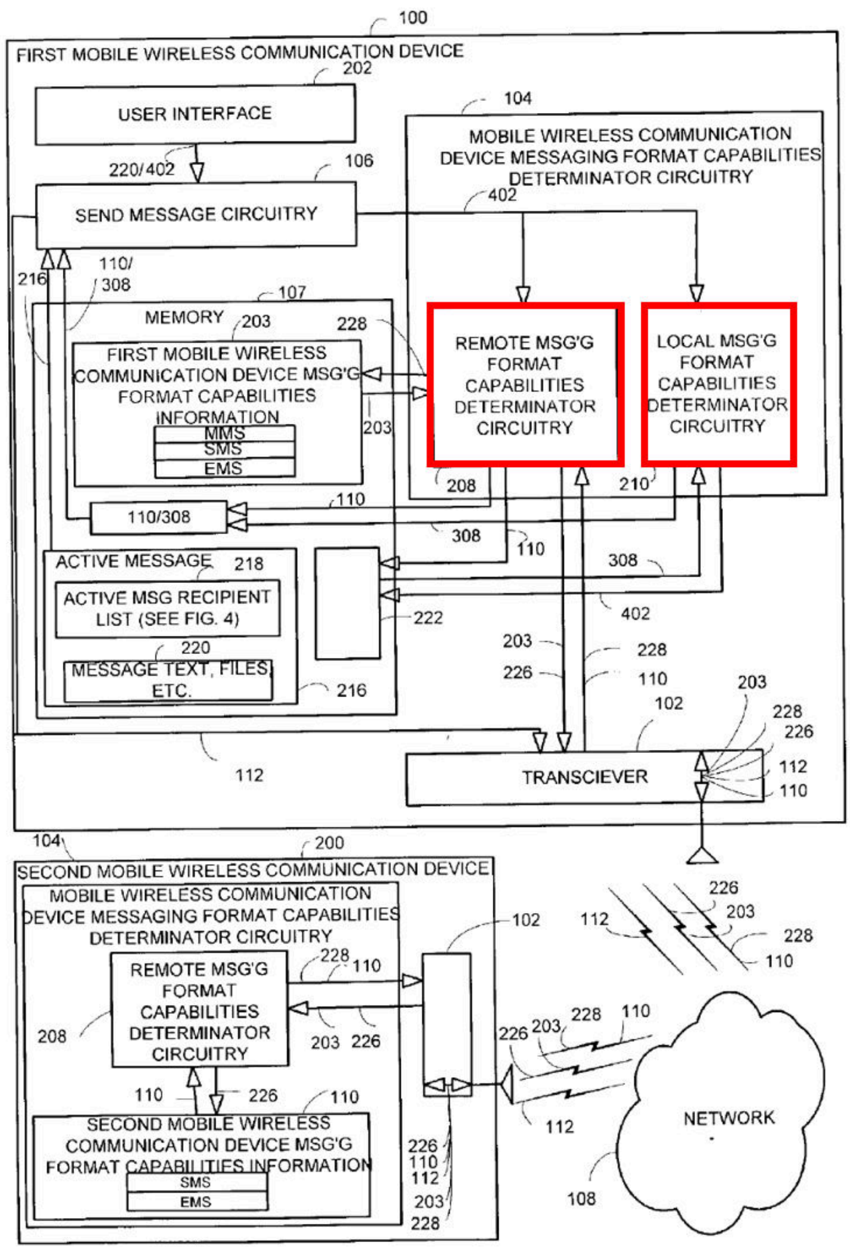
FIG. 6

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, highlighting the local and remote messaging format capabilities determinator circuitries residing on the first wireless device), 5-7. The messaging format capabilities information 110 (MFCI) indicates the types of messages (*e.g.*, SMS, MMS, EMS) that the intended recipient device is capable of processing. APPLE-1005, [0022]-[0024]. APPLE-1003, ¶¶33-36.

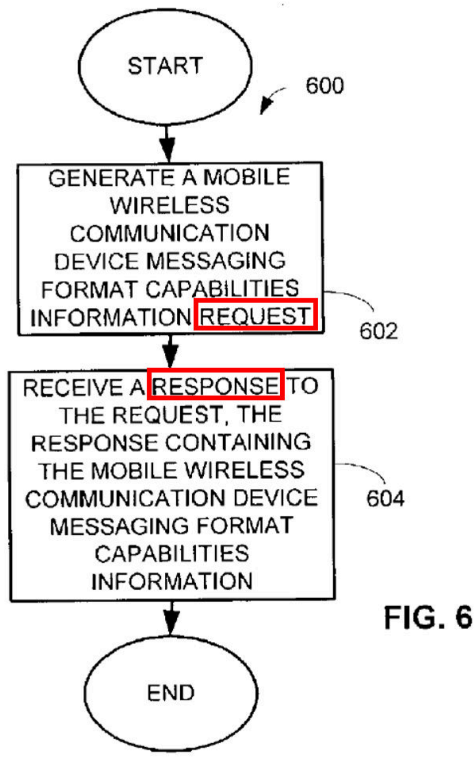
FIG. 2



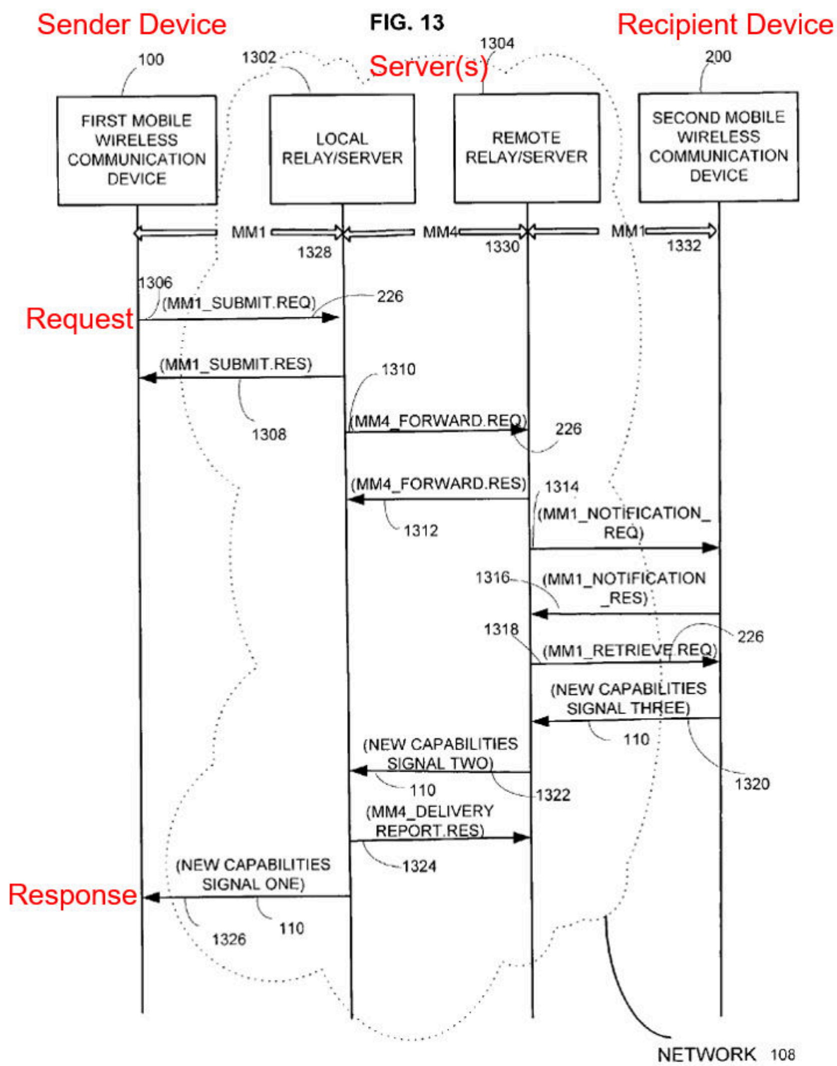
APPLE-1005, FIG. 2 (annotated)

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] (both generation of the request and reception of the response "may be accomplished using the remote messaging format capabilities determinator circuitry 208" or "other suitable circuitry"), [0034], [0056]-[0057] ("request and retrieve the second mobile wireless communication device messaging format capabilities information 110," "a second mobile wireless communication device messaging format request 226," "new capabilities signal one 1326 [including] at least the second mobile wireless communication device messaging format capabilities information 110"), FIGS. 6 (below), 13 (below).

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] ("note that some embodiments store the second mobile wireless communication device messaging format capabilities information 110 at the remote relay/server 1304, and for such embodiments, signals 1314, 1316, 1318 and 1320 are not used"). 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 (below). *Id.*; *see also id.*, [0056]-[0060], FIGS. 13-15.



APPLE-1005, FIG. 6 (annotated)



APPLE-1005, FIG. 13 (annotated)

Tsampalis further explains that the first (sender) device can store the second (recipient) device's MFCI 110 in a phonebook, and can use the second (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 capabilities of the second (recipient) device. APPLE-1005, [0041], [0060]-[0064], FIGS. 5, 16.

(c) The Horvath-Tsampalis Combination

Like the '127 Patent, Horvath describes selective transmission of wireless messages in different transmission modes, including techniques for transmitting messages over either a packet data network or a circuit services network. APPLE-1001, 2:4-12; 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 (*e.g.*, registered with an SIP network). *See e.g.*, APPLE-1004, [0004], [0006]-[0009], [0021], [0039] (goal to provide "capacity relief on the circuit services network 104"), [0081] (desire to "provide dynamic optimization of the resources available" and to "optimiz[e] network resources"). APPLE-1003, ¶37.

As described above, Horvath's sender device determines whether to send an outgoing SMS message to a server system (*e.g.*, Information Processing System 108 / SMSC 114) over a packet data network or a circuit switched network based on whether the sender is currently registered with a session initiation protocol ("SIP") network on the packet data network. *Supra*, §IV.A.1(a) (Horvath); APPLE-1004, [0004], [0074]-[0076], FIG. 6 (below). The server system in turn determines whether to forward the SMS message to the intended recipient device over a packet data network or a circuit switched network based on whether the recipient is registered on the packet data network. *Id.* APPLE-1003, ¶38.

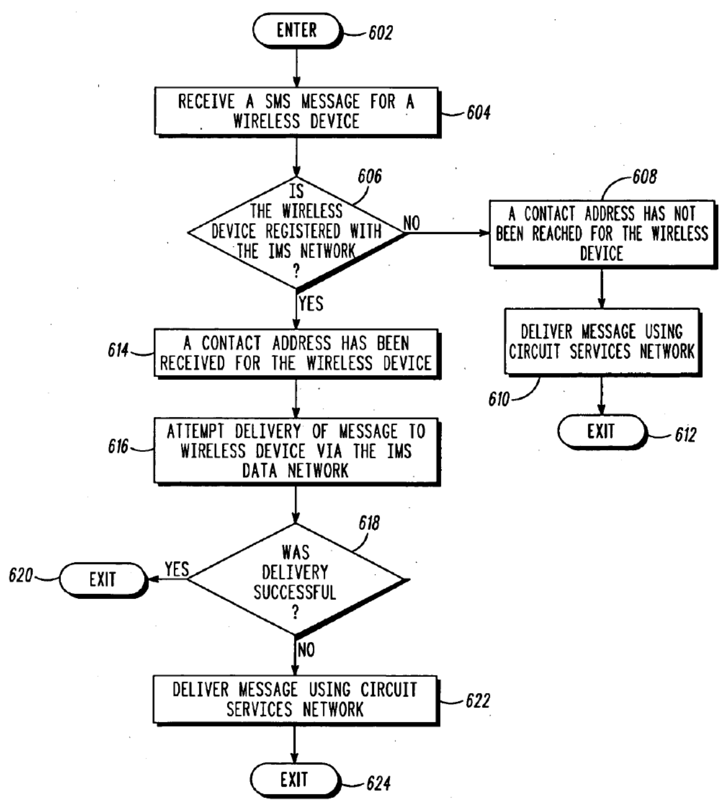


FIG. 6

APPLE-1004, FIG. 6 (server perspective)

By diverting SMS messages from the circuit switched network to the packet data network when a device is registered on a packet data network, Horvath's system beneficially reduces load and “unnecessary overhead” on the circuit switched network. APPLE-1004, [0004], [0009]. Notwithstanding these benefits, however, a POSITA would have recognized that Horvath’s system was still ripe for improvement. APPLE-1003, ¶39. For example, although Horvath acknowledges additional messaging services apart from SMS (*e.g.*, MMS, EMS, IM), Horvath provides little detail about the additional messaging services. APPLE-1005, [0025], [0039]. Additionally, a POSITA would have appreciated that some users did not necessarily subscribe to each of these messaging services and users often had limited messaging capabilities that precluded them from receiving or processing richer media formats beyond SMS (*e.g.*, MMS, EMS, IM). APPLE-1003, ¶39. Consequently, the sender risked sending a message in a format that the recipient would be incapable of processing or presenting to a user. *Id.* This, in turn, resulted in failed message deliveries, re-transmission attempts that further burdened the network, increased processing load on messaging servers, and frustration by users who expected messages to be delivered in one format but which ultimately could not be delivered as expected. APPLE-1005, [0003]-[0004]; APPLE-1003, ¶39.

In view of these known problems with a multi-modal messaging environment like Horvath’s in which different mobile device users subscribed to messaging services (*e.g.*, SMS, MMS, EMS, IM), a POSITA would have turned to

Tsampalis for specific guidance on how to improve the user experience and better manage and coordinate messaging formats in such an environment. *Supra*, §IV.A.1(a) (Horvath); §IV.A.1(b) (Tsampalis). In particular, Tsampalis describes an effective solution for improving messaging in such an environment by sharing the recipient's messaging format capabilities information with the sender. *Supra*, §IV.A.1(b). A POSITA reviewing Horvath and Tsampalis would have found it obvious to implement Horvath's system in accordance with Tsampalis's suggestions for a sender device to obtain and use messaging format capabilities information of a recipient device to determine how to format and transmit an outgoing message to the recipient. APPLE-1003, ¶40. Multiple reasons would have prompted a POSITA to combine Horvath's and Tsampalis's teachings in this manner well before the Critical Date of the '127 Patent (July 24, 2007).

First, a POSITA would have combined Horvath and Tsampalis such that the sender would obtain and use a recipient's messaging format capabilities information to enhance users' messaging experiences and ensure that the format of outgoing messages is compatible with the messaging format capability of the recipients' device before the message is sent. APPLE-1003, ¶41. 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, ¶41.

Second, a POSITA would have sought to leverage Tsampalis-like messaging format capabilities information in Horvath's system to permit the sender to make more frequent and reliable use of enhanced messaging formats such as MMS and IM. APPLE-1003, ¶42. Enhanced messaging formats such as MMS and IM generally offer richer messaging capabilities than SMS, such as the ability to support extended character counts for longer messages and the ability to attach/include multimedia files with the message. APPLE-1003, ¶42 (citing APPLE-1007, Page 8 ("IM&P [*i.e.*, Instant Messaging and Presence] service is more media-rich than traditional applications such as mail, phone, and email. By using IM&P, we can deliver voice, video, and data together to various endpoints."); APPLE-1025, Introduction ("The most significant characteristic of

MMS is to support multimedia contents. It can send not only texts, but also images, videos and audios. Therefore, MMS applications are much richer than those of SMS.”)). A POSITA would have understood that the enhanced messaging capabilities of MMS and IM were often desirable for situations where users desired to communicate more than the short, text-based messages that could be accommodated by SMS. *Id.* If the recipient’s messaging capabilities are unknown, however, some senders are biased toward not using any of the enhanced messaging features of MMS or IM to ensure the message is successfully delivered to the recipient using a more basic service (*e.g.*, SMS). *Id.* But intentional avoidance of enhanced messaging features offered by MMS or IM is unnecessary if the recipient is in fact capable of receiving MMS or IM messages, and Tsampalis’s proposal to share the recipients’ messaging format capabilities information with the sender would allow a sender to use these rich messaging features more frequently and reliably with confidence that the recipient can successfully receive them. *Id.*

Third, a POSITA would have sought to leverage Tsampalis-like messaging format capabilities information in Horvath’s system to make better, more selective use of SMS when the recipient has limited messaging capabilities. APPLE-1003, ¶43. As Tsampalis explains, some users do not subscribe to MMS and are incapable of receiving or processing messages other than SMS or similar text-based messages. APPLE-1005, [0061]-[0063]. By obtaining the recipients' messaging format capabilities information in advance of sending a message, the sender can ensure the message is appropriately sized and formatted according to the restrictions imposed by SMS and the limited messaging capabilities of the recipient. APPLE-1003, ¶43. Likewise, the sender can avoid making use of richer features associated with formats such as MMS or IM that the recipient could not receive or process. *Id.*

Fourth, a POSITA would have been motivated to apply Tsampalis's teachings to Horvath in the manner described above to ensure the sender could recognize any incompatibilities between the format of an outgoing message and the messaging format capabilities of the intended recipient of the message *before* the message is sent. APPLE-1003, ¶44. In addition to enhancing the user's experience, Tsampalis's approach to making use of messaging format capabilities information before a message is sent would beneficially reduce occurrences of failed message deliveries resulting from attempts to send incompatible message formats. *Id.* It would likewise reduce network traffic and corresponding load on the system by reducing the number of re-transmission attempts stemming from failed message deliveries. APPLE-1005, [0003], [0004] (lamenting prior approaches where "the sending device is unaware of the incompatibility until after the message is bounced back" because "there is no opportunity for the sending device to change the content of the message, change the recipient list associated with the message, or choose not to send the message, before sending a message that will later be bounced back"); [0022]-[0023], [0025]; APPLE-1003, ¶44.

Fifth, a POSITA would have been motivated to apply Tsampalis-like messaging format capabilities information to Horvath's system to advance Horvath's express objectives of reducing "unnecessary overhead for the system" and "dynamic optimization of [] resources." APPLE-1004, [0004], [0081]; APPLE-1003, ¶45. For example, a POSITA would have appreciated that integration of Tsampalis's techniques in the combination would further optimize the sender's determination of a transmission mode (*e.g.*, whether to send an SMS, MMS, or IM, whether to attach any multimedia files, and/or whether to transmit over the packet data network or the circuit services network), while reducing unnecessary burden on the remote server by having the sender device process/format the outgoing message according to the selected transmission mode. APPLE-1003, ¶45.

Sixth, a POSITA would have naturally looked to Tsampalis, as like Horvath, Tsampalis also teaches various networks for transmitting messages of different formats, including "a cellular wireless network, internet or other suitable network." APPLE-1005, [0028]; APPLE-1003, ¶46.

Seventh, a POSITA would have found it obvious to combine the teachings of Horvath with Tsampalis because the combination merely involves the application of a known technique to a known system to achieve predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (a supposed invention that "simply arranges old elements with each performing the same function it had been known to perform" is obvious). The law is clear that "[i]t's enough… to show that there was a known problem… in the art, that [another known teaching] … helped address that issue, and that combining the teachings of … wasn't beyond the skill of an ordinary artisan. Nothing more is required to show a motivation to combine under *KSR*." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380-81, (Fed. Cir. 2023). Here, Tsampalis recognized a known problem with dynamic messaging environments like Horvath's in which users have different messaging format capabilities, and yet, Tsampalis's teachings would help address this problem in a straightforward manner that was well within the skill of a POSITA. APPLE-1003, ¶47. 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, ¶47 (citing APPLE-1009, 1 ("Sending an SMS message to a mobile telephone carries an attached cost for sending the message over the mobile network…A user of a mobile device whilst in a location with WiFi (or other form of) internet access would authenticate with the remote registration server and this would indicate to the Routing System that it was possible for that mobile device to receive text messages via the internet rather than via GSM SMS messages offering substantial cost savings to the sending party. Replies could also be made over the internet providing further costs savings.”)). Accordingly, the combination would have been obvious. *Id.*

Likewise, a POSITA would have reasonably expected success implementing the combination, especially since the resulting system could be implemented with conventional software and hardware techniques (*e.g.*, general-purpose processors on mobile devices executing programmable instructions) with messaging formats (*e.g.*, SMS, MMS, IM) that were well-defined and commonly implemented by the Critical Date of the ’127 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 on circuit switched network. APPLE-1003, ¶¶48-49. Indeed, Horvath and Tsampalis both describe multi-modal wireless devices that are physically and logically compatible with each other. APPLE-1003, ¶48. As discussed above, Horvath and Tsampalis are also both analogous art to the ’127 Patent, each being in the same field of endeavor and reasonably pertinent to the problems said to be addressed by the ’127 Patent.

APPLE-1003, ¶48. For example, like the ’127 Patent, Horvath and Tsampalis both describes methods and systems for mobile messaging over wireless networks. *Id.*; *supra*, §III.A, IV.A.1(a)-(b).[3]

2. Claim 1

[1pre]

To the extent the preamble is limiting, the Horvath-Tsampalis combination renders obvious [1pre].[4] APPLE-1003, ¶50. For example, Horvath discloses services for "transmitting at least one short messaging service message" between two or more "wireless devices." *See e.g.*, APPLE-1004, Abstract ("A method and device for transmitting at least one short messaging service message to at least one wireless device are disclosed."), Title ("METHOD AND SYSTEM FOR DELIVERY OF SHORT MESSAGE SERVICE MESSAGES"), [0002] ("Short

[3] The overview of the Horvath-Tsampalis combination described in §IV.A.1(c) is incorporated in the analysis of each claim element in §§IV.A.2-12 below. For claim elements in which the Petition cites Horvath's teachings alone, it is understood that those teachings are applicable in the combination and are not negated by the combination with Tsampalis. APPLE-1003, ¶48.

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

message service ('SMS') is a service that allows a wireless device such as a mobile phone to send and receive short messages from other wireless devices."), [0006] ("disclosed are a method and device for transmitting at least one short messaging service message."), FIG. 5 ("wireless device transmits..."). Horvath likewise describes an ability of the sender wireless device to transmit enhanced messaging service ("EMS") messages, multimedia messaging service ("MMS") messages, instant messages, and the like. APPLE-1004, [0025], [0033]; APPLE-1003, ¶50.

Horvath's FIG. 4 (below) 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, ¶51.

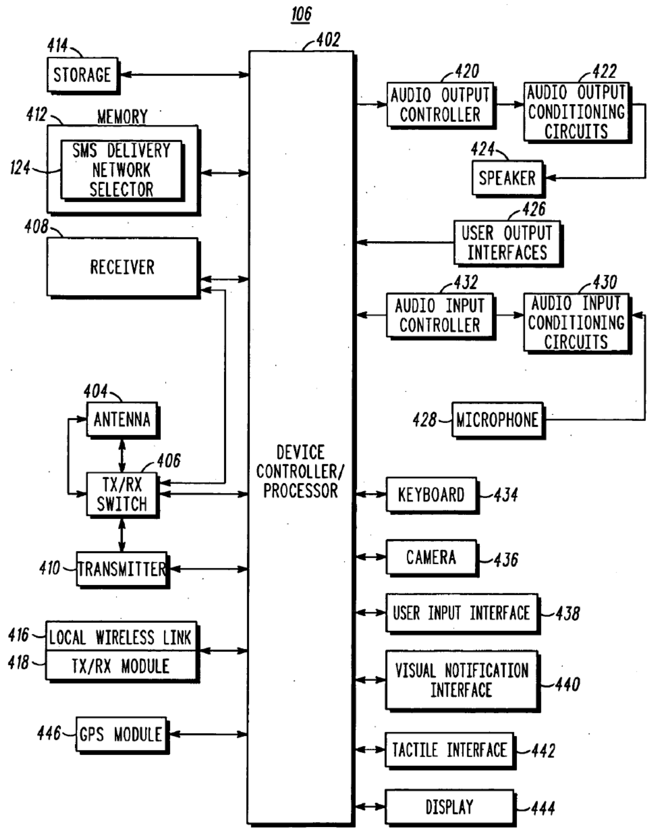


FIG. 4

APPLE-1004, FIG. 4

As shown in Horvath's FIG. 7, the sender wireless device "select[s] a network for transmitting a SMS message based on what network the wireless device is registered with." APPLE-1004, [0017], [0078]; APPLE-1003, ¶52.

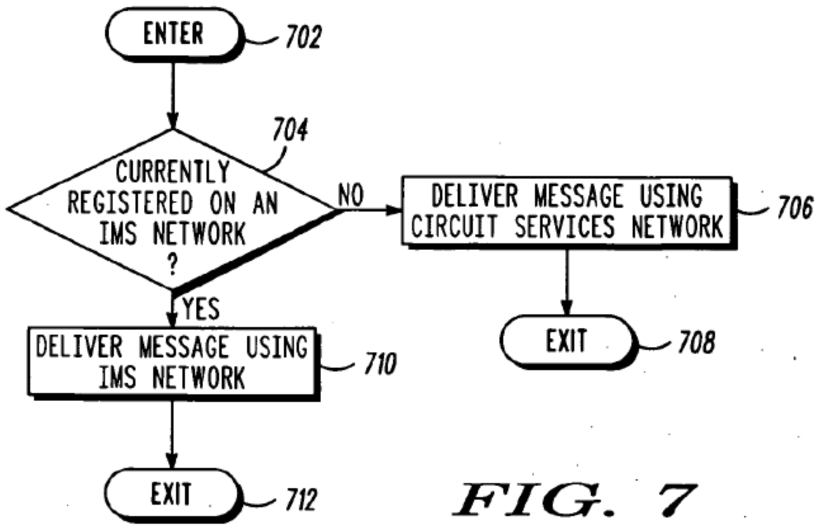


FIG. 7

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

[1a1]

Horvath-Tsampalis renders obvious [1a1]. APPLE-1003, ¶53. For example, Horvath explains that the wireless device, 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, a POSITA would have understood that the sender wireless device receives information associated with a destination address of a wireless device of the recipient, especially since the intended recipient would need to be addressed in the message to be delivered to the desired recipient device. APPLE-1003, ¶53.

Horvath further teaches that the recipient can be addressed by a contact address such as a universal resource indicator (URI) formed from a telephone number or other registered information about the recipient. APPLE-1004, [0050] ("the destination address of the recipient device is a SIP URI formed out of the normal address (for example, tel:MDN)"), [0035] ("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."), [0043]-[0046], [0073]. 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. 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)"), [0033] ("As the active message recipient list 218 is populated with each recipient ID 402…"), [0046], ("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"), [0064] ("the user is composing a test message"), FIGS. 3-4 (showing phone numbers as recipient IDs), 7, 10; APPLE-1003, ¶54.

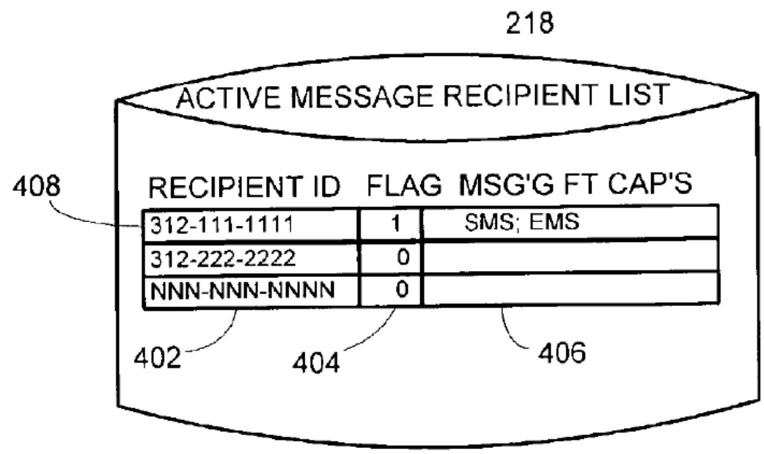


FIG. 4

APPLE-1005, FIG. 4

A POSITA also would have understood that the sender device in the Horvath-Tsampalis combination includes a "message client" to receive the phone number or other information associated with a destination address of the recipient. APPLE-1003, ¶55. For example, Horvath explicitly discloses that the sender device executes messaging software to carry out messaging functions, much like the '127 Patent, and in the combination this would include functionality for receiving information identifying the intended recipient of a message. APPLE-1004, [0061]-[0062], FIG. 4; APPLE-1003, ¶55. A POSITA would have understood such software to provide a "***messaging client***" as claimed. *Id.*; *cf.* APPLE-1001, 5:2-3 ("the invention is a software program to implement the method"), 5:49 ("a message client 114 runs on the mobile device").

Providing a message client on the sender device also would have been obvious to ensure the sender device was equipped with suitable software to carry out the messaging functions of the Horvath-Tsampalis combination as described herein. These functions align with the types of functions that were commonly performed by messaging clients before the Critical Date. APPLE-1003, ¶56 (citing APPLE-1008, [0038] ("The transmitting terminal (10) is a mobile communication terminal having **an instant message client installed therein**"), [0002] ("The present invention relates to a messaging service for a mobile communications terminal, and in particular, to a system and method for interworking messages of a mobile communications terminal that receives multimedia contents transmitted by using an instant messaging (IM) client."), [0004] ("Message services for mobile communication terminals can be broadly divided into instant message (IM) services, multimedia message services (MMS), and short message services (SMS). As instant message clients are being installed in mobile communication terminals, instant message services based on wired Internet technology are being expanded into the field of mobile communications."); APPLE-1009, page 3 ("The mobile GSM device would have an operating system capable of running **an application** which could subscribe and log into a registration server when the device gained access to the internet via a route such as bluetooth, Wifi (802.11 b,g or other), or via infrared or any other packet radio (eg GPRS) or other electromagnetic means. The mobile device would register with the remote registration server and this registration would inform the Routing System that the message could be sent via the internet based connection rather than via the GSM network if required. The registration server could be either a dedicated solution using normal web based protocols such as http post or get, or via SIP, SMPP or other protocol which allows authentication with a remote device."), page 6 ("A Routing System utilising [*sic*] of Software capable of being installed and operated on a mobile device which, once authenticated with a remote database, can be sent text messages via IP based protocols such as (but not necessarily via) SIP, XML or HTTP"); APPLE-1017, 34:63-66 ("...Instant Messenger **software** such as is provided by Microsoft, America On Line, AT&T and others. These programs provide notification when a computer-messaging device is on line or the operator is logged in."); APPLE-1021, 4:66-5:6 ("Mobile devices 102-104 may further be configured to include **a client application** that enables the end-user to log into an end-user account that may be managed by another computing device, such as ENS 106. Such end-user account, for example, may be configured to enable the end-user to receive emails, send/receive IM messages, SMS messages, access selected web pages, participate in a social networking 5 event, or the like."), 9:57-64 ("MM [Message Managers] 245 represents any of **a variety of applications** configured to transmit, receive, and/or otherwise process messages and other network content, including, but not limited to SMS, MMS, IM, email, VOIP, browsers, or the like, and to enable telecommunication with another user of another networked device."), 10:3-50 ("MM 245 may further include **an IM application** that is configured to initiate and otherwise manage an instant messaging session, including, but not limited to AOL Instant Messenger, Yahoo! Messenger, NET Messenger Server, ICQ, and the like. In one embodiment, the IM application within MM 245 may be configured to employ a SIP/RTP to integrate IMNOIP features. For example, the IM application may employ SIMPLE (SIP for Instant Messaging and Presence Leverage), APEX (Application Exchange), Prim (Presence and Instant Messaging Protocol), Open XML-based XMPP (Extensible Messaging and Presence Protocol), more commonly known as Jabber and OMA (Open Mobile Alliance)'s IMPS (Instant Messaging and Presence Service) created specifically for mobile devices, or the like.")); *see also* APPLE-1005, [0024] (Tsampalis describing its circuitries on a sender wireless device for determining recipient messaging capabilities and for sending messages as "software modules"), [0027], [0046], FIGS. 3-4, 7, 10.

[1a2]-[1a3]

Horvath-Tsampalis renders obvious [1a2]-[1a3]. APPLE-1003, ¶57. As discussed above, the sender device in the Horvath-Tsampalis combination determines parameters for transmitting a message to a recipient device based on factors including the sender device's current registration status with a packet data network 102 and information about the messaging format capabilities of the intended recipient. *Supra*, §IV.A.1(c). For example, the sender device determines whether to send an outgoing message as an SMS, MMS, or IM message based on the recipient's messaging format capabilities information, as taught in Tsampalis, and the sender device further determines whether to transmit an SMS message over the packet data network 102 or circuit services network 104 based on whether the sender device is currently registered with the packet data network 102, as taught in Horvath. *Id.*; 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, ¶57.

Again, Horvath discloses that the sender device determines a transmission network and corresponding protocol for sending an SMS message to the recipient device based on whether the device is currently registered with a packet data network. APPLE-1004, [0050], [0062], [0078], FIGS. 1, 4, 7 (below); *supra*, §IV.A.1(c), §IV.A.2, Analysis of [1a1]; APPLE-1003, ¶58.

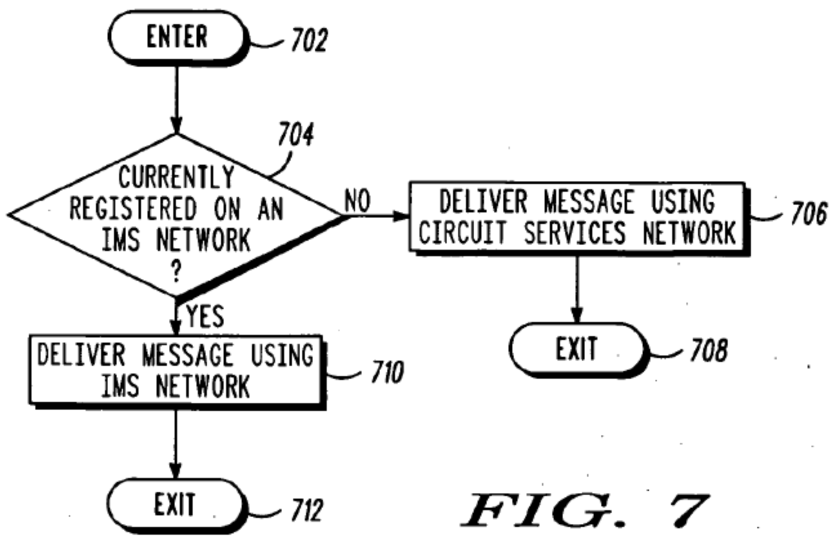


FIG. 7

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

Further, as discussed above, and based on Tsampalis, it would have been obvious for the sender device to optimize the format and hence transmission mode of an outgoing message based on information about the recipient's messaging format capabilities. *Supra*, §IV.A.1(c); APPLE-1004, [0004], [0081]; APPLE-1005, [0065]; APPLE-1003, ¶59. For example, the sender device can obtain information about the recipient device's messaging format capabilities before sending a message, in accordance with Tsampalis, further advancing Horvath's express objectives of reducing "unnecessary overhead for the system" and "optimizing network resources," while also "enhanc[ing] a user's experience" as taught in Tsampalis. *Id.* A POSITA would have understood, and it would have been obvious, that a messaging client on the sender device would provide the device's messaging capabilities, including capabilities for determining a transmission mode, for the reasons discussed above with respect to [1a1]. *Supra*, Analysis of [1a1]; APPLE-1003, ¶59.

In combination, the plurality of transmission modes that the Horvath-Tsampalis sender device is capable of sending would predictably include (i) an **MMS-based transmission mode** that involves sending an MMS message over the packet data network 102, (ii) an **IM-based transmission mode** that involves sending an instant message over the packet data network 102, and (iii) an **SMS-based transmission mode** that involves sending an SMS message over the packet data network 102 or circuit services network 104. APPLE-1004, [0025], [0033] ("instant messaging" being "real-time"), [0039] (describing IM, MMS, and SMS messaging services); APPLE-1005, [0002] (describing SMS, EMS, MMS and the "non-real-time store-and -forward" characteristic), [0024], FIG. 1 (disclosing MMS and SMS messaging services); *supra*, §IV.A.1(c), §IV.A.2, Analysis of [1a2]; APPLE-1003, ¶60 (citing APPLE-1007, 1 ("Instant messaging (IM) …enables [message] exchanges in real time independent of locale"); APPLE-1010, Abstract, 2:53-63, 5:55-8:50 (identifying SMS, MMS, and IM as different "communication modes"), 9:46-48)). The MMS- and IM-based transmission modes each provides (in the alternative) a "***first transmission mode***" as claimed while the SMS-based transmission mode provides a "***second transmission mode***" as claimed. APPLE-1003, ¶60.

More specifically, Tsampalis discloses that the sender can set a "default format" for outgoing messages from the sender device, and the sender device will format a message according to the "default format" so long as the recipient is capable of receiving messages in the default format (otherwise the sender will select a non-default format within the recipient's messaging format capabilities). APPLE-1005, [0062] ("[A] message may be initially formatted in the default messaging capabilities of the sending device, (e.g., MMS format), and if necessary, may be reformatted in a new format, (e.g., SMS), before being sent."), [0036]-[0037], [0048]-[0054], [0062], [0064], FIG. 11. Tsampalis teaches that a rich media format such as MMS is desirable to set as the default format, thereby allowing the sender to access the enhanced features of such a format, including longer messages and optional multimedia attachments, by default. *Id.*, [0062], [0064]. Based on Tsampalis's teachings in this regard, it would have been obvious for the sender device in the Horvath-Tsampalis combination to set MMS or IM as the default messaging format to leverage the enhanced capabilities of those formats over SMS. APPLE-1003, ¶61. The sender device would then send MMS or IM messages by default when the sender is connected to the packet data network 102 and the recipient's messaging format capabilities indicate that the recipient is capable of receiving MMS or IM messages. *Id.* The sender would send SMS messages when the sender is not connected to the packet data network 102 or the recipient's messaging format capabilities indicate that the recipient is incapable of receiving MMS or IM messages (i.e., the recipient has limited messaging capabilities). *Id.* If the recipient has limited messaging capabilities such that it cannot receive MMS or IM messages, the sender would determine whether to send the SMS message over packet data network 102 or circuit services network 104 based on whether the sender is currently registered on the packet data network 102 as taught in Horvath. APPLE-1004, [0050], [0078], FIG. 7; APPLE-1003, ¶61.

A POSITA further would have understood that MMS, IM, and SMS represent not just different message *formats* but also different *transmission modes* due to fundamental differences in how MMS, IM, and SMS messages are transmitted for a sending device. APPLE-1003, ¶62. For example, as Dr. Traynor describes in further detail, MMS, IM, and SMS each employ different messaging protocols, character sets, and security features that distinguish each service as different transmission modes in transmitting and deliver a message from a sender to a recipient device. APPLE-1003, ¶62 (citing APPLE-1004, [0033]; APPLE-1005, [0002]; APPLE-1007, 1, 8; APPLE-1025, 1-2 ("MMS applications are much richer than those of SMS. MMS supports JPEG and GIF image formats…Attractive MMS applications are based on advanced technologies. First, MMS is supported by the Wireless Application Protocol (WAP)…. MMS is based on the General Packet Radio Service (GPRS). GPRS is an efficient way of data transmission based on packet switch…As a 3G service, the MMS will be a key mobile value-added service.”); APPLE-1036, page 2, line 25 -page 4, line 25 (“The Short Message Service - Point to Point (SMS-PP) is defined in GSM recommendation 03.40. GSM 03.41 defines the Short Message Service - Cell Broadcast (SMS-CB) which allows messages (advertising, public information, etc.) to be broadcast to mobile users in a specified geographical area. Messages are sent via a store-and-forward mechanism…Transmission of the short messages between SMSC and phone can be done through different protocols such as SS7 within the standard GSM MAP framework or TCP /IP within the same standard. Messages are sent with the additional MAP operation forward short message, whose payload length is limited by the constraints of the signaling protocol to precisely 140 bytes (140 bytes = 140 * 8 bits = 1120 bits)...Multimedia Messaging Service (MMS) is a standard for a telephony messaging systems [*sic*] that allow sending messages that includes multimedia objects (images, audio, video, rich text) and not just text messages as in Short message service (SMS)…. MMS is the evolution of Short Message Service (SMS)…MMS has been designed to work with mobile packet data services such as GPRS and lx.”)). APPLE-1003, ¶63 (citing APPLE-1042).

[1b1]-[1b3]

Horvath-Tsampalis renders obvious [1b1]-[1b3]. APPLE-1003, ¶64. As further described below, the sender device in the Horvath-Tsampalis combination determines whether the destination address corresponds to a subscriber of a service for receiving the outgoing message via a packet switched bearer in at least three ways:

> **Option (1)**: determining from messaging format capabilities information whether the recipient is capable of receiving/processing MMS messages;
>
> **Option (2)**: determining from messaging format capabilities information whether the recipient is capable of receiving/processing IM messages, and
>
> **Option (3)**: determining from registration or presence information whether the recipient is currently available on a packet-based SMS or IM service.

Supra, §IV.A.1(c), §IV.A.2, Analysis of [1a1]; APPLE-1003, ¶64. Each of these three techniques independently renders obvious [1b1]-[1b3]. *Id.*

In more detail regarding **option (1)**, Horvath discloses MMS as a messaging service for communicating messages from a sender to a recipient device. APPLE-1004, [0025], [0039]. Tsampalis similarly discloses MMS as a desirable messaging service. APPLE-1005, [0002]-[0003], [0024]. By the relatively late Critical Date of the ’127 Patent, a POSITA would have been familiar with MMS and would have recognized it as a packet-based service that uses a packet switched bearer to deliver MMS messages to recipient devices. APPLE-1003, ¶65 (citing APPLE-1025, 1-2 (“MMS applications are much richer than those of SMS….

MMS is based on the General Packet Radio Service (GPRS). GPRS is an efficient way of data transmission based on packet switch…As a 3G service, the MMS will be a key mobile value-added service.”); APPLE-1036, page 2, line 25 - page 4, line 25 (“Multimedia Messaging Service (MMS) is a standard for a telephony messaging systems [*sic*] that allow sending messages that includes multimedia objects (images, audio, video, rich text) and not just text messages as in Short message service (SMS)….MMS has been designed to work with mobile packet data services such as GPRS and lx.”); APPLE-1042, 7). That is, unlike SMS, MMS messages are not generally capable of being delivered by a circuit switched bearer. *Id.* MMS instead exploits the unique features and additional bandwidth offered by packet switched networks to permit transmission of longer and more feature-rich messages than SMS. *Id.* With this knowledge, a POSITA would have understood MMS to be a service for receiving an outgoing message via a packet switched bearer. *Id.* And because a device would subscribe to an MMS service to receive MMS messages, the sender device in the Horvath-Tsampalis combination would determine whether the destination address (*e.g.*, contact address or phone number) of the intended recipient of an outgoing message is a subscriber of an MMS service (*i.e.*, ***a [first] service for receiving the outgoing message via a packet switched bearer***) by checking whether MMS is an available message format for the intended recipient as indicated by the recipient’s messaging format capabilities information, based on Tsampalis's teachings. APPLE-1005, [0022]-[0025], [0041], [0056]-[0065], FIGS. 5-6, 13; APPLE-1004, [0038] ("the services subscribed to by the device 106 can be provided"); *supra*, §IV.A.1.(b)-(c); APPLE-1003, ¶65 (citing APPLE-1025, 3 ("MMS subscriber database"); APPLE-1036, page 3, line 25-26 ("MMS data flow starts with a subscriber using an MMS client on the mobile phone to compose, address, and send an MMS message to one or more recipients."), page 4, lines 1-25). APPLE-1003, ¶¶66-68.

In the combination, Tsampalis further confirms that it would have been obvious for the sender to determine whether the destination address corresponds to a subscriber of an MMS service by sending a request to a remote server and receiving a response from the server indicating the same. APPLE-1003, ¶69; *supra*, §IV.A.1(c). For example, based on Tsampalis's express teachings, the sender device in the Horvath-Tsampalis combination would send a request to a remote server for the recipient's messaging format capabilities information and would receive a response that indicates whether the recipient indicated by the destination address (*e.g.*, phone number) is capable of receiving/processing MMS messages—and thus whether the recipient is a subscriber of an MMS service. *Id.*; APPLE-1005, [0022]-[0025], [0041], [0056]-[0065], FIGS. 5-6, 13; *supra*, §IV.A.1(b)-(c).

A POSITA also would have understood and found obvious that the sender's request to the server and the response received from the server in the Horvath-Tsampalis combination would be communicated "***via a packet switched wireless local area network (WLAN) base station***" as recited in [1b2]-[1b3]. APPLE-1003, ¶70; APPLE-1004, [0021], [0024], [0029], [0033]-[0034], [0050], [0081], FIG. 1. For example, Horvath teaches that the sender device transmits messages over a packet data network 102 by default to unburden the traditional circuit services network 104. *Id.* Horvath explains that "packet data network 102 is an Internet Protocol ('IP') connectivity network, which provides data connections at much higher transfer rates then [*sic*] a traditional circuit services network," and comprises "an 802.11 network," which is commonly known as Wi-Fi (a WLAN that operates based on the IEEE 802.11 standards). APPLE-1004, [0021] (the circuit services network is selected only "[i]f delivery…is not possible on the packet data network"), [0024], [0050], [0078], FIG. 7; APPLE-1003, ¶70 (citing APPLE-1011, 5:1-33 ("WLAN capabilities including...technology version (such as 802.11[] …)"), 6:27-32 ("WLAN 802 protocols…IEEE 802 networks"), FIG. 5B; APPLE-1009, 1 ("New generation mobile phones in addition to GSM capability also have the ability to access the internet via 802.11 g, b and other related wireless protocols."), 3 ("The mobile GSM device would have an operating system capable of running an application which could subscribe and log into a registration server when the device gained access to the internet via a route such as bluetooth, Wifi

(802.11 b,g or other)…”), 4 (“Wi-Fi is an abbreviation for wireless fidelity and is used to refer generically to any type of wireless network based on the IEEE 802.11 standard or similar form of IP based wireless communication”); APPLE-1037 (“When did Wi-Fi become popular? … 2004: The first Wi-Fi-certified devices (cell phones, PDAs and TVs) hit the market.”)); *see also* APPLE-1004, [0033]-[0034] (“The wireless device 106 can connect to the IMS network using different methods, which all use standard IP.”).

A POSITA also would have known that IEEE 802.11 WLAN networks are comprised of base stations (also referred to as “access points”) that communicate wirelessly with other 802.11 wireless devices (e.g., STAs), and it therefore would been understood and obvious to a POSITA that the Horvath-Tsampalis sender device (*e.g.*, wireless device 106) would transmit the request to the server and receive the response from the server containing the recipient’s messaging format capabilities information via a WLAN base station. APPLE-1003, ¶71 (citing APPLE-1014, [0008] (“a client of the handset detects a signal of a WLAN access point…the trigger is the handset making contact with the access point, which triggers the access point to initiate the registration procedure with the SIP VoIP network”), [0011], [0048] (“a client of the handset detects a signal of a WLAN access point. Once detected by the handset, the handset SIP (session initiation protocol) client initiates a registration procedure over a broadband connection with a WLAN VoIP service located at an application service provider (ASP)”); APPLE-1015, [0027] (“Base station 120, including its associated controller and antenna tower 118, provides wireless network coverage for a particular coverage area commonly referred to as a ‘cell’.”)).

As discussed above, Horvath aims to unburden the traditional circuit service network by transmitting messages over the packet data network whenever possible. APPLE-1004, [0004], [0009] (“An advantage … is that the transmission of SMS messages can be done on a packet data network as compared to a circuit services network. If delivery of the SMS message is not possible on the packet data network, the system of the present invention is able to select the circuit services network for SMS delivery. … A further advantage of the present invention is that a wireless device is able to select either a packet data network or a circuit services network to transmit a SMS message depending on what type of network it is currently registered with.”). Accordingly, a POSITA would have understood and found obvious that when Horvath-Tsampalis’s sender device is registered with the IMS packet data network which comprises “an 802.11 network” (WLAN), the request that the sender device sends to the server and the response to the request back from the server are both transmitted via the packet switched WLAN base station (*e.g.*, Wi-Fi router) between the sender device and the remote server. APPLE-1004, [0004], [0009], [0024], [0029], [0033]-[0034], [0081], FIG. 1;

APPLE-1003, ¶72.

Regarding **option (2)**, Horvath discloses IM as another messaging service for conveying messages from a sender to a recipient device. APPLE-1004, [0033]. Horvath describes "instant messaging" as a "real-time communications" service that is established using "[t]he SIP network." *Id.* A POSITA would have been familiar with IM services like those described in Horvath before the Critical Date of the '127 Patent, including IM services established over a SIP network. APPLE-1003, ¶73 (APPLE-1007 (2005 publication providing an overview of "Instant Messaging and Presence Technologies" and various standards), page 4 ("Instant messaging (IM)…enables [message] exchanges in real time independent of locale…Popular IM applications…"), Table 1). Consistent with Horvath's explanation that the SIP network is implemented on a packet data network 102, a POSITA would have recognized IM as a packet-based service that uses a packet switched bearer to deliver IM messages to recipient devices. APPLE-1004, [0024] ("In one embodiment, the packet data network 102 is an Internet Protocol ('IP') connectivity network, which provides data connections at much higher transfer rates then [*sic*] a traditional circuit services network."), [0033]-[0034], [0037] (messages are sent over the SIP network in "**SIP packets**"); APPLE-1005, [0002], [0022], [0024]; APPLE-1003, ¶73 (citing APPLE-1007, page 7 ("the network packet"), Boxes 1 & 2). That is, like MMS but unlike SMS, IM messages are not ordinarily capable of being delivered by a traditional circuit switched bearer. *Id.* A POSITA thus would have understood IM to be a service for receiving an outgoing message via a packet switched bearer. *Id.* And because a device would subscribe to an IM service to receive IM messages, a POSITA would have understood and found obvious that the sender device in the Horvath-Tsampalis combination would determine whether the destination address (*e.g.*, contact address or phone number) of the intended recipient of an outgoing message is a subscriber of an IM service (*i.e.*, ***a [second] service for receiving the outgoing message via a packet switched bearer***) by checking whether IM is an available message format for the intended recipient as indicated by the recipient's messaging format capabilities information, based on Tsampalis's teachings. APPLE-1005, [0022]-[0025], [0041], [0056]-[0065], FIGS. 5-6, 13; APPLE-1004, [0038] ("services subscribed to by the device 106"); *supra*, §IV.A.1(c); APPLE-1003, ¶73 (APPLE-1007, page 5 (providing IM subscription examples). In the combination, it also would have been obvious based on Tsampalis for the sender to determine whether the destination address corresponds to a subscriber of an IM service by communicating a request/response to/from a remote server for the recipient's messaging format capabilities information via a packet switched WLAN base station for the same reasons discussed above with respect to the MMS option. APPLE-1003, ¶73.

Regarding **option (3)**, a POSITA would have found it obvious to configure the sender device in the Horvath-Tsampalis combination to determine whether the destination address of the intended recipient of an outgoing message corresponds to a subscriber of an IM service (*i.e.*, ***a [second] service for receiving the outgoing message via a packet switched bearer***) by checking whether the recipient is currently registered with or present on a SIP network that implements the IM service. APPLE-1003, ¶74. For example, Horvath teaches that wireless devices can register with a SIP network when they are connected to the packet data network 102 to notify other devices when they are available to receive messages via a packet switched bearer. APPLE-1004, [0006]-[0009], [0021], [0031], [0050], FIGS. 6-7.

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 sender device also to request and receive from a remote server (*e.g.*, HSS 210 or SMSC 114) the recipient's current registration/presence status with the SIP network. APPLE-1003, ¶75 (APPLE-1044 (a 2004 RFC already establishing the availability of presence functionality for SIP), Abstract); *infra*, Analysis of Claims [10], [20]. Indeed, by the Critical Date of the '127 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. APPLE-1003, ¶75. Tsampalis's teaching to provide the recipient's messaging capabilities information to the sender also underscores the obviousness of allowing the sender to poll the server for the recipient's current registration/presence status because it shows how the sender can use information about the recipient to more effectively tailor messaging strategies to the recipient. APPLE-1003, ¶75.

While messaging format capabilities information would be sufficient by itself for the sender to determine that the recipient is a subscriber to an IM service, real-time registration/presence information would be beneficial to further inform the sender whether the recipient was currently available to receive an IM. APPLE-1003, ¶76. An indication based on real-time registration/presence information that the recipient is currently available to receive an IM would also suffice itself to determine that the recipient is a subscriber to the IM service since only subscribers would be present on the SIP network implementing an IM service. APPLE-1003, ¶76. For the reasons explained above, and because IM presence services were conventionally implemented on packet data networks (including an SIP network), it also would have been obvious for the sender wireless device's request for real-time registration/presence information of the recipient, and the corresponding response, to be communicated via a packet switched WLAN base station. APPLE-1004, [0033]; APPLE-1003, ¶76.

[1c1]

Horvath-Tsampalis renders obvious [1c1]. APPLE-1003, ¶77. As discussed above in connection with elements [1a2]-[1a3], in the combined system of Horvath-Tsampalis, the wireless device of the sender is configured to send messages in a plurality of transmission modes including an MMS-based transmission mode, an IM-based transmission mode, and an SMS-based transmission mode, and the message client (*e.g.*, a messaging service application) running on the wireless device of the sender selects an appropriate transmission mode for sending an outgoing message from the plurality of transmission modes based on factors such as the recipient's messaging format capabilities information, and optionally the recipient's current registration/presence on a SIP network that implements an IM service and the sender's current registration status on the packet data network 102. *Supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3], [1b1]-[1b3]; APPLE-1003, ¶77.

In the combination, Horvath's sender wireless device 106 also includes an "SMS delivery network selector 124" that "selects a network 102, 104 for the wireless device 106 to transmit a SMS message on," based on the network registration status of the sender wireless device 106. APPLE-1004, [0062], FIGS.

1, 2, 4 (below); APPLE-1003, ¶78. Sender wireless device 106 can also select a format for an outgoing message, at least partially based on the specific messaging service(s) it has subscribed with and is thus capable of using. APPLE-1004, [0039] ("An IMS system also includes application servers that host and execute services for the wireless device 106. A service for example, is SMS, MMS…and the like."); APPLE-1003, ¶78.

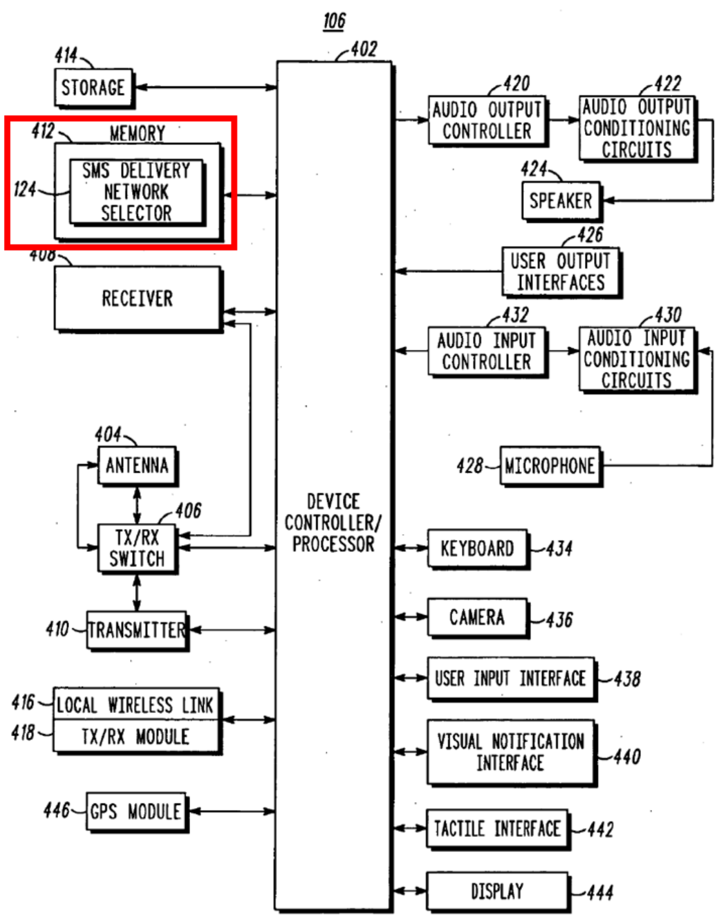


FIG. 4

APPLE-1004, FIG. 4 (Annotated)

Tsampalis additionally discloses a "send message circuitry 106" that "operates to send a message in a message format compatible with at least one of the formats identified in the [recipient device] messaging format capabilities information 110," and "sends message" "in a format identified in the [recipient device] messaging format capabilities information 110, to the network 108 via the transceiver 102." *See e.g.*, APPLE-1005, [0025], [0027], [0033], [0037] ("the send message circuitry 106 formats the message prior to sending the message"), [0041], FIGS. 1, 2. As discussed above, a POSITA would have found it obvious to implement Horvath's system in accordance with Tsampalis's teachings such that the sender device in the Horvath-Tsampalis combination would select a transmission mode such as an MMS, IM, or SMS-based transmission mode based on factors such as the recipient's messaging format capabilities information, and optionally the recipient's current registration/presence on a SIP network that implements an IM service and the sender's current registration status on the packet data network 102. *Supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3], [1b1]-[1b3]; APPLE-1003, ¶79.

[1c2]-[1c3]

Horvath-Tsampalis renders obvious [1c2]-[1c3]. APPLE-1003, ¶80. As discussed above in connection with elements [1a2]-[1a3], the wireless device of the sender in the Horvath-Tsampalis combination is configured to select an MMS-based or IM-based transmission mode (either of which corresponds to a ***first transmission mode***) when the sender determines based on the recipient's messaging format capabilities information that the recipient is capable of receiving/processing MMS or IM messages. *Supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3]. For example, Tsampalis teaches that a rich media format such as MMS can be set as the default format, and starting from Horvath's system which offers at least two rich media formats (MMS and IM), it would have been obvious for the sender device in the Horvath-Tsampalis combination to set MMS or IM as the default messaging format to benefit from the enhanced capabilities of those formats over SMS. APPLE-1005, [0062], [0064]; *see also id.*, [0036]-[0037], [0048]-[0054], [0062], [0064], FIG. 11; *supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3], [1b1] and [1c1]; APPLE-1003, ¶80. In the combination, and based on Tsampalis's teachings, the Horvath-Tsampalis sender wireless device would select the default format (*e.g.*, MMS or IM) for transmitting an outgoing message according to a default transmission mode (*e.g.*, an MMS-based or IM-based transmission mode) when the recipient's messaging format capabilities information indicates that the recipient is a subscriber of an MMS or IM service for receiving messages via a packet switched bearer. *Supra*, §IV.A.2, Analyses of [1a2]-[1a3], [1b1]-[1b3]; APPLE-1003, ¶80. In some examples, the sender device can also determine to send the outgoing message as an IM based on the recipient's current registration status/presence on a SIP network that implements an IM service. *Supra*, §IV.A.2, Analysis of [1b3]; APPLE-1003, ¶80. For example, the sender device may select an IM-based transmission mode when the recipient is currently online. *Id.*

Likewise, based on Tsampalis's teachings, the Horvath-Tsampalis sender wireless device selects the non-default format (e.g., SMS) for transmitting an outgoing message according to a non-default transmission mode (e.g., an SMS-based transmission mode) (***second transmission mode***) when the recipient's messaging format capabilities information indicates that the recipient has limited messaging capabilities and is therefore not a subscriber to the MMS or IM services that deliver messages via a packet switched bearer. APPLE-1005, [0062], [0064]; *see also id.*, [0036]-[0037], [0048]-[0054], [0062], [0064], FIG. 11; *supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3], [1b1] and [1c1]; APPLE-1003, ¶81. Based on Horvath's teachings, the sender device in the Horvath-Tsampalis combination would send an SMS message in an SMS-based transmission mode over either the packet data network 102 or the circuit services network 104 depending on whether the sender device was registered with the packet data network 102 at the time of sending the message. APPLE-1004, [0050], [0078], FIG. 7; APPLE-1003, ¶81.

[1d]

Horvath-Tsampalis renders obvious [1d]. APPLE-1003, ¶82. As discussed above, Horvath-Tsampalis's wireless device of the sender sends the outgoing message using the selected transmission mode. *Supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a3] and [1c1]-[1c3]; APPLE-1003, ¶82.

[1e]

Horvath-Tsampalis renders obvious [1e]. APPLE-1003, ¶83. As discussed above, when the selected transmission mode is the first transmission mode, the wireless device of the sender sends the outgoing message as an MMS or IM message over the packet data network 102, which Horvath explains "is an Internet Protocol ('IP') connectivity network," and which includes sending the MMS or IM message via a packet switched WLAN base station (*e.g.*, an IEEE 802.11 access point). APPLE-1004, [0024] (packet data network 102 is an Internet Protocol ("IP") connectivity network" and can include an "802.11 network"), [0034] ("runs over the standard IP"), FIGS. 1-2; *supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a3], [1b1]-[1b3], and [1c1]-[1c3]; APPLE-1003, ¶83.

A POSITA also would have understood from Horvath's disclosure, or at least found obvious, that the WLAN base station (e.g., the IEEE 802.11 access point) would be used for transmitting IP packets since the outgoing message is transmitted over a packet based network 102 that routes IP packets across the network to a recipient device. *Supra*, Analyses of [1b1]-[1b3]; *see also* APPLE-1004, [0034]; APPLE-1003, ¶84.

[1f]

Horvath-Tsampalis renders obvious [1f]. APPLE-1003, ¶85. As discussed above, the sender wireless device in the Horvath-Tsamaplis combination selects SMS as a non-default format for transmitting an outgoing message according to an SMS-based transmission mode (***second transmission mode***) when the recipient's messaging format capabilities information indicates that the recipient has limited messaging capabilities and is not a subscriber to MMS or IM services (and/or the recipient is not currently present to receive IMs). APPLE-1005, [0062], [0064]; *see also id.*, [0036]-[0037], [0048]-[0054], [0062], [0064], FIG. 11; *supra*, §IV.A.1(c), §IV.A.2, Analyses of [1a2]-[1a3], [1b1] and [1c1]; APPLE-1003, ¶85. Based on Horvath's teachings, the sender device sends the outgoing message as an SMS message over either the packet data network 102 or the circuit services network 104 depending on whether the sender device was registered with the packet data network 102 at the time of sending the message. APPLE-1004, [0050], [0078], FIG. 7; APPLE-1003, ¶85. Whether the SMS message is sent over the packet data network 102 or circuit services network 104, the message is sent to the wireless device of the recipient via a base station that is associated with a cellular core network that is independent of the packet switched WLAN base station.

APPLE-1003, ¶85.

For example, when the sender device sends the SMS message over circuit services network 104, a POSITA would have understood that the SMS message would bypass the sender's WLAN network and the packet switched WLAN base station altogether. APPLE-1003, ¶86. Horvath explains that the circuit services network 104 is distinct from the packet data network 102 (including the 802.11 WLAN network), and it would have been obvious to a POSITA that the 802.11 WLAN base station would not be used to transmit an SMS message over the circuit services network 104. APPLE-1004, [0024] ("[T]he 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."), [0050] ("If the wireless device 106, is not registered on the packet data network 102, the wireless device 106 transmits the SMS messages using the traditional circuit services network method (for example, ANSI-41 procedures)."), [0025]-[0028], [0047], FIGS. 1-2. Based on Horvath, it would have been obvious that the sender device in the Horvath-Tsampalis combination would transmit an SMS message over the circuit services network 104 even after polling a server for messaging format capabilities information and/or presence information of the recipient over the packet data network 102 if the sender device subsequently "deregistered" or "lost its coverage" with respect to the packet data network 102.

APPLE-1004, [0047]-[0049]; APPLE-1003, ¶86. The SMS message transmitted over circuit services network 104 would be sent via a base station that is associated with a cellular core network that is independent of the packet switched WLAN base station, such as a base station of a CDMA or GSM cellular network. APPLE-1004, [0024]-[0026], FIGS. 1-2; *see also id.*, [0002], [0032], [0081] ("a base-station controller"), [0039] ("The present invention is not limited to the IS-41 based circuit network. Other networks such as a GSM map circuit network can also be used."); APPLE-1003, ¶86 (citing APPLE-1011, 1:32-34 ("a base station includes but is not limited to a Node-B, site controller, access point or any other type of interfacing device in a wireless environment"), 2:44-48 ("cellular telephones" "having an appropriate card enabling communication with [a] WLAN access point (AP)"); APPLE-1014, [0006] ("cellular network (*e.g.*, GSM-global system for mobile communications)"), [0047] ("other cellular network technologies (*e.g.*, UMTS, CDMA…)"), [0108] ("The GSM network 1900 includes a base station subsystem (BSS) 1902,…one or more base transceiver stations (BTS) 1908 and a base station controller (BSC) 1910…The BTS and accompanying base stations (not shown) connect a cell phone to a cellular network. Base stations are all interconnected"), FIG. 19); APPLE-1015, [0027] ("Base station 120."), FIG. 1).

Likewise, when the sender device sends the SMS message over data packet network 102 but the recipient is not registered with the SIP network on packet data network 102, the SMS message is still sent to the recipient device via a base station that is associated with a cellular core network independent of the packet switched WLAN base station. APPLE-1003, ¶87. For example, Horvath explains that if the recipient is not registered, then "[t]he SMSC 114, at step 610, delivers the SMS message through the traditional circuit services network method (for example, ANSI-41 procedures)." APPLE-1004, [0075]-[0076], FIG. 6. In this case, SMS message is transferred from the SIP network to the circuit services network 104 and delivered via a base station associated with a cellular core of the circuit services network 104. *Id.*; *see also id.*, [0026]-[0028], FIGS. 1-2; APPLE-1003, ¶87. Noticeably, the plain language of [1f] does not require that the SMS message is never processed by the packet switched WLAN base station. The claim language only requires use of a base station that is associated with a cellular core network that is independent of the packet switched WLAN base station at some point in the process of sending the SMS message to the recipient. APPLE-1003, ¶87.

[1g]

Horvath-Tsampalis renders obvious [1g]. APPLE-1003, ¶88. As discussed above, the request sent to the server and the response received from the server are transmitted via the packet data network (*e.g.*, "an 802.11 network" which is Wi-Fi) by default to unburden the traditional circuit services network, and thus a POSITA would have understood and found obvious that neither the request nor the response traverse the cellular core network (*e.g.*, the circuit services network 104) since the Wi-Fi network and its connection to the Internet are not part of the cellular core network. APPLE-1004, [0021], [0024], [0034], [0039] ("IS-41 based circuit network 104…Other networks such as a GSM map circuit network"), [0050], FIGS. 1, 2; s*upra*, §IV.A.1(c), §IV.A.2, Analyses of [1b2]-[1b3] and [1f]; APPLE-1003, ¶88 (APPLE-1009, 1 (differentiating "GSM SMS text messaging and Internet Protocol (IP) based communication"), 2 ("Registration with the registration server will allow the possibility or option of delivering the message via an IP based route … If the IP based route is not available, conventional GSM delivery of an SMS message… is attempted."), 4 ("GSM – Global System Mobile")).

3. Claim 11

Independent Claim 11 recites the same or similar limitations as Claim 1, thus Horvath-Tsampalis renders obvious Claim 11 for at least the same reasons as discussed above for elements [1pre]-[1g] of Claim 1. APPLE-1003, ¶90.

[11pre]

Supra, §IV.A.2, Analysis of [1pre].

[11a1]

Supra, §IV.A.2, Analysis of [1a1].

[11a2]

Supra, §IV.A.2, Analysis of [1a2].

[11a3]

Supra, §IV.A.2, Analysis of [1a3].

[11b1]

Supra, §IV.A.2, Analysis of [1b1].

[11b2]

Supra, §IV.A.2, Analysis of [1b2].

[11b3]

Supra, §IV.A.2, Analysis of [1b3].

[11c1]

Supra, §IV.A.2, Analysis of [1c1].

[11c2]

Supra, §IV.A.2, Analysis of [1c2].

[11c3]

Supra, §IV.A.2, Analysis of [1c3].

[11d]

Supra, §IV.A.2, Analyses of [1d]-[1e].

[11e]

Supra, §IV.A.2, Analysis of [1f].

[11f]

Supra, §IV.A.2, Analysis of [1g].

4. Claims 2, 12

[2], [12]

Horvath-Tsampalis renders obvious Claims [2] and [12]. APPLE-1003, ¶103. For example, Horvath's wireless device has a "visual notification (or indication interface 440)" that "can be used as an alert by displaying a sequence of colored lights or a single flashing light on [a] display 444 or LEDs…when the wireless device 106 receives a message, or the user missed a call," where display 444 is "for displaying information to the user of the wireless device 106." APPLE-1004, [0068], [0070], FIG. 4 (below); APPLE-1003, ¶103.

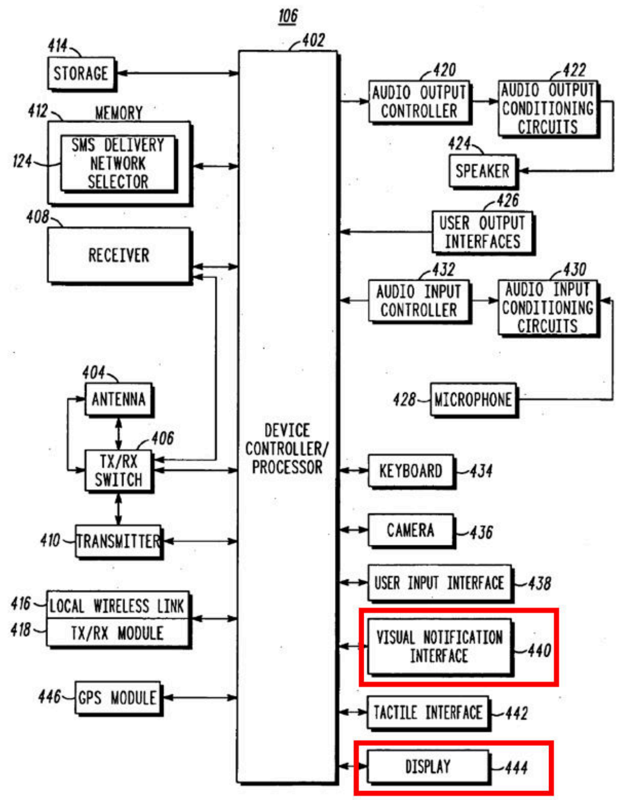


FIG. 4

APPLE-1004, FIG. 4 (Annotated)

Additionally, Tsampalis discloses that the sender device displays a "prompt" for the user to choose a message format based on obtained recipient device messaging format capabilities information, prior to sending a message. APPLE-1005, [0004], [0037]-[0038] (sender device "prompts the user to select which among the [recipient device] messaging format capabilities information 110 to format the active message 216 in before sending the message 112"), [0052] ("displays options to the user for each flagged recipient"), [0062] ("The [sender device] then prompts the user with the options to…"), [0065], FIG. 12 ("display options and input user selection"); APPLE-1003, ¶104.

In the combined system of Horvath-Tsampalis, it would have been obvious for the wireless device of the sender to display a result of the indication of whether the destination address corresponds to a subscriber of the service (*e.g.*, MMS or IM), in accordance with Tsampalis to provide an enhanced user experience by providing a "prompt" for the user of the sender device to choose a messaging format compatible with the recipient device. *Supra*, §IV.A.1(c), §IV.A.2, Analyses of [1b1]-[1b3], [1c1]-[1c3]; APPLE-1003, ¶105 (APPLE1013, 6:41-51, 7:29-34 ("For example, a platform indicator may indicate the original message platform, or type of a message, such as email, SMS, or voice mail. A color or a visual shape may help the user identify the message type, and thus, help the user decide on a message platform to use for an outbound reply message."); APPLE1010, 16:15-21 ("Communication mode categories may be shown in an enabled or disabled state. A communication mode category may be shown in a disabled state if there are no available communication modes within the communication mode category. A communication mode category may be shown in an enabled state if there is at least one available communication mode within the communication mode category."), 17:43-46 ("Contact view 865 of FIG. 8D displays a synchronous text window 870 that presents available communication modes"), 21:40-46 ("At block 1315, enabled and disabled communication mode categories are displayed in a communication action bar."), FIGS. 8D, 13).

5. Claims 3, 13

[3], [13]

Horvath-Tsampalis renders obvious Claims [3] and [13]. APPLE-1003, ¶106. As discussed above, the Horvath-Tsampalis wireless device is capable of determining and selecting a transmission mode for sending an outgoing message based on whether the destination address of the recipient device is associated with either MMS or IM messaging format capabilities (***corresponds to a subscriber of the service***). *Supra*, §IV.A.1(c), §IV.A.2, Analysis of Claim [1].

For example, if the sender device selects the first transmission mode, *e.g.*, when both the sender and recipient devices have MMS (or IM in the alternative mapping) capabilities (***the destination address corresponds to a subscriber of the service***), then the sender device has the option of attaching at least one type of permissible attachment (*e.g.*, multimedia file(s) such as images, audio, video) with the outgoing message since MMS supports multimedia attachments. APPLE-1003, ¶107; APPLE-1004, [0025], ("Multimedia Messaging Service ('MMS')"), [0029], [0068]-[0069] ("multimedia message" such as "a video media component"); APPLE-1005, [0062] ("the first mobile wireless communication device 100 [sender device] informs the associated user that the recipient (or recipients) have limited messaging capabilities [of only SMS], and suggests to the user to transform (format) the message to an SMS formatted message and send it. The first mobile wireless communication device 100 will also advice the user that any attached/inserted multimedia files will be lost."); *supra*, §IV.A.1(c), §IV.A.2, Analysis of Claim [1].

If the sender device selects the second transmission mode, *e.g.*, because the recipient device is only capable of SMS and not capable of either MMS or IM (***the destination address does not correspond[] to a subscriber of the service***), then the wireless device of the sender sends a text-only SMS message without any attachments, knowing that any attachment will be lost before reaching the recipient device. APPLE-1003, ¶108.

6. Claim 4, 14

[4], [14]

Horvath-Tsampalis renders obvious Claims [4] and [14]. APPLE-1003, ¶109. *Supra*, §IV.A.2, Analysis of Claim [3]. As discussed above, in some examples, such as when the recipient is not a subscriber of an MMS or IM service and is unable to process or receive MMS or IM messages, Horvath-Tsampalis's wireless device of the sender denies any type of attachment, knowing that "any attached/inserted multimedia files will be lost," before reaching the recipient device. APPLE-1005, [0062]; APPLE-1003, ¶109.

7. Claims 5, 15

[5], [15]

Horvath-Tsampalis renders obvious Claims [5] and [15]. APPLE-1003, ¶110. For example, as described above in the analysis of element [1a1], the destination address can be a mobile phone number. *Supra*, §IV.A.2, Analysis of [1a1]; APPLE-1004, [0035], [0045]-[0046], [0050], [0073], [0076]; APPLE-1005, [0033], [0064], FIG. 4.

8. Claims 6, 16

[6], [16]

Horvath-Tsampalis renders obvious Claims [6] and [16]. APPLE-1003, ¶111. For example, when the outgoing message is an SMS or MMS message, a remote server system implements "store-and-forward" capabilities in which the outgoing message is queued for later delivery if the message cannot be delivered to the wireless device of the recipient. APPLE-1005, [0022]-[0024]; *supra*, §IV.A.2, Analysis of Claim [1]; APPLE-1003, ¶111. Moreover, queuing messages for later delivery if the outgoing message cannot be delivered as claimed (*e.g.*, device offline) was a common practice and well-known before the Critical Date. APPLE-1003, ¶111 (citing APPLE-1016, [0003] ("If the telephone cannot be reached, for example, if it is turned off or if the battery is discharged, the message will be queued for later transmission."), [0020]; APPLE-1009, FIG. 2 ("If the mobile device is not subscribed via IP, messages would be either be queued until the mobile device registers over an IP based route or after a set period the messages would be routed as a GSM SMS message."), page 2 ("if the handset is not registered with the registration server, the message will be queued for IP based delivery within a specified time period."); APPLE-1017, 34:66-35:33 ("the message may be held until the mobile phone is on line.")).

9. Claims 7, 17

[7], [17]

Horvath-Tsampalis renders obvious Claims [7] and [17]. APPLE-1003, ¶112. For example, Horvath discloses a server that determines message delivery success based on "an acknowledgement" sent from the recipient device. APPLE-1004, [0076] ("The SMSC 114, at step 61S, determines if delivery of the SMS message though [*sic*] the packet data network was successful (i.e. has an acknowledgement been received)."), [0080], FIG. 8. Likewise, Tsampalis describes the transmission of "signal[s]" from a remote server to a sender device, such as "new capabilities signal two" from a remote relay/server to a local relay/server and then "new capabilities signal one" from the local relay/server to the first mobile wireless communication device (sender device), containing indicators of message delivery result. APPLE-1005, [0058] ("The new capabilities signal two 1322 is also shown to contain an MM_Status_Code 1406, X-

MMS_Status_Code 1408, and in the case of where a message is failed to be delivered, the potential values include 'unrecognized' 1410 and 'unsupported message' 1412."), [0059] ("The new capabilities Signal one 1326 is also shown to contain an MM Status 1506, where the MM Status 1506 is further based on an X-MMS MM Status 1508, and in the case of where a message is failed to be delivered, the potential values include 'rejected' 1510 and 'unsupported message' 1412."), FIGS. 14, 15; APPLE-1003, ¶112. A POSITA would have understood that the sender's receipt of a signal that indicates a status other than unrecognized, unsupported, rejected, or the like, indicates that the outgoing message has been successfully delivered to the recipient device. *Id.*

A POSITA would have found obvious for Horvath-Tsampalis's sender device to receive a delivery confirmation message, *e.g.*, the remote server forwarding the received "acknowledgement" message to the sender device or sending a notification of successful or "failed"/"rejected" delivery to the sender device, which would allow the sender to attempt a re-transmission or re-formatting of the message to the extent needed to successfully deliver the message to the recipient. APPLE-1003, ¶113. Moreover, it was common practice and well-known in the field of wireless communication for a sender device to receive a message delivery confirmation message when the outgoing message is successfully delivered to the recipient device. APPLE-1003, ¶113 (APPLE-1008, [0063] ("a delivery report signal indicating that the contents have been received (S24)"); APPLE-1012, FIGS. 5, 6, 7 (steps 511, 612, 712, "send short message delivery report using SIP message'" to the IMS-based user equipment), FIG. 7 (step 712); APPLE-1018, 14-33 ("If this delivery service provides delivery confirmation (Block 745), the EMS may optionally choose to await confirmation (Block 750) before notifying the sender of the message delivery (and, preferably, the mechanism used) at Block 755.")).

As discussed above regarding the request sent to the server and the response to the request back from the server to the sender device, both transmitted via the packet switched WLAN base station (*e.g.*, Wi-Fi router), a POSITA would have understood and found obvious that the delivery confirmation message is also sent by the remote server to the sender device via the packet switched WLAN base station by default, to unburden the circuit services network, when the recipient device has MMS or IM capabilities (***subscriber of the service***) established by the SIP network. APPLE-1003, ¶114; *supra*, §IV.A.2, Analyses of [1b2]-[1b3].

10. Claims 8, 18

[8], [18]

Horvath-Tsampalis renders obvious Claims [8] and [18]. APPLE-1003, ¶115. As discussed above, a POSITA would have found it obvious for Horvath-Tsampalis's sender device to receive a delivery confirmation message. *Supra*,

§IV.A.9, Analysis of Claims [7], [17]. A POSITA also would have found it obvious for Horvath-Tsampalis's sender device to display for the sender a delivery indication based on the received delivery confirmation message, *e.g.*, using Horvath's "visual notification (or indication interface 440)" and display 444 that is "for displaying information to the user of the wireless device 106," to enhance user experience by providing the sender with feedback of whether the attempted delivery was successful and giving the sender the opportunity (*e.g.*, by a "prompt," in accordance with Tsampalis) to try another communication method and/or mode, or try again at a later time, to reach the recipient if the earlier message was rejected or lost. *Supra*, §IV.A.4, Analysis of Claims [2], [12]; APPLE-1004, [0068], [0070], FIG. 4; APPLE-1005, [0004], [0037]-[0038], [0052], [0062], [0065], FIG. 12; APPLE-1003, ¶115 (citing APPLE-1012, FIGS. 5, 6, 7 ("send short message delivery report using SIP message'" to the IMS-based user equipment), FIG. 7 (step 712); APPLE-1018, 14-33 ("notifying the sender of the message delivery")).

11. Claims 9, 19

[9], [19]

Horvath-Tsampalis renders obvious Claims [9] and [19]. APPLE-1003, ¶116. Indeed, by the Critical Date of the '127 Patent, it would have been obvious for Horvath-Tsampalis's sender wireless device to display sent messages and received messages using different characteristics to distinguish the sent messages from the received messages, with obvious user experience benefits. *Id.*

Indeed, this conventional and common-sense feature was well-known before the Critical Date, and a POSITA would have found it obvious and would have been motivated to implement such features to allow the user of the device to more readily differentiate sent versus received messages, consistent with Tsampalis's express objective of enhancing user experience. APPLE-1003, ¶116 (APPLE-1010, 11:37-46 ("Incoming and outgoing messages 415 and calls 420 may include one or more icons and/or text indicating a communication type. For example, text may indicate that a stored communication is an incoming call, an outgoing call…each communication (e.g., message or call) includes a communication type icon 410. Examples of communication type icons 410 include a left facing arrow to represent outgoing calls [or messages], a right facing arrow to represent incoming calls [or messages]"), FIGS. 4A-4C; APPLE-1013, 7:61-8:38 (teaching of displaying "sender identity" with a message, along with "message platform," using "different colors to draw attention to key information"), FIG. 4); *supra*, §IV.A.4, Analysis of Claims [2], [12].

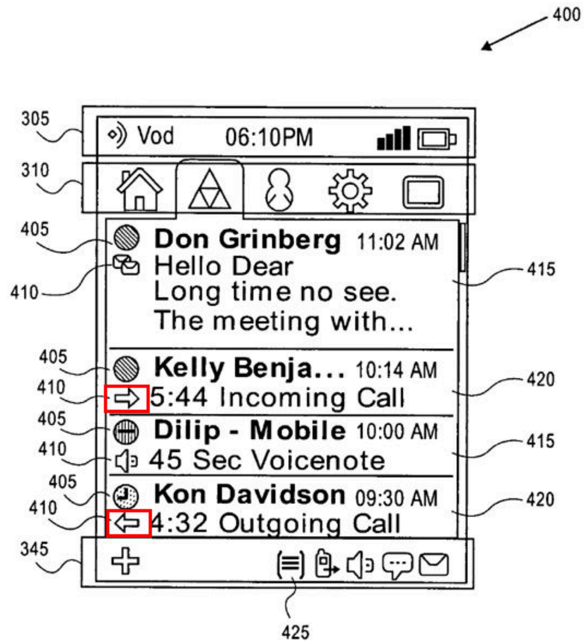


FIG. 4A

APPLE-1010 (prior art corroborating POSITA's knowledge), FIG. 4A (annotated)

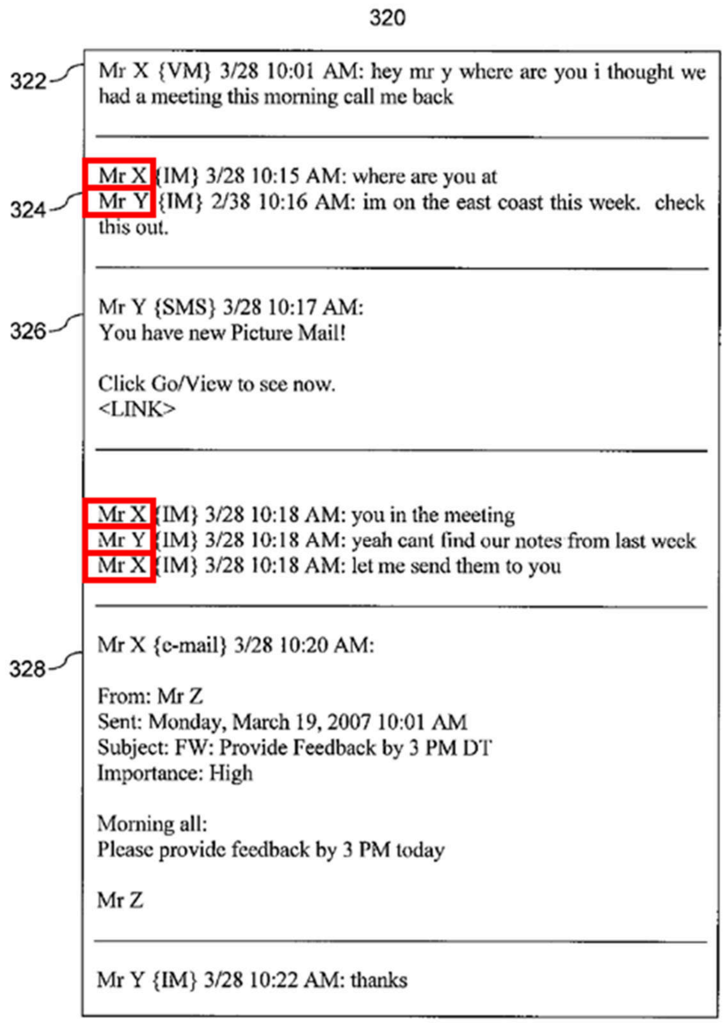


FIG. 4

APPLE-1013 (prior art corroborating POSITA's knowledge), FIG. 4 (annotated)

12. Claims 10, 20

[10], [20]

Horvath-Tsampalis renders obvious Claims [10] and [20]. APPLE-1003, ¶118. As discussed above in connection with elements [1b1]-[1b3], it would have been obvious for the Horvath-Tsampalis sender device to receive presence information that indicates whether the intended recipient of an outgoing message is currently available to receive IMs (e.g., on a SIP network) if the destination address corresponds to a subscriber of an IM service. *Supra*, §IV.A.2, Analysis of [1b1]-[1b3]; APPLE-1004, [0004], [0081]; APPLE-1005, [0004], [0026], [0062], [0065]; APPLE-1003, ¶118.

When a recipient device has IM capabilities but is unavailable (an example of ***presence information associated with the wireless device of the recipient***), e.g., offline or online but busy, such presence status affects whether and how a message can be delivered to the recipient (*e.g.*, when a recipient is offline, an instant message would not be delivered successfully). In this context, a POSITA would have further found it obvious to configure the wireless device of the sender to display the recipient's presence status to inform a user of the sender device of the recipient's presence, thereby allowing the user to decide whether to send a SMS instead or to wait and try IM when the recipient device is back online—i.e., a common practice well known in the field by the Critical Date to enhance user experience and reduce unnecessary system overhead. *Supra*, §IV.A.2 & 4, Analyses of Claims [1]-[2], [12]; APPLE-1003, ¶119 (APPLE-1010, 8:51-9:12 ("Presence status indicates online status (e.g., offline, online and busy, online and available, etc.) for the destination user. In one embodiment, presence status of the destination user is determined using one or more instant messaging service (e.g., America Online® instant messenger (AIM), ICQ®, Yahoo® instant messenger, Microsoft® instant messenger, etc.)...Once presence status is determined, the presence status may be presented to a user via user interface 195."), 11:24-36 ("The presence status 405 presented in the unified inbox view 400 may be updated continuously, periodically, or upon user input."); APPLE-1013, 13:19-21 (display of "location or presence of the sender"); APPLE-1019, Abstract ("The interface enables a user to set a presence and/or a communication mode, which the client device communicates to other devices directly or via an intermediary server."); APPLE-1020, 1:40-45 ("An instant messaging server keeps track of the online status of each of its subscribed users (often referred to as presence information), and when someone from a user's buddy list is online, the service alerts that user and enables immediate contact with the other user."), 2:5-9).

V. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

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

VI. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner respectfully requests institution of IPR and cancellation of all Challenged Claims.

Petitioner authorizes the Patent and Trademark Office to charge any fees to Deposit Account No. 06-1050.

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

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

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

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

Petitioner is not aware of any disclaimers, reexamination certificates or petitions for inter partes review for the '127 Patent. The '127 Patent is the subject of civil action: *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 IPR50095-0260IP1@fr.com.

Respectfully submitted,

Dated: August 29, 2025

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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 13,907 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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