

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Title: MESSAGE LINK SERVER WITH PLURAL MESSAGE
DELIVERY TRIGGERS

SUPPLEMENTAL DECLARATION OF DR. PATRICK TRAYNOR

TABLE OF CONTENTS

I.	QUALIFICATIONS AND BACKGROUND	5
II.	RELEVANT LEGAL STANDARDS	10
III.	OVERVIEW OF CONCLUSIONS FORMED	10
IV.	PERSON OF ORDINARY SKILL IN THE ART	11
V.	CLAIM CONSTRUCTION – PERIODIC TIMER	12
VI.	TS-23.140 RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15	16
	A. EXAMPLE MESSAGE DELIVERY TRIGGERS DISCLOSED IN THE '192 PATENT	17
	B. TS-23.140'S AUTOMATED AND USER-REQUESTED MESSAGE RETRIEVAL REQUESTS ARE MULTIPLE MESSAGE DELIVERY TRIGGERS.	21
	C. TS-23.140'S SPECIFICATION OF A SIZE RESTRICTION CONSTITUTES A SEPARATE MESSAGE DELIVERY TRIGGER	23
	D. MESSAGE DELIVERY WHEN MMS USER AGENT BECOMES AVAILABLE/REACHABLE CONSTITUTES ANOTHER MESSAGE DELIVERY TRIGGER	26

E. MESSAGE NOTIFICATION TO THE MMS USER AGENT IS ANOTHER MESSAGE DELIVERY TRIGGER.....	30
F. PO’S ATTEMPT TO DISTINGUISH A MESSAGE DELIVERY TRIGGER FROM A CONDITION THAT MUST OCCUR BEFORE MESSAGE IS DELIVERED IS REFUTED BY THE INTRINSIC RECORD	34
VII. TS-23.140 RENDERS OBVIOUS CLAIM 9.....	36
A. TS-23.140’S DISCLOSURE OF “EARLIEST TIME OF DELIVERY” RENDERS OBVIOUS “EXPIRATION OF A PERIODIC TIMER” AS A MESSAGE DELIVERY TRIGGER.....	36
B. “PERIODIC POLLING” AS TAUGHT BY TS-23.140 RENDERS OBVIOUS “EXPIRATION OF A PERIODIC TIMER” TRIGGER RECITED IN CLAIM 9.	41
VIII. HOUGHTON-MUNSON RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15	44
A. PO DISREGARDS THE RECORD EVIDENCE TO ADVANCE ITS INCORRECT NARRATIVE THAT THE MESSAGES RECEIVED BY THE PUSH SERVER WOULD NOT INCLUDE THE INFORMATION RECITED IN THE CLAIMS	44
1. <i>My Original Declaration Demonstrated That Houghton’s Application Server Sends Messages Including Message Content for Applications on a Mobile Device</i>	45

	<i>2. My Original Declaration Also Demonstrated Obviousness of Messages Sent by Houghton's Application Server Including an Identification of the Application on a Mobile Device</i>	<i>49</i>
IX.	HOUGHTON-MUNSON RENDERS OBVIOUS CLAIM 9.....	57
X.	ADDITIONAL REMARKS	60

I, Patrick Gerard Traynor, of Gainesville, Florida, declare that:

I. QUALIFICATIONS AND BACKGROUND

1. My name is Patrick Gerard Traynor and I have been retained as an expert witness by Samsung in the matter of *Headwater Research LLC vs Samsung Electronics Co., Ltd.* and in particular, in an IPR proceeding (IPR2024-00010) challenging claims of U.S. Patent No. 9,165,192 ('192 patent; SAMSUNG-1001).

2. I previously submitted a declaration in this IPR proceeding. That declaration was dated and signed on November 17, 2023, and I understand that the declaration was marked as SAMSUNG-1003. Since submitting my declaration (SAMSUNG-1003), I have considered the Board's institution decision (Paper 7), Patent Owner's Response ("POR"), the Declaration of Dr. Michael Brogioli (Ex. 2001) in support of the Response filed by Patent Owner, Headwater Research LLC ("Headwater" or "PO"), and the materials cited in the POR and Ex. 2001. My opinions presented here address the arguments and positions advanced in the POR and in Dr. Brogioli's declaration.

3. My opinions are based on my education and experience. My background and qualifications are set forth in my previous/original Declaration (SAMSUNG-1003). I incorporate that section of my previous declaration here by reference.

4. In writing this Declaration, I have considered the following: my own knowledge and experience, including my work experience in mobile systems and networks; my experience in teaching those subjects; and my experience in working with others involved in those fields. In addition, I have analyzed the following publications and materials, in addition to other materials I cite in my declaration:

- U.S. Patent No. 9,615,192 (SAMSUNG-1001), and its accompanying prosecution history (SAMSUNG-1002)
- 3GPP TS 23.140 v6.9.0 (2005-03); 3rd Generation Partnership Project; Technical Specification Group Terminals; Multimedia Messaging Service (MMS); Functional Description; Stage 2 (“TS-23.140”) (SAMSUNG-1004)
- U.S. Patent No. 8,041,816 to Ozaki et al. (“Ozaki”) (SAMSUNG-1005)
- WO 2008/048075 to Lee et al. (“Lee”) (SAMSUNG-1006)
- WO 2006/077283 to Houghton et al (“Houghton”) (SAMSUNG-1007)
- U.S. Patent Pub. No. 2009/0282256 to Rakic et al. (“Rakic”) (SAMSUNG-1008)
- U.S. Patent No. 7,925,717 to Chou (“Chou”) (SAMSUNG-1009)
- Open Mobile Alliance; Multimedia Messaging Service Architecture Overview (MMSARCH) specification, *available at*

https://www.openmobilealliance.org/release/MMS/V1_1-20040715-

[A/OMA-WAP-MMS-ARCH-V1_1-20040715-A.pdf](#) (SAMSUNG-1010)

- Open Mobile Alliance; OMA-ERELD-MMS-v1_2-20030923-C, Enabler Release Definition for MMS Version 1.2,” available at https://www.openmobilealliance.org/release/MMS/V1_2-20030923-C/OMA-ERELD-MMS-V1_2-20030923-C.pdf (SAMSUNG-1011)
- U.S. Patent No. 7,509,487 to Lu et al. (“Lu”) (SAMSUNG-1012)
- TSGS#19(03)0167 – ETSI / AT-F TD18 – Rapporteur Meeting (4-6 Feb. 2003), available at https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_19/Docs/PDF/SP-030167.pdf (SAMSUNG-1013)
- U.S. Patent Pub. No. 2005/0207379 to Shen et al. (“Shen”) (SAMSUNG-1014)
- U.S. Patent Pub. No. 2009/0282256 to Rakic et al. (“Rakic”) (SAMSUNG-1015)
- U.S. Patent Publication No. 2009/0240807 to Munson et al (“Munson”) (SAMSUNG-1017)
- EP Patent Application EP1853044A1 to Shenfield (“Shenfield”) (SAMSUNG-1018)
- U.S. Patent No. 7,082,615 B1 (“Ellison”) (SAMSUNG-1019)

Supplemental Declaration of Dr. Patrick Traynor
U.S. Patent No. 9,615,192

- IETF RFC 793, Transmission Control Protocol (Sept. 1981) (available at <https://www.ietf.org/rfc/rfc793.txt>) (SAMSUNG-1027)
- The TLS Protocol Version v 1.0 (Jan. 1999) (available at <https://datatracker.ietf.org/doc/html/rfc2246>) (SAMSUNG-1028)
- Complaint for Patent Infringement, *Headwater Research LLC v. Samsung Electronics Co.*, Case No. 2:23-cv-00103 (Dkt. 1, Mar. 10, 2023) (SAMSUNG-1029)
- Needham et al., “Using Encryption for Authentication in Large Networks of Computers” (ACM, Vol. 21, No. 12, Dec. 1978) (“Needham”) (SAMSUNG-1030)
- Schroeder et al., “A Hardware Architecture for Implementing Protection Rings” (ACM, Vol. 15, No. 3, Mar. 1972) (“Schroeder”) (SAMSUNG-1031)
- Saltzer et al., “The Protection of Information in Computer Systems” (IEEE Proceedings, Vol. 63, No. 9, Sept. 1975) (“Saltzer”) (SAMSUNG-1032)
- Li et al., “Symbian OS platform security model,” available at <https://www.usenix.org/system/files/login/articles/73507-li.pdf> (Login Magazine, Aug. 2010) (SAMSUNG-1033)

Supplemental Declaration of Dr. Patrick Traynor
U.S. Patent No. 9,615,192

- Philip Zimmermann, “Pretty Good Privacy: RSA Public Key Cryptography for the Masses” PGP User’s Guide. Version 1.0, June 1991), available at <https://www.tech-insider.org/free-software/research/acrobat/910605.pdf> (“Zimmerman”) (SAMSUNG-1034)
- B. Ramsdell, S/MIME Version 3 Message Specification, IETF RFC 2633, June 1999, available at <https://datatracker.ietf.org/doc/html/rfc2633> (“Ramsdell”) (SAMSUNG-1035)
- Mostafa, “Transporting data between wireless applications using a messaging system—MMS” (Wireless Comms. and Mobile Computing, July 7, 2006) (“Mostafa”) (SAMSUNG-1036)
- Wiley Electrical And Electronics Engineering Dictionary by IEEE Press (2004) (excerpted) (SAMSUNG-1040)
- *Shorter Oxford English Dictionary* (6th Ed 2007) (excerpted) (SAMSUNG-1041)
- Dictionary of Computer Science, Engineering, and Technology (2001) (excerpted) (SAMSUNG-1042)
- Deposition Transcript of Dr. Michael C. Brogioli (SAMSUNG-1044)

- U.S. Patent Pub. No. 2004/0148237 to Bittmann et al. (“Bittmann”) (SAMSUNG-1045)
- Patent Owner Response (“POR”) and the references cited therein (Ex. 2001 through Ex. 2007)

5. I have no financial interest in either party or in the outcome of this proceeding. I am being compensated for my work as an expert on an hourly basis, for all tasks involved. My compensation is not dependent on the outcome of these proceedings or on the content of my opinions.

II. RELEVANT LEGAL STANDARDS

6. I set forth the relevant legal standards in my previous declaration, and I incorporate those legal standards here by reference.

III. OVERVIEW OF CONCLUSIONS FORMED

7. In my original declaration (SAMSUNG-1003), I explained that the Challenged Claims (claims 1-9, 11-13, and 15) are rendered obvious by the cited art. This supplemental declaration explains the conclusions that I have formed based on my analysis. To summarize those conclusions:

- Based upon my knowledge and experience and my review of the materials listed above, it continues to be my opinion that claims 1 and 9, which are the only claims that Headwater addressed in its POR, are obvious over TS-23.140.

- Based upon my knowledge and experience and my review of the prior art publications listed above, it continues to be my opinion that claims 1 and 9, which are the only claims that Headwater addressed in its POR, are obvious over Houghton in view of Munson.

IV. PERSON OF ORDINARY SKILL IN THE ART

8. In my original declaration (SAMSUNG-1003, ¶21), I provided the following skill level of a POSITA in the field of the '192 Patent:

[A] person of ordinary skill in the art ('POSITA') relating to the subject matter of the '192 Patent as of January 28, 2009 ('Critical Date') would have had (1) at least a bachelor's degree in computer science, electrical engineering, or a related field, and (2) three to five years of experience in services and application implementation in communications networks. Additional graduate education could substitute for professional experience, and vice versa."

9. While generally accepting this as the appropriate skill level for a POSITA (Ex. 2001, ¶¶32-34), Dr. Brogioli appears to assert that the skill level should just be "three years" of experience instead of the above-provided range of "three to five years." *Id.*, ¶33. I disagree but note that, even if the number of years

of experience were three years, that does not change my opinions in this declaration or in my original declaration.

10. Dr. Brogioli further takes issue with the above definition's recitation that "[a]dditional graduate education could substitute for professional experience, and vice versa." Ex. 2001, ¶33. According to Dr. Brogioli, this requirement is not appropriate, because my proposed level of skill does not require "professional experience." *Id.* This misunderstands the definition provided above, which specifies the requisite educational background (calling for a bachelor's degree), and the requisite experience (i.e., professional experience) in the relevant field. With this structuring, the sentence "[a]dditional graduate education could substitute for professional experience, and vice versa" indicates that additional education—beyond a bachelor's degree—could substitute for the number of years of professional experience in the field. And similarly, additional years of professional experience in the field could substitute for the requisite education.

V. CLAIM CONSTRUCTION – PERIODIC TIMER

11. Claim 9 recites, in relevant part, that "one of the message delivery triggers is the expiration of a periodic timer." PO asserts that my application of this term is "inconsistent" with its plain and ordinary meaning, which, per PO, refers to a timer that recurs regularly (as opposed to a timer that recurs irregularly). POR, 3, 7-8, 32; Ex. 2001, ¶¶35-41, 83. These arguments fail in multiple respects.

12. **First**, PO is incorrect that the plain and ordinary meaning of “periodic timer” is limited to a timer that recurs regularly. POR, 7-8; Ex. 2001, ¶37. As a starting point, the ’192 Patent does not define this “periodic timer”—as PO acknowledges. POR, 7; Ex. 2001, ¶37. PO thus supports its interpretation using a single dictionary that “defines ‘periodic’ as ‘[of] or pertaining to a series of specified waveforms or features which *repeat or recur regularly... in time*,’ as opposed to ‘aperiodic’ in which the ‘waveforms or features repeat or recur... *irregularly in time*.” *Id.* (emphasis in original). This dictionary definition, however, is in the context of “pulse terminology” (EX. 2004, 13)—which is not the same field or context of the ’192 Patent.

13. Indeed, other dictionaries—including an English-language dictionary and one from a more relevant technical field—define “periodic” as occurring on regular or irregular intervals. *See* SAMSUNG-1040, 3 (defining “periodic” as “[o]ccurring, appearing, or characterized by regular ***and repetitive intervals [or] by irregular intervals***.”); SAMSUNG-1041, 3 (defining “periodic” as “recurring or reappearing at ***regular or any*** intervals (of time or space).”).

14. Even the ’192 specification describes embodiments where the term “periodic” is used to encompass irregular recurrence. Specifically, the specification discloses embodiments where periodic updates can recur regularly or irregularly. *See* SAMSUNG-1001, 63:5-16 (“In some embodiments, the roaming service center

provides the user with a set of options for controlling/throttling usage and/or cost while roaming. In some embodiments, these controls are set by a VSP (e.g., an IT manager using VSP functions). For example, roaming tables can be ***updated periodically*** in the background while on a home network ***and cached***. In some embodiments, ***cache updates occur based on a fixed time period***. In some embodiments, the roaming partner cost table ***cache updates are done whenever the device is connected to a desirable network*** that is not as expensive or bandwidth constrained (e.g., at home, work and/or off the WWAN). In some embodiments, ***updates occur at time of day that network is not busy***. In some embodiments, updates occur based on a network push when a roaming table is changed (e.g., one or more of the roaming partners changes the rate).”).

15. Patent Owner’s reliance on Samsung’s patents (POR, 8-9; Ex. 2001, ¶39) is also incorrect. The cited references do not support the proposition that periodic must be limited to recurrence at regular intervals. The example periodic actions in Ex. 2005 and Ex. 2006 happening every “[set] period” and “every assigned interval,” respectively, does not limit the term “periodic” to only fixed/regular “set” or “assigned” intervals. *See* Ex. 2005, 13:42-43, Ex. 2006, 2:30-45 and FIG. 2.

16. Thus, I disagree with PO’s narrow view of “periodic timer” and it is my opinion, in view of the above dictionary definitions and disclosures in the ’192 patent, that the plain and ordinary meaning of “periodic timer” encompasses a

timer that recurs regularly or irregularly rather than PO's unsupported narrow definition.

17. **Second**, PO's assertion that Petitioner's invalidity theories read out the claim term "periodic" lack merit. POR, 9; Ex. 2001, ¶¶40-41. As explained in §VII.A, PO's assertion stems from a mischaracterization of my opinions in the original declaration. Additionally, PO's reliance on my deposition testimony in support of this assertion also fails. Specifically, PO asserted that "at his deposition, Dr. Traynor stated that 'expiration of a periodic timer' might even be satisfied by a 'user looking at the clock and waiting' until a particular time had passed before they sent a message." *Id.* (citing to EX. 2003, 17:14-18:7). This assertion omits my testimony—in the same line of questioning—where I explained that this was a hypothetical and that it was "hard to say" whether this constitutes an expiration of a periodic timer. EX. 2003, 17:25-18:15. PO also omits my testimony explaining that "I tend to think of these triggers as something that's set in the technology"—further confirming that the hypothetical of simply looking at a clock and waiting is inapplicable. *Id.*

18. Based on the above, it is my opinion that the term "periodic timer," should be given its plain and ordinary meaning, which encompasses a timer that recurs regularly or irregularly.

VI. TS-23.140 RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15

19. In my original Declaration, I identified multiple message delivery triggers disclosed in TS-23.140. These include (1) an automated and a manual message retrieval requests from a MMS User Agent, (2) specification of a message size restriction, (3) the recipient MMS User Agent becoming available/reachable over a network, (4) MMS Relay/Server sending a notification to the recipient User Agent regarding the message, and (5) additional message delivery triggers specified for dependent claims, including claims 9 (“the earliest desired time of delivery,” or “a periodic polling”), and 13 (“a message without any indication of earliest desired time of delivery, a message with application-specific data where the recipient MMS User Agent’s capability indication indicates supports for transmission of application data”). SAMSUNG-1003, ¶¶155-160, 195-200, 204-208).¹

20. In rebuttal, PO argues that TS-23.140 only teaches “a single message delivery trigger—the receipt of a valid retrieval request from the MMS User Agent”—and that the other triggers identified in the Petition (which was supported by my original Declaration) are not message delivery triggers. POR, 11-23; Ex.

¹ Contrary to PO’s assertions (POR, 22-23, 32-33; Ex. 2001, ¶¶66, 85), my opinions did not seek to modify the message delivery triggers identified in TS-23.140 or deviate from those disclosures.

2001, ¶¶42-66. As explained below, these arguments fail because (1) message retrieval requests (which PO admits is a message delivery trigger) can be automated or manual, and thereby constitute a plurality of message delivery triggers, and (2) the other triggers identified in my original Declaration (and the Petition) are also message delivery triggers consistent with such examples of message delivery triggers in the '192 specification (as described in the below section).

A. Example message delivery triggers disclosed in the '192 Patent

21. The '192 specification provides multiple examples of message delivery triggers.

22. In describing one embodiment, the '192 Patent states: “the service control server link 1638 can determine when to transmit based potentially on several *parameters*, such as one or more of: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service agent message, responding to a service agent request, initiated by one or more servers, initiated by a verification error *condition*, and/or initiated by some other error *condition*.” SAMSUNG-1001, 70:6-13. The '192 Patent further discloses: “In addition, the service control server link 1638 can provide for an efficient communication link based on various embodiments related to the timing of transmissions over the service control link, as similarly discussed above with respect to the service control device link 1691 description. For example, the timing

functions, such as asynchronous messages or polling for messages, constant frequency transmission, transmission based on how much service usage or data traffic usage has taken place, transmission in response to device side control link message, service verification error events, other error events, and/or other message transmission trigger criteria can be determined, controlled and/or initiated by either the device side or the network side depending on the embodiment.” SAMSUNG-1001, 70:17-30.

23. Dr Brogioli referred to the above-cited portions of the '192 Patent and confirmed that the example parameters/conditions listed above are message delivery triggers within the scope of claim 1. Ex. 2001, ¶31. These triggers are disclosed in the context of FIG. 16, and with reference to service control server link 1638.

24. Additionally, the '192 specification makes clear that any component on the network (such as the server) and the (message-receiving) device can initiate the trigger. *See, e.g.*, SAMSUNG-1001, 70:17-30 (“For example, the timing functions, such as asynchronous messages or polling for messages, constant frequency transmission, transmission based on how much service usage or data traffic usage has taken place, transmission in response to device side control link message, service verification error events, other error events, and/or other ***message transmission trigger criteria can be determined, controlled and/or initiated by either the device***”).

side or the network side depending on the embodiment.”); SAMSUNG-1044, 25:7-27:21 (Dr. Brogioli testifying regarding the same).

25. The '192 Patent discloses additional triggers for “the service control device link 1691,” which are similar to the list of transmission/message delivery triggers described above. More specifically, the '192 specification states: “the service control device link 1691 determines when to transmit based potentially on *several parameters* including, for example, one or more of the following parameters: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service controller message, responding to a service controller request, initiated by one or more agents, initiated by a verification error condition, initiated by some other error or status condition.” SAMSUNG-1001, 38:30-38.

26. Other identified examples include a “*transmission trigger* [that] is *based on* waiting for an amount of service usage, and also including a minimum transmission rate *that triggers a transmission* according to *one or more of* the following *parameters*: a maximum time between transmissions clock to keep the service processor 115 in communication with the service controller 122 when little or no service usage is occurring, a polling request of some kind from the service controller 122, a response to a service controller heartbeat, a transmission generated by a service verification error event, or a transmission generated by some other

asynchronous event with time critical service processor 115 (or service controller 122) messaging needs, such as a transaction or service billing event or a user request.” *Id.*, 38:50-63.

27. The ’192 specification provides additional details of the “service usage” or “service activity trigger,” noting that it can be “based on some other measure than traffic usage, such as a number of messages transacted, one or more billing events, number of files downloaded, number of applications run or time that an application has been running, usage of one or more specified applications, GPS coordinate changes, roaming event, an event related to another network connection to the device and/or other service related measures.” *Id.*, 39:11-19.

28. Dr. Brogioli acknowledged that the above-described “parameters” recited in column 38 of the ’192 Patent are similar to those listed at column 70, which he recognized were message delivery triggers. SAMSUNG-1044, 31:24-32:23; Ex. 2001, ¶31; *see also* SAMSUNG-1001, 70:21-30 (noting that the server side triggers are similar to the ones discussed for the device side, and suggesting that message delivery triggers can be initiated, determined or controlled by device or network sides).

29. As described above, the ’192 Patent, as well as Dr. Brogioli, use the terms “trigger” and “parameter” interchangeably. *See, e.g.*, SAMSUNG-1001, 70:6-10, 38:30-38, 38:50-39:20; POR, 5; Ex. 2001, ¶31. Moreover, in his testimony, Dr.

Brogioli also referred to the example triggers noted in the Patent, as “conditions.” SAMSUNG-1044, 18:3-13, 19:20-25, 21:3-18, 26:11-27:21. Similarly, the ’192 Patent refers to an “error *condition*” as a “parameter” that constitutes a message delivery trigger. SAMSUNG-1001, 70:6-10.

30. With this understanding of the example embodiments of message delivery triggers described in the ’192 patent, I explain how the conditions/parameters identified in TS-23.140 teach or render obvious the claimed message delivery triggers.

B. TS-23.140’s automated and user-requested message retrieval requests are multiple message delivery triggers.

31. As I explained in my original Declaration, message delivery happens upon the occurrence of one or more of the following triggers, including when “the MMS User Agent ... retrieve[s] the MM, *either automatically or manually*, where the ‘retrieval mode is based on user settings or the recommendation in the notification.” SAMSUNG-1003, ¶¶155-160² (citing SAMSUNG-1004, §7.1.2.1).

² I also noted in my original Declaration that MMS User Agent can initially “defer[] message delivery” and subsequently retrieve automatically or manually. SAMSUNG-1003, ¶155; SAMSUNG-1004, 28.

32. As a threshold matter, PO concedes that a message retrieval request is a message delivery trigger. *See* POR, 11; Ex. 2001, ¶43 (“a POSITA would understand TS-23.140 to teach the use of only a *single* message delivery trigger—the receipt of a valid retrieval request from the MMS User Agent.”) (emphasis in original).

33. PO does not dispute that a user requested retrieval request is a message delivery trigger that is “an asynchronous event with time critical messaging needs,” as the claim additionally requires. SAMSUNG-1003, ¶¶158-160; *see* POR, 10-23; Ex. 2001, ¶¶43-66. PO also cannot dispute that the message retrieval request can be configured to be an automatic request or a manual request. SAMSUNG-1003, ¶¶155-160; *see* SAMSUNG-1004, 19-20 (“MMS allows for the retrieval of MMs in *a manual or automatic fashion.... In automatic mode* the retrieval of an MM and its storage to local memory is accomplished without any interaction with the end user.... *In manual mode* the end user is made aware of the MM notification and is allowed to make a decision whether to download the MM or not.”).

34. In other words, the retrieval request can be manually sent by the user of a device, or the MMS User Agent can be configured to automatically send the retrieval request. In the context of the ’192 specification, these would be separate message delivery triggers. SAMSUNG-1004, 20. For example, the ’192 specification describes multiple example triggers, including one “initiated by one or

more agents” and another being a “transmission generated by ... a user request.”
See SAMSUNG-1001, 38:30-38, 38:50-63. Consistent with these teachings in ’192 Patent, TS-23.140 teaches multiple triggers in the form of an automated retrieval request initiated by the MMS User Agent and a user-requested message retrieval.

C. TS-23.140’s Specification of a Size Restriction Constitutes a Separate Message Delivery Trigger

35. PO acknowledges that, when a message retrieval request includes a size restriction, the message is not delivered until the message size complies with this restriction. *See* POR, 15; Ex. 2001, ¶52 (“The only exception to [the] requirement[] that the ‘MMS Relay/Server shall deliver the MM’ ‘upon a received retrieval request’ []is that the ‘MMS Relay/Server... should not deliver the MM... to the recipient MMS User Agent unless the size restriction set by the MMS User Agent is met.’”); *see also* SAMSUNG-1004, 29.

36. Yet, PO contends that the size restriction specification is not a message delivery trigger because it is part of a “valid message retrieval request,” i.e., “a retrieval request conforming to the TS-23.140’s requirements, including ... having an appropriate size restriction.” *See* POR, 17 (“While the Petition attempts to separate these into two distinct message delivery triggers, a POSITA would understand that whenever a ‘valid’ retrieval request is received (i.e., a retrieval request conforming to the TS-23.140’s requirements, including being within the

message expiry period and having an appropriate size restriction), message delivery is triggered.”); Ex. 2001, ¶57.

37. This argument is wrong for the reasons below.

38. **First**, there is no notion of a “valid” (or for that matter, “invalid”) retrieval request in TS-23.140. The qualifier “valid” is introduced by PO. There is also no “TS-23.140[] requirement[]”—as the POR argues (POR, 17; Ex. 2001, ¶¶43, 52, 57)—for including the size restriction in the retrieval request. In other words, specifying size restriction in a message retrieval request is optional—i.e., a retrieval request may or may not include this restriction—as Dr. Brogioli confirmed during deposition. *Id.*; SAMSUNG-1044, 9:18-10:3, 12:9-13:23.

39. **Second**, and relatedly, PO improperly conflates the size restriction specification with a message retrieval request, even though these are separate conditions/criteria that trigger message delivery. SAMSUNG-1042, 4 (defining “trigger” as a condition that initiate an action); SAMSUNG-1001, 70:6-16, 70:27-30 (referring to message transmission triggers of ’192 Patent as “criteria,” or “parameters,” and “conditions”); SAMSUNG-1044, 18:3-13 (referring to transmission triggers in ’192 specification as “list of conditions”), 18:20-20:18. For example, a retrieval request that does not specify a size restriction would trigger delivery (subject to meeting other applicable conditions/triggers) of a message irrespective of its size. On the other hand, if the retrieval request **additionally**

specifies the size restriction, the message delivery is triggered only if the message's size is determined to be less than that specified by the size restriction. *See, e.g.,* SAMSUNG-1004, §7.1.3 (“Upon retrieval request the recipient MMS Relay/Server shall deliver the MM to the recipient MMS User Agent [but] ... ***should not deliver the MM (or any adaptation of the MM) to the recipient MMS User Agent unless the size restriction set by the MMS User Agent is met.***”); SAMSUNG-1003, ¶155.

40. Thus, even if a retrieval request is received, the message is not delivered unless the MMS Relay/Server additionally determines that the message size is within the size restriction when the request specifies this optional condition. *See* SAMSUNG-1003, ¶155 (citing SAMSUNG-1004, §7.1.3, which states “the message should not be delivered ‘unless the size restriction set by the MMS User Agent is met.’”).

41. ***Third***, and relatedly, the '192 specification confirms that message delivery can be triggered upon occurrence of multiple conditions or parameters. *See* SAMSUNG-1001, 38:50-63 (“transmission trigger is based on waiting for an amount of service usage, ***and also*** including a minimum transmission rate”), 38:30-38, 70:6-16 (“determine[ing] ***when to transmit based*** potentially on ***several parameters***, such as ***one or more of the following parameters***,” including “waiting until a certain amount of service usage or traffic usage has occurred” and “initiat[ion] by a” particular “***condition***”); POR, 5; Ex. 2001, ¶31; SAMSUNG-1044, 34:16-36:7

(Dr. Brogioli confirming that the examples listed in the specification constitute a “list of conditions”).

42. Similarly, in TS-23.140, the receipt of the retrieval request and the additional (and optional) specification of the size restriction condition, constitute multiple message delivery triggers that operate together to “determine, control, and/or initiate” message delivery. *See* SAMSUNG-1001, 70:21-30.

D. Message Delivery When MMS User Agent Becomes Available/Reachable Constitutes Another Message Delivery Trigger

43. PO argues that MMS User Agent becoming reachable is not a message delivery trigger and instead specifies “conditions for duration of message buffering” and “how message delivery should be attempted.” POR, 20-21; Ex. ¶¶62-63. This argument fails in multiple respects.

44. **First**, user availability/reachability does not indicate or specify “how” message delivery is “attempted”—as PO incorrectly argues. Other than unsupported expert testimony, PO offers no evidence for this assertion.

45. **Second**, for message delivery triggers, it is typical for the message to be stored and for delivery to be triggered when the condition specified by the trigger(s) occur(s). *See* SAMSUNG-1044, 26:11-27:21, 19:20-25, 21:3-18 (confirming the same); SAMSUNG-1001, 70:8-30. Similarly, the message continues to be stored at the MMS Relay/Server while the device is unreachable, and

when MMS Relay/Server determines that device is reachable/available over a network, message delivery is triggered. Specifically, TS-23.140 discloses that MMS Relay/Server checks for “terminal availability” and “[u]pon retrieval request the recipient MMS Relay/Server ... shall store messages in the network ***until the recipient MMS User Agent becomes reachable*** (e.g., user moves back into coverage, switches MMS User Agent on).” SAMSUNG-1004, §7.1.3; SAMSUNG-1003, ¶155; *see also* SAMSUNG-1044, 52:4-53:6 (Dr. Brogioli confirming that user moving back into coverage refers to user’s terminal or device being available or reachable over a network).

46. In other words, message delivery is not triggered simply because a message retrieval request is received; rather, message delivery is triggered upon receipt of the retrieval request **and** upon the Relay/Server determining that the user device is available/reachable. This is confirmed by multiple corroboration references from the relevant timeframe that teach delivery of message being triggered upon a user device returning to network coverage and becoming available. *See, e.g.,* SAMSUNG-1007, 7 (“These server computers such as a telecommunications operator SIP Server or WAP Gateway is used to control and deliver messages and ***store messages when the mobile terminal is unavailable and deliver them ... [w]hen the terminal becomes available.***”); SAMSUNG-1006, claim 14 (“storing the push information when the mobile terminal is not connected to the

mobile internet service network, and *re-transmitting the stored push information when the mobile terminal is connected to the mobile internet service network.*”); *see also* SAMSUNG-1003, ¶272 (buffering a message and delivering it to the recipient user device once it becomes available.). Thus, Relay/Server’s determination of device availability/reachability is yet another message delivery trigger—the occurrence of which triggers delivery of the stored message.

47. *Third*, PO ignores that the determination of device reachability constituting a message delivery trigger is similar to the ’192 specification’s description of “service usage” as a delivery trigger. In particular, to describe a “service usage or service activity trigger,” the ’192 specification explains that this trigger can be based on a “measure other than traffic usage,” such as, e.g., a “roaming event” or “an event related to another network connection to the device.” SAMSUNG-1001, 39:11-19; *see also id.*, 70:1-30 (which relates generally to transmissions from the *server* by referring to the earlier triggers described for the *device* side in columns 38 and 39).

48. From these disclosures, a POSITA would have understood that a service usage trigger includes use of another/roaming network for network access, as may happen when a user leaves a local or home network and joins another network (e.g., in the case of roaming when the user may be traveling or when user moves to a different location served by another network)—during which time the

device/terminal may be unavailable and not have network coverage. *See e.g.*, SAMSUNG-1044, 38:17-39:16, 40:5-25, 41:2-24 (Dr. Brogioli confirming this understanding of service usage as described in the '192 specification).

49. Thus, in the context of the '192 specification, a POSITA would have understood that a device becoming unavailable and then joining another network (e.g., while traveling) serves as a message delivery trigger. Consistent with this disclosure, TS-23.140 teaches storing a message at the Relay/Server while the recipient's user device does not have network access/coverage—even after the retrieval request is retrieved—and then triggering delivery when the MMS Relay/Server determines that the user device moves back into network coverage—*i.e.*, user's device is available or reachable over a network (as may have happen when a user connects to a different network or a roaming network).

50. Additionally, as I explain below in §VI.E, the '192 Patent's specification identifies parameters/conditions that operate as a sequence of triggers that occur before message delivery is initiated. *See, e.g.*, SAMSUNG-1001, 38:50-63. Similarly, in the context of TS-23.140, a message retrieval request and MMS User Agent availability form a sequence of triggers for message delivery. TS-23.140 explains that “[u]pon retrieval request the recipient MMS Relay/Server[] shall deliver the MM to the recipient MMS User Agent” and “shall store messages in the network until the recipient MMS User Agent becomes reachable (e.g. user moves

back into coverage, switches MMS User Agent on).” SAMSUNG-1004, 29. The retrieval request alone does not trigger message delivery when the MMS User Agent is determined as unreachable over a network. Thus, message delivery is triggered upon occurrence of both conditions/triggers—receipt of the retrieval request and determining MMS User Agent being reachable/available over a network.

E. Message Notification to the MMS User Agent is Another Message Delivery Trigger

51. PO appears to contend that the MMS Relay/Server sending a notification message (i.e., MM notification) is not a message delivery trigger. POR, 16-17; Ex. 2001, ¶56. This, however, ignores that a notification message sent by the Relay/Server initiates a message delivery sequence culminating with the delivery of the message—and therefore, constitutes a message delivery trigger.

52. Specifically, when the MMS Relay/Server receives a message, it generates and sends a notification message to a MMS User Agent that includes a message reference corresponding to the message. SAMSUNG-1004, 28. The message notification is only sent when the message is ready for delivery, as illustrated by the below discussion of earliest desired time of delivery where the Relay/Server guarantees delivery at the desired time by holding the MM notification until the desired delivery time. *See* §VII.A *infra*. Thereafter, the Relay/Server

delivers the message when a retrieval request includes the message reference identified in the MM notification. SAMSUNG-1004, 28-29.

53. In other words, a message cannot be retrieved without first receiving the MM notification and without the corresponding inclusion of the message reference. A condition for message retrieval is having the message reference that is only provided in the message notification, which is only provided to facilitate delivery of a specific message.

54. Further, the MM notification is a trigger as illustrated by the earliest desired delivery time condition that may be imposed by the originating MMS User Agent. The earliest desired time of delivery specifies the earliest time at which the message is to be delivered. SAMSUNG-1004, 27. To satisfy that, the MMS Relay/Server holds the message until that time. *Id.* And when that time arrives, the MMS Relay/Server triggers delivery by sending the notification and then sending the message in response to a user-requested or automatic message retrieval request.

55. Moreover, the MM notification is a message delivery trigger even if it is not immediately followed by message delivery. In fact, the '192 Patent's specification identifies parameters/conditions that operate as a sequence of triggers that must occur before message delivery is initiated. For example, the specification described an embodiment in which the transmission trigger is based on waiting for an amount of service usage, and ***“also including a minimum transmission rate that***

triggers a transmission according to one *or more of the following parameters*: a maximum time between transmissions clock to keep the service processor 115 in communication with the service controller 122 when little or no service usage is occurring, a polling request of some kind from the service controller 122, a response to a service controller heartbeat, *a transmission generated by a service verification error event, or a transmission generated by some other asynchronous event with time critical service processor 115 (or service controller 122) messaging needs, such as a transaction or service billing event or a user request.*” SAMSUNG-1001, 38:50-63.

56. Given this description, a POSITA would have understood that a transmission generated based on a user request and waiting for a certain service usage are separate parameters/triggers. In a system configured to trigger message delivery when both these parameters occur, a POSITA would have understood that one of these triggers/parameters could occur first (e.g., the user request) followed by the occurrence of the other trigger/parameter (e.g., certain amount of service usage) at a later time.

57. Further, the '192 Patent discloses that a message delivery trigger can be “initiated by [a] server,” just like TS-23.140 providing the MM notification as a message delivery trigger. *See* SAMSUNG-1001, 70:8-30 (“the service control server link 1638 *can determine when to transmit based potentially on several*

parameters, such as one or more of: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service agent message, responding to a service agent request, *initiated by one or more servers*, initiated by a verification error condition, and/or initiated by some other error condition.”); *see also* POR, 5; Ex. 2001, ¶31 (acknowledging that the identified parameters and conditions in the ’192 specification are message delivery triggers). The server initiated triggers in the ’192 Patent are in addition to the message delivery triggers initiated by the user device (e.g., the user request noted above), just like the MM notification in TS-23.140 being a message delivery trigger in addition to the message retrieval request as another delivery trigger. *See, e.g.*, SAMSUNG-1001, 38:30-38, 38:50-63.

58. Based on the foregoing, like the delivery triggers in the ’192 Patent, message/MM notifications and retrieval requests are separate triggers, such that the occurrence of both triggers message delivery—even if the message notifications occurs before the message retrieval requests. For similar reasons, and as further explained below with reference to claim 9, the specification of the earliest desired time of delivery is a message delivery trigger.

F. PO's Attempt to Distinguish a Message Delivery Trigger From a Condition that Must Occur Before Message is Delivered is Refuted by the Intrinsic Record

59. As a final argument, PO asserts that “[t]he Petition’s only explanation as to how any of the above scenarios (other than reception of a valid retrieval request) supposedly constitute a ‘message delivery trigger’ is an explicit conflation of a ‘message delivery trigger’ with a ‘condition[]’ that must be met before a message can be delivered.” POR, 21; Ex. 2001, ¶64. This argument is incorrect for multiple reasons.

60. As a starting point, the ’192 patent refutes PO’s suggestion that a message delivery trigger is not a condition that must occur before a message delivery is initiated. While the ’192 specification does not define the term “message delivery trigger,” it provides multiple examples of parameters or conditions—which PO confirms are message delivery triggers—and which must be satisfied or must occur before a message is delivered. *See, e.g.,* SAMSUNG-1001, 70:8-30 (“the service control server link 1638 *can determine when to transmit based potentially on several parameters*, such as one or more of: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service agent message, responding to a service agent request, initiated by one or more servers, initiated by a verification error *condition*, *and/or initiated* by some other error *condition*.”); POR, 5; Ex. 2001, ¶31 (acknowledging that the identified

parameters and conditions in the '192 specification are message delivery triggers); SAMSUNG-1044, 18:3-13, 19:20-25, 21:3-18, 26:11-27:21; 28:11-29:2, 22:4-16 (confirming list of parameters in specification are “list of conditions”).

61. This disclosure in the specification is aligned with how a POSITA would have understood this term—that a message delivery trigger includes conditions/parameters that must be satisfied/must occur before a certain action (message delivery) is initiated. *See, e.g.,* SAMSUNG-1042 (dictionary definition of trigger: “specifies a *condition* and an associated action. *If the condition is satisfied, the rule is triggered*”).

62. Moreover, in my original Declaration, I did not call “any” condition³ a message delivery trigger, as PO incorrectly argues. Rather—and consistent with the specification and the plain and ordinary meaning of trigger—my Declaration explained that message delivery is triggered when one or more of the above-described conditions (in addition to the receipt of a retrieval request) occur, including: the message size satisfying a message size restriction, determining that the User Agent is available/reachable, earliest desired time of delivery, and a

³ My original Declaration did not state that a device having a working power source is a message delivery trigger, as PO appears to suggest. *See* POR, 21-22; Ex. 2001, ¶64.

notification message being generated and transmitted by the MMS Relay/Server. SAMSUNG-1003, ¶¶155-156. Indeed, a system configured with a message delivery trigger would condition delivery of the message upon the occurrence of that/those message delivery triggers.

VII. TS-23.140 RENDERS OBVIOUS CLAIM 9

A. TS-23.140's disclosure of "earliest time of delivery" renders obvious "expiration of a periodic timer" as a message delivery trigger.

63. As I explained in my original Declaration:

- "TS-23.140 discloses that the originating MMS User Agent can set the MM's desired delivery time, such that the MMS Relay/Server stores the message until the *earliest desired time of delivery*, before delivering the message." SAMSUNG-1003, ¶196.
- A POSITA would have understood or found obvious that specifying the desired delivery time triggers a periodic timer upon message receipt that expires when the desired delivery time is reached, triggering message delivery. SAMSUNG-1003, ¶197.
- "Such a timer would be *periodic in that each time a message is received, the timer is triggered* and continues for a particular period at the expiration of which, the message is delivered to the intended recipient" *Id.*

64. In rebuttal, PO provides two arguments: (1) the earliest desired time of delivery is not a message delivery trigger, (2) nor does it constitute the expiration of a periodic timer. POR, 29-33; Ex. 2001, ¶¶77-85. Both arguments are flawed.

65. *First*, a proper contextualized reading of TS-23.140 confirms that the earliest desired time of delivery specifies a condition that triggers message delivery. And, PO's argument to the contrary improperly disregards this trigger presumably because message delivery does not happen immediately upon the trigger's occurrence. However, TS-23.140 unequivocally ties this feature to message delivery ("earliest desired time of *delivery*").

66. In particular, TS-23.140 explains that a sending MMS User Agent can "set the [message's] earliest desired time of delivery for the message" and MMS Relay/Server "shall retain the MM until the earliest desired time of delivery, if the optional feature of earliest time of delivery is supported by the originator MMS Relay/Server" or "[i]f this feature is not supported then the MM is immediately routed forward." SAMSUNG-1004, 27-28.

67. From this disclosure, a POSITA would have recognized that the message is retained by the MMS Relay/Server and thus, not delivered until the "earliest desired time of delivery." SAMSUNG-1003, ¶¶196-197. Indeed, a POSITA would have recognized that the User Agent cannot retrieve a message

without receiving the message notification (MM notification), which is not sent until the earliest time of delivery arrives.

68. A POSITA would have further understood that, when the earliest time of delivery is reached, the MMS Relay/Server routes the message forward. If the recipient MMS User Agent is associated with a different MMS Relay/Server, a POSITA would have understood that the message is routed forward to the other Relay/Server.

69. However, TS-23.140 expressly contemplates that the originating MMS Relay/Server can be the same as the recipient MMS Relay/Server, in which case, “the MM does not have to be routed forward” to a separate Recipient Relay/Server. SAMSUNG-1004, 28. In such instances, a POSITA would have understood that the message is retained until the earliest desired time of delivery, after which time, the MMS Relay/Server sends the MM notification to the recipient MMS User Agent, followed by the recipient MMS User Agent sending the message retrieval request. SAMSUNG-1044, 45:20-46:25, 50:20-51:16 (confirming this understanding).

70. Thus, a POSITA would have recognized that determining whether the earliest desired time of delivery has been met initiates a message delivery sequence culminating with the delivery of the message—and therefore, constitutes a message delivery trigger. *See id.*; EX-2001, ¶¶78-80 (confirming that MMS Relay/Server “guarantees” that message is not delivered until the earliest desired time of delivery

by retaining the message until that time and only then transmitting the message notification to the recipient); SAMSUNG-1044, 47:1-24, 50:20-51:17 (Dr. Brogioli's deposition testimony regarding this feature).⁴

71. **Second**, PO also incorrectly argues that the "earliest desired time of delivery" and the Petition's corresponding explanation (which was based on my original Declaration) does not demonstrate the "expiration of a periodic timer" limitation of claim 9. POR, 32-33, 9-10; Ex. 2001, ¶¶83-84, 40-41. However, in presenting this rebuttal, PO mischaracterizes and misrepresents my mapping of "periodic timer" in claim 9.

72. Contrary to PO's assertion, my original Declaration did not contend that the "periodic" aspect of the claim is satisfied merely because a timer for a certain period is initiated. *See* SAMSUNG-1003, ¶¶195-197; POR, 32-33; Ex. 2001, ¶¶82-84. Rather, I explained there that the identified "timer is periodic" because it refers to a timer that recurs "each time a message is received" and at "the expiration of [this timer] the message is delivered to the intended recipient." *Id.* ("A POSITA

⁴ PO also provided arguments regarding message forwarding (POR, 30-31; Ex. 2001, ¶¶79-81). However, those arguments are inapplicable because the theory in my original Declaration was not based on message forwarding. SAMSUNG-1003, ¶¶195-197.

would have understood or found obvious that specifying the desired delivery time *triggers a periodic timer of a message when the desired delivery time is reached*, which then triggers the delivery of the message. *Such a timer would be periodic in that each time a message is received, the timer is triggered and continues for a particular period* at the expiration of which, the message is delivered to the intended recipient.”).

73. More specifically, a POSITA would have recognized or found obvious that the MMS Relay/Server would have *a timer that is triggered each time it receives a message with an earliest desired time of delivery*. The recurrence of such trigger is a periodic event that makes the timer (on the Relay/Server), a “periodic” timer. As explained in §V *supra*, a “periodic” event can recur irregularly, such as “whenever a new message is received.” Petition, 30-31; SAMSUNG-1003, ¶¶195-197.

74. Further, the triggered timer runs for a certain period—i.e., until the desired earliest time of delivery—the expiration of which results in the message delivery sequence being initiated. SAMSUNG-1044, 50:20-51:17, 47:1-24. As discussed above, since such delivery sequence would not start until this (periodic) timer reaches the earliest desired time of delivery, the expiration of the timer constitutes a message delivery trigger. SAMSUNG-1003, ¶¶196-197.

B. “Periodic polling” as taught by TS-23.140 renders obvious “expiration of a periodic timer” trigger recited in claim 9.

75. PO does not dispute that periodic polling, as disclosed in TS-23.140, satisfies “expiration of a periodic timer,” per claim 9. *See* POR, 23-29, 7; Ex. 2001, ¶¶68-75. Indeed, the POR concedes that “[i]n the context of messaging systems, an excellent example of something that occurs *periodically* is an example Petitioner Samsung itself raises: ‘periodic polling.’” POR, 7 (emphasis in original); Ex. 2001, ¶38.

76. PO’s rebuttal attempts to refute my testimony, by contending that “a POSITA would understand that it is the MMS Relay/Server’s role”—and not the “MMS User Agent’s role”—“to interact with external messaging systems.” POR, 24; Ex. 2001, ¶¶69-70.

77. This argument fails, especially when considering my original testimony, which explained that the periodic polling is performed by MMS Relay/Server and results in messages being delivered to the MMS User Agent from one or more servers:

*POSITA would have understood that (1) the above-described periodic polling for messages is akin to the claimed feature of a periodic timer expiring because the **periodic polling would be done at periodic intervals** (i.e., after a certain time period has*

elapsed/expired) and (2) this periodic polling is a message delivery trigger because, in response to receipt of such polling, messages from the respective servers would be provided/delivered to the MMS User Agent via the MMS Relay/Server.

SAMSUNG-1003, ¶¶198-199.

78. Further, PO's argument lacks merit because claim 9 does not specify where the claimed trigger occurs and the specification suggests that the trigger can occur at the user device or at the server. *See* SAMSUNG-1001, 70:5-30 (suggesting that the trigger can happen at any of the server or the user device) ("As another example, the service control server link 1638 can determine when to transmit based potentially on several parameters, such as one or more of: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service agent message, responding to a service agent request, *initiated by one or more servers, initiated by a verification error condition, and/or initiated by some other error condition.* For example, once a transmission trigger has occurred, the service control server link 1638 can take all buffered agent communications and frame the communications. In addition, the service control server link 1638 can provide for an efficient communication link based on various embodiments related to the timing of transmissions over the service control link, as

similarly discussed above with respect to the service control device link 1691 description. For example, the timing functions, such as asynchronous messages or polling for messages, constant frequency transmission, transmission based on how much service usage or data traffic usage has taken place, *transmission in response to device side control link message*, service verification error events, other error events, and/or *other message transmission trigger criteria can be determined, controlled and/or initiated by either the device side or the network side depending on the embodiment.*); SAMSUNG-1044, 29:12-30:10, 31:14-32:6 (confirming that “network side,” as used in the preceding quoted portion of the specification, could refer to an element such as “a server” “in the network”).

79. Therefore, regardless of which entity performs the periodic polling (given that the claim is agnostic as to which entity initiates the periodic polling), such polling is a message delivery trigger that triggers delivery of the message upon the expiration of the period (for the periodic polling).

80. Per PO, the periodic polling theory also fails because “Dr. Traynor provides no evidence that a message received from an external server using a non-MMS-specific protocol would meet the requirements of claim 1.” POR, 29; Ex. 2001, ¶76. This arguments fails and ignores that—regardless of the connection between the Relay/Server and External Server—a POSITA would have recognized or found obvious that External Servers send multimedia messages (MM)—of the

type described with reference to claim 1—to MMS User Agent via the Relay/Server. SAMSUNG-1004, 14 (defining “External Server” as a “network entity/application of an external system ... to which *MMs may be sent to and/or from which MMs may be received by an MMS User Agent via an MMS service provider.*”)

VIII. HOUGHTON-MUNSON RENDERS OBVIOUS INDEPENDENT CLAIMS 1 AND 15

A. PO Disregards the Record Evidence to Advance its Incorrect Narrative that the Messages Received by the Push Server Would Not Include the Information Recited in the Claims

81. As I explained in my original Declaration, Houghton-Munson renders obvious that the message sent from Houghton’s application server (i.e., claimed network element) includes message content for and identification of an application on a mobile device (i.e., claimed respective one of the authorized system components). SAMSUNG-1003, ¶¶319-342.

82. In rebuttal, the POR argues that the Petition “provides evidence of ... what the messages sent from push server to the push client indicate” and “says nothing about what messages that are received by push server from the application server (i.e., ‘from a plurality of network elements’) indicate....” POR, 34-35, 39-40; Ex. 2001, ¶95. Per the POR, the Petition (and my original Declaration) show obviousness of messages “sent by Houghton’s push server including an application identifier,” but “other than a conclusory assertion,” “provide[] no reasoned analysis

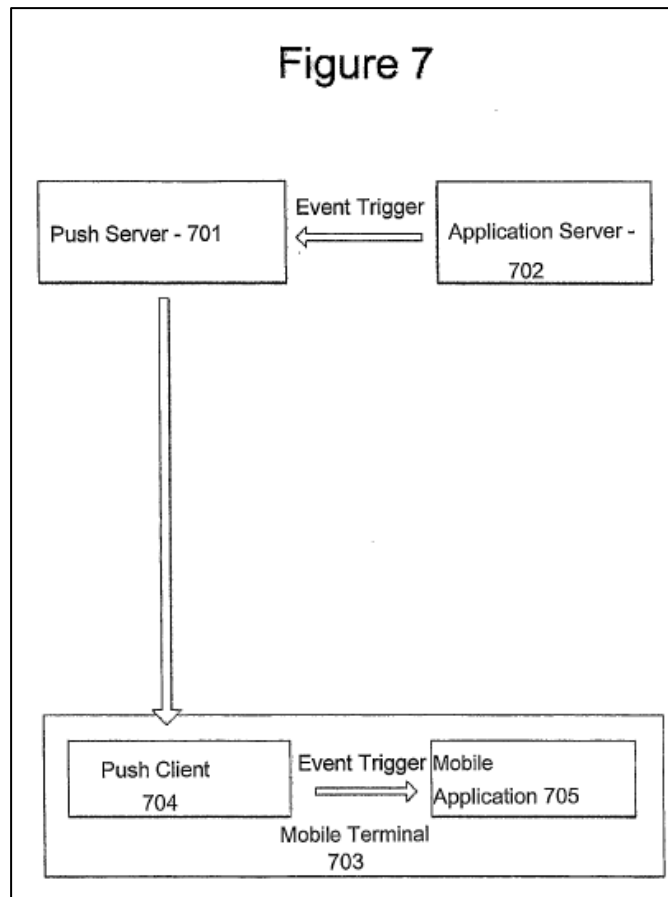
as to why the messages received by Houghton’s push server” from the application server “would include an application identifier.” POR, 40, 34-35; Ex. 2001, ¶¶95-99, ¶¶86-90.

83. These assertions lack merit at least because they are premised on a partial and incomplete reading of the record evidence, including the cited teachings of Houghton and other references, and my testimony regarding the same. *See* POR, 35-39; Ex. 2001, ¶¶91-94. When considered in its full and proper context, the record demonstrates that it would have been obvious for messages received from Houghton’s application servers (i.e., from the claimed plurality of network elements) to include (1) data for an application on a mobile device, and (2) an identification of the application, as explained below.

1. My Original Declaration Demonstrated That Houghton’s Application Server Sends Messages Including Message Content for Applications on a Mobile Device

84. As I explained in my original Declaration, in Houghton-Munson, the message received from the application servers (i.e., the received network element messages) are application command messages. *See* SAMSUNG-1003, ¶¶319-329. In particular, the combination leverages Houghton teachings of FIG.7 (below), where a push server 701 is triggered by an event trigger “from an application server 702” to “push ***an application command message*** to the push client 704 and thereby initiate a mobile terminal client trigger event ***in a mobile application 705 from a***

plurality of such applications, program modules and user interface features on the terminal 705.” SAMSUNG-1003, ¶¶320-321; SAMSUNG-1007, 21-22, FIG. 7. This interaction is depicted, e.g., in Houghton’s FIG. 7, which is reproduced below.

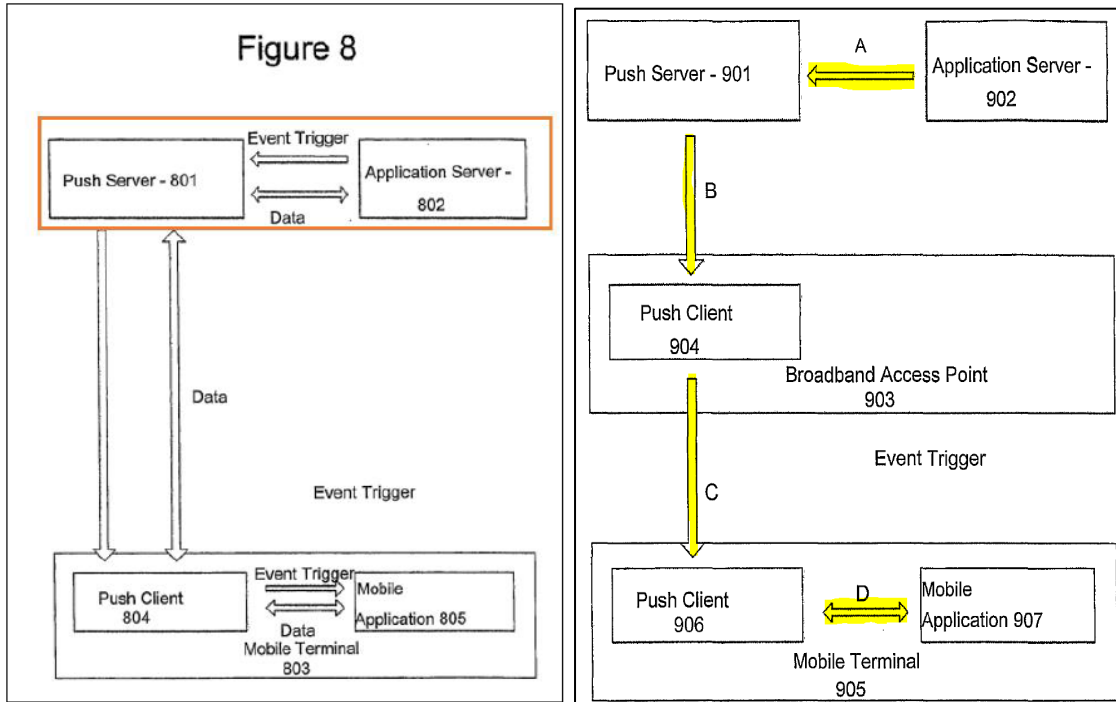


SAMSUNG-1007, FIG. 7; SAMSUNG-1003, ¶321.

85. As shown above, the application server sends an “event trigger” message to the push server. An “event trigger” message, as Houghton explains, is a message that includes data for “launch[ing] or command[ing] a mobile application” (SAMSUNG-1007, 9) and can include “application launch commands, lazy application updates, and lazy application data updates.” *Id.*, 24; SAMSUNG-1003,

¶¶320-322, 340. Also, as the above figure further depicts, after the data transmission between the push server and the push client, the push client at the mobile terminal transmits this “event trigger” message to the mobile application 705/805. SAMSUNG-1003, ¶¶91, 322, 333.

86. Similarly, in the context of Houghton’s Figure 8 (below, left), the above-described delivery of an “event trigger” message from the application server to the mobile application is facilitated using a “data connection established” between these components, which uses a “persistent managed, tested, and configured data connection” between push server and push client. SAMSUNG-1007, 23; SAMSUNG-1003, ¶91. The data connections in the path between the application server and the mobile application at the mobile terminal are illustrated in Figure 8 (below) using the bidirectional arrows labeled “Data”:



87. Similarly, in the context of Houghton’s Figure 9 (above, right), Houghton shows transmission of an “event trigger,” and in the associated description, states that “the push server 901 is triggered by a trigger event of which the application server 902 is aware *to send push message* to the mobile terminal 905, and *procedure steps A, B, C are traversed thereby pushing application launch commands, lazy application updates, and lazy application data updates through push clients ... to mobile application 907.*” SAMSUNG-1007, 24; SAMSUNG-1003, ¶340. Because this application command message is a “push message” that is pushed to the mobile terminal and it traverses steps (“steps A, B, C”) that begin at the Application Server, these push messages are pushed from the application server.

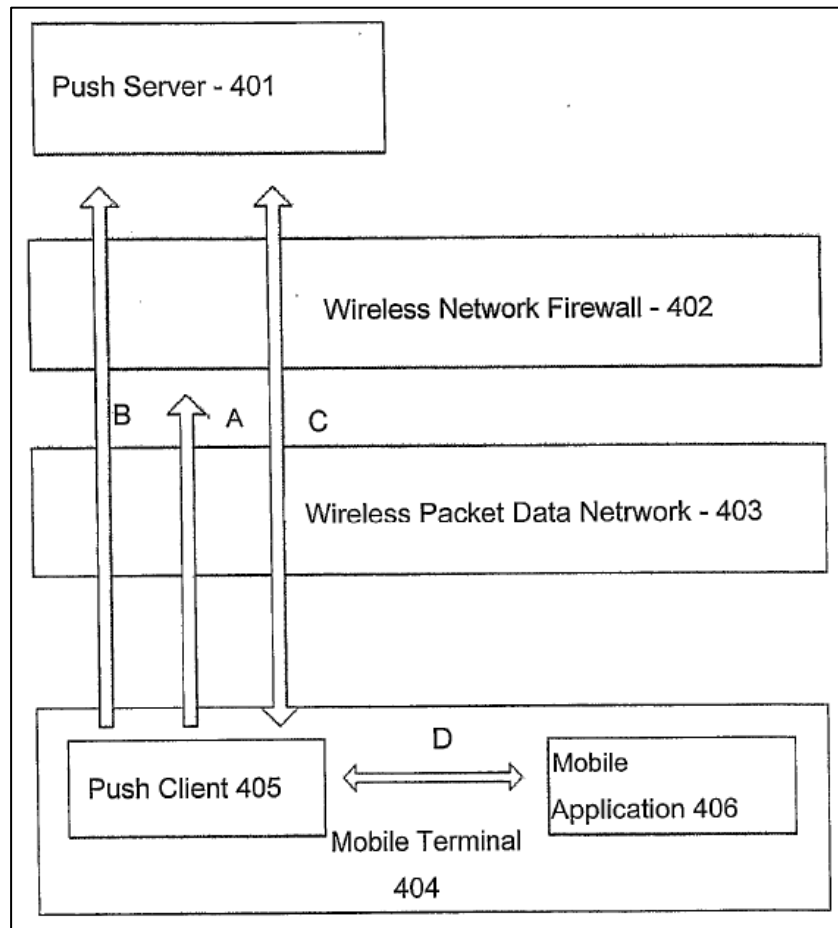
88. Thus, as explained in my original Declaration in view of the above descriptions, the message sent by the application server (i.e., the claimed network element) and received by the push server (i.e., the claimed message link server), includes “message content including data for ... a respective one of the authorized software components.” SAMSUNG-1003, ¶¶339-341. That’s because the event trigger message sent by the application server is an application command message that includes content and data (e.g., application launch commands, lazy application updates, and lazy application data) for a particular mobile application (i.e., the authorized software component) on Houghton’s mobile terminal. *See* SAMSUNG-1007, 9, 24; SAMSUNG-1003, ¶¶339-341.

2. *My Original Declaration Also Demonstrated Obviousness of Messages Sent by Houghton’s Application Server Including an Identification of the Application on a Mobile Device*

89. As I explained in my original Declaration, it would have been obvious—in view of the well-known technique of including application identifiers in push message sent from an application server and Houghton’s teachings—to include an application identifier in the push message sent by Houghton’s application server for delivery to a mobile application via Houghton’s push server. SAMSUNG-1003, ¶¶330-338; *see id.*, ¶¶320-329.

90. In the context of an application server sending a push message to a mobile application via a push server, I explained that it was well-known—in view of Lee and TS-23.140—for push messages from the application servers to include an application identifier specifying/identifying this application such as, e.g., an application identifier. SAMSUNG-1003, ¶¶333-338. For example, in the context of push messaging, Lee discloses that a push message from a push application server—which is sent for delivery to a destination application via a push server—includes an “app-ID” that specifies the destination application. SAMSUNG-1006, ¶¶13, 22. Similarly, TS-23.140 teaches that each destination application to which a push message is sent by a value added server (which is an example of an application server) includes an application identifier of that application. SAMSUNG-1004, 54-56; SAMSUNG-1003, ¶336.

91. In this light, Houghton teaches that the push message delivered by the push server includes “[a]dditional binary or text information specifying which mobile application 406 from a plurality of such applications...” SAMSUNG-1006, 21; SAMSUNG-1003, ¶¶333-334. This description is provided in the context of Houghton’s Figure 4, which is reproduced below:



SAMSUNG-1007, FIG. 4.

92. As shown, Houghton's Figure 4 depicts the push server in communication with the mobile terminal, but does not depict any additional devices/server connected to the push server. *See id.* However, Figure 4's description in Houghton explains that "the push message from the push server" is triggered by a "trigger event" such as "from another device or system." SAMSUNG-1007, 21.

93. Houghton subsequently provides Figures 7-9 and their associated description, which provide a "command push procedure" and describe (as explained in §VIII.A.1 *supra*) (1) an application server communicating with an application on

the mobile terminal via the push server and (2) the push server being “triggered by” a trigger event (which Houghton refers to and shows as an “event trigger” message) to send a “*push message*” from “*application server* to the mobile terminal 905” thereby “*pushing application launch commands, lazy application updates, and lazy application data updates*” “through push clients” to the particular ... *to “mobile application.”* SAMSUNG-1007, 21-24; SAMSUNG-1003, ¶¶331-341.

94. In the context of Figure 7, Houghton describes a “command push procedure” where the push server “is triggered by” a trigger event (which Houghton refers to and shows as an “event trigger” message) “as for example from *an application server 702 to push an application command message to the push client 704* and thereby *initiate a mobile terminal client trigger event in a mobile application 705 from a plurality of such applications*, program modules, and user interface features on the terminal 705.” SAMSUNG-1007, 21-22; SAMSUNG-1003, ¶339.

95. Similarly, in the context of Figure 9, Houghton discloses sending a “push message” from “application server to the mobile terminal 905” thereby “pushing application launch commands, lazy application updates, and lazy application data updates” from the application server “through push clients ... to mobile application”). SAMSUNG-1007, 24.

96. Because Houghton teaches that an application server sends push messages as event trigger/application command messages to a particular mobile application via Houghton's push server and push client(s), a POSITA would have recognized that the push message delivered by the push server would be provided thereto by the application server. SAMSUNG-1003, ¶¶320-328; 330-341.

97. PO's expert, Dr. Brogioli, contends that "there would be no need for the message sent from the application server to the push server to include an identification of an application in Dr. Traynor's proposed combination." EX-2001, ¶¶97-98. In support of this argument, Dr. Brogioli asserts that the application server "would not ... know" the application to which "the message should be directed." *Id.* Not only does Dr. Brogioli fail to cite any evidence to support this assertion, he also ignores Houghton's express disclosures (1) that the application server sends messages to a particular application from among multiple applications executing on a mobile terminal, and (2) that Houghton's message from the application server is an application command message that specifically commands the recipient application to perform an action. SAMSUNG-1007, 21-22. Because the application server sends an application command message that includes commands for a particular application, it cannot be the case that the application server does not know the application to which the message is directed—as Dr. Brogioli incorrectly argues.

98. Dr. Brogioli argues that there would be “no need to include an application identifier in a message from an application server when that server is unique to a particular application.” EX-2001, ¶98. Again, Dr. Brogioli offers no support for this assertion, and he also ignores the specific environment contemplated by Houghton. *See id.*; SAMSUNG-1006, ¶23.

99. Houghton discloses an environment—which Dr. Brogioli does not dispute—where the push server is in communication with multiple application servers and multiple terminals with their respective applications, and where a particular application server is sending messages to a particular application from among multiple applications. *See, e.g.,* SAMSUNG-1007, 21-22, FIG. 7; SAMSUNG-1003, ¶¶320-342.

100. In such an environment, a POSITA would have recognized or found obvious that the application server, which is sending messages to a particular application, would include the identifier for the destination application so that the push server knows the appropriate application to direct the message. (relative to the push server). SAMSUNG-1003, ¶¶331-343. A POSITA would have recognized that the application server is better equipped, relative to the push server, to provide the application identifier because the application server originates the message and knows the intended application. *See id.* This is further corroborated by Lee, as explained below.

101. As discussed in Lee, “with a conventional push application server, the associated application ID app_ID is not required because the conventional push application server is built for a single push application.” SAMSUNG-1006, ¶23. But when—like in Houghton’s environment—“various push services provided to each of applications are managed in an integrated fashion through the integrated push service server 100 and the integrated push service agent 250,” “the associated application ID app_ID specifying the application for invoking the push data is required.” *Id.*

102. Thus, a POSITA would have understood or found obvious for the application server in Houghton to include the application identifier in the message that it sends to the push server for delivery to a particular application on a mobile terminal.

103. On the other hand, adding the responsibility of including the application identifier for the destination application on the push server, would add undue overhead and burden to the push server. That’s because, under this construct, the push server would need to (i) receive a message, (ii) determine the source of the message, (iii) determine the intended application for the message, (iv) determine the application identifier for the intended application, and (v) add that information to the message. In this regard, the push server would have to do this for every message it encounters from multiple application servers directed to multiple applications

resident on multiple mobile devices/terminal. Thus, in the context of the push environment of the type disclosed in Houghton, a POSITA would have recognized (in view of references like Lee) that the source of the message, such as the application server, is better positioned to provide the application identifier within the message for the destination application to which it is sending the message.

104. In summary, given that

- a) Houghton teaches that the push server interfaces and relays messages from multiple application servers to multiple applications,
- b) Houghton contemplates application commands being sent as push messages to a particular mobile application from an application server (as explained in §VIII.A.1 *supra*) and the push message including information identifying the destination application, and
- c) it was conventional and well known (as corroborated by Lee and TS-23.140) for an application server sending a push message to include the application identifier for the intended application,

a POSITA would have understood or found obvious for Houghton's similar push messaging environment to be implemented so that the push message from the application server includes an application identifier that specifies or identifies the destination application. SAMSUNG-1003, ¶¶333-341. This would therefore have

amounted to an implementation of a known technique to a known system to achieve predictable results. SAMSUNG-1003, ¶¶335-338.

IX. HOUGHTON-MUNSON RENDERS OBVIOUS CLAIM 9

105. I understand that Dr. Brogioli only addressed my invalidity theory for claim 9 based on Houghton's and Munson's teachings. Ex. 2001, ¶¶100-104. For that analysis, in my original Declaration, I also discussed that "Munson discloses that 'content can be pushed according to a schedule of time or event' (*'message delivery trigger'*), and provides an example where a 'group push' is performed 'during off-peak hours to take advantage of lower rates,'" for example, for system maintenance. SAMSUNG-1003, ¶¶389-391 (emphasis in original). I also explained that "[a] POSITA would have been motivated to use periodic timers as a message delivery trigger, as contemplated by Munson, to enable more efficient use of network resources and avoid repeated message requests that can impact performance of network communications." *Id.*, ¶¶390-391.

106. PO provides two reasons for why the combination allegedly fails to disclose the use of the "expiration of a periodic timer" as a "message delivery trigger." POR, 43-45; Ex. 2001, ¶¶101-104. Both arguments fail for the reasons explained below.

107. **First**, PO argues, incorrectly, that pushing content according to a “schedule or event” does not involve a timer. POR, 43-44; Ex. 2001, ¶¶101-102. This is wrong because a “schedule of time or event” teaches or renders obvious to use a timer that would expire once the scheduled time or event arrives. *See, e.g.*, SAMSUNG-1040 (defining “schedule” as “[t]o allocate time periods and/or resources.”). PO’s speculated example of “push[ing] Halloween-related content” on “October 1” (POR, 44; Ex. 2001, ¶102) does not suggest otherwise. In fact, if a system is configured to trigger message delivery on a yearly period that is scheduled to repeat every October 1st (as in PO’s example), a POSITA would have understood or found obvious that such a schedule defines a recurring period of time (e.g., a year timeframe), the expiration of which triggers message delivery.

108. **Second**, PO argues “there is no suggestion that ‘system maintenance’ [in Munson] occurs on any pre-established schedule that would be understood to be periodic,” nor that the push updates would operate pursuant to a “periodic timer.” POR, 44-45; Ex. 2001, ¶¶103-104. This argument is also flawed. A POSITA would have found obvious that a scheduled time or event such as system maintenance is indeed a recurring event that happens on a schedule and occurs, for example, “during off-peak hours” (as taught by Munson). *See, e.g.*, SAMSUNG-1001, 63:5-14 (in the context of describing roaming tables, the ’192 specification states that “roaming tables can be ‘updated *periodically*’” and in some embodiments, such periodic

“updates occur *at time of day that network is not busy*”); SAMSUNG-1045, ¶62 (“The transmission of a data activity report from monitoring unit 130 to activity-monitoring server utility 150 is preferably performed automatically.... By another preferred embodiment ..., the *transmission may periodically* be initiated by monitoring unit 130, e.g., automatically after passage of a predefined time or according to a predefined set of rules *or alternatively when unit 130 senses an off-peak period.*”). A POSITA would have recognized that maintenance events are often performed so as to recur (and are done at particular times, such as during off-peak hours). *Id.*; SAMSUNG-1040 (defining “scheduled maintenance” as “[m]aintenance which is performed on the basis of a given number of elapsed days, hours of operation, cycles completed, or the like.”). In fact, system maintenance is often done in a recurring manner to ensure that a system remains updated. *Id.* Thus, a POSITA would have understood or found obvious the above as not only teaching a timer, but also one that recurs periodically (i.e., a periodic timer), the expiration of which triggers push message delivery. SAMSUNG-1003, ¶¶388-391.

X. ADDITIONAL REMARKS

I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Dated: 16 December 2024

By: _____

A handwritten signature in black ink, appearing to read "Patrick R. Drape", is written over a horizontal line.