

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SALESFORCE, INC.,
Petitioner

v.

IQX CORP.,
Patent Owner

Case IPR2026-00475
U.S. Patent No. 12,368,799

**DECLARATION OF BERNARD J. JANSEN, PH.D.,
IN SUPPORT OF PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 12,368,799**

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I, Bernard J. Jansen, Ph.D., hereby declare as follows.

I. INTRODUCTION

1. I have been retained as an expert witness on behalf of Petitioner Salesforce, Inc. for the above-captioned *inter partes* review (IPR). I am being compensated for my time in connection with this IPR at my standard consulting rate. My compensation is not contingent on either my expert opinion or the outcome of this litigation. I have no other interest in this proceeding.

2. I understand that this Declaration accompanies a petition for IPR involving U.S. Patent No. 12,368,799 (“the ’799 patent”) (EX1001), which resulted from U.S. Patent Application No. 18/984,041 (“the ’041 application”), filed on December 17, 2024. I understand that the ’799 patent alleges a priority date of September 27, 2018. I also understand that the ’799 patent may only be entitled to a priority date of December 17, 2024. Although my analysis would not change based on either date, in preparing this Declaration, I have reviewed the ’799 patent and each of the documents cited herein in light of general knowledge in the art before September 27, 2018.

3. In formulating my opinions, I have relied upon my experience, education, and knowledge in the relevant art. In formulating my opinions, I have also considered the viewpoint of a person of ordinary skill in the art (“POSA”)

(i.e., a person of ordinary skill in the field of telecommunications or computer networking, as defined further below in Section VI) prior to September 27, 2018.

II. MY BACKGROUND AND QUALIFICATIONS

4. My analysis is based on my experience, training, knowledge, and education, and it is formed through the application of that experience, training, knowledge, and education in the principles of search engines, Web search, keyword advertising, display advertising, online advertising, Web analytics, network communications, and related areas.

5. I received my B.S. in Computer Science from the United States Military Academy in 1985, my M.S. in International Relations from Troy State University in 1994, my M.CS. in Computer Science from Texas A&M University in 1996, and my Ph.D. in Computer Science from Texas A&M University in 1999.

6. I am currently a Visiting Professor at the Department of Information Management, Peking University¹. From 1 January 2017 to 31 July 2026, I was a principal research scientist at the Qatar Computing Research Institute and a full professor at the College of Science and Engineering, Hamad Bin Khalifa

¹ Peking University is continuously ranked as one of the top universities in the world, ranking 40th of more than 21,000 universities worldwide in 2026 <https://cwur.org/2026/peking-university.php>

University (HBKU). Prior to that, I was a tenure-track professor at The Pennsylvania State University (Penn State) from 2002 through 2016, departing as a tenured, full-time professor on 1 January 2017. I was a Senior Fellow at the Pew Internet & American Life Project, which is part of the Pew Research Center, from 2010 through 2012. I was a University Expert at the National Ground Intelligence Center from 2011 through 2014. Before my professorship at Penn State, I was a Lecturer in the Computer Science Program at the University of Maryland (Asian Division) for one year. Before that, I was an Assistant Professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy (a.k.a., West Point) for three years.

7. In addition to my academic credentials, my professional experience includes twenty years of practice in the U.S. military, serving in the Infantry as an enlisted soldier and then as a communications officer, upon commissioning, working primarily in a variety of information technology-related positions, planning and establishing communication networks from portable ground radios to large satellite communication radios, and evaluating the performance of these networks. I also led a large multimedia team at a major U.S. Army educational facility, responsible for designing, providing, and assessing multimedia products, including the organizational website. I employed various software programs and databases for interactive products and website design for these tasks. I used these

programs and others to develop interactive websites and multimedia applications, including employing analytics for the performance evaluation of these websites and applications. During this time, the team received several product awards and honors, including one award for website development, four for multimedia applications development, and one for software development.

8. I am the editor-in-chief of the international academic journal *Information Processing and Management*, a premier journal in computing science and information science, including computational science, online analytics, and social media computing. I am a former Editor-in-Chief of the journal *Internet Research*, a top-ranked journal in the Web science and business domains that examines the Internet's social, ethical, economic, and political implications.

9. I have authored approximately 400 academic publications on Web searching, search engines, keyword advertising, online advertising, branding, Web analytics, social media, social networks, and related fields. Many of my publications address user experience, search analytics, Web analytics, online advertising, keyword advertising, search engines, or Web searching. My recent research focuses on online analytics, investigating the qualitative and quantitative attributes of digital content usage and social computing analytics, which investigates social behavior using algorithmic methods. I have authored, co-authored, or co-edited four books, including Web Search: Public Searching of the

Web (2007), Understanding User – Web Interactions via Web Analytics (2009), Understanding Sponsored Search (2011), Data-Driven Personas (2021), and Understanding Audiences, Customers, and Users via Analytics – An Introduction to the Employment of Web, Social, and Other Types of Digital People Data (2023). In a 2025 study, as well as in previous versions, I was ranked in the top 2% of researchers in my field. EX1026. In the 2026 edition of the Best Computer Science Scientists in the World, my research was ranked 1281st worldwide (~top ten percent of the top computer science researchers). EX1024.

10. My professional expertise includes search user experience, engine optimization, Web analytics, search engines, Web searching, social media, online advertising, online reputation management techniques, and related computer science and data science areas, including programming and networks. Throughout my academic career, I have worked with various search engines and information searching applications to understand user information behavior on the Web and other environments. For example, as part of my Master's program in Computer Science, I designed and coded a text-based search engine, and my thesis involved the building of a tool for network performance monitoring. For my Doctorate program in Computer Science, I developed a program interface for Web search engines and implemented it on the Gigabyte search engine. I have been invited to

present research at major search engine companies, including Google and Yandex, and many search marketing agencies.

11. As a computer scientist, I have engaged in and am experienced with classic computer science areas, such as programming, software development, algorithms, and networking, along with non-traditional areas, such as data analytics, keyword advertising, and online advertising. I have taught various computer courses at the undergraduate and graduate levels, including micro-computing, programming (in various programming languages), and the Web/Internet. I have taught a Web technology overview course (websites, mobile, social media, Web metrics, market analysis, etc.) and a graduate-level research course for professional masters students. Previously, I taught courses in keyword and display advertising where student teams engaged with small-medium-sized enterprises (SMEs) to implement online advertising campaigns. I have supervised students with SMEs on various online advertising platforms, including Google Ads and Facebook Ads. I have experience with several online marketing platforms, including Google Ads, Facebook Ads, LinkedIn Ads, and Microsoft Advertising.

12. I have conducted research and teaching concerning search engines and websites, including search engine optimization, content creation, search engine keyword advertising, Web searching, and Web analytics. In the field of online searching, online advertising, and Web analytics, I have worked directly with real

user searching data from several Web search engines. I have also analyzed Web data of traffic and other attributes from various websites and social media accounts. I have analyzed real user data from a multi-million-dollar online advertising marketing campaign that spans multiple years, involving thousands of ads and key terms. I have also analyzed user referral traffic to websites and monetized this traffic via online advertising. A 2015 review of keyword advertising research reported that I was the predominant researcher in the field of search engine advertising, EX1025, 12, along with co-authors. I have developed Web analytics models and processes to analyze business goals and have used Web and online advertising analytics data in my research and teaching.

13. I have advised government agencies and private companies in consulting and expert witness matters, including online searching, online advertising, search engines, locating relevant information, and disseminating defaming statements, among other related areas.

14. I have personal knowledge or have developed knowledge of the technologies discussed in this Declaration based upon my education, training, or experience with the matters discussed herein.

15. I understand that a copy of my complete *Curriculum Vitae* has been submitted as Exhibit 1004, which includes a list of publications I have authored in the past ten years, a list of cases in which I have testified as an expert in deposition

or trial in the past four years, and other details regarding my expertise and qualifications.

III. SUMMARY OF OPINIONS

16. In forming my opinions about the '799 patent, I have considered the following grounds of unpatentability. Based on my review of the prior art references that form the basis of these grounds, it is my opinion that claims 1-30 of the '799 patent would have been obvious to a POSA prior to September 27, 2018, let alone by December 17, 2024.

17. I understand that the Petitioner, Salesforce, requests *inter partes* review based on the following grounds.

Ground	35 U.S.C. §	Claims	References
1A	103	1-6, 8-10, 12-16, 18-20, 22-25, 27-29	Balasubramanian, Wertheimer, Chen
1B	103	2-5, 7, 10, 13-15, 17, 23-26	Balasubramanian, Wertheimer, Chen, Bogineni
1C	103	11, 21, 30	Balasubramanian, Wertheimer, Chen, Sinha
2A	103	1, 5-6, 8-9, 12, 15- 16, 18-19, 22, 25, 27-28	Spindler, Long
2B	103	10, 20, 29	Spindler, Long, Anderson
2C	103	2-5, 7, 11, 13-15, 17, 21, 23-26, and 30	Spindler, Long, Wang, Bogineni

18. I have been asked to consider how a POSA would have understood the challenged claims in light of the disclosures of the '799 patent. I have also been asked to consider how a POSA would have understood the prior art references Balasubramanian, Spindler, and Anderson.

19. Further, I have been asked to consider and provide my technical review, analysis, insights, and opinions regarding whether a POSA would have understood that the combinations of the prior art references listed in the table above render obvious claims 1-30 of the '799 patent

IV. LIST OF DOCUMENTS CONSIDERED

20. In forming my opinions, I have considered the documents listed below in addition to any other documents cited in this Declaration. To the best of my knowledge, these documents are true and accurate copies of what they purport to be. An expert in the field would reasonably rely on them to formulate opinions such as those set forth in this Declaration.

Exhibit No.	Description
1001	U.S. Patent No. 12,368,799 to Spindler et al. (“the ’799 patent”)
1002	File History of U.S. Patent No. 12,368,799
1005	U.S. Patent Application Publication 2011/0178897 to Balasubramanian et al. (“Balasubramanian”)
1006	U.S. Patent Application Publication No. 2022/0006895 A1 to Spindler et al. (“Spindler”)
1007	U.S. Patent Application Publication No. 2015/0052061 A1 to Anderson et al. (“Anderson”)
1009	U.S. Patent No. 10,264,413 B1 to Bogineni et al. (“Bogineni”)
1010	U.S. Patent Application Publication No. 2017/0013295 A1 to Wertheimer et al. (“Wertheimer”)
1011	U.S. Patent No. 7,020,685 B1 to Chen et al. (“Chen”)
1012	U.S. Patent Application Publication No. 2016/0239867 A1 to Sinha et al. (“Sinha”)
1013	U.S. Patent No. 11,170,380 B1 to Long et al. (“Long”)
1014	International Patent Application Publication No. WO 2018/103039 to Wang et al. (“Wang”)

Exhibit No.	Description
1018	U.S. Patent No. 6,360,254 B1 to Linden et al. (“Linden”)
1021	File History of U.S. Application No. 18/896,197 (U.S. Patent No. 12,200,165)
1022	File History of U.S. Application No. 18/483,670 (U.S. Patent No. 12,126,752)
1032	RCS Universal Profile Service Definition Document, GMS Association, Nov. 16, 2016
1034	U.S. Patent No. 8,417,269 to Lin (“Lin”)
1037	U.S. Patent Application Publication No. 2011/0078762 A1 to Bijlsma (“Bijlsma”)
1038	U.S. Patent Application Publication No. 2013/0254036 A1 to Trinh <i>et al.</i> (“Trinh”)
1039	U.S. Patent Application Publication No. 2015/0142906 A1 to Tolcher (“Tolcher”)
1040	U.S. Patent Application Publication No. 2005/0278231 A1 to Teeter (“Teeter”)
1041	U.S. Patent Application Publication No. 2014/0052562 A1 to Oliveira <i>et al.</i> (“Oliveira”)
1042	U.S. Patent Application Publication No. 2003/0101345 A1 to Nyberg (“Nyberg”)
1043	U.S. Patent Application Publication No. 2015/0373200 A1 to Zitnik <i>et al.</i> (“Zitnik”)
1044	U.S. Patent Application Publication No. 2007/0124399 A1 to Gillespie <i>et al.</i> (“Gillespie”)
1045	U.S. Patent Application Publication No. 2011/0314287 A1 to Escott <i>et al.</i> (“Escott”)

V. LEGAL UNDERSTANDING

21. I have also relied upon various legal principles (as explained to me by Salesforce's counsel) in formulating my opinions. My understanding of these principles is summarized below.

A. My Understanding of Claim Construction

22. I understand that during an *inter partes* review proceeding, claims are to be construed in light of the specification as would be read by a person of ordinary skill in the relevant art at the time the application was filed. I understand that claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the relevant art in the context of the entire disclosure. A claim term, however, will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the claim term in the specification. In this case, the claim term will receive the definition set forth in the patent.

B. My Understanding of Obviousness

23. I understand that a patent claim is invalid if the claimed invention would have been obvious to a POSA at the time the application was filed. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid.

24. To obtain a patent, a claimed invention must have, as of the priority date, been nonobvious in view of the prior art in the field. I understand that an

invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a POSA.

25. I understand that to prove that prior art or a combination of prior art renders a patent obvious, it is necessary to:

(1) identify the particular references that, singly or in combination, render the patent obvious;

(2) specifically identify which elements of the patent claim appear in each of the asserted references; and

(3) explain how the prior art references could have been combined in order to create the inventions claimed in the asserted claim.

26. I also understand that prior art references can be combined under several different circumstances. For example, it is my understanding that one such circumstance is when a proposed combination of prior art references results in a system that represents a predictable variation, which is achieved using prior art elements according to their established functions.

27. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine the references exists so as to avoid impermissibly applying hindsight

when considering the prior art. I understand this test should not be rigidly applied, but that the test can be important to avoid such hindsight.

28. I understand that certain objective indicia can be important evidence as to whether a patent is obvious or nonobvious. Such indicia include: (1) commercial success of products covered by the patent claims; (2) a long-felt need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art.

29. At this point, I am not aware of any objective indicia of non-obviousness. However, I reserve the right to review and opine on any evidence of objective indicia of non-obviousness that may be presented during this proceeding.

30. I also understand that “obviousness” is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the prior art, and any objective indicia of non-obviousness.

31. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal conclusion of obviousness or non-obviousness, and when I use the term obvious, I am referring to the perspective of one of ordinary skill at the time of invention.

C. A Person of Ordinary Skill in the Art

32. I understand that a POSA is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an automaton.

33. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. In deciding the level of ordinary skill, I considered the following:

- the levels of education and experience of persons working in the field;
- the types of problems encountered in the field; and
- the sophistication of the technology.

34. My opinion below explains how a POSA would have understood the technology described in the references I have identified herein around the September 27, 2018, timeframe, which I have been advised is the earliest possible effective filing date for the '799 patent. However, my opinions herein would not be

affected if the '799 patent is found to only be entitled to the later effective filing date of December 17, 2024, or any other later effective filing date.

35. Regardless of whether I use “I” or a “POSA” during my technical analysis below, all of my statements and opinions are always to be understood to be based on how a POSA would have understood or read a document at the time of the alleged invention.

VI. PERSON OF ORDINARY SKILL IN THE ART

36. In my opinion, a person of ordinary skill in the art (“POSA”) at the time of the '799 patent would have had a Bachelor's degree in Computer or Electrical Engineering, Computer Science, or equivalent discipline, and approximately two years' experience in e-commerce, telecommunications, or computer networking. Additional education could substitute for professional experience, and significant work experience could substitute for formal education.

37. I am well qualified to determine the level of ordinary skill in the art. I am very familiar with the technology of the '799 patent during the September 2018 timeframe, and further during the December 2024 timeframe. As mentioned above, by 2018, I had earned tenure as a professor at Penn State University, had left that position to serve as a principal research scientist at the Qatar Computing Research Institute, and had acquired extensive experience relating to computer networking and telecommunications from teaching, research, and my military experience as a

communications officer from my teaching, research, and practical experience, including in the military as a communications officer.

VII. CLAIM CONSTRUCTION

38. I have been informed that the challenged claims of the '799 patent are to be given their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention in light of the specification and the prosecution history pertaining to the patent. In my analysis herein, I have applied the plain and ordinary meaning of all claim terms in the context of the '799 patent specification.

VIII. STATE OF THE ART

A. Mobile messaging and digital content delivery systems were well known before 2018.

39. Mobile messaging originated with systems for sending short text communications to telephone numbers associated with mobile devices. Typically, a mobile telephone's telephone number is associated with a particular subscriber and is generally assigned to no more than one telephone at a time. EX1037, ¶¶4-5. Mobile telephones and other network-based devices can communicate with service providers (e.g., financial service providers, other third parties) through the Internet, public or private telephone networks, cellular networks, and wireless networks. EX1037, ¶¶21-22.

40. Well before 2018, mobile messaging systems supported numerous formats for delivering messages, including delivering advertising content to consumers. EX1038, ¶¶4, 5, 15. For example, short message service (“SMS”), Short Message Peer-to-Peer (“SMPP”), multimedia message service (“MMS”), over-the-air (“OTA”) notifications, push notifications, QR codes, hyperlinks, image-embedded hyperlinks, click-to-call hyperlinks, redirected web video, and social-media messages were all established mechanisms for delivering electronic content to “wireless handheld devices, smartphones,” and the like. EX1038, ¶15. Such messaging formats were well-known for being able to deliver text, images, audio, video, and other types of data. EX1038, ¶15. Furthermore, they were commonly used to direct targeted electronic advertising content to consumers. EX1038, ¶¶14, 16-17.

41. Mobile messaging has also long been used for initiating commercial transactions. As an example of such a commercial transaction, it was known that a purchaser could send an SMS message containing a product code to initiate the purchase of goods or services. EX1039, ¶¶170-72, FIGs. 7a, 7b. In the example described in Tolcher, the product code identifies a particular parking machine (as a “product”), and the SMS communication initiates a transaction with the consumer through the messaging system’s backend infrastructure. EX1039, ¶¶170-72, FIGs. 7a, 7b.

42. As early as 2005, electronic messages were used to direct consumers to individualized transaction content. In some cases, stored shopping-cart information and a hyperlink, through which a recipient could access the merchant's website and recommence checkout, were automatically sent as an electronic message. EX1040, Abstract, ¶¶6, 14. If the user selected the hyperlink, the cart was "reinitiated" and the stored contents were made available to the shopper. EX1040, ¶¶14, 17. Such techniques were well known for "provid[ing] ecommerce merchants with a second chance to get consumers to complete their sales." EX1040, ¶17.

43. Accordingly, before 2018, mobile messaging systems were well known for distributing text and multimedia content, delivering personalized commercial communications, providing links to remotely stored content, and initiating commercial (or "e-commerce") transactions from a recipient's mobile device. EX1037, ¶¶21-22; EX1038, ¶¶14-17; EX1039, ¶¶170-72; EX1040, ¶¶6, 14, 17.

B. Interactive messages containing selectable actions and links were well known before 2018.

44. Long before 2018, it was known that electronic messages could include hyperlinks and other interactive elements through which a recipient could obtain content or initiate an action. For example, in 2013, Trinh specifically identified hyperlinks (e.g., "Click-to-Call hyperlinks," conventional "hyperlinks,"

and “image embedded hyperlinks”) as being “common” for use with personal communication devices such as “smartphones.” EX1038, ¶15.

45. One use for such interactive message links was to return a recipient to an incomplete online transaction. For example, Teeter describes an example in which a personalized electronic message containing a hypertext link could be sent to a consumer who left a merchant’s website without completing checkout.

EX1040, Abstract, ¶¶6, 14. When selected, the link would return the consumer to the merchant’s website and reinitiate the checkout process, using cart information stored from the consumer’s earlier browsing session. EX1040, ¶¶14, 17.

Alternatively, the destination of a link could be “to whatever page the merchant chooses.” EX1040, ¶23. As also described, multiple actionable links could serve different functions, such as one link may direct the consumer to view the contents of the abandoned cart while another link may direct the consumer to checkout. EX1040, ¶24. Similarly, an unsubscribe link may allow the recipient to prevent further messages. EX1040, ¶¶14-16, 24.

46. Such interactive messaging was known to be combined with shopping or transaction interfaces using conventional computing and mobile-device components. EX1041, ¶¶63, 75-76. FIGs. 14C-15. These components included, for example, a processor, memory, display, transceiver, operating system, and applications for implementing the desired functionality. EX1041, ¶¶63, 75-76.

47. Before 2018, mobile messages could, by themselves, supply all of the information required to identify and perform a purchase. EX1039, ¶¶170-72. For example, an SMS message containing a hash or product code could identify the goods or services being purchased. EX1039, ¶171. A single message could provide all the information required for “the service administrator [to enter] into dialogue or handshaking with the sender/buyer.” EX1039, ¶172.

48. Thus, well before 2018, interactive messages containing links, product codes, and other selectable or actionable content were used to open web content, restore earlier transaction information, initiate checkout, and purchase goods or services. EX1038, ¶15; EX1040, ¶¶14-17, 23-24; EX1039, ¶¶170-72.

C. Recovery of abandoned online transactions and shopping carts was well known before 2018.

49. E-commerce systems have conventionally used virtual shopping carts to store products selected by a shopper before checkout. *See* EX1040, ¶3. Virtual shopping cart information could be stored on the merchant’s server or locally on the shopper’s computer in a persistent data file, such as a cookie. EX1040, ¶3. To avoid the contents of the virtual shopping cart becoming abandoned when the shopper left the website before completing the sale, systems could preserve abandoned-cart information so that the transaction could be resumed during a later session. EX1040, ¶¶3, 13. Shoppers who had abandoned virtual shopping carts could be contacted via a personalized electronic message containing the stored

virtual shopping cart information and a hyperlink for initiating the checkout process. EX1040, ¶¶6, 14. When the shopper selected the hyperlink, the system reinitiated the virtual shopping cart on the merchant's website. EX1040, ¶14. The recovery link, which could be sent according to a configurable sequence and schedule, could return the shopper to the transaction process. EX1040, ¶¶15-16, 23.

50. It was also known that personalized-message systems also could use earlier shopping behavior to select follow-up content. EX1044, ¶39. For example, Gillespie described a rule for sending a personalized message encouraging a customer to purchase an item based on an item previously discarded from the customer's shopping cart. EX1044, ¶39.

51. Persistent shopping carts permitted shoppers to return to items left in their carts during earlier shopping sessions. *See generally*, EX1012. A persistent shopping cart could retain unpurchased items over multiple shopping sessions and allow a returning shopper to view and edit the items left in the cart during an earlier session. EX1012, ¶2. Sinha further describes collecting historical interaction and cart data and using a model to determine the likelihood that a shopper would return to purchase the unpurchased items. EX1012, ¶¶5-6, 18-21.

52. Accordingly, before 2018, published systems had progressed from preserving shopping-cart contents across sessions, to sending scheduled messages

containing direct recovery links, to personalizing those messages based on customer behavior, and to using predictive models to select a marketing treatment for a shopper who had abandoned a cart. EX1040, ¶¶13-17, 23-24; EX1044, claims 8-12; EX1012, ¶¶2, 5-6, 18-21.

D. Rich Communication Services messaging was known before 2018.

53. By at least 2015, Rich Communication Services (“RCS”), also called Rich Communication Suite, existed alongside multiple established mobile-message formats, such as SMS, MMS, synchronized multimedia, and other protocols used to transmit text, images, audio, video, and other data to mobile devices. EX1043, ¶¶5-8; EX1038, ¶15. Accordingly, the pre-2018 mobile-messaging environment already included both conventional text messaging and richer communication formats, for example, RCS, capable of carrying multimedia and interactive content. The ability to deliver multimedia and actionable content was not limited to any one particular messaging protocol. *See, e.g.*, EX1038, ¶15. Accordingly, RCS was one part of a broader pre-2018 technological progression from basic SMS communications toward network-based messaging services supporting richer content and interactions. EX1043, ¶¶5-8; EX1038, ¶15.

E. Mobile-device authentication and identity verification were well known before 2018.

54. Authentication has long been an integral part of mobile communications. It has long been known that radio communications (e.g., cellular

radio, wireless radio, etc.) inherently presented security risks and that a mobile station should be authenticated by a mobile network upon registering with the network. EX1042, ¶¶4-5.

55. Under the Global System for Mobile Communications (“GSM”) standard, systems performed subscriber authentication using information stored in the subscriber identity module (“SIM”). EX1042, ¶5. Authentication algorithms and a subscriber identity could be “stored both in the subscriber identity module SIM and in the authentication center.” EX1042, ¶5. In response to a random challenge generated by the authentication center, the mobile station calculates and returns an authentication response to the network, which was compared to an authentication response independently calculated by the authentication center. EX1042, ¶5. If the responses matched, the mobile station passed authentication, and communications over the radio path could be encrypted. EX1042, ¶5.

56. Various pieces of information have been used to identify either a device or a subscriber for authentication purposes. For example, Bijlsma identifies a SIM identifier, an International Mobile Subscriber Identity (“IMSI”), an International Mobile Equipment Identity (“IMEI”), an IP address, and a telephone number as identifying information associated with a mobile device. EX1037, ¶¶4-8. In some cases, device information could be correlated or mapped with identity records stored in a database. *See* EX1037, ¶¶11-13. During later visits, such a

mapping would allow a service provider to recognize a mobile device. EX1037, ¶19.

57. Authentication techniques were also capable of distinguishing between the identity of a subscriber and the identity of the physical device. For example, separate subscriber authentication, using a subscriber-specific key, and device authentication, using a device-specific key, could be performed, and the device and subscriber could be bound together. EX1045, Abstract.

58. Accordingly, before 2018, mobile systems were known that used subscriber identification information and device-specific identifiers, that correlated authorization data with stored identity records, and that combined subscriber and device authentication in a common security procedure. EX1042, ¶5; EX1037, ¶¶4-13, 19-20; EX145, Abstract.

F. Subscriber classification, profiling, and segmentation were well known before 2018.

59. Before 2018, electronic-messaging systems maintained customer profiles and used those profiles to select different content for different recipients.

60. As early as 2007, Gillespie described a database containing customer-profile records that included an email address and at least one customer demographic or shopping behavior. EX1044, Abstract, ¶¶39-40. Gillespie's software dynamically determined the content of a personalized message based on that profile data. EX1044, ¶¶39-40. Gillespie also described organizing subscribers

into groups or segments, explaining that personalized content may be developed for different subscriber groups and that each message may be personalized based on the subscriber lists to which the recipient belongs. EX1044, ¶¶35, 37-38.

Different content, such as text, images, hyperlinked images, and HTML content could be created for each subscriber segment. EX1044, ¶47.

61. In addition, content-selection rules could account for subscribers who belonged to multiple segments or to no identified segment. For example, Gillespie's rules could instruct the system to provide all applicable content, provide only the highest-ranked content, or provide default content to recipients who did not fit within a selected segment. EX1044, ¶¶49-52. The message creator could rank subscriber segments by importance when determining which content to provide to a subscriber belonging to more than one segment. EX1044, ¶¶50-52.

62. Trinh likewise describes generating profiles and classifying users to select targeted electronic content. EX1038, ¶17. Trinh explains that the profiling process was intended to classify each user based on a profile so that the system could select an electronic advertising message tailored to the classified user. EX1038, ¶17. Trinh identifies several types of information that could be used to build the profile and select content, including websites visited, pages viewed, time spent on individual pages, links selected, searches performed, demographics, geographic information, and information supplied by the consumer. EX1038, ¶17.

Trinh also describes tracking or storing a recipient's age, geographic region of interest, industry, frequency of access, time of access, location at the time of access, prior electronic purchases, payment information, and web-browsing habits. EX1038, ¶31. Profile information from multiple sources could be combined, and a targeted electronic advertising message could be selected by the system for delivery to the user's device. EX1038, ¶¶33-34.

63. Thus, before 2018, messaging systems were known to classify recipients using profile information, place recipients into subscriber segments, establish rules for recipients belonging to multiple or no segments, and select different message content according to the recipient's demographics, browsing activity, purchasing history, and recorded interactions. EX1044, ¶¶35, 38, 45-52; EX1038, ¶¶17, 31, 33-34.

G. Automated and model-based communication optimization and scheduling were known before 2018.

64. By 2018, automated systems for personalizing and scheduling electronic communications had developed from rule-based campaign tools, to event-triggered follow-up systems, and then to predictive and machine-learning systems that used historical and contextual data to control message distribution.

65. As early as 2005, Teeter described controlling the delivery of electronic communications in response to a particular event: the abandonment of an electronic shopping cart. EX1040, ¶¶6, 14-16. After obtaining the shopper's

email address and determining that the shopper did not complete the transaction, Teeter's system could send a personalized electronic message containing stored cart information and a hyperlink through which the shopper could resume checkout. EX1040, ¶¶13-14. The timing and number of recovery messages were configurable by the merchant. EX1040, ¶24. The message could include a personalized greeting, a link for viewing the abandoned cart, and a link for proceeding to checkout. EX1040, ¶24.

66. Teeter's system could also determine whether to deliver later messages based on the recipient's response to an earlier message. If the recipient did not select the hyperlink in the initial message but did not unsubscribe, the system could send a second message containing another recovery link. EX1040, ¶15. If the recipient again did not select the second link, the system could send a third message again encouraging completion of the purchase. EX1040, ¶16. Thus, as early as 2005, subsequent message delivery could be conditioned on the recipient's interactions with previously delivered content. EX1040, ¶¶15-16.

67. Only two years later, Gillespie expanded upon automated messaging by combining campaign scheduling with customer profiles, subscriber segments, and dynamically selected content. EX1044, ¶¶37-40. Gillespie explained that targeted email systems used databases and statistical modeling to communicate with recipients based on prior purchases. EX1044, ¶8. Recipients were organized

into subscriber segments, and different content was prepared for each segment.

EX1044, ¶¶35, 38, 45-48. The system then automatically personalized each message according to the subscriber lists. EX1044, ¶38.

68. Gillespie combined the above recipient-specific content selection with automated scheduling. For example, Gillespie explained that its dynamic-content system could operate in conjunction with event-triggered messaging capabilities and subscriber lists “to schedule communications based on the sales cycle and the customer’s service needs.” EX1044, ¶40. After preparing a message containing dynamic fields, the sender could schedule transmission of the message. EX1044, ¶57, FIG. 15.

69. Teeter and Gillespie thus disclosed complementary aspects of automated message delivery. For example, Teeter disclosed scheduling messages following a defined event and conditioning later transmissions on earlier user interactions. EX1040, ¶¶14-16, 24. Furthermore, Gillespie disclosed selecting message content according to customer profiles and subscriber segments and scheduling communications according to the additional criteria (e.g., the sales cycle and customer-service needs). EX1044, ¶¶35-40, 45-57.

70. By 2016, Sinha described applying predictive modeling to determine the marketing treatment for customers. EX1012, ¶¶5-6, 18. Sinha’s model was constructed from historical data concerning earlier customers’ interactions with an

online store and the attributes of unpurchased items left in their carts. EX1012, ¶¶5, 18-21. Sinha's model considered the customer's browsing and clickstream behavior, shopping-cart interactions, attributes of unpurchased items, and interactions with cross-channel communications, including emails concerning the online store. EX1012, ¶¶18-21. The model used those inputs to calculate the likelihood that the customer would return and purchase the abandoned items. EX1012, ¶¶5-6, 18. The customer was then assigned to an advertising segment based on the model's output. EX1012, ¶¶6, 19. Sinha, therefore, used predictive modeling to control the marketing treatment directed to an individual customer. EX1012, ¶¶6, 19.

71. By early 2018, Wang described using machine learning specifically in the context of an online message-distribution platform. EX1014, Title, Abstract. Wang explained that computers could be trained, using historical data, to identify behavior patterns and relationships among multiple factors, predict future behavior under particular conditions, and guide machine decision-making. EX1014, ¶¶1-2. Wang's platform used historical and contextual data to determine a relevancy score between a user and a message. EX1014, ¶¶17-18. The historical information could include the user's online shopping activities, purchased product categories, brands, and shopping times, while the contextual information could include geographic information and current online activity. EX1014, ¶17. The relevancy scores were

used to select recipients and generate a delivery schedule. A target group could be defined by comparing each user's relevancy score with a threshold, after which the message was delivered to users satisfying the threshold. EX1014, ¶¶25-28. Wang also monitored actual message delivery and user reactions, such as selections of a message, time spent on a linked content page, product inquiries, and purchases, and used the resulting information to modify subsequent distribution. EX1014, ¶¶29-35.

IX. SUMMARY OF THE '799 PATENT

A. Overview

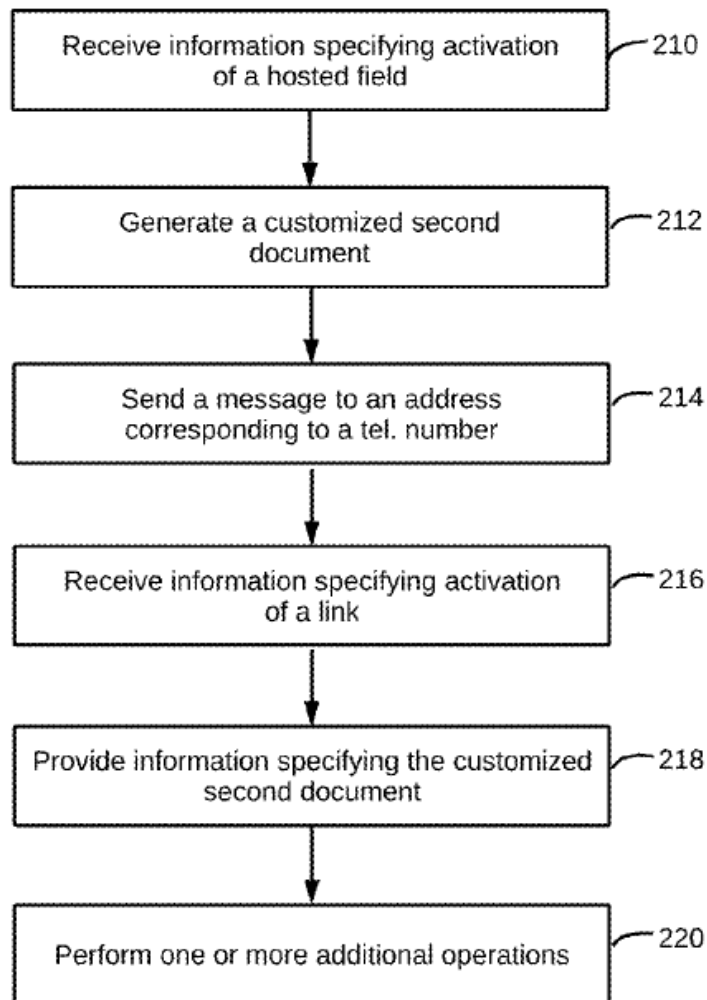
72. I understand the '799 patent issued on July 22, 2025, from U.S. Patent Application No. 18/984,041 ("the '041 application"), which was filed on December 17, 2024. EX1001, (45), (21), (22). I understand that the '799 patent purports to claim priority, through a long chain of Continuation and Continuation-in-part (CIP) applications, to U.S. Provisional App. No. 62/737,315, which was filed on September 27, 2018. EX1001, (63), 1:7-19. I also understand that the '799 patent may only be entitled to a priority date of no earlier than the filing of the '041 application on December 17, 2024.

73. The '799 patent relates to "security and access control for cellular handheld devices." EX1001, 1:29-30. The '799 patent purports to provide "new

and useful systems and methods for providing secure access and authentication when using mobile devices to access and/or purchase content.” EX1001, 1:60-62.

74. More specifically, the ’799 patent describes a “method 200 for dynamically generating a customized document.” EX1001, 12:18-21, FIG. 2. This method begins by receiving “information (operation 210) specifying activation of a hosted field in a document.” EX1001, 12:21-24. This information “specifies a willingness to receive one or more messages from the computer and specifies a telephone number” of the user. EX1001, 8:24-26. In response to receiving this information, “the computer may dynamically generate a customized second document (operation 212) that includes information about one or more transactions (such as one or more upcoming events) of interest to an individual.” EX1001, 12:28-32.

200



EX1001, FIG. 2.

75. The computer may then “send a message (operation 214) to an address corresponding to the telephone number,” including “a link to the customized second document” and “an SMS message.” EX1001, 12:39-43. If the user activates the link, the computer may perform authentication by “provid[ing] authentication information (such as an authentication cookie) to the electronic device to authenticate purchases.” EX1001, 12:57-59.

76. The '799 patent further describes steps for performing authentication using a "hot cookie" that "may include information specifying the keyword, client, subscriber customer, and protocol" and "is stored locally on the device of the subscriber customer for a defined period of time." EX1001, 18:8-12. To authorize the electronic device to perform a transaction, the system may validate the hot cookie on the electronic device. EX1001, 18:15-21.

B. Prosecution History

77. I understand that prosecution of the '799 patent was exceptionally short. *See generally*, EX1002. In reviewing the file history of the '799 patent, I understand that the Examiner, on the very first Office Action, allowed all 30 claims without amendment. EX1002, 284-286. However, after applicant filed an IDS citing a single reference (U.S. Pat. No. 11,170,380 to Long et al. (EX1013)), the Examiner issued a non-final Office Action rejecting claims 1, 7-12, 17-22, and 26-30 under 35 U.S.C. § 102(a)(2) over Long and rejecting the remaining claims over Long in view of U.S. Patent No. 10,298,739 to Lee. EX1002, 147-157. After the independent claims were amended merely to recite "a hosted input field," EX1002, 133-138, the Examiner allowed the application. EX1002, 16-18. Thus, the Examiner's allowance of the claims in the '799 patent appears to be premised entirely on the recitation of a "*hosted input field*." However, this feature was well-known in the prior art, as shown below. *See below*, Section XII.B.4. I believe the

Examiner failed to appreciate how well-known the concept of such a “hosted input field” was, even by 2018, *see, e.g.*, EX1010, and thus materially erred by allowing the claims of the ’799 patent

X. OVERVIEW OF THE PRIOR ART

A. Balasubramanian

78. Like the ’799 patent, Balasubramanian is directed to “a system and method for facilitating electronic commerce over a network.” EX1005, Abstract. Balasubramanian’s system includes a user device, merchant devices, and a service provider that communicate over a network. EX1005, ¶21, FIG. 1. The network can be the Internet, a mobile communication network, a wireless telecommunications network, a landline network, or other types of communication network. EX1005, ¶¶21-22. A user can use the user device to conduct financial transactions with the merchant device and the service provider over the network. EX1005, ¶24. For example, the user can use the user device “for viewing, searching, and/or purchasing items, products, and/or services over the network.” EX1005, ¶24.

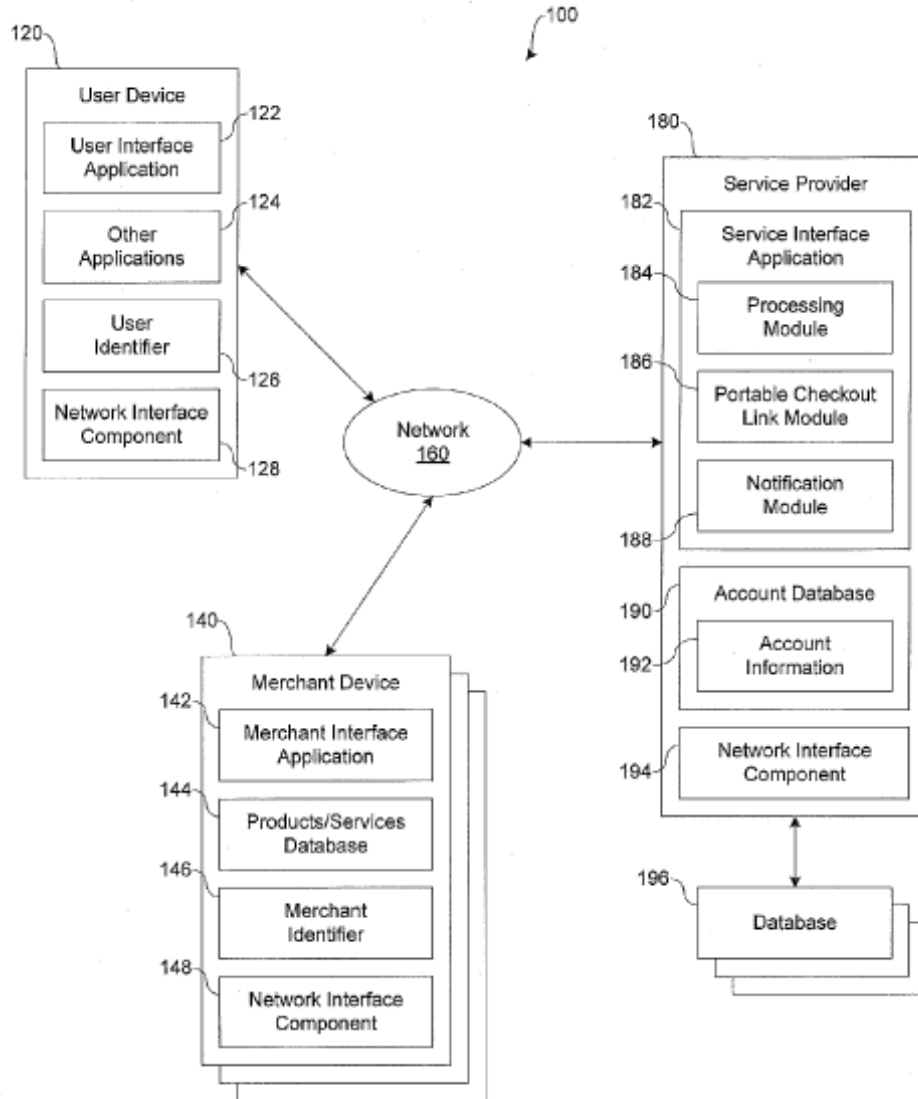


Fig. 1

EX1005, FIG. 1

79. Balasubramanian further discloses that when shopping at a particular website, users can select items to be placed in a virtual shopping cart, but “may withdraw from purchase or abandon the checkout prior to payment.” EX1005, ¶6. When this occurs, the shopping cart and the selected items in it may be deleted,

which results in lost revenue for the online merchant and the payment service provider. EX1005, ¶6.

80. To solve this issue, the service provider can send a notification to the user regarding the incomplete purchase transaction. EX1005, ¶¶9, 45, 47, 55, 72. The notification can be sent via an email, an alert, a text message, or a voice message. EX1005, ¶¶9, 20, 48, 55, 72. In particular, the notification includes selectable links (e.g., “portable checkout link[s]” or “PCLs”) that link to incomplete and/or abandoned transactions. EX1005, ¶¶42, 55, 73, 74, 84. When the user selects a selectable link in the notification, the user can return to and access a previously abandoned or incomplete purchase transaction from where it was left off. EX1005, ¶¶42, 45, 55, 74-76. The user can then complete the purchase transaction. EX1005, ¶¶45, 55, 75, 76, 79.

B. Wertheimer

81. Wertheimer describes online access in which “media distribution channels evolved to include transmission by the Internet,” including transmission to “mobile devices such as smartphones.” EX1010, ¶6. A user may access content by using “a website managed by their service provider” or by “download[ing] an application,” and may also “simply go[] to a web-site or access[] an application” maintained by a content provider. EX1010, ¶¶7, 10.

82. Wertheimer further discloses a web-based registration process where the user device uses “a web browser executing on the user device” to access a “‘sign up’ webpage hosted by the SMS 202” and enters information in “input fields of that webpage.” EX1010, ¶63. The sign-up information may be used by the SMS 202 “to identify the user 122 in the future” and “to obtain payment for the provision of services.” EX1010, ¶63. After registration, the user may select from “a list of available content providers,” and the SMS 202 “acts as a broker” while “add[ing] the fees” to the user’s account so the fees are “ultimately paid by the user.” EX1010, ¶¶69, 70.

C. Chen

83. Chen is directed to “using a wireless device to access hypermedia content on a network such as the Internet,” and more particularly to “facilitating access to Internet-based hypermedia content by wireless devices that are not equipped with a browser.” EX1011, 1:11-16. Chen explains that “many devices used to access the Internet” can display “hypermedia content, such as web pages,” including content using “standard web protocols and mark-up languages,” such as “Hypertext Transport Protocol (HTTP)” and “Hypertext Markup Language (HTML).” EX1011, 1:33-39. However, because “many earlier-generation wireless devices are not equipped with microbrowsers,” “[t]he lack of a microbrowser

restricts the ability of such devices to access hypermedia content on the Internet.”

EX1011, 1:49-52.

84. To solve this issue, Chen discloses that the “wireless device 100 is enabled to receive remotely stored hypermedia information, such as WML documents, HTML documents, Compact HTML (cHTML) documents, Extensible Markup Language (XML) documents, or HDML documents, from one or more network servers...” EX1011, 3:55-61. Chen explains that “[t]he retrieved hypermedia information is provided to wireless device 100 in the form of SMS messages.” EX1011, 3:61-62.

D. Bogineni

85. Bogineni evidences that RCS messaging was well known prior to the ’799 patent. EX1009, 1:6-7; *see also above*, Section VIII.D. Bogineni explains that although “RCS provides a text-message system similar to [SMS] messages,” RCS also is capable of providing additional services. EX1009, 1:7-12.

E. Sinha

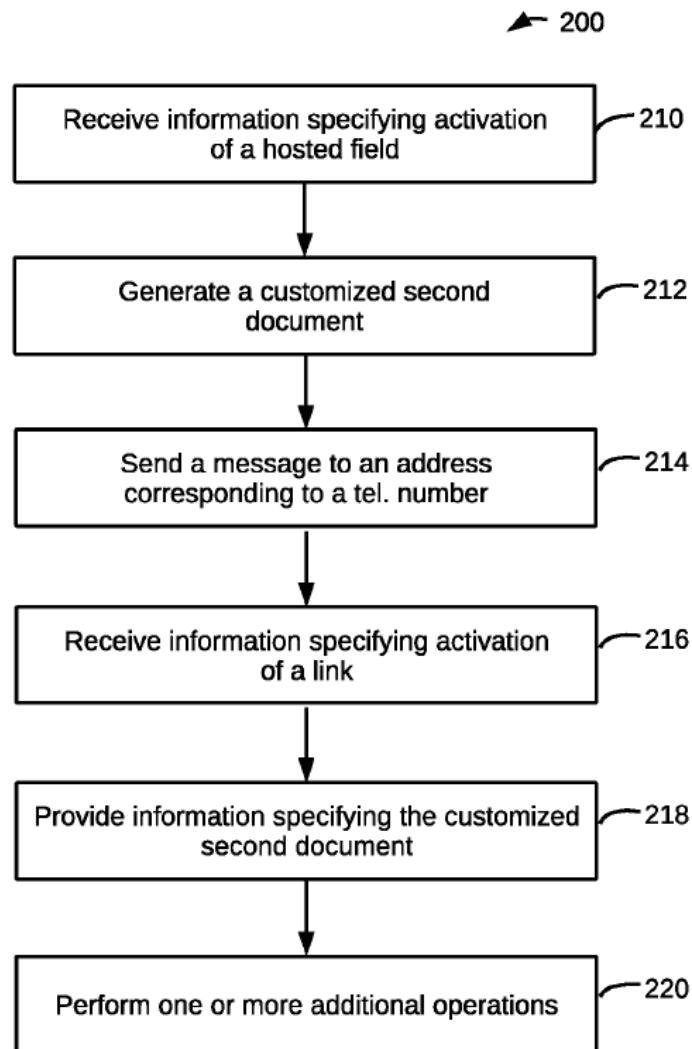
86. Sinha discloses that when shopping online at “e-commerce websites,” customers often “add items to an online shopping cart” and then “terminate their shopping session without purchasing those items,” such that the customer has “‘abandoned’ the online shopping cart.” EX1012, ¶1. With a “persistent online shopping cart,” a customer may later “view and edit items that were left in the

online shopping cart when an earlier shopping session was terminated,” but “merely sending a reminder email” can “lead to brand irritation and potentially lost customers.” EX1012, ¶¶2, 4. To solve this issue, Sinha discloses computing a likelihood and when the likelihood “indicate[s] that there is some uncertainty as to whether a customer will [] return,” tailored advertising is sent to the customer. EX1012, ¶24.

87. In particular, Sinha discloses that “a model” is built to compute “a likelihood of a given customer to return to an online store to purchase items the customer abandoned in an online shopping cart,” based on “interactions of the given customer at the online store,” “attributes of the items left in the abandoned shopping cart,” and “interactions of the given customer with cross-channel information.” EX1012, ¶18. The “customer classification model module 212” generates the model from “online shopping cart data 206, online store browsing data 208, and the cross-channel advertising data 210,” and “employs a machine learning technique” to correlate historic customer interactions, cart-item attributes, and cross-channel information. EX1012, ¶51. Once the likelihood is computed, “the customer is associated with an advertising segment,” and “advertising content that is customized for the advertising segment is then delivered to the customer.” EX1012, ¶19.

F. Spindler

88. Being in the same family as the '799 patent, Spindler discloses many of the same concepts as the '799 patent. Indeed, Spindler discloses a computer system that includes one or more electronic devices 110 connected, by a network 116, to a hosting computer 114 and a cloud-based computer 112. EX1006, ¶31. Spindler's computer 112 may perform method 200 for dynamically generating a customized document, shown in Figure 2 below. EX1006, ¶48.



EX1006, FIG. 2.

89. Spindler's hosting computer 114 may host "a webpage associated with a third party" into which a "hosted field" may be "inject[ed]" by computer 112. EX1006, ¶32. The "hosted field may allow a user of electronic device 110-1 ... to indicate a willingness to receive one or more messages from computer 112 and [] specifies a telephone number associated with electronic device 110-1." EX1006, ¶¶32, 48, 57, 71.

90. In response to receiving this information from the hosted field at step 210, Spindler's computer 112 (in the form of an "Amplify Decision Delivery Processor (ADDP)") may check if the telephone number is included in a data structure (e.g., "with information about subscribers") and, if not, "may send a text message ... to confirm that [the subscriber] want[s] to receive text messages." EX1006, ¶¶38, 54, 69, 71-73. If the computer confirms the telephone number by either means, Spindler's computer 112 "may dynamically generate a customized second document (such as a webpage) that includes information about one or more transactions (such as one or more upcoming events) of interest to the individual or subscriber customer associated with the telephone number." EX1006, ¶¶34, 49, 59, FIG. 2, step 212. "The customized webpage may pull in or incorporate additional events that may be of interest to the given subscriber customer." EX1006, ¶68.

91. Computer 112 then "send[s] a message to an address corresponding to the telephone number" that "includes a link to the customized second document."

EX1006, ¶¶34, 50, 60, 84, FIG. 2, step 214. The message “may include [an SMS] message (which is sometimes referred to as a ‘text message’).” EX1006, ¶¶34, 50.

92. In response to the subscriber selecting the link, computer 112 provides “authentication information (such as an authentication cookie) to electronic device 110-1 to authenticate completion of a given transaction.” EX1006, ¶¶36, 53. In some cases, the “cookie” may be a “hot cookie” that is active for a given period of time and which “may include information specifying the keyword, client, subscriber customer, and protocol.” EX1006, ¶¶75, 92. In addition, Spindler describes using various “biometric authentication operation[s]” “to thwart SIM swapping.” EX1006, ¶78. Although “the customized second document may allow completion of a given transaction,” “a purchase request ... may be rejected by computer 112 if the authentication information is not stored on electronic device 110-1.” EX1006, ¶¶37, 52, 93.

G. Long

93. Like the ’799 patent, Long is directed to e-commerce on a mobile device, and specifically to “a technology platform for messaging-based subscriptions and payments initiated from a website viewed on a mobile device or a mobile application.” EX1013, 2:48-51.

94. Long discloses “dynamic application deeplinking to transition from one user interface to another user interface at a mobile device.” EX1013, 1:40-44.

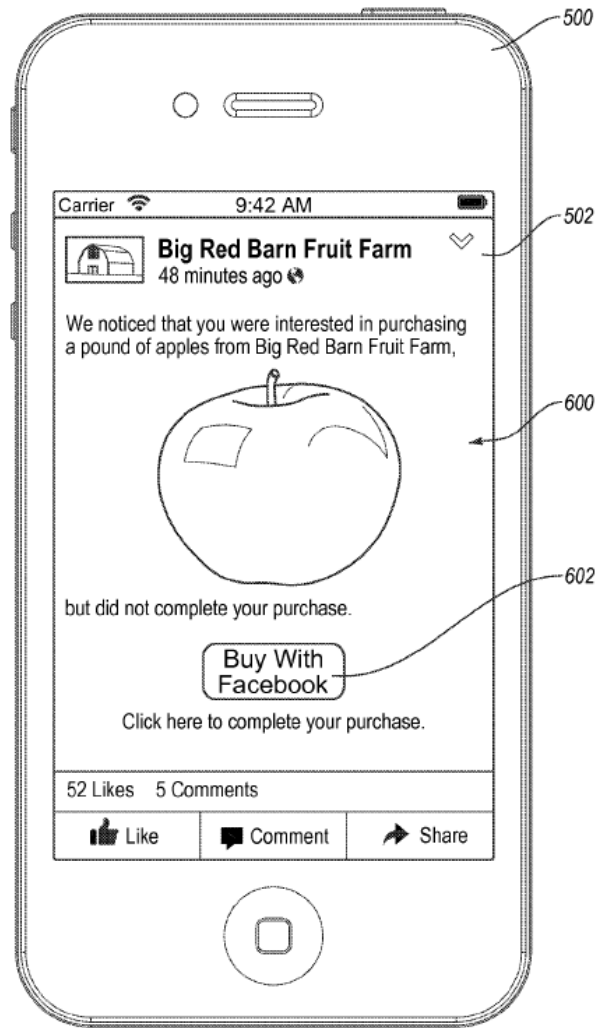
A link is presented to a user within a promotional message displayed in, e.g., “a mobile website, a mobile application, a link, an email, a mobile advertisement, a text message, and/or the like.” EX1013, 3:1-4, 6:57-60. “When the link is clicked, a custom-rendered deeplink is initiated, and a mobile messaging application is opened on a user’s mobile device” with a message “pre-populated with purchase or subscription information and a recipient’s phone number.” EX1013, 3:4-9, 7:4-8. The pre-populated purchase information may “include a shopping cart identifier, a product identifier, a product name, a product description, a price of each product, a total price for the shopping cart, and/or the like.” EX1013, 15:28-31. The user then need only send the pre-populated message to complete the subscription or purchase, such that “a transaction can be completed by two touch screen taps.” EX1013, 2:63-67, 3:28-34, 3:40-45. Long explains that this technique provides “continued and improved user experience and engagement” and “increases customer engagement with the promotional messages/marketing efforts by the client.” EX1013, 1:40-44, 9:8-16; *see also* EX1013, FIGs. 5A-5I, 7.

H. Anderson

95. Like the ’799 patent, Anderson discloses “systems and methods of increasing the ease of making payments using e-commerce applications.” EX1007, ¶3. Anderson’s techniques employ a “commerce application” accessed by a web browser or a “special-purpose client application.” EX1007, ¶41. As one exemplary

commerce application, Anderson describes “a virtual shopping cart” that includes “goods or services” to be purchased by a user. EX1007, ¶113. After placing goods in the virtual shopping cart, the user may “complete the purchase of the items in the cart” by selecting “a user selectable element (e.g., button 510) operable by the user to ‘Check Out.’” EX1007, ¶114.

96. However, “[i]f the transaction is not completed,” “the network application 218 can provide the user with another opportunity to complete the purchase of the items in the cart.” EX1007, ¶126. To accomplish this, Anderson’s network application “can send a purchase message” “via text message” to the user, where the purchase message may “include details of items in the cart that was abandoned” along with “a selectable buy option (such as [a] buy button 602 ...) that allows the user to complete the abandoned transaction.” EX1007, ¶127, FIG. 6. One example of the selectable buy option is “a deep link” that “directs the user to the virtual cart user interface 508.” EX1007, ¶128.



EX1007, FIG. 6.

I. Wang

97. In the context of e-commerce, Wang describes an “[o]n-line message distribution/publishing” platform that applies “machine learning in message distribution.” EX1014, (54), ¶12. Wang’s machine learning techniques guide the platform to “deliver[] the message to the relevant target users” while “ensuring that the desired amount of message deliveries ... is achieved for the client.” EX1014, ¶14.

98. To begin, Wang’s machine learning system determines “a relevancy level between a user and an advertisement content” based on “historical shopping data and/or contextual information of a user,” such as “details of a user’s on-line shopping activities,” “geo-targeting information,” and “social media activities.” EX1014, ¶¶12, 17, 48. Wang’s “[u]ser group determination unit” may use this information to determine “a target group of users to deliver the advertisement item” “based on a grouping criterion” such as “a threshold on a relevancy level or a relevancy score.” EX1014, ¶41. Wang’s “[d]isplay slot determination unit” next “determine[s] a specific display slot to deliver the advertisement item to [the] target user group,” and the message is delivered “based on the received delivery schedule.” EX1014, ¶¶42, 50-51.

99. Wang’s platform also monitors delivery of the message, including “a total amount of delivery (exposure)” and “user reactions to the advertisement item,” such as “a click,” “user enquiries in relation to the advertisement content,” and “[t]he actual number of purchases of the advertised product.” EX1014, ¶¶30, 52-53. Using this information, Wang’s platform may “adjust[] a grouping criterion and/or a delivery manner” by, for example, “lower[ing] the relevancy threshold to include more users into the new target user group.” EX1014, ¶¶54-55; *see also* EX1014, ¶59.

XI. THE CLAIMED FEATURES LACK WRITTEN DESCRIPTION SUPPORT IN THE EARLIER-FILED APPLICATIONS FORMING THE CONTINUITY OF THE '799 PATENT

100. I understand that a later patent application can claim the benefit of the filing date of an earlier-filed application only if the earlier-filed application satisfies the written description requirement of 35 U.S.C. § 112. I understand that if the earlier-filed application fails to provide a written description supporting any element recited by a claim of the later-filed application, that claim is not entitled to the benefit of the filing date of the earlier-filed application. I have also been informed that a description in the earlier-filed application that merely renders the claimed invention obvious is not sufficient to provide written description support for that invention.

101. It is my opinion that U.S. Pat. App. No. 18/483,670 (“the ’670 application”) lacks written description support for at least one element recited by each of independent claims 1, 12, and 22 of the ’799 patent. In particular, it is my opinion that new matter, at least in the element of “*causing provision of the second document to the electronic address,*” was added to the claims of the ’799 patent when the claims were filed in the ’041 application on December 17, 2024.

102. More specifically, it is my understanding that the ’041 application was filed as a continuation of, and shares a common specification including eighteen figures and related description with, U.S. Pat. App. No. 18/896,197 (“the ’197

application”) filed on September 25, 2024. EX1001, (63), 1:7-18; EX1002, 2-70,, 424-518; EX1021, 155-172, 175-250.

103. However, I also understand that the ’197 application was filed as a continuation-in-part (“CIP”) of U.S. Pat. App. No. 18/483,670 (“the ’670 application”), which includes *eight* figures and related description. *See* EX1022, 342-349, 368-399. Thus, I understand that between the filing of the ’670 application on October 10, 2023, and the filing of the ’197 application on September 25, 2024, ten figures and approximately eighty paragraphs (or approximately thirteen pages) of description were added to the disclosure.

104. In my opinion, the ’670 application describes a processor sending “information specifying the customized second document to electronic device 110-1 for display on the electronic device.” EX1022, 374-375 (¶36); *see also* EX1022, 379 (¶51), 381 (¶62). This information may allow the customized second document to be “display[ed] on the electronic device (such as by the application executing on electronic device 110-1),” where the application may be “a Web browser.” EX1022, 373-374 (¶32), 374-375 (¶36). This description may convey to a POSA the well-known concept of a mobile device activating a link that directs a web browser on the mobile device to a webpage. *See, e.g., above*, Section VIII.B. However, I believe that this description does *not* in any way describe or reasonably convey actually sending (or causing to have sent) the customized second document

(e.g., a webpage) *to the electronic address* (e.g., the mobile number), which a POSA would understand could only be accomplished, for example, by sending the second document directly via text message. Instead, as described by the '670 application, a *link* is sent to the electronic address, and selecting the link causes a web browser to be executed and directed to the customized second document. A POSA reading the '670 application would not understand the '670 application as providing written description support for the claimed “*causing provision of the second document to the electronic address.*”

105. Because the '670 application fails to provide written description support for at least one feature recited by each of independent claims 1, 12, and 22 of the '799 patent, it is my understanding that the '799 patent is entitled to priority only as of the disclosure of these features in the filing of the '041 application on December 17, 2024.

XII. GROUND 1A: THE BALASUBRAMANIAN-WERTHEIMER-CHEN COMBINATION RENDERS OBVIOUS CLAIMS 1-6, 8-10, 12-16, 18-20, 22-25, AND 27-29.

A. Motivation to Combine

106. In my opinion, a POSA would have been motivated to combine Balasubramanian, Wertheimer, and Chen to arrive at the system, the computer-implemented method, and the non-transitory computer-readable storage medium claimed by the '799 patent.

107. Balasubramanian and Wertheimer are in the same field of endeavor as each other and the '799 patent. The '799 patent is directed to “techniques for performing transactions using dynamically generated customized webpages,” such as online transactions including “purchasing products or services (which are sometimes referred to as ‘e-commerce’).” EX1001, 1:34-40. Balasubramanian is also directed to “facilitating electronic commerce over a network.” EX1005, ¶¶2, 8. Likewise, Wertheimer is directed to online activity through websites, apps, Internet delivery, online registration/sign-up, subscription selection, and payment/billing. EX1010, ¶¶6, 7, 10, 63, 70.

108. Balasubramanian teaches a registration process where a user is prompted “to establish a user account for login with the service provider” and the user may be asked to provide personal information and financial information. EX1005, ¶26. However, Balasubramanian does not explain the details of the registration process or how the user provides the personal information and the financial information. Thus, in my opinion, a POSA would have looked to the prior art for guidance as to specific ways of registering and providing the required information. Wertheimer is such a reference.

109. Wertheimer teaches that the registration is accomplished by prompting the user to a “sign up” webpage, where the user enters information into the input fields of the webpage. EX1010, ¶¶63, 66. The information provided in

Wertheimer, like in Balasubramanian, may include a telephone number and a credit card number. EX1010, ¶¶63, 66. Thus, in my opinion, a POSA would have been motivated to modify Balasubramanian to perform the registration process in the “sign up” webpage with the input fields, as taught by Wertheimer, to provide a specific way for the user to establish the user account.

110. In my opinion, a POSA also would have had a reasonable expectation of success in modifying Balasubramanian’s registration process according to Wertheimer because the modification would have involved only the routine application of a known registration process to Balasubramanian’s electronic commerce processes. Wertheimer teaches that the registration process is supported by a subscription management service 202, which includes a processing device and a memory. EX1010, ¶¶62, 63, 66, 127. Similarly, Balasubramanian’s service provider also includes a processor, such as a processing component 404, and a memory, such as a system memory component 406. EX1005, ¶¶92, 93. Thus, Balasubramanian’s system includes the hardware components required by Wertheimer’s SMS 202 and thus is capable of performing the functionalities of the subscription management service 202. Furthermore, Balasubramanian’s system hosts websites for viewing, searching and selecting products and services and, thus, is capable of hosting a website for other purposes, such as the “sign up” website taught by Wertheimer. EX1005, ¶¶25, 33. Thus, a POSA would not have

been presented with any unreasonable technical challenges in making this combination.

111. It is also my opinion that a POSA would further have been motivated to combine Chen with the Balasubramanian-Wertheimer combination. To start, Chen also is in the same field of endeavor as Balasubramanian, Wertheimer, and the '799 patent. Similar to Balasubramanian and Wertheimer, Chen is also related to a user performing Internet activities using a user device. EX1011, 1:11-16.

112. Furthermore, I believe that a POSA would have been motivated to combine Chen with the Balasubramanian-Wertheimer combination. Balasubramanian teaches that when the user selects or clicks on a PCL in the notification, the user may review and request processing of the one or more incomplete and/or abandoned transactions. EX1005, ¶55. Furthermore, clicking on a PCL may cause the shopping cart to be regenerated similar to its original state with additional information. EX1005, ¶¶43, 75. A POSA would have understood that the user may access the shopping cart via the user device, e.g., via a web browser of the user device.

113. However, Chen explains that many earlier-generation wireless devices are not equipped with web browsers and thus are restricted on accessing hypermedia content on the Internet. EX1011, 1:49-52. Because Balasubramanian's service provider may connect with various types of user devices, including

“generally known types of wired and/or wireless computing devices,” a POSA would have understood that the service provider can also be configured to serve the earlier-generation wireless devices that lack web browsers, as discussed in Chen. EX1005, ¶23; EX1011, 1:49-52. Furthermore, SMS “does not require that the wireless device is active and within range when a message is sent” and “an SMS message generally will be held for a time until the wireless device is active and within range.” EX1011, 1:58-62. In my opinion, the SMS can therefore serve user devices that have either weak or temporarily lost connections.

114. In Chen, user devices can access a webpage (e.g., shopping cart) without using a web browser or while having connection issues, by enabling a wireless device “to receive remotely stored hypermedia information, such as WML documents, HTML documents, Compact HTML (cHTML) documents, Extensible Markup Language (XML) documents, or HDML documents, from one or more network servers” “in the form of SMS messages.” EX1011, 3:55-62. A POSA would have understood that Chen’s solution would have enabled Balasubramanian’s service provider to serve more types of user devices, especially user devices that do not have a web browser and/or with bad connections, thereby benefiting both the user and the service provider. Thus, in my opinion, a POSA would have been motivated to modify Balasubramanian’s service provider to send

the shopping cart, such as HTML documents of the shopping cart, to the user device via a text message.

115. In my opinion, a POSA also would have had a reasonable expectation of success in modifying the Balasubramanian-Wertheimer combination's system according to Chen, because the modification would have involved only the routine application of a known processing and transmission technique. *See, e.g., above*, Section VIII.A. As I discuss above, Chen teaches that a wireless device 100 is enabled to receive documents, such as HTML documents, from network servers 116 and 120 in the form of SMS messages. EX1011, 3:55-61. Balasubramanian explains that Balasubramanian's service provider may also comprise a network server. EX1005, ¶¶92. Thus, Balasubramanian's service provider is capable of performing functionalities of Chen's network servers 116 and 120, such as transmitting HTML documents to the user device via a text message. EX1005, ¶¶9, 20, 48, 55, 72. Thus, a POSA would not have been presented with any unreasonable technical challenges in making this combination.

B. Independent claim 1

1. [1.P] A system comprising:

116. In my opinion, Balasubramanian discloses the preamble.

Balasubramanian discloses a *system*² including a user device, one or more merchant devices, and a service provider. EX1005, ¶21, FIG. 1.

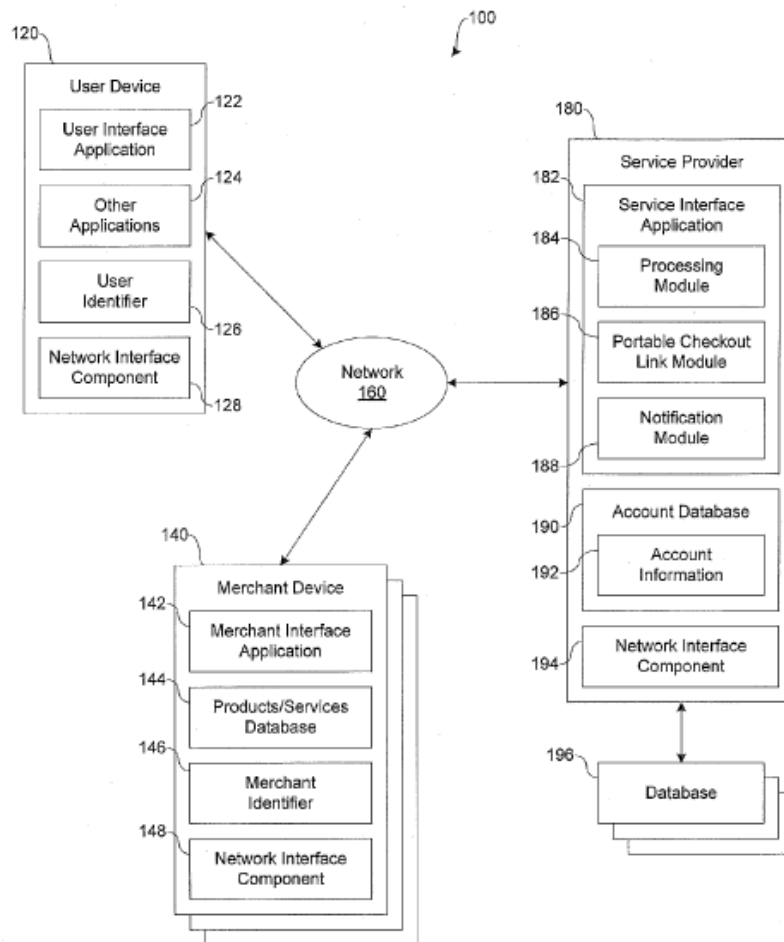


Fig. 1

EX1005, FIG. 1.

² Claim language is italicized throughout.

2. [1.A] a processor; and

117. In my opinion, Balasubramanian discloses element [1.A].

Balasubramanian's user device, one or more merchant devices, and the service provider can be implemented as a computer system. EX1005, ¶92, FIG. 4. The computer system includes a processing component, such as a “*processor*, micro-controller, digital signal processor (DSP), etc.” EX1005, ¶93.

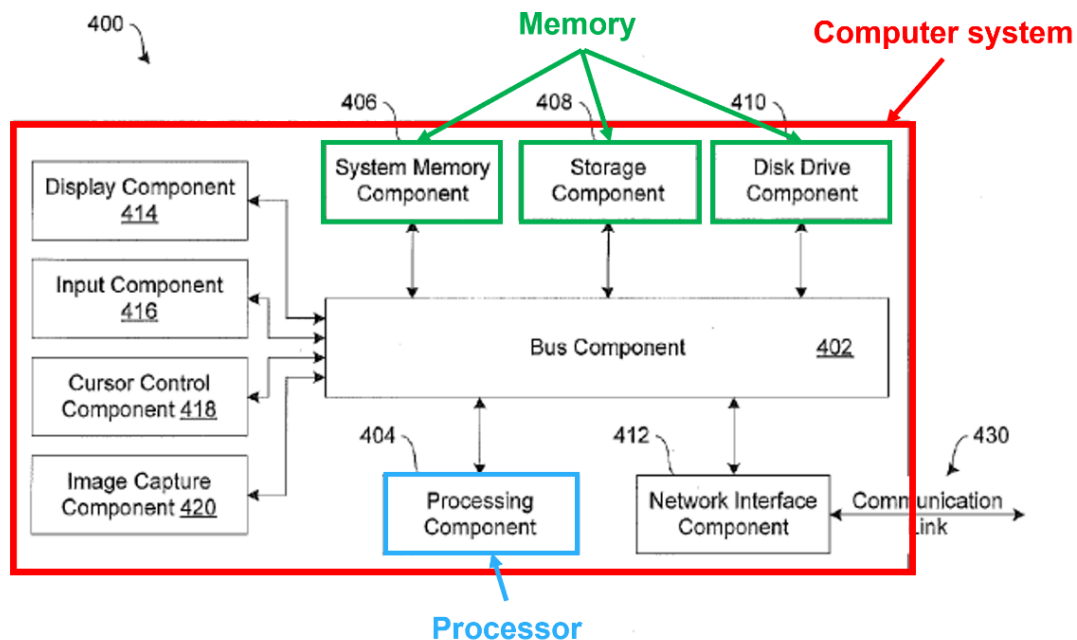


Fig. 4

EX1005, FIG. 4 (annotated).

3. [1.B] memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations comprising:

118. In my opinion, Balasubramanian discloses element [1.B].

119. Balasubramanian's computer system includes "*memory*," e.g., "system memory component 406 (e.g., RAM), static storage component 408 (e.g., ROM), disk drive component 410 (e.g., magnetic or optical)." EX1005, ¶93, FIG.

4. Balasubramanian's computer system "**performs specific operations** by processor 404 executing ... **instructions** contained in system memory component." EX1005, ¶94 (*emphasis added*).

4. [1.C] providing a hosted input field for inclusion in a first document associated with a third party;

120. In my opinion, the Balasubramanian-Wertheimer-Chen combination teaches element [1.C].

121. Balasubramanian teaches a registration process where a user is prompted "to establish a user account for login with the service provider." EX1005, ¶26. Balasubramanian does not explain details of this registration process, but Wertheimer explains that a registration process can be accomplished by accessing a sign-up webpage ("*a first document*") hosted by a server and entering information in input fields ("*a hosted input field*") of the sign-up webpage. EX1010, ¶63. Thus, I believe a POSA would have found it obvious that Balasubramanian's service provider would provide the sign-up webpage when prompting the user to establish the user account. Balasubramanian further teaches that "[w]hen establishing a user account, the user may be asked to provide personal information, such as name, address, phone number, etc., and financial information,

such as banking information, credit card information, etc.” EX1005, ¶26. Thus, I believe it would have been obvious that the sign-up webpage provided by Balasubramanian’s service provider includes input fields (“*hosted input field*”) for the user to enter the personal information and the financial information needed for the registration. Finally, the service provider is a “*third party*” because it processes network-based transactions between a user device and merchant devices. EX1005, ¶40. Because the sign-up webpage is used “to establish a user account for login with the service provider,” the sign-up webpage (“*first document*”) is *associated with* the service provider (“*third party*”). EX1005, ¶26.

5. [1.D.1] receiving, information indicating activation of the hosted input field in the first document,

122. In my opinion, the Balasubramanian-Wertheimer-Chen combination teaches element [1.D.1].

123. Balasubramanian teaches that the personal information and financial information (“*information*”), such as the user identifier 126, is passed from the user device to the service provider (“*receiving*”). EX1005, ¶26. The ’799 patent discusses that a user “may use a user-interface device 310 (such as a keyboard, a mouse, a touchpad, a touch sensitive display, a voice interface, etc.) to activate 308 the hosted field...” EX1001, 13:34-38. Thus, I believe a POSA would have understood that the user activates the “*hosted input field*” by interacting with it, such as selecting the “*hosted input field*” using a mouse, a touchpad, or a touch

sensitive display, and entering information in the “*hosted input field*” using a keyboard. EX1001, 13:34-38. In Balasubramanian, the receipt of the personal information and financial information from the user device indicates that the user selected the input fields (“*hosted input field*”) and entered the personal information and financial information into those fields in the sign-up webpage (“*first document*”). Thus, the personal information and financial information indicate activation of the input fields (“*indicating activation of the hosted input field in the first document*”).

6. [1.D.2] wherein the information comprises an electronic address associated with an electronic device and an indication of a willingness to receive one or more messages;

124. In my opinion, the Balasubramanian-Wertheimer-Chen combination teaches element [1.D.2].

125. Balasubramanian teaches that examples of the personal information (“*information*”) include name and phone number (“*electronic address*”). EX1005, ¶¶26, 28, 65. Balasubramanian explains that the user device (“*electronic device*”) can be a wireless cellular phone that communicates with other devices using a cellular telephone network. EX1005, ¶¶21-23. Thus, I believe a POSA would have understood that the phone number (“*electronic address*”) is *associated with* the user device (“*electronic device*”) as a function of the wireless cellular phone.

126. Furthermore, the '799 patent explains that “the computer may receive information (operation 210) specifying activation of a hosted field in a document associated with a third party or client, where the information specifies a willingness to receive one or more messages from the computer and specifies a telephone number.” EX1001, 12:21-26. Thus, the *information* itself serves as *an indication of a willingness to receive one or more messages*. EX1001, 12:21-26. As I discuss above, Balasubramanian teaches that the personal information and financial information (“*information*”), such as the user identifier 126, is passed from the user device to the service provider so that the service provider can verify the user. EX1005, ¶¶28, 58, 65. The personal information includes the name and phone number of the user. EX1005, ¶¶26, 28, 65. In my opinion, a POSA would have understood that the provided name and phone number of the user corresponds to an indication of the user’s willingness to receive messages via the phone number because it provides the service provider with the identity of the user and a way to send messages to the user later. Indeed, the service provider sends a notification reminding the user of incomplete purchase transactions via a text message. EX1005, ¶¶9, 20, 48, 55, 72.

7. **[1.E] generating, a second document that includes information about one or more events of interest for a user associated with the electronic address, the second document being customized to the user;**

127. In my opinion, Balasubramanian teaches element [1.E].

128. Balasubramanian teaches “*a second document.*” Balasubramanian’s service provider sends a notification to the user regarding prior incomplete or abandoned online purchase transactions via an email, a text message, or other means. EX1005, ¶¶9, 20, 47, 55, 63, 72. In particular, the service provider provides the user with an interactive list having selectable links (*i.e.*, portable checkout links (PCLs)) that link to online shopping carts for the incomplete and/or abandoned transactions. EX1005, ¶¶42, 55, 73-74, 84. For example, Figure 3A below shows an example of the notification in the form of an email. EX1005, ¶73, FIG. 3A. A POSA would have understood that when the notification is sent in other ways, such as a text message, it would also include an interactive list having selectable links. EX1005, ¶73. Balasubramanian’s selectable links (the PCLs) allow a user to review and request processing of incomplete and/or abandoned transactions. EX1005, ¶¶42, 55-56, 74. Balasubramanian further explains that “the PCL is adapted to direct the user to a specific [(“*customized to the user*”)] shopping cart having a state that may be frozen, saved, and/or accessed using a link, such as a URL link.” EX1005, ¶74. In my opinion, a POSA would have understood that the shopping cart, accessed using a URL link, is a “*second document.*”

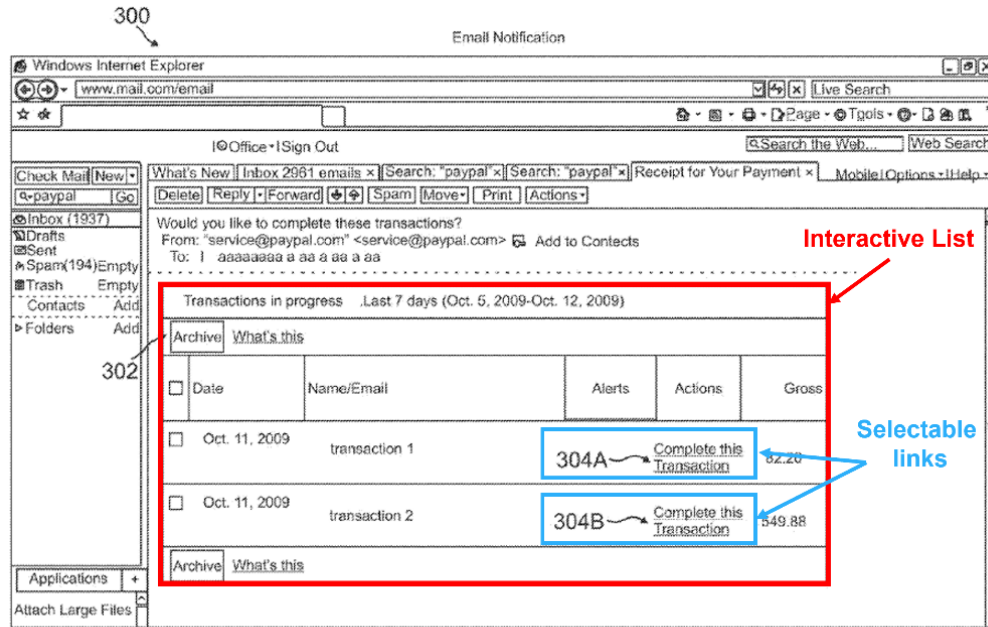


FIG. 3A
EX1005, FIG. 3A (annotated).

129. Furthermore, Balasubramanian’s shopping cart (“*second document*”) can include an incomplete checkout and various product information, such as “a defined set of SKUs, SKU quantities, and SKU prices.” EX1005, ¶42. The shopping cart may also “include various information related to inventory availability and price updates.” EX1005, ¶43. In particular, Balasubramanian explains that the user is alerted when one or more items in the shopping cart are about to run out of stock, have a price reduction, or have a discount or coupon provided by the merchant. EX1005, ¶47. In my opinion, a POSA would have understood that because the one or more items in the shopping cart were added by the user, these events of being out of stock, having a price reduction, and having a discount or coupon correspond to “*one or more events of interest for a user.*” Thus,

information included in the shopping cart about the incomplete checkout, such as the product information and information related to inventory availability and price updates, corresponds to the “*information about one or more events of interest for a user.*” In addition, because the service provider sends the notification to the user, who provided the phone number, via a text message, the user is associated with the phone number (“*associated with the electronic address*”). EX1005, ¶¶9, 20, 26, 28, 47, 55, 63, 65, 72.

130. Finally, when the user selects the PCL, the user can return and access a previously abandoned or incomplete purchase transaction and complete the transaction. EX1005, ¶¶42, 55, 75. Thus, a POSA would have understood that Balasubramanian’s service provider “*generate[s]*” the shopping cart (“*second document*”) so that the user can select the PCL and access the shopping cart upon receiving the notification.

- 8. [1.F] sending a message to the electronic address, wherein the message comprises a link to the second document, the link being configured to enable the user to access the second document to execute one or more transactions associated with the one or more events; and**

131. In my opinion, Balasubramanian teaches element [1.F].

132. Balasubramanian’s service provider sends a notification (“*sending a message*”) that includes PCLs (“*a link to the second document*”) that lead the user to (“*enable the user to access*”) the shopping cart (“*the second document*”) via a

text message (“*to the electronic address*”). EX1005, ¶¶9, 20, 45, 47, 55, 63, 72, 74. Furthermore, after the user is directed to the shopping cart (“*enable the user to access the second document*”), the user can proceed with checkout (“*execute one or more transactions*”) from where the user previously left off, withdrew, abandoned, or failed to complete the checkout, such as an incomplete or abandoned transaction (“*associated with the one or more events*”). EX1005, ¶¶45, 75, 76. In addition, as I explain above, interactive messages with selectable links and recovery of abandoned online transactions and shopping carts was well known before 2018. *See above*, Sections VIII.B-VIII.C.

9. [1.G.1] in response to determining activation of the link has occurred, causing provision of the second document to the electronic address,

133. In my opinion, the Balasubramanian-Wertheimer-Chen combination teaches element [1.G.1].

134. Balasubramanian teaches that when the user selects or clicks on a PCL in the notification (“*activation of the link*”), the user may review and request processing the one or more incomplete and/or abandoned transactions. EX1005, ¶55. Furthermore, clicking on a PCL may cause the shopping cart to be regenerated similar to its original state with additional information. EX1005, ¶¶43, 75. A POSA would have understood that the user may access the shopping cart via the user device, e.g., via a web browser of the user device. EX1005, ¶25. Thus, “*in*

response to” determining that the user clicks on the PCL, Balasubramanian’s service provider enables the user to access the shopping cart (“*second document*”). Balasubramanian does not, however, expressly disclose transmitting the shopping cart itself (“*second document*”) to the user device as a text message.

135. Chen discloses this feature. As I discuss above (Section [MTC]), a POSA would have been motivated to modify Balasubramanian’s service provider to send the shopping cart, such as HTML documents of the shopping cart, to the user device (“*causing provision of the second document*”) via a text message (“*to the electronic address*”). Phrased differently, in response to determining that the user clicks on the PCL (“*in response to determining activation of the link has occurred*”), in my opinion, a POSA would have been motivated to modify Balasubramanian’s service provider to send the shopping cart to the user device via a text message (“*causing provision of the second document to the electronic address*”), either in addition to or instead of preparing the shopping cart for the user device to access via a web browser, so that the service provider can serve more types of user devices. In my opinion, a POSA would have had a reasonable expectation of success because Balasubramanian’s service provider already sends notifications to the user device via text messages and thus can send the shopping cart via text messages as well. EX1005, ¶¶9, 20, 48, 55, 72. In my opinion, if the shopping cart is sent through text message, it would have the same interactive

properties of a webpage because the HTML file of the shopping cart (i.e., the source code of the webpage) is sent. A POSA would, therefore, have understood that it would function the same as the webpage itself.

136. Finally, I understand that Balasubramanian's user device may be equipped with a web browser. EX1005, ¶25. However, Balasubramanian does not discuss that the service provider confirms with user devices regarding whether the user devices include web browsers. In fact, the service provider is provided by service entities, such as PayPal, Inc. and eBay, and thus serves a large number of user devices of various types. EX1005, ¶40. In my opinion, a POSA would have understood that it is difficult for the service provider to know whether each connecting user device has a web browser. Therefore, without knowing whether the user device has a web browser and to ensure the user's access to the shopping cart, I believe a POSA would have been motivated to modify Balasubramanian's service provider to send text messages that include shopping carts to user devices even when some of the user devices may actually have web browsers. In addition, Balasubramanian explains that the user device "may be implemented using any appropriate combination of hardware and/or software configured for wired and/or wireless communication over the network 160." EX1005, ¶23. In my opinion, a POSA would therefore have understood that Balasubramanian's user device would include user devices with or without web browsers.

10. [1.G.2] wherein the second document is configured to facilitate completion of a given transaction in the one or more transactions.

137. In my opinion, Balasubramanian teaches element [1.G.2].

138. Balasubramanian teaches that the service provider sends a notification that includes PCLs that lead the user to the shopping cart (“*the second document*”). EX1005, ¶¶9, 20, 45, 47, 55, 63, 72, 74. After the user is directed to the shopping cart, the user can proceed to complete a checkout (“*facilitate completion of a given transaction in the one or more transactions*”). EX1005, ¶¶45, 48, 76. Furthermore, in the Balasubramanian-Wertheimer-Chen combination, the service provider transcodes the content of the shopping cart into SMS format and transmits the transcoded content to the user device as an SMS message. EX1011, 3:28-40. Thus, in my opinion, a POSA would have understood that the shopping cart sent as an SMS message would retain the same content and functionality of the shopping cart presented through the website and thus enables the user to complete a checkout in substantially the same manner (“*facilitate completion of a given transaction in the one or more transactions*”).

C. Claim 2: wherein the message comprises a Rich Communication Services (RCS) message provided to the electronic address according to a schedule generated based at least in part on a determined classification of the user.

139. In my opinion, Balasubramanian teaches claim 2.

140. Balasubramanian teaches that the service provider sends a notification to the user device as a text message (“*the message ... provided to the electronic address*”), but Balasubramanian does not explicitly explain a specific type of text message to be used to send the notification. EX1005, ¶¶9, 20, 48, 55. Nonetheless, I believe that a POSA would have understood that it was well known at the time of filing of the ’799 patent that a “text message” may include, for example, “Rich Communication Services,” a well-known successor to SMS text messaging. *See above*, Section VIII.D. Thus, I believe a POSA would have understood Balasubramanian’s text message (“*the message*”) renders obvious using “*an RCS message*,” which was a well-known type of text message (“*the message comprises a Rich Communication Services (RCS) message*”). Additionally, in my opinion, a POSA would have known that there were only a finite number of text message protocols in widespread use at the time of the ’799 patent—RCS being one of them. *See above*, Sections VIII.A, VIII.D. Therefore, it is my opinion that a POSA would have also found it obvious to try the RCS protocol to implement RCS messages in Balasubramanian’s system.

141. Furthermore, Balasubramanian teaches “*a determined classification of the user*.” The ’799 patent explains that the classification options include three tiers. EX1001, 42:12-27. In a second tier out of the three tiers, the user has selected one or more actions but has not completed a transaction. EX1001, 42:20-24.

Balasubramanian teaches that the user may “select items to purchase by clicking on a link for a specific item,” but withdraw from purchase prior to payment.

EX1005, ¶¶5, 6. In my opinion, a POSA would have understood that such a user would be classified in the second tier in the ’799 patent’s definition. For the user that abandoned the checkout of the selected items, Balasubramanian’s service provider sends a notification to the user reminding the user of the abandoned checkout. EX1005, ¶¶9, 20, 45, 55, 72. Thus, it is my opinion that the service provider sends the notification (“*the message*”) based on determining that the user has selected items but abandoned the checkout (“*based at least in part on a determined classification of the user*”).

142. In addition, once the user completes the purchase transaction, the service provider stores information related to the completed purchases transaction and changes the status from incomplete to complete. EX1005, ¶¶10, 79. In my opinion, a POSA would have understood that the service provider would not send the notification to the user at least for the same purchase transaction because it is now completed. In my opinion, such a user is classified in the first tier of the three tiers defined by the ’799 patent. EX1001, 42:12-19. Thus, the service provider selectively sends the notification (“*the message*”) to the user who has selected items but abandoned the checkout (“*based at least in part on a determined classification of the user*”).

143. Finally, the service provider sends the notification “*according to a schedule.*” Balasubramanian teaches that when the user fails to complete or abandons a purchase transaction, the service provider is adapted to notify the user via periodic (“*according to a schedule*”) message alerts including text messages. EX1005, ¶9. Furthermore, the service provider sends a notification to the user when one or more items in the shopping cart are about to run out of stock (“*according to a schedule*”). EX1005, ¶47. Thus, a POSA would have understood that the service provider sends the notification “*according to a schedule,*” which can be periodic or responsive. EX1005, ¶¶20, 47. Furthermore, the “*schedule*” is generated based on the determination that the user previously selected items and abandoned the transaction (“*generated based at least in part on a determined classification of the user*”) because the notification is sent to remind the user of the abandoned transaction. EX1005, ¶¶9, 20. In addition, as I explain above, scheduling of messages based on classification by machine learning models was well known before 2018. *See above*, Sections VIII.C, VIII.F-VIII.G.

D. Claim 3: wherein the classification of the user comprises criteria corresponding to an application, a website, or a service associated with the electronic address.

144. In my opinion, Balasubramanian teaches claim 3.

145. Balasubramanian teaches that “*the classification of the user comprises criteria.*” The ’799 patent explains that the criteria “may be based on user

behavior” or “a level of engagement with particular content.” EX1001, 41:15-19.

Balasubramanian teaches that for the user who abandoned the checkout of the selected items, Balasubramanian’s service provider sends a notification to the user reminding the user of the abandoned checkout. EX1005, ¶¶9, 20, 45, 55, 72. In my opinion, a POSA would have understood that the service provider selectively sends a notification to the user based on the user’s behavior of abandoning the checkout and the level of engagement, such as selecting but not purchasing, with the select content (“*criteria*”). *See also above*, Section VIII.F.

146. Finally, the user’s behavior of abandoning the checkout and the level of engagement with the selected content (“*criteria*”) is performed on a shopping cart (“*corresponding to ... a website*”). EX1005, ¶¶33, 63. In my opinion, the shopping cart is associated with the phone number because the user may receive a PCL shared by another user that leads to a shopping cart that includes items of the other user (“*a website*”) via text message (“*associated with the electronic address*”). EX1005, ¶48.

- E. Claim 4: wherein the classification of the user indicates whether the user is: a message recipient that has selected a link provided by the system to the electronic address and completed at least one prior transaction; a message recipient that has selected a link provided by the system to the electronic address, but has not completed a transaction; or a message recipient that has not selected a link provided by the system to the electronic address.**

147. In my opinion, Balasubramanian teaches claim 4.

148. Balasubramanian teaches that when shopping at a website, the user selects items to purchase by clicking on a link for a specific item but may withdraw from purchase prior to payment. EX1005, ¶¶5-6. As I discuss above, a POSA would have understood that such a user would be classified in the second tier in the '799 patent's definition ("*the classification of the user*") and the service provider selectively sends the notification to such a user. *See above*, Section XII.C. Because the user selects a link on the website to purchase an item, but eventually withdraws prior to payment, the user "*has selected a link ..., but has not completed a transaction.*" EX1005, ¶¶5-6. Furthermore, a POSA would have understood that a user who has "*has selected a link ..., but has not completed a transaction*" cannot be a user who "*has selected a link ... and completed at least one prior transaction*" or a user who "*has not selected a link*" because these three alternatives recited in this limitation are mutually exclusive. In particular, the user either has selected a link or has not selected a link, but not both. In addition, the user either has completed a transaction or has not completed a transaction, but not both. Thus, when the service provider determines that the user "*has selected a link ..., but has not completed a transaction,*" the service provider also determines that the user is not a user who "*has selected a link ... and completed at least one prior transaction*" or a user who "*has not selected a link.*" Furthermore, the user is "*a*

message recipient” because the user receives the notification from the service provider. EX1005, ¶¶9, 20, 47, 55, 63, 72, 74. *See also above*, Section VIII.F.

149. In addition, Balasubramanian explains that the website for the user to select items for purchase is provided by the merchant and the service provider, which are included in Balasubramanian’s system. EX1005, ¶¶21, 25, 33; *see above*, Section XII.B.1. Thus, in my opinion, a POSA would have understood that the link on the website, which the user clicks on to select items, is also provided by Balasubramanian’s system (“*a link provided by the system*”). EX1005, ¶¶5-6, 21, 25, 33.

150. Finally, Balasubramanian explains that the user accesses the website using the user interface application of the user device. EX1005, ¶25. Thus, in my opinion, a POSA would have understood that the link on the website is provided to the user device. Because the user device may be implemented as a mobile communication device, such as a wireless cellular phone, a POSA would have understood that the user device is associated with the phone number and thus the link is provided to the phone number of the user device (“*the electronic address*”). EX1005, ¶23. For example, the user may receive a PCL shared by another user that includes items of the other user via text message (“*a link provided by the system to the electronic address*”). EX1005, ¶48. In my opinion, a POSA would have understood that the other user can share the PCL directly through the other user’s

user device or via the service provider, both of which are within the “system” and are capable of sending the text message. EX1005, ¶¶21, 23, 55, FIG. 1.

F. Claim 5: wherein the message comprises a Rich Communication Service (RCS) message and the operations further comprise: requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.

151. In my opinion, the Balasubramanian-Wertheimer-Chen combination teaches claim 5.

152. As I discuss above for claim 2, Balasubramanian renders obvious that “the message comprises a Rich Communication Service (RCS) message.” See above, Section XII.C. Balasubramanian further teaches “requesting and receiving authorization data.” Balasubramanian teaches that when the service provider “determines that the user selected at least one incomplete transaction to process,” the service provider prompts the user to login from the user device (“requesting ... authorization data”). EX1005, ¶78. The service provider then “receive[s] user information, such as identity information, from the user via the user device” (“receiving authorization data corresponding to an identity of the user”). EX1005, ¶78. Balasubramanian explains that the service provider uses the user information to verify the user. EX1005, ¶78.

153. Furthermore, as I discuss above, a POSA would have found it obvious that Balasubramanian’s service provider, as modified in view of Chen, sends the

shopping cart, such as HTML documents of the shopping cart, to the user device (*“causing provision of the second document to the electronic address”*). See above, Section XII.B.9. In my opinion, a POSA would have understood that since the service provider sends the shopping cart to the user device as documents, such as HTML documents, the recipient of the documents can access the shopping cart without a website verification process, such as a login process, which would otherwise be required when the shopping cart is hosted on a website. In such a case, Chen explains that a verification of the user is required before sending the shopping cart to the user device. EX1011, 6:34-37. Thus, a POSA would have found it obvious that the service provider requests and receives the user information (*“requesting and receiving authorization data corresponding to an identity of the user”*) to verify the user before sending the documents of the shopping cart to the user device (*“before causing provision of the second document to the electronic address”*). See also above, Section VIII.E.

G. Claim 6: wherein the message is an Enhanced Messaging Service (EMS) message.

154. In my opinion, Balasubramanian teaches claim 6.

155. Balasubramanian’s notification can be a text message, but Balasubramanian does not explicitly explain a specific type of text message used to send the notification. EX1005, ¶¶9, 20, 48, 55. In my opinion, a POSA would have known that it was well known at the time of filing of the ’799 patent that a “text

message” may include, for example, “*an Enhanced Messaging Service (EMS) message*,” a well-known successor to SMS text messaging. *See* EX1034, 1:13-17. In particular, “EMS messages are typically an extension of SMS messages.” EX1034, 1:24-25. Thus, it is my opinion that a POSA would have understood Balasubramanian’s text message (“*the message*”) renders obvious “*an Enhanced Messaging Service (EMS) message*,” which was a well-known type of text message.

156. Additionally, in my opinion, a POSA would have known that there were only a finite number of text message protocols in widespread use at the time of the ’799 patent—EMS being one of them. Therefore, it is my opinion that a POSA would have also found it obvious to try the EMS protocol to implement EMS messages in Balasubramanian’s system. *See also above*, Sections VIII.A, VIII.D.

H. Claim 8: wherein the link is further configured to: allow users other than the user to access the second document to browse the second document while prohibiting execution of the one or more transactions through the link for the users other than the user.

157. In my opinion, Balasubramanian teaches claim 8.

158. As I discuss above, the PCL is the “*link*.” *See above*, Section XII.B.8, Balasubramanian teaches that the PCL can be shared with at least one other person (“*users other than the user*”), such as a supervisor, co-worker, other employee, subordinate, etc., for reviewing the shopping cart or checkout before the

completion of the purchase transaction (*“allow users other than the user to access the second document to browse the second document”*). EX1005, ¶50. A supervisor may approve or pre-approve the selected items in the shopping cart before the completion of the purchase transactions. EX1005, ¶50. Thus, in my opinion, a POSA would have understood that the supervisor can view and approve the selected items, but not execute the purchase transactions, which is done by the user after approval (*“prohibiting execution of the one or more transactions through the link for the users other than the user”*). For example, the supervisor can approve the selected items, and the user subsequently executes the purchase transactions.

I. Claim 9: wherein the link is further configured with a security layer to provide augmented access or navigation attributes to the user.

159. In my opinion, Balasubramanian teaches claim 9.

160. As I discuss above, the PCL is the *“link.”* See above, Section XII.B.8. In Balasubramanian, a PCL is a unique URL with a token. EX1005, ¶44 (*“a unique URL with a token (i.e., PCL)”*). Although this disclosure is in the context of a PCL generated when the user checks out from a merchant, a POSA would have understood that this definition also applies when the service provider generates a PCL to send in a user notification. In my opinion, a POSA would have understood that a URL with a token provides secure access to online resources without needing to enter a username, a password, or other authentication information. EX1018, Abstract. Therefore, it would have been obvious that the PCLs in the

notification also include a URL with a token, so that malicious access can be avoided. Because a URL with a token provides an additional security measurement that would not be available with just a URL, the PCL “*is further configured with a security layer to provide augmented access*”. Finally, because the URL with a token included in the PCL is unique, it is “*configured ... to the user.*” EX1005, ¶44.

J. Claim 10: wherein the link is further configured to enable the user to resume an online user journey associated with the given transaction.

161. In my opinion, Balasubramanian teaches claim 10.

162. As I discuss above, Balasubramanian’s PCL is the “*link.*” *See above*, Section XII.B.8. Balasubramanian teaches that the PCL corresponds to the user’s previously incomplete or abandoned transactions. EX1005, ¶¶45, 75-76. The ’799 patent explains that “a user journey” “may include a series of steps or interactions that the user (e.g., subscriber) takes while shopping online.” EX1001, 35:18-24. Thus, Balasubramanian’s user actions of viewing and searching for items, products and services, and creating the shopping cart are an “*online user journey.*” EX1005, ¶24. Furthermore, the PCL enables the user to “*resume an online user journey,*” such as the user’s prior actions of viewing and searching items, products and services, and creating the shopping cart, from “where the user previously left-off, withdrew, abandoned, or failed to complete the checkout” (“*given transaction*”).

EX1005, ¶¶45, 55, 75. In addition, as I explain above recovery of abandoned online transactions and shopping carts was well known before 2018. *See also above*, Section VIII.C.

K. Independent claim 12

1. [12.P] A computer-implemented method comprising:

163. In my opinion, Balasubramanian discloses the preamble.

Balasubramanian's "service provider," which can be implemented as a computer system, "provide[s] processing for network based transactions including online information and/or financial transactions on behalf of the user." EX1005, ¶40.

Balasubramanian's service provider 180 implements the methods described with respect to Figures 2A-2C. EX1005, ¶¶62-86.

2. [12.A]-[12.E.2]

164. Claim elements [12.A]-[12.E.2] correspond to claim elements [1.C]-[1.G.2], respectively. In my opinion, the Balasubramanian-Wertheimer-Chen combination discloses or renders obvious these elements for the same reasons I explain above regarding claim 1. *See above*, Section XII.B.

L. Claims 13-16 and 18-20

165. Claims 13-16 and 18-20 are computer-implemented method claims that otherwise recite limitations that are identical to the system steps recited in claims 2-3, 5-6, and 8-10. In my opinion, the Balasubramanian-Wertheimer-Chen combination discloses or renders obvious these elements for the same reasons as I

respectively explain for claims 2-3, 5-6, and 8-10 above. *See above*, Sections XII.C, XII.D, XII.F-XII.J.

M. Independent Claim 22

166. I understand that independent claim 22 recites a “*non-transitory computer-readable storage medium for use in conjunction with a processor, the computer-readable storage medium storing program instructions that, when executed by the processor, cause the processor to carry out operations*” substantially the same as those recited in claim 1.

1. **[22.P] A non-transitory computer-readable storage medium for use in conjunction with a processor, the computer readable storage medium storing program instructions that, when executed by the processor, cause the processor to carry out operations comprising**

167. In my opinion, Balasubramanian discloses the preamble.

168. Balasubramanian’s “computer system 400 performs specific operations by processor 404 executing one or more sequences of one or more instructions contained in system memory component 406.” EX1005, ¶94. “Such instructions may be read into system memory component 406 from another computer readable medium, such as static storage component 408 or disk drive component 410.” EX1005, ¶94. I believe a POSA would have understood that at least Balasubramanian’s static storage component is a “*non-transitory computer-readable storage medium*.”

2. [22.A]–[22.E.2]

169. Claim elements [22.A]–[22.E.2] correspond to claim elements [1.C]–[1.G.2], respectively. In my opinion, the Balasubramanian-Wertheimer-Chen combination discloses or renders obvious these elements for the same reasons I explain above regarding claim 1. *See above*, Section XII.B.

N. Claims 23-25 and 27-29

170. Claims 23-25 and 27-29 are storage medium claims that otherwise recite limitations that are identical to the system steps recited in claims 2-3, 5, and 8-10. The Balasubramanian-Wertheimer-Chen combination discloses or renders obvious these elements for the same reasons as I respectively explain for claims 2-3, 5, and 8-10 above. *See above*, Sections XII.C-XII.D, XII.F, XII.H-XII.J.

XIII. GROUND 1B: THE BALASUBRAMANIAN-WERTHEIMER-CHEN-BOGINENI COMBINATION RENDERS OBVIOUS CLAIMS 2-5, 7, 10, 13-15, 17, AND 23-26.

A. Motivation to Combine

171. Several dependent claims recite limitations related to an RCS message. As I discuss above, using an RCS message would have been obvious in view of Balasubramanian. *See above*, Sections VIII.D, XII.C-XII.F. To the extent Patent Owner argues that Balasubramanian does not render obvious that “*the message comprises a Rich Communication Services (RCS) message*,” the combination with Bogineni does. Bogineni includes an explicit discussion of an “*RCS message*.” In my opinion, a POSA would have been motivated to modify the

Balasubramanian-Wertheimer-Chen combination in further view of Bogineni to include an RCS message.

172. To start, Bogineni and Balasubramanian are in the same field of mobile device communication and are thus analogous art to each other and to the '799 patent. *Compare* EX1009, 1:6-7, 1:47-2:22, *with* EX1001, Abstract, 5:42-44; EX1005, ¶¶21, 23, 24, 29, 31.

173. In Balasubramanian, the service provider sends a notification to the user device. EX1005, ¶¶9, 20-21, 48, 55. This notification can be sent in various ways, including as a text message. EX1005, ¶¶9, 20, 48, 55. However, Balasubramanian does not discuss details about how the messages are implemented. One well-known technique for sending text messages to a mobile device like Balasubramanian's user device is via RCS messages, as taught by Bogineni. *See also above*, Section VIII.D. Bogineni teaches that "RCS provides a text-message system similar to [SMS] messages." EX1009, 1:7-9. "However, RCS is capable of providing services that SMS cannot provide, such as phonebook polling for service discovery, transmitting in-call multimedia, and/or the like." EX1009, 1:9-12. A POSA would have been motivated to transmit Balasubramanian's notification as an RCS message instead of a text message in order to provide the additional functionality available with RCS messages.

174. Furthermore, a POSA would have had a reasonable expectation of success in combining Balasubramanian with Bogineni. Bogineni explains that the RCS messaging can be supported by Internet protocol (IP) multimedia subsystem (IMS)-based RCS messaging or non-IMS RCS messaging supported by application programming interfaces (APIs) on the device or hypertext transfer protocol (HTTP) communications. EX1009, 1:47-2:4. Balasubramanian's system can support both options. Balasubramanian's system includes a network that supports the Internet, a mobile communication network, one or more intranets, landline networks, wireless networks, and/or one or more other appropriate types of communication networks. EX1005, ¶¶21-22. In my opinion, a POSA would have understood that Balasubramanian's network would support the IMS and therefore support IMS-based RCS messaging. Because Balasubramanian's network can be the Internet, the network also supports HTTP communications, which enables non-IMS RCS messaging. Finally, because Balasubramanian's user device, merchant devices, and service provider can be implemented as computer systems, they are readily available to install APIs and thus support non-IMS RCS messaging via the APIs. EX1005, ¶92. In my opinion, a POSA would, therefore, not have experienced any unreasonable technical hurdles in implementing these modifications. Such a combination would merely amount to combining prior art elements according to known methods to yield the predictable (yet improved)

result of sending a text message having the additional functionality available with RCS messages, such as “phonebook polling for service discovery, transmitting in-call multimedia, and/or the like.” EX1009, 1:9-12.

B. Claim 2: wherein the message comprises a Rich Communication Services (RCS) message provided to the electronic address according to a schedule generated based at least in part on a determined classification of the user.

175. In my opinion, the Balasubramanian-Wertheimer-Chen-Bogineni combination teaches claim 2.

176. In the Balasubramanian-Wertheimer-Chen-Bogineni combination, Balasubramanian’s notification (“*the message*”) is transmitted as “*a Rich Communication Services (RCS) message*” instead of or in addition to the text message in order to provide the additional functionality that RCS messages provide. *See above*, Section XIII.A. In addition, similar to the text message, Balasubramanian’s service provider sends the notification to the user device via the phone number provided by the user (“*provided to the electronic address*”). EX1005, ¶¶9, 20, 26, 48, 55, 72.

177. Furthermore, as I discuss above, Balasubramanian teaches “*the message ... provided to the electronic address according to a schedule generated based at least in part on a determined classification of the user.*” *See above*, Section XII.C.

C. Claims 3 and 4.

178. In my opinion, the Balasubramanian-Wertheimer-Chen-Bogineni combination teaches claims 3 and 4.

179. As I discuss above, Balasubramanian teaches claims 3 and 4. *See above*, Sections XII.D-XII.E.

D. Claim 5: wherein the message comprises a Rich Communication Service (RCS) message and the operations further comprise: requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.

180. In my opinion, the Balasubramanian-Wertheimer-Chen-Bogineni combination teaches claim 5.

181. As I discuss above, the Balasubramanian-Wertheimer-Chen-Bogineni combination teaches that “*the message comprises a Rich Communication Service (RCS) message.*” *See above*, Section XIII.B. Furthermore, as I discuss above, Balasubramanian teaches “*requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.*” *See above*, Section XII.F.

- E. Claim 7: wherein the message comprises content including send and receive indicators provided in a user interface of a mobile computing device associated with the electronic address, the indicators depicting real time typing between a message provider and the mobile computing device or between another computing device and the mobile computing device.**

182. In my opinion, the Balasubramanian-Wertheimer-Chen-Bogineni combination renders obvious claim 7.

183. As I discuss above, Balasubramanian's notification ("*the message*") can be transmitted as "*a Rich Communication Services (RCS) message,*" as taught by Bogineni. *See above*, Section XIII.B. Bogineni further teaches various APIs for using the RCS message service, including "a send read report API for sending a read report for an RCS message" and "a receive read report for receiving a read report for an RCS message." EX1009, 4:4-16. In my opinion, a POSA would have understood that when the user device receives "a read report" using the "receive read report API," it indicates that an RCS message has been sent to another device ("*content including send ... indicator[]*") and when the user device transmits a "read report" using the "send read report API," it indicates that an RCS message has been received from another device ("*content including ... receive indicator[]*"). Furthermore, Balasubramanian teaches that the user device includes applications 124 that interface with "appropriate application programming interfaces (APIs)" and "with the user interface application 122 for improved efficiency and convenience" of the user device. EX1005, ¶27. Thus, a POSA

would have understood that the transmitted and received “read report[s]” supported by the APIs are provided to the user interface application of the user device via the applications 124 (*“provided in a user interface of a mobile computing device”*). As I discuss above, the user device is associated with the phone number (*“a mobile computing device associated with the electronic address”*). EX1005, ¶¶21-23; *see above*, Section XII.B.6.

184. Finally, in my opinion, a POSA would have understood that the RCS message shows real-time typing status between the sender and the receiver (*“indicators depicting real time typing”*), because this is part of the RCS standard. In particular, the “RCS Universal Profile Service Definition Document, Version 1.0” (EX1032), published November 16, 2016, mandates, as standard elements, the use of indicators that inform a user of “real time typing.” For example, standard element US5-7 explains that “[a]s a user, I want to see when the other party is currently writing a message”, and standard element R5-7-1 instructs that “[t]he other party shall be able to see an ‘is typing’ notification whenever the creator of a message is typing”. EX1032, 47. Because the RCS Universal Profile Definition mandates these functions, it is my opinion that a POSA would have understood that they would be included in the RCS functionality of Bogineni.

F. Claims 13-15, 17, and 23-26

185. Claims 13-15, 17, and 23-26 are computer-implemented method and storage medium claims that otherwise recite limitations that are identical to the system steps recited in claims 2-3, 5, and 7. In my opinion, the Balasubramanian-Wertheimer-Chen-Bogineni combination discloses or renders obvious these elements for the same reasons as I respectively explain for claims 2-3, 5, and 7 above. *See above*, Sections XIII.B-E.

XIV. GROUND 1C: THE BALASUBRAMANIAN-WERTHEIMER-CHEN-SINHA COMBINATION RENDERS OBVIOUS CLAIMS 11, 21, AND 30.

A. Motivation to Combine

186. Claims 11, 21, and 30 recite limitations related to “*prior engagement characteristics [that] are determined using machine learning*,” which are explicitly discussed by Sinha. In my opinion, a POSA would have been motivated to modify the Balasubramanian-Werthheimer-Chen combination further in view of Sinha to include “*the prior engagement characteristics [that] are determined using machine learning*.”

187. To start, Sinha and Balasubramanian are in the same field of online shopping on websites and are thus analogous art to each other and to the ’799 patent. *Compare* EX1012, ¶¶29, 37, *with* EX1001, 1:36-56, 8:52-9:2, 9:11-24, 29:16-29, 35:4-14; EX1005, ¶¶6, 7, 56, 63.

188. In Balasubramanian, when the user abandons the checkout of the selected items, this usually results in lost revenue. EX1005, ¶¶5, 6. To resolve this issue, the service provider sends a notification to the user reminding the user of the abandoned checkout. EX1005, ¶¶9, 20, 45, 55, 72. Sinha explains that sometimes the “customer adds the same items to online shopping carts at each of the different online stores and compares a total price” and “then choose[s] to purchase the items from one of the online stores based on the comparison.” EX1012, ¶3. Thus, each online store wants to be the one that the customer eventually chooses. EX1012, ¶3. To improve the chance of being chosen, Sinha teaches an approach to calculate a likelihood indicating “that there is some uncertainty as to whether a customer will [] return to purchase items left in an abandoned cart” and send tailored advertising content to the customer to convince the customer to purchase the items in the shopping cart. EX1012, ¶24. *See also, e.g., above*, Sections VIII.C, VIII.G. Thus, a POSA would have been motivated to modify Balasubramanian to include such targeted advertising content as taught by Sinha, in the abandoned shopping cart, in order to improve the chance that the user returns to the abandoned shopping cart and completes the checkout. For example, when the user receives the notification and accesses the abandoned shopping cart, the user would have access to the target advertising content that may convince the user to complete the checkout.

189. Furthermore, a POSA would have had a reasonable expectation of

success in combining Balasubramanian with Sinha. Sinha explains that a customer classification model module 212 “employs a machine learning technique” and “generate[s] models that are usable for predicting whether a customer will return to the online store to purchase the items [] left in an abandoned cart.” EX1012, ¶51. Sinha further explains that the customer classification model module 212 is a part of the online shopping cart analysis module 108, which is “implementable as a software module, a hardware device, or using a combination of software, hardware, firmware, fixed logic circuitry, etc.” EX1012, ¶¶34, 50. For example, the online shopping cart analysis module 108 can be included in a computing device, which can be implemented as a server. EX1012, ¶¶28, 50. Balasubramanian’s system includes a service provider, which includes a network server. EX1005, ¶¶21, 92, FIG. 1. Thus, Balasubramanian’s service provider is readily available to perform the functionalities of Sinha’s computing device including the machine learning functions of the customer classification model module 212.

B. Claim 11: wherein the second document comprises user-targeted content based on one or more prior engagement characteristics associated with the electronic address, wherein the prior engagement characteristics are determined using machine learning.

190. In my opinion, the Balasubramanian-Wertheimer-Chen-Sinha combination teaches claim 11.

191. Sinha teaches that advertising content that is tailored to a customer (“*user-targeted content*”) is sent to the customer with a likelihood that indicates “uncertainty as to whether a customer will [] return to purchase items left in an abandoned cart.” EX1012, ¶24. The advertising content “enables the customer to purchase the items left in the abandoned shopping cart for less than at the other online stores.” EX1012, ¶24. Sinha further explains that the likelihood is computed based on the customer’s prior behaviors, such as interactions of the customer at the online store, attributes of the items left in the abandoned shopping cart, and interactions with emails that are sent to the customer regarding the online store. EX1012, ¶18. In my opinion, a POSA would have understood that the customer’s prior behaviors are the customer’s “*prior engagement*” with the online store. Furthermore, a POSA would have understood that the likelihood calculated from the prior behavior indicates characteristics of the prior behavior and thus is the “*one or more prior engagement characteristics*.” Because the customer’s prior behaviors are performed by the customer using a computing device, such as a mobile phone, a POSA would have understood that the prior behaviors and the likelihood calculated from the prior behaviors are associated with the phone number of the user and the mobile phone (“*associated with the electronic address*”). EX1012, ¶28. Furthermore, Sinha teaches that the likelihood is calculated using a model, such as a regression model, using machine learning

techniques (“*the prior engagement characteristics are determined using machine learning*”). EX1012, ¶¶18, 32, 51, 52. *See also, e.g., above*, Sections VIII.C, VIII.G.

192. Furthermore, as I discuss above, Balasubramanian’s shopping cart is “*the second document.*” *See above*, Section XII.B.7. Balasubramanian further teaches that the user can return to the shopping cart to complete the checkout. EX1005, ¶¶45, 75. Thus, a POSA would have been motivated to modify Balasubramanian to include the advertising content taught by Sinha in the shopping cart (“*the second document comprises user-targeted content*”) so that the user is more likely to complete the checkout.

193. Finally, Sinha teaches that the likelihood (“*the prior engagement characteristics*”) is computed using a machine learning model (“*determined using machine learning*”). EX1012, Abstract, ¶¶5, 6, 18, 32, 49, 51, 52.

C. Claims 21, 30

194. Claims 21, 30 are computer-implemented method claims and storage medium claims, respectively, that otherwise recite limitations that are identical to the system steps recited in claim 11. In my opinion, the Balasubramanian-Wertheimer-Chen-Sinha combination discloses or renders obvious these elements for the same reasons as I respectively explain for claim 11 above. *See above*, Section XIV.B.

XV. GROUND 2A: THE SPINDLER-LONG COMBINATION RENDERS OBVIOUS CLAIMS 1, 5-6, 8-9, 12, 15-16, 18-19, 22, 25, AND 27-28.

195. In my opinion, the combination of Spindler and Long renders obvious claims 1, 5-6, 8-9, 12, 15-16, 18-19, 22, 25, and 27-28.

A. Motivation to Combine

196. In my opinion, a POSA would have been motivated to modify Spindler in view of Long to arrive at the system, computer-implemented method, and non-transitory computer-readable storage medium claimed by the '799 patent.

197. The '799 patent is, through a chain of continuation applications, a continuation of U.S. Patent App. No. 17/279,188 to Spindler et al., which published as U.S. Patent Application Publication 2022/0006895 ("Spindler" herein). Spindler and Long are in the same field of endeavor as each other and the problem addressed by the '799 patent. The '799 patent purports to address the problem that "the popularity of such online transactions has resulted in increased incidents of fraud and other criminal activity," which "constrains people's willingness to conduct transactions via networks," and that a "one-size-fits-all approach ... often results in a cumbersome user experience." EX1001, 1:40-53. Spindler is identically directed towards "techniques for performing transactions using dynamically generated customized webpages" (e.g., "purchasing products or services") that may include authenticating a user's electronic device (e.g., a computer or a cellular telephone). EX1006, ¶¶2-3, 9, 31. Long is also directed

towards techniques “for messaging-based subscriptions and payments initiated from a website viewed on a mobile device or a mobile application.” EX1013, 2:48-51.

198. Spindler teaches a technique for dynamically generating customized content for a subscriber that “may provide an efficient and secure way for the individual to receive relevant content and to conduct one or more transactions.” EX1006, ¶46. Spindler’s technique alleviates “a cumbersome user experience” in which “visitors are forced to navigate through the content on a webpage or website in an attempt to find relevant or interesting information.” EX1006, ¶6. Such an experience “restricts use and, thus, people's willingness to conduct transactions.” EX1006, ¶6. However, as I discuss above, Spindler does not disclose actually “*causing provision of the [content] to the electronic address*” (e.g., the telephone number associated with the user’s electronic device). *See above*, Section XI. Nonetheless, a POSA would have known that not all mobile devices are equipped with web browsers and that user devices can have connection issues (such as weak or temporarily lost connections), thus, mobile devices may at times be restricted from accessing hypermedia content on the internet. *See, e.g.*, EX1011, 1:49-52 (explaining that “many earlier-generation wireless devices were not equipped with microbrowsers” and thus “the ability of such devices to access hypermedia content on the internet” was restricted). Thus, a POSA would have looked to the prior art

for guidance as to specific techniques for extending Spindler's teachings to sending (or causing to have sent) the content to mobile devices without relying on a web browser. Long is such a reference.

199. Like Spindler, Long recognizes that user experience that causes the user to "pause[] its previous activities ... on the mobile device and [be] redirected to the vendor's application or website" to complete a purchase is "time-consuming and burdensome" and "results in many users leaving the purchase before the transaction is completed." EX1013, 1:32-39. To avoid this, Long discloses a technique of "dynamic application deeplinking to transition from one user interface to another." EX1013, 1:40-44. Such deeplinking allows a user to "click[]" "a link" on the user's mobile device, thereby initiating "a custom-rendered deeplink" that opens "a mobile messaging application ... on [the] user's mobile device." EX1013, 3:4-9. The mobile messaging application may be provided "with the purchase information pre-populated for the user to initiate a purchase," to thereby allow the user to "initiate a process to purchase a product or service from the recipient when the message is sent," thereby simplifying the transaction to a sequence of only two clicks by the user. EX1013, 3:28-34, 3:65-4:2. Long describes that this process results in an "improved user experience and engagement when interacting with the mobile device." EX1013, 1:40-44.

200. More specifically, Long, like Spindler, describes a technique for “completing mobile subscriptions, communications, and/or purchases.” EX1013, 2:48-54. Long’s technique begins when a user of a mobile device clicks a link in a promotional message on “a mobile website, a mobile application, a link, an email, a mobile advertisement, a text message, and/or the like.” EX1013, 3:1-4, 6:57-60. This link may be “a custom-rendered deeplink.” EX1013, 3:4-7. Clicking the deeplink causes a server to “initiate a messaging application at the user mobile device 150 with a message pre-populated with purchase or subscription information.” EX1013, 7:4-8. The information for the message “can be communicated to the messaging application using the deeplink” and may “include a shopping cart identifier, a product identifier, a product name, a product description, a price of each product, a total price for the shopping cart, and/or the like.” EX1013, 3:19-20, 15:28-31. Thus, Long’s deeplink facilitates actually sending information, such as a customized shopping cart or subscription request, directly to a user’s telephone number in the form of the text messaging application.

201. I believe a POSA would have been motivated to modify Spindler in view of Long for the predictable result of an e-commerce technique having reduced user friction and increased conversion of sales. Long, like Spindler, seeks to improve the user experience in e-commerce. EX1013, 1:32-44; EX1006, ¶¶4-6. Like Spindler, Long’s technique sends a link with customized content to a user’s

mobile device. EX1013, 6:57-66; EX1006, ¶¶34-35. *See also above*, Section VIII.B. Like in Spindler, the activation of this link provides the user with the opportunity to “subscribe to a messaging-based marketing service” or “purchas[e] a product or service, provided by the client.” EX1013, 7:11-16; EX1006, ¶37. The only difference between Long and Spindler is that, whereas Spindler describes that the link provides a user access to a “customized second document” that “allows completion of [a] given transaction,” EX1006, ¶37, Long’s technique *actively sends* the customized transaction content to the user’s mobile messaging application, so that the user can complete the transaction with just one more click. EX1013, 15:22-37.

202. I also believe a POSA would have had a reasonable expectation of success in modifying Spindler in view of Long because the modification would have involved only the routine application Long’s well-known “click-to-text” communication scheme to the application of “purchasing one or more tickets to an upcoming event” described by Spindler. EX1013, 2:43-45; EX1006, ¶37. *See also above*, Sections VIII.A-VIII.B. And Long’s communication scheme requires nothing more than the mobile electronic device 110, client device 404, and ADDP server 410 already disclosed by Spindler.

203. In the Spindler-Long combination, I believe a POSA would have been motivated to replace Spindler’s “link to the customized second document” that is

sent in the text message to the user with Long's deeplink that, when activated, would cause the user mobile device to open the text messaging application and pre-populate a message with the content (e.g., event tickets, shopping cart information, etc.) from the customized second document. EX1006, ¶¶34-35; EX1013, 15:22-37. I believe a POSA would have understood that such a modification would allow the user to "initiate a process to purchase a product or service from the recipient when the message is sent," as taught by Long. EX1013, 3:40-45, instead of simply linking to a webpage that would then allow the user to complete a transaction, as in Spindler. I also believe a POSA would have understood that this modification would avoid a user having to "pause[] its previous activities (e.g., viewing a website, reading an email) of the mobile device" to be "redirected to the vendor's application or website to purchase the products or services via many user input[s]." EX1013, 1:33-37. As a result, I believe a POSA would have known that such a modification would result in "improved user experience and engagement," as explicitly taught by Long. EX1013, 1:40-44.

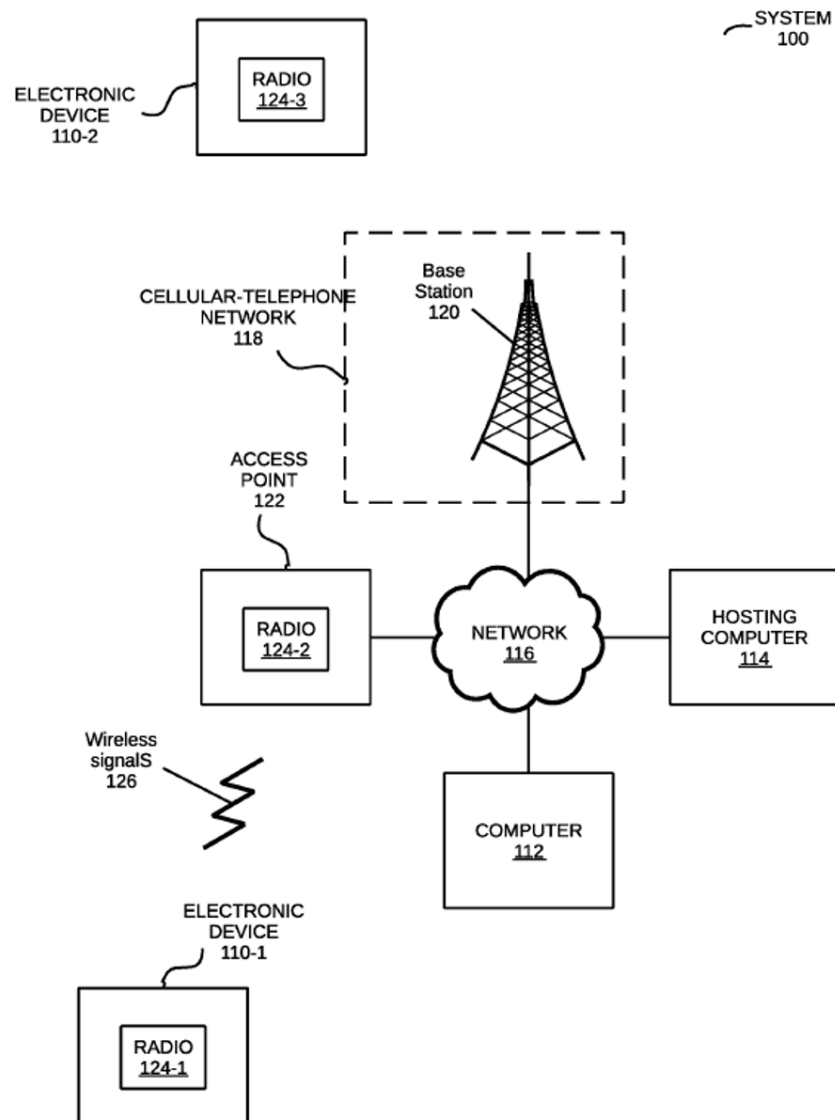
204. It is my opinion that a POSA would have found it obvious to modify Spindler in view of Long to arrive at the configuration of elements recited by the claims of the '799 patent, as I explain in detail below.

B. Independent Claim 1

1. [1.P] A system comprising:

205. In my opinion, Spindler discloses the preamble.

206. Spindler discloses a **system 100** including various electronic devices 110, hosting computer 114, network 116, and cloud-based computer 112 that may perform method 200. EX1006, ¶¶31, 48, FIGs. 1-2.

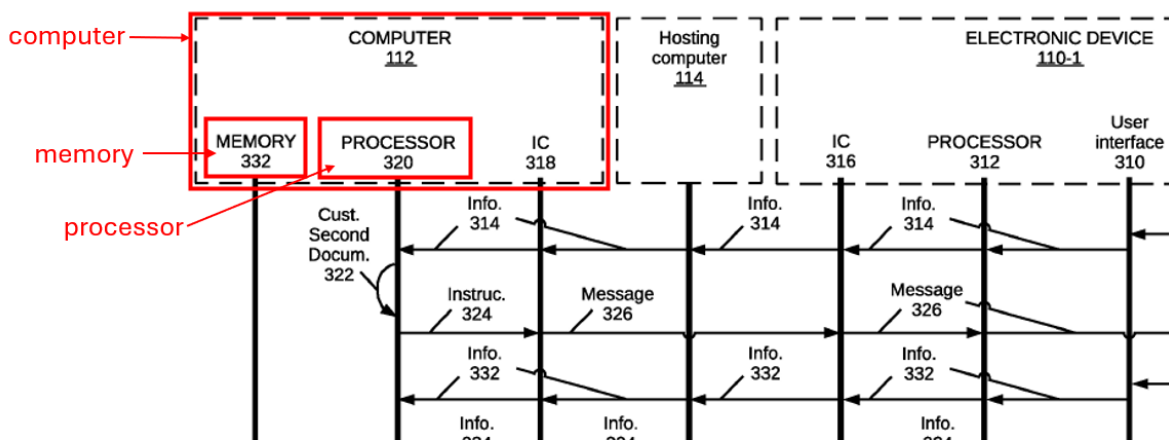


EX1006, FIG. 1.

2. [1.A] a processor; and

207. In my opinion, Spindler discloses element [1.A].

208. Spindler's cloud-based computer 112 may include a **processor 320** that “may dynamically generate a customized second document” and “may instruct 324 interface circuit 318 to send a message ... to an address corresponding to the telephone number.” EX1006, ¶¶59-60, FIG. 3.



EX1006, FIG. 3 (abridged, annotated).

3. [1.B] memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations comprising:

209. In my opinion, Spindler discloses element [1.B].

210. Spindler's computer 112 may include **memory 332**. EX1006, ¶0113, FIG. 3 *above*. The memory may be “*configured to store program instructions*” such that, “when the program instructions are executed by the processor, they cause the computer to perform” the operations of method 200, including the operations recited in elements [1.C]-[1.G]. EX1006, ¶¶113, 48, FIG. 2.

4. [1.C] providing a hosted input field for inclusion in a first document associated with a third party;

211. In my opinion, Spindler discloses element [1.C].

212. Spindler's computer 112 "may **inject a hosted field** [(*"a hosted input field"*)] into a document provided by hosting computer 114" "for **inclusion in a webpage associated with a third party** (i.e., that is other than a provider of the communication technique)." EX1006, ¶32. In my opinion, the third-party webpage into which the hosted field is injected is the claimed "*first document associated with a third party.*"

213. Spindler further describes that "the document may be a third-party or client webpage" and that the hosted field is provided "for inclusion in" that document, which is then "provided ... by hosting computer to one of electronic devices 110 (such as electronic device 110-1)" and displayed by "[a]n application (such as a Web browser)" executing on the user's device. EX1006, ¶32, 48.

5. [1.D.1] receiving, information indicating activation of the hosted input field in the first document,

214. In my opinion, Spindler discloses element [1.D.1].

215. Spindler discloses "*receiving, information indicating activation of the hosted input filed in the first document.*" During method 200, Spindler's computer 112 "**receive[s] information (operation 210) specifying activation of a hosted field in a document** associated with a third party or client." EX1006, ¶48

(emphasis added), FIG. 2, step 210; *see also* EX1006, ¶28. “When the user or subscriber customer **activates the hosted field** and provides the telephone number,” electronic device 110-1 may provide “**information specifying activation of the hosted field in the document** and the telephone number to hosting computer 114.” EX1006, ¶33. Further, “hosting computer 114 may provide, via network 116, this information to computer 112.” EX1006, ¶33; *see also* EX1006, ¶¶57-58, FIG. 3.

6. [1.D.2] wherein the information comprises an electronic address associated with an electronic device and an indication of a willingness to receive one or more messages;

216. In my opinion, Spindler discloses element [1.D.2].

217. *First*, Spindler discloses that the “*information comprises an electronic address associated with an electronic device.*” Spindler’s information “specifies a telephone number” (“*electronic address*”) that is “**associated with electronic device 110-1.**” EX1006, ¶¶28, 32.

218. *Second*, Spindler discloses that the information comprises “*an indication of a willingness to receive one or more messages.*” Spindler’s hosted field allows a user “to **indicate a willingness to receive one or more messages** from computer 112.” EX1006, ¶32 (emphasis added); *see also* EX1006, ¶28, 48. In particular, the user “may select a box that indicates ‘yes’ they would like to receive text messages.” EX1006, ¶71.

7. **[1.E] generating, a second document that includes information about one or more events of interest for a user associated with the electronic address, the second document being customized to the user;**

219. In my opinion, Spindler discloses element [1.E].

220. *First*, Spindler discloses “*generating, a second document that includes information about one or more events of interest for a user associated with the electronic address.*” After activation of the hosted field, Spindler’s computer 112 “may dynamically **generate a customized second document** (such as a webpage) **that includes information about one or more** transactions (such as one or more upcoming events) **of interest to the individual** or subscriber customer **associated with the telephone number.**” EX1006, ¶34; *see also* EX1006, ¶¶28, 49, 59, FIG. 2 (step 212). It is my opinion that Spindler’s “upcoming events” of interest to the subscriber associated with the telephone number (the “*electronic address*”) are the claimed “*one or more events of interest for a user associated with the electronic address.*”

221. *Second*, Spindler discloses “*the second document being customized to the user.*” Spindler’s “customized webpage (or website)” (“*the second document*”) “may be created de novo for each subscriber customer or individual” and “may be curated for the given subscriber customer (e.g., based on a specific industry, events, organizer, etc.)” (“*customized to the user*”) EX1006, ¶68. “Moreover, the customized webpage may be updated based on user habits, history, preferences,

information from third-party application programming interfaces (APIs), etc.”

EX1006, ¶68.

8. **[1.F] sending a message to the electronic address, wherein the message comprises a link to the second document, the link being configured to enable the user to access the second document to execute one or more transactions associated with the one or more events; and**

222. Spindler discloses element [1.F].

223. *First*, Spindler discloses “*sending a message to the electronic address, wherein the message comprises a link to the second document.*” After generating the second document, Spindler’s computer 112 “may send a message to an address corresponding to the telephone number, where the message includes a link to the customized second document.” EX1006, ¶34; *see also* EX1006, ¶¶28, 50, 60, FIG. 2 (step 214).

224. *Second*, Spindler discloses “*the link being configured to enable the user to access the second document to execute one or more transactions associated with the one or more events.*” Spindler’s message includes “an actionable item, e.g., a link to purchase tickets or view a customized webpage, such that the subscriber customer can send a command ... to view the customized webpage or purchase tickets.” EX1006, ¶84. When “the individual or subscriber customer activates the link,” the customized second document is displayed on the user’s electronic device. EX1006, ¶¶35-36, 51. The customized second document “may

allow completion of the given transaction in the one or more transactions, such as purchasing one or more tickets to an upcoming event,” and the user may use the document to “exchange information with computer 112 to complete the transaction.” EX1006, ¶37; *see also* EX1006, ¶¶9, 52. Thus, it is my opinion that Spindler’s link enables the user to access the second document to execute transactions (e.g., ticket purchases) associated with the upcoming events (the “*one or more events*”).

9. [1.G.1] in response to determining activation of the link has occurred, causing provision of the second document to the electronic address,

225. In my opinion, the Spindler-Long combination discloses this claim element.

226. As I discuss above, Spindler fails to explicitly disclose “*causing provision of the second document to the electronic address.*” *See above*, Section XI.

227. Long, however, teaches the use of a “custom-rendered deeplink” that, when activated, opens “a mobile messaging application” where “the purchase information [is] pre-populated for the user to initiate a purchase.” EX1013, 3:4-9, 3:28-34, 3:65-4:2. This “pre-populated” purchase information may “include a shopping cart identifier, a product identifier, a product name, a product description,

a price of each product, a total price for the shopping cart, and/or the like.”

EX1013, 3:19-20, 15:28-31.

228. As I explain above, I believe it would have been obvious to a POSA to modify Spindler in view of Long to actually send Spindler’s customized content to a user’s device using Long’s deeplinks, to thereby facilitate transactions, such as the buying of tickets for events as disclosed in Spindler. *See above*, Section XV.A. I believe a POSA would have had a reasonable expectation of success because such a modification would require merely adapting Long’s deeplinks to be used in place of the links sent by text messages in Spindler. *See above*, Section XV.A.

229. It is my opinion that a POSA would have found it obvious to modify Spindler in view of Long to cause provision of the second document to the electronic address in response to determining activation of the link has occurred, as claimed.

10. [1.G.2] wherein the second document is configured to facilitate completion of a given transaction in the one or more transactions.

230. In my opinion, Spindler discloses element [1.G.2].

231. Spindler discloses the customized second document “may allow completion of the given transaction in the one or more transactions, such as purchasing one or more tickets to an upcoming event.” EX1006, ¶¶37, 52.

Accordingly, I believe Spindler discloses this claim element.

- C. Claim 5: wherein the message comprises a Rich Communication Service (RCS) message and the operations further comprise: requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.**

232. In my opinion, the Spindler-Long combination renders obvious claim 5.

233. *First*, Spindler renders obvious that “*the message comprises a Rich Communication Service (RCS) message.*” Spindler discloses text messages. EX1006, ¶34. Spindler also discloses that these text messages can include multiple different protocols, and provides non-limiting examples of SMS, EMS, and MMS. EX1006, ¶¶50, 66. I believe a POSA would have known that other text message protocols also existed and were well known prior to the ’799 patent, including RCS. *See above*, Section VIII.D. Based on Spindler’s disclosure that multiple different text message protocols could be used, it is my opinion that a POSA would have found it obvious to implement the generated third-party message as a well-known RCS message. Additionally, in my opinion, a POSA would have known that there were only a finite number of text message protocols in widespread use at the time of the ’799 patent—RCS being one of them. *See above*, Sections VIII.A, VIII.D. Therefore, it is my opinion that a POSA would have also found it obvious to try the RCS protocol to implement text messages in Spindler’s system.

234. *Second*, it is my opinion that the Spindler-Long combination renders obvious that “*the operations further comprise requesting and receiving authorization data corresponding to an identity of the user.*” Spindler describes that, as part of a user subscribing to the service, “the ADDP may create a ‘hot’ cookie that goes onto the given subscriber customer’s electronic device (e.g., cellular telephone) for future payments.” EX1006, ¶75. Once the cookie is validated, the user may input information “into a 2-factor authentication form (2FA Form) 616 sent via 3P messaging service 618” so that “the identity of the subscriber customer” can be confirmed.” EX1006, ¶93. It is my opinion that Spindler’s hot cookie and 2FA are the “*authorization data corresponding to the identity of the user.*” In addition, as I explain above, mobile device authentication and user identity verification were well known before 2018. *See also above*, Section VIII.E.

235. Moreover, Spindler’s authorization data is sent and received “*before causing provision of the second document to the electronic address.*” As I explain above, I believe it would have been obvious to modify Spindler to use Long’s deeplinks that would link to Spindler’s customized content. *See above*, Section XV.A. Because Spindler’s hot cookie is sent and received at the time of subscription by the user, EX1006, ¶0075, it would be sent and received before the sending of the deeplinks in the Spindler-Long combination.

D. Claim 6: wherein the message is an Enhanced Messaging Service (EMS) message.

236. In my opinion, Spindler discloses that “the message is an Enhanced Messaging Service (EMS) message.”

237. Specifically, Spindler discloses that, “while SMS messaging was used in the preceding discussion, different communication channels may be used in other embodiments, e.g., email, **Enhanced Messaging Service (EMS)**, and/or Multimedia Messaging Service (MMS).” EX1006, ¶66.

E. Claim 8: wherein the link is further configured to: allow users other than the user to access the second document to browse the second document while prohibiting execution of the one or more transactions through the link for the users other than the user.

238. In my opinion, Spindler discloses that “*the link is further configured to: allow users other than the user to access the second document to browse the second document while prohibiting execution of the one or more transactions through the link for the users other than the user.*”

239. Spindler describes, in nearly identical language, that “[i]f the link for the customized second document is shared with a second individual, the second individual may browse content customized for the first individual but will be prohibited from accessing a profile of the first individual and/or executing a transaction unless the second individual subscribes and provides his/her telephone number.” EX1006, ¶68.

240. Thus, I believe Spindler discloses claim 8.

F. Claim 9: wherein the link is further configured with a security layer to provide augmented access or navigation attributes to the user.

241. In my opinion, Spindler discloses that “the link is further configured with a security layer to provide augmented access or navigation attributes to the user.”

242. Spindler’s link is “*configured with a security layer.*” For example, Spindler places “a packet containing UIE and PIN into a subscriber customer verified link 512.” EX1006, ¶91. Following validation of the hot cookie, “an access link is generated 512 and sent through Amplify 530 to a subscriber customer number 534 ... to allow account access 536 to complete a purchase.” EX1006, ¶92.

243. Spindler’s security architecture “*provides augmented access or navigation attributes to the user.*” Spindler’s security layer protects the link against misuse by “address[ing] security flaws in existing approaches (such as SIM-case swapping or fraudulent use of a link),” and “a fraudulent user that does not have the ‘hot’ cookie will not be able to access transaction information in the customized webpage or conduct a transaction when they activate the link.” EX1006, ¶78. Where a link is shared with a second individual, that individual “will be prohibited from ... executing a transaction.” EX1006, ¶68. Thus, a non-fraudulent user having access to their own profile will have augmented access over

that of a fraudulent user or an individual with a shared link. *See also above*,
Section VIII.E.

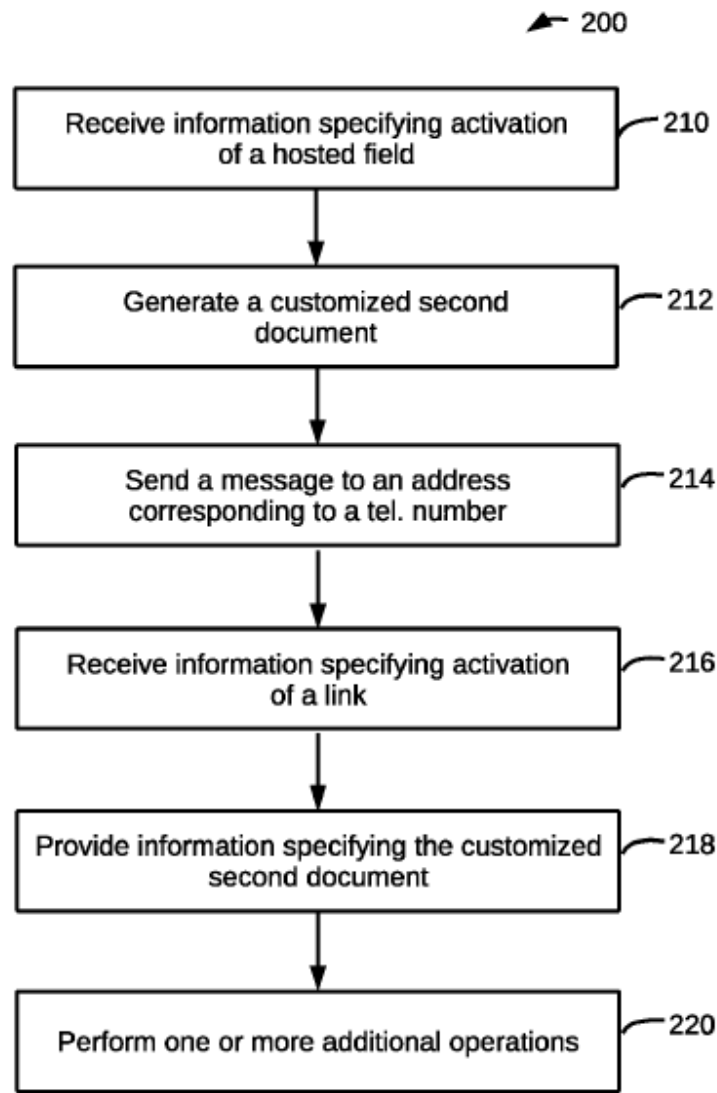
G. Independent Claim 12

244. Independent claim 12 recites a “*computer-implemented method*”
comprising steps that are substantially the same as the operations recited in claim
1.

1. [12.P] A computer-implemented method comprising:

245. In my opinion, Spindler discloses the preamble.

246. Spindler’s “method 200” “may be performed by a computer”
 (“*computer-implemented method*”). EX1006, ¶48, FIG. 2. By performing method
200, Spindler’s cloud-based computer 112 “dynamically generates [the]
customized second document.” EX1006, ¶28.



EX1006, FIG. 2.

2. [12.A]-[12.E.2]

247. Claim elements [12.A]-[12.E.2] correspond to claim elements [1.C]-[1.G.2], respectively. In my opinion, the Spindler-Long combination discloses or renders obvious elements [12.A]-[12.E.2] for the same reasons I explain above regarding claim 1. *See above*, Sections XV.B.4-10.

H. Claims 15-16, 18, and 19

248. Claims 15-16, 18, and 19 are computer-implemented method claims that otherwise recite limitations that are identical to the system steps recited in claims 5-6, 8, and 9. In my opinion, the Spindler-Long combination discloses or renders obvious these claims for the same reasons as I respectively explain for claims 5-6, 8, and 9 above. *See above*, Sections XV.C-XV.F.

I. Independent Claim 22

249. Independent claim 22 recites a “*non-transitory computer-readable storage medium*” storing program instructions that cause a processor to carry out operations substantially the same as those recited in claim 1.

1. **[22.P] A non-transitory computer-readable storage medium for use in conjunction with a processor, the computer readable storage medium storing program instructions that, when executed by the processor, cause the processor to carry out operations comprising:**

250. In my opinion, Spindler discloses the preamble.

251. Spindler discloses “a non-transitory computer-readable storage medium for use in conjunction with a computer, the computer-readable storage medium storing program instructions that, when executed by the computer, cause the computer to carrying out one or more operations,” including the operations of method 200. EX1006, ¶127; *see also* EX1006, ¶¶97-98, 0113.

2. [22.A]-[22.E.2]

252. Claim elements [22.A]-[22.E.2] correspond to claim elements [1.C]-[1.G.2], respectively. In my opinion, the Spindler-Long combination discloses or renders obvious elements [22.A]-[22.E.2] for the same reasons I explain above regarding claim 1. *See above*, Sections XV.B.4-XV.B.10.

J. Claims 25 and 27-28

253. Claims 25 and 27-28 are storage medium claims that otherwise recite limitations that are identical to the system steps recited in claims 5 and 8-9. In my opinion, the Spindler-Long combination discloses or renders obvious these elements for the same reasons as I respectively explain for claims 5 and 8-9 above. *See above*, Sections XV.C, XV.E-XV.F.

XVI. GROUND 2B: THE SPINDLER-LONG-ANDERSON COMBINATION RENDERS OBVIOUS CLAIMS 10, 20, AND 29.

A. Motivation to Combine

254. It is my opinion that a POSA would have been motivated to further modify the Spindler-Long combination in view of Anderson to arrive at claims 10, 20, and 29 of the '799 patent.

255. Spindler, Long, and Anderson are in the same field of endeavor as each other and the problem addressed by the '799 patent. As I discuss above, the '799 patent, Spindler, and Long are each directed towards simplifying e-commerce transactions. *See above*, Section XV.A; EX1001, 1:40-53; EX1006, ¶¶2-3, 9;

EX1013, 2:48-51. Likewise, Anderson is also directed towards techniques that “allow users to easily and quickly authenticate themselves and pay for [e-commerce] goods and/or services.” EX1007, ¶¶28, 12.

256. The Spindler-Long combination does not explicitly disclose applying its techniques to the well-known problem of “*resum[ing] an online user journey associated with the given transaction.*” Nonetheless, such applications had long been known in the art by the December 17, 2024 priority date. *See above*, Section VIII.C. For example, Balasubramanian, which was published in 2011, describes an e-commerce system in which, when users “withdraw from purchase or abandon the checkout prior to payment,” “revenue for the online merchant and the payment service provider” is lost. EX1005, ¶6. For this reason, Balasubramanian teaches the use of notifications that may be sent to a user regarding an incomplete or abandoned purchase transaction and that allow the user to return to, access, and complete the transaction. EX1005, ¶¶9, 42, 45, 47, 55, 72, 74, 75. Thus, a POSA would have looked to the prior art for guidance as to specific techniques for the teachings of Spindler-Long to such prior transactions. Anderson is such a reference.

257. Like Spindler, Anderson, which published well before Spindler, recognizes that a cumbersome user experience may frustrate users and prevent users from completing an online transaction. EX1007, ¶¶6, 125. Anderson, like

Spindler, attempts to “increase[] the ease and efficiency of commerce payment” for online consumers. EX1007, ¶11. In my opinion, a POSA reading Spindler, thus, would have been aware that not only may consumers feel restricted by and/or unwilling to suffer a cumbersome user experience, as taught by Spindler, but that such an experience may cause some consumers to completely abandon their transactions, as explicitly taught by Anderson. Accordingly, I believe a POSA reviewing Spindler would have also been aware of Anderson’s concerns regarding abandoned transactions.

258. Anderson’s approach to solving the problem of abandoned transactions is similar to Spindler’s computer system. In particular, Anderson’s approach centers on an application in which a user selects items to be placed into a “virtual shopping cart.” EX1007, ¶113. If the shopping cart is abandoned, Anderson’s application may “send a purchase message to the user,” for example “via text message,” that may “include a selectable buy option ... that allows the user to complete the abandoned transaction.” EX1007, ¶127. When the user receives the message and selects the link, the user is directed back to the earlier “virtual cart user interface,” thereby “provid[ing] the user with another opportunity to complete the purchase of the items in the cart.” EX1007, ¶¶126, 128.

259. It is my opinion that a POSA would have been motivated to further modify the Spindler-Long combination in view of Anderson for the predictable

result of customizing and sending transaction information to a user based on past transactions, such as an abandoned virtual shopping cart. In the Spindler-Long-Anderson combination, Spindler's text messages would be sent not only in response to *future* possible transactions of interest (e.g., upcoming events), but also in response to *past* possible transactions (e.g., an abandoned shopping cart).

260. I also believe a POSA would have had a reasonable expectation of success in modifying the Spindler-Long combination further in view of Anderson because the modification would have involved only the routine application of a known content generation and messaging scheme (e.g., Spindler's text message with a link to complete a transaction) to the specific, well-known application of recapturing an abandoned virtual shopping cart, as taught by Anderson. EX1007, ¶125. *See also above*, Section VIII.C. Anderson describes sending similar messages, including customized content, to a user in a specific application (e.g., an abandoned shopping cart) using the same means as those described by Spindler (e.g., text message). I believe a POSA would have understood that Spindler's customized second document and text messages could readily be generated in the case of an abandoned virtual shopping cart, as explicitly taught by Anderson.

261. It is my opinion that a POSA would have understood that Anderson's application would have provided a user with "another opportunity to complete the purchase of the items" in an abandoned shopping cart and provided merchants an

opportunity to recapture abandoned transactions. EX1007, ¶127. I believe a POSA would have also understood that these benefits could be realized in the Spindler-Long combination simply by extending Spindler's technique to also generate and send customized content in the case of recognizing an abandoned virtual shopping cart.

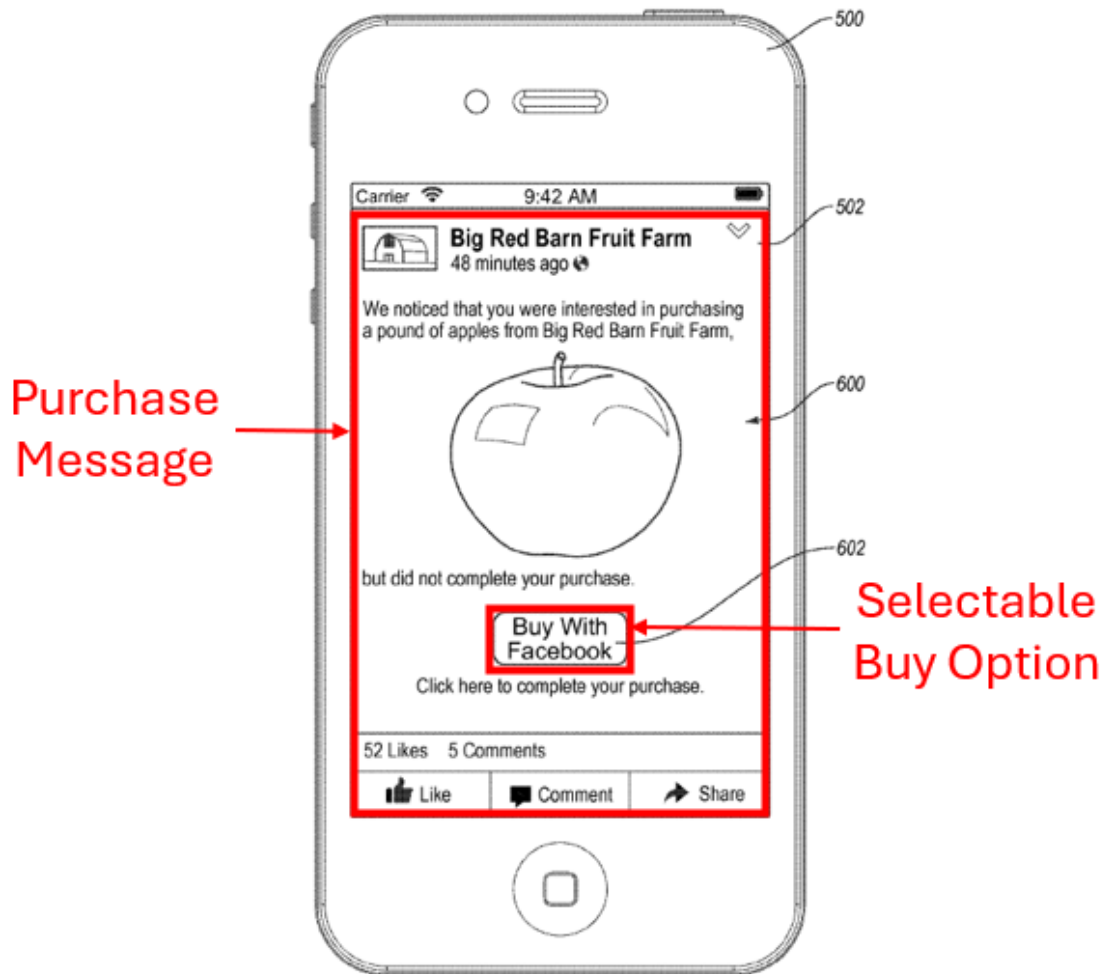
262. In my opinion, a POSA would have found it obvious to modify the Spindler-Long combination further in view of Anderson to arrive at claims 10, 20, and 29.

B. Claim 10: wherein the link is further configured to enable the user to resume an online user journey associated with the given transaction.

263. In my opinion, The Spindler-Long-Anderson combination discloses this claim element.

264. Anderson describes a network application that “provide[s] for recapturing of abandoned carts.” EX1007, ¶125. When a user adds items to a virtual shopping cart but fails to complete the transaction (“*an online user journey associated with the given transaction*”), Anderson's application “can store the detailed information in the transaction database 232 as an un-completed transaction.” EX1007, ¶126. If the user does not complete the transaction, the application “can provide the user with another opportunity to complete the purchase of the items in the cart” by “send[ing] a purchase message to the user.”

EX1007, ¶¶126-127. The message may “include details of items in the cart that was abandoned (name of items, price of items, etc.)” as well as “a selectable buy option ... that allows the user to complete the abandoned transaction.” EX1007, ¶127, FIG. 6.



EX1007, FIG. 6 (annotated).

265. Activating the selectable buy option may return the user to the earlier virtual shopping cart (second user interface 508). EX1007, ¶¶128, 113, FIG. 5B.

266. Anderson's selectable buy option allows the user to complete the purchase of items previously added to the virtual cart ("*enable[ing] the user to resume [the] online journey*"). EX1007, ¶¶127-128. Anderson's act of online shopping by selecting items to form the virtual shopping corresponds to the claimed "*online user journey*," which is described in the '799 patent as "shopping, browsing, form filling, searching, or the like," and therefore the selectable buy option ("*the at least one actionable item*") also is "*associated with an online user journey*." EX1001, 38:12-16.

267. I believe a POSA would have found it obvious to modify the Spindler-Long combination further in view of Anderson to send Spindler's messages in the case of an abandoned shopping cart, as taught by Anderson. *See above*, Section XVI.A. In the combination, in response to determining that a virtual shopping cart has been abandoned as taught by Anderson, the Spindler-Long computer would generate a customized second document (e.g., a "*second document*") listing the items in the abandoned shopping cart and then send a message to the user with a link to the customized second document. The customized second document would allow the user to "*resume an online user journey associated with the given transaction*" by completing the transaction. *See above*, Section XVI.A.

C. Claims 20 and 29

268. Claims 20 and 29 are computer-implemented method and storage medium claims, respectively, that otherwise recite limitations identical to the system steps recited in claim 10. In my opinion, the Spindler-Long-Anderson combination renders obvious these claims for the same reasons as I explain for claim 10. *See above*, Section XVI.B.

XVII. GROUND 2C: THE SPINDLER-LONG-WANG-BOGINENI COMBINATION RENDERS OBVIOUS CLAIMS 2-5, 7, 11, 13-15, 17, 21, 23-26, AND 30.

A. Motivation to Combine

269. It is my opinion that a POSA would have been motivated to further modify the Spindler-Long combination in view of Wang to use machine learning classification, scheduling, and delivery recited by the claims of the '799 patent.

270. Spindler, Long, and Wang are in the same field of endeavor as each other and the problem addressed by the '799 patent. Like Spindler, Long, and the '799 patent, Wang is directed towards “[o]n-line message distribution/publishing” in the context of e-commerce. EX1014, ¶12.

271. The Spindler-Long combination teaches a technique for dynamically generating customized content and sending the content to a user’s mobile device using deeplinks. *See above*, Section XV.A. The technique of the Spindler-Long combination improves the user experience and simplifies e-commerce transactions. *See above*, Section XV.A. The Spindler-Long combination does not disclose the

use of machine learning to classify, schedule, and deliver text messages.

Nonetheless, the use of machine learning to schedule and deliver marketing messages for e-commerce was well-known in the art prior to the December 17, 2024, priority date. *See above*, Section VIII.G. For example, it was known that using machine learning techniques provided many benefits, including more relevant content for subscribers, better targeting of potential transactions to subscribers, and improved engagement and reaction rates. *See* EX1014, ¶¶46-48 (relevancy threshold), 40-43 (targeting relevant user group), 53 (adjusting relevancy levels). Thus, I believe a POSA would have been motivated to incorporate such well-known machine learning techniques into the Spindler-Long combination, and would have looked to the prior art for guidance as to specific techniques for the use of machine learning to schedule and deliver promotional messages. Wang is such a reference.

272. Wang describes that “[m]essage distribution platforms may strive to improve the experience of clients and users involved in the message distributions through the platform.” EX1014, ¶13. To this end, Wang describes “[t]echniques for machine learning a message distribution platform.” EX1014, ¶14. Wang’s platform may be “provided with various data regarding a user relevant to on-line shopping activities,” such as “details of a user’s on-line shopping activities,” “geo-targeting information,” “social media activities,” “group shopping,” etc. EX1014, ¶17. This

information may then be used to determine “a relevancy level between a user and an advertisement content.” EX1014, ¶48. Users may be grouped together and scheduled to receive delivery of one or more advertisements based on the relevancy level. EX1014, ¶¶39, 41. In addition, “adjusting unit 114 may determine an adjusted grouping criterion to form a new target user group,” and the “relevancy score threshold of each advertisement item” may be “dynamically adjust[.]” EX1014, ¶¶55, 59.

273. In my opinion, a POSA would have been motivated to further modify the Spindler-Long combination in view of Wang for the predictable result of an e-commerce technique that better optimizes advertising messages sent to users. *See* EX1014, ¶13. Wang is directed towards providing advertising messages to users of mobile devices. EX1014, ¶77. Spindler is directed towards providing event information to subscribers via a mobile device. EX1006, ¶¶11, 30. Thus, I believe a POSA would have realized that the event information of Spindler could be scheduled and delivered using a machine learning algorithm, such as the one disclosed by Wang, to thereby optimize the messages sent to the subscribers in the system of the Spindler-Long combination.

274. I further believe a POSA would have had a reasonable expectation of success in modifying the Spindler-Long combination further in view of Wang because the modification would have involved only the application of Wang’s use

of machine learning, and its scheduling and distribution scheme to the subscription-based system described by Spindler. Here, Wang specifically describes that such machine learning and scheduling and distribution are applicable to users of, for example, a “Mobile Computing Device 210-3” such as, for example, “a mobile phone.” EX1014, ¶¶49, 77.

275. In the Spindler-Long-Wang combination, I believe a POSA would have been motivated to deliver the Spindler-Long text messages by using Wang’s techniques of determining “a relevancy level between a user and an advertisement content based at least in part on the historical shopping data and/or contextual information of a user,” determining “a target group of users to deliver the advertisement item,” and, based on the target group determination, to determining “a specific display slot to deliver the advertisement item to [the] target user group.” EX1014, ¶¶41-42, 48. I believe a POSA would have understood that the use of such grouping, scheduling, and delivery of the text messages in the subscription service system of Spindler-Long would “improve the experience of clients and users involved in the message distributions through the platform.” EX1014, ¶13.

276. In addition, the claims of the ’799 patent also recite limitations related to an RCS message. Such RCS messages would have been obvious over Spindler’s disclosure of text messages that can include multiple different protocols and non-limiting examples of SMS, EMS, and MMS. EX1006, ¶¶48, 50, 66. In my opinion,

a POSA would have known that other text message protocols also existed and were well known prior to the '799 patent, including RCS. *See above*, Sections VIII.A, VIII.D. Thus, I believe a POSA would have found it obvious to implement the generated third-party message as a well-known RCS message.

277. Nonetheless, to the extent Patent Owner argues that Spindler does not explicitly teach RCS messages, Bogineni does. In my opinion, a POSA would have been motivated to modify the Spindler-Long-Wang combination further in view of Bogineni to include RCS messages.

278. To start, Bogineni is in the same field of mobile device communication as the '799 patent, Spindler, Long, and Wang. *Compare* EX1009, 1:6-7, 1:47-2:22, *with* EX1001, Abstract, 5:46-48; EX1006, ¶30; EX1013, 2:48-51; EX1014, ¶¶14-15.

279. In the Spindler-Long-Wang combination, the text messages sent to a user “may include [an SMS] message (which is sometimes referred to as a ‘text message’).” EX1006, ¶34. However, Spindler does not discuss any details about how these messages would be implemented. Thus, a POSA would have looked to the prior art for guidance as to specific text message types that could be used in Spindler’s system.

280. One well-known technique for sending messages to a mobile device like Spindler’s electronic device is via RCS messages, as taught by Bogineni. *See*

also above, Section VIII.D. Bogineni teaches that “RCS provides a text-message system similar to [SMS] messages.” EX1009, 1:7-9. However, Bogineni explains that “RCS is capable of providing services that SMS cannot provide, such as phonebook polling for service discovery, transmitting in-call multimedia, and/or the like.” EX1009, 1:9-12. I believe a POSA would have been motivated to implement RCS messages as the specific text message type used for the text message of the Spindler-Long-Wang combination in order to provide the additional functionality available with RCS messages.

281. I also believe a POSA would have had a reasonable expectation of success in further modifying the Spindler-Long-Wang combination in view of Bogineni. Bogineni explains that its RCS messaging can be supported by Internet protocol (IP) multimedia subsystem (IMS)-based RCS messaging or non-IMS RCS messaging supported by application programming interfaces (APIs) on the device or by hypertext transfer protocol (HTTP) communications. EX1009, 1:47-2:4. Spindler’s system can support both options. Spindler’s system includes at least a mobile communication network and a wireless network that supports the internet. EX1006, ¶¶30-31. I also believe a POSA would have understood that Spindler’s “internet” would support the IMS and, therefore, support the IMS-based RCS messaging. Because the network can be the Internet, a POSA would understand that the network also supports HTTP communications that enable the alternative,

non-IMS RCS messaging. Finally, because Spindler’s electronic devices, hosting computer, and cloud-based computer can be implemented as computer systems, I believe a POSA would have understood they are readily available to install APIs and thus support non-IMS RCS messaging via the APIs. EX1006, ¶31. Spindler even explicitly relies, to at least some extent, on the use of such APIs for implementation. EX1006, ¶80. In my opinion, a POSA would therefore not have experienced any unreasonable technical hurdles in implementing these modifications.

282. It is my opinion that such a combination would merely amount to combining prior art elements according to known methods to yield the predictable (yet improved) result of sending a text message having the additional functionality available with RCS messages, such as “phonebook polling for service discovery, transmitting in-call multimedia, and/or the like.” EX1009, 1:9-12.

B. Claim 2: wherein the message comprises a Rich Communication Services (RCS) message provided to the electronic address according to a schedule generated based at least in part on a determined classification of the user.

283. In my opinion, the Spindler-Long-Wang-Bogineni combination renders obvious claim 2.

284. *First*, the Spindler-Long-Wang-Bogineni combination teaches that “*the message comprises a Rich Communication Services (RCS) message.*” As I discuss above, the use of RCS messages is an obvious implementation of the text

messaging protocols disclosed by Spindler. *See above*, Sections VIII.D, XV.C, XVII.A. To the extent Patent Owner argues the Spindler-Long combination does not explicitly teach an RCS message, the further combination with Bogineni does. In the combination, Spindler’s “message” to the subscriber’s electronic device (“*the message*” comprising “*a link to the second document*”) is specifically transmitted as “*an RCS message*,” as taught by Bogineni, to provide the additional functionality RCS messages provide. When Spindler’s message is sent as an RCS message, it can similarly include the deeplinks taught by Long.

285. *Second*, the Spindler-Long-Wang-Bogineni combination renders obvious that the message is “*provided to the electronic address according to a schedule*.” Wang describes a technique for using machine learning in a message distribution system in which a message is scheduled for delivery “to users of a user group.” EX1014, Title, Abstract, ¶50. Wang’s “delivery manner may include a time frame and a display slot for delivering the advertisement item to a user.” EX1014, Title, Abstract, ¶50. A “load balancing unit 112 causes the advertisement to be delivered to users of the target user group through relevant application(s) based on the received delivery schedule.” EX1014, ¶51. Wang further describes that the “advertisement item” may be a message delivered to a user’s “Mobile Computing Device 210-3.” EX1014, ¶49. In the Spindler-Long-Wang-Bogineni combination, the RCS text messages of Spindler-Long-Bogineni would be

delivered to the user's mobile computing device (e.g., a smart phone) according to a predetermined schedule, as taught by Wang. *See also above*, Section VIII.G.

286. *Third*, the Spindler-Long-Wang-Bogineni combination renders obvious that the schedule is “*generated based at least in part on a determined classification of the user.*” Wang further describes that the scheduling of messages may be to “a target group of users” that is “determine[d] based on a grouping criterion.” EX1014, ¶41. Wang’s “grouping criterion” “may include a threshold on a relevancy level or a relevancy score of a user to a content of the advertisement item.” EX1014, ¶41. Such a relevancy level may be based, for example, on a user’s “historical shopping information.” EX1014, ¶66. Thus, Wang teaches a machine learning system that determines classifications of users and, based on that classification, generates a delivery schedule for advertisement messages. In addition, as I explain above, scheduling of messages based on classification by machine learning models was well known before 2018. *See above*, Sections VIII.F-VIII.G.

287. As I discuss above, I believe it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni. *See above*, Section XVII.A. The resulting combination would be the scheduling and delivery of Spindler’s messages by classifying users into various groups based on relevancy levels between each user and the advertisement, as taught by Wang. Further, each

message could be implemented as an RCS message, as taught by Bogineni.

Accordingly, in my opinion, it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 2.

C. Claim 3: wherein the classification of the user comprises criteria corresponding to an application, a website, or a service associated with the electronic address.

288. In my opinion, the Spindler-Long-Wang-Bogineni combination renders obvious claim 3.

289. Wang teaches that “*the classification of the user comprises criteria corresponding to an application, a website, or a service associated with the electronic address.*” Wang’s “[h]istorical behavior determination unit 142 may collect information regarding the user’s past shopping behavior/experience” to “determine the user’s preferences with respect to on-line [*sic*] shopping, e.g., product preference, brand preference, shipping/payment preference, average amount of money to spend monthly/quarterly, etc.” EX1014, ¶63. Wang’s “past shopping behavior” that relates to a user’s preferences for “on-line shopping” is “*criteria corresponding to ... a website.*” And, since the preferences are specific to the user, they would be “*associated with the electronic address*” that is a telephone number of the user. EX1014, ¶63. *See also above*, Section VIII.F.

290. For the reasons I discuss above, I believe it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 3. *See above*, Section XVII.A.

D. Claim 4: wherein the classification of the user indicates whether the user is: a message recipient that has selected a link provided by the system to the electronic address and completed at least one prior transaction; a message recipient that has selected a link provided by the system to the electronic address, but has not completed a transaction; or a message recipient that has not selected a link provided by the system to the electronic address.

291. The Spindler-Long-Wang-Bogineni combination renders obvious claim 4.

292. As I explain above, Wang’s historical behavior determination unit “collect[s] information regarding the user’s past shopping behavior/experience.” EX1014, ¶63. In addition, Wang describes a “performance monitoring unit 124” that “may monitor a total amount of user reactions to the advertisement item” such as “monitor[ing] user actuations on a delivered advertisement item, e.g., a click” (*“a message recipient that has selected a link provided by the system to the electronic address, but has not completed a transaction”*). EX1014, ¶53. Other user reactions, such as “user enquiries in relation to the advertisement content” and “the actual number of purchases of the advertised product” (*“a message recipient that has selected a link provided by the system to the electronic address and completed at least one prior transaction”*) may also be recorded as user reactions.

EX1014, ¶30. Based on such user reactions, Wang’s “adjusting unit 114” may “adjust[] a grouping criterion and/or a delivery manner” to, for example, form “a new target group of users” (*“the classification of the user”*) by changing “the relevancy threshold to include more users into the new target user group.”

EX1014, ¶¶54-55. Thus, Wang teaches monitoring views, clicks, and purchases of an advertisement item to determine an updated classification scheme for users. *See also above*, Section VIII.F.

293. In view of the above, Wang discloses, or at least renders obvious, that *“the classification of the user indicates whether the user is: a message recipient that has selected a link provided by the system to the electronic address and completed at least one prior transaction, a message recipient that has selected a link provided by the system to the electronic address, but has not completed a transaction; or a message recipient that has not selected a link provided by the system to the electronic address.”*

294. For the reasons I discuss above, it is my opinion that it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 4. *See above*, Section XVII.A.

- E. Claim 5: wherein the message comprises a Rich Communication Service (RCS) message and the operations further comprise: requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.**

295. In my opinion, the Spindler-Long-Wang-Bogineni combination renders obvious claim 5.

296. *First*, the Spindler-Long-Wang-Bogineni combination renders obvious that “*the message comprises a Rich Communication Services (RCS) message.*” As I discuss above, the use of RCS messages is an obvious implementation of the text messaging protocols disclosed by Spindler and is explicitly taught by the combination with Bogineni. *See above*, Sections VIII.D, XV.C, XVII.A.

297. *Second*, for the reasons I explain above in Ground 2A, the Spindler-Long-Wang-Bogineni combination renders obvious that “*the operations further comprise: requesting and receiving authorization data corresponding to an identity of the user before causing provision of the second document to the electronic address.*” *See above*, Section XV.C. In particular, Spindler describes the use of cookies and 2FA (“*authorization data corresponding to the identity of the user*”) that are added as part of the subscription process and thus are received before Spindler sends the link to the second customized document (“*before causing*

provision of the second document to the electronic address”). See above, Sections VIII.E, XV.C.

298. For the reasons I discuss above, I believe it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 5. *See above, Section XVII.A.*

F. Claim 7: wherein the message comprises content including send and receive indicators provided in a user interface of a mobile computing device associated with the electronic address, the indicators depicting real time typing between a message provider and the mobile computing device or between another computing device and the mobile computing device.

299. In my opinion, the Spindler-Long-Wang-Bogineni combination renders obvious claim 7.

300. The Spindler-Long-Wang-Bogineni combination renders obvious the use of RCS messages. As I explain above in Ground 1B (Section XIII.E), Bogineni teaches RCS messages including “*send and receive indicators provided in a user interface of a mobile computing device,*” and a POSA would have understood that Bogineni’s indicators “*depict[] real time typing between a message provider and the mobile computing device or between another computing device and the mobile computing device,*” because this is part of the RCS standard. In particular, “RCS Universal Profile Service Definition Document, Version 1.0” (EX1032), published November 16, 2016, mandates, as standard elements, the use of indicators that inform a user of “real time typing.” For example, standard element US5-7 explains

that “[a]s a user, I want to see when the other party is currently writing a message”, and standard element R5-7-1 instructs that “[t]he other party shall be able to see an ‘is typing’ notification whenever the creator of a message is typing”. EX1032, 47. Because the RCS Universal Profile Definition mandates these functions, it is my opinion that a POSA would have understood that they would be included in the RCS functionality of Bogineni.. Further, because the Spindler-Long-Wang-Bogineni combination implements Spindler’s text messages as RCS messages, the combination renders obvious claim 7.

301. For the reasons I discuss above, it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 7. *See above*, Section XVII.A.

G. Claim 11: wherein the second document comprises user-targeted content based on one or more prior engagement characteristics associated with the electronic address, wherein the prior engagement characteristics are determined using machine learning.

302. In my opinion, the Spindler-Long-Wang-Bogineni combination renders obvious claim 11.

303. *First*, Spindler discloses that the customized second document “includes information about one or more transactions (such as one or more upcoming events) of interest to the individual.” EX1006, ¶34. In fact, Spindler’s “customized document is tailored, at a particular time, to the specific interests of

the individual or subscriber customer” to be “more relevant to the individual or subscriber customer and immediately actionable.” EX1006, ¶40. Thus, Spindler’s customized second document comprises “*user-targeted content*.”

304. In addition, the content in Spindler’s customized second document is “*based on one or more prior engagement characteristics associated with the electronic address*.” Spindler’s customized second document is generated based on a user’s indication of “a willingness to receive one or more messages from computer 112” and a specification of “a telephone number associated with electronic device 110-1.” EX1006, ¶32. Spindler also describes that “the one or more transactions of interest to the individual or subscriber customer may be associated with an entity” and “the individual or subscriber may have a subscription with the entity or client.” EX1006, ¶38. Spindler’s willingness to receive messages, specification of a telephone number, and previous subscription with an entity are “*on one or more prior engagement characteristics associated with the electronic address*.”

305. *Second*, in the Spindler-Long-Wang-Bogineni combination, I believe a POSA would have found it obvious to modify Spindler’s customized second document so that “*the prior engagement characteristics are determined using machine learning*.” Wang teaches using machine learning to classify a user according to the “user’s past shopping behavior/experience.” EX1014, ¶63. Wang

describes adjusting relevance scores, regrouping users, and adjusting “the delivery manner/display slots” based on “*prior engagement characteristics*” such as clicks, purchases, and views. EX1014, ¶¶31, 34, 53-55. This allows for “dynamically adjust[ing] the target user group and/or delivery manners to potentially increase or decrease the exposure of the advertisement.” EX1014, ¶35. *See also above*, Section VIII.G. Thus, it would have been obvious to a POSA to adjust the customized second document of Spindler, which is “tailored” to an individual user’s interests, EX1006, ¶40, by using machine learning to adjust the user classification and scheduling based on clicks, purchases, and views, as taught by Wang. Such a combination would result in a “*second customized document*” that is even more relevant to the user’s actual interests, as measured based on the user’s reactions. And I believe a POSA would have had a reasonable expectation of success in modifying Spindler’s second customized document in view of Wang because such modification would require only, for example, monitoring a user’s clicking on the links already supplied in Spindler’s text messages.

306. Accordingly, it is my opinion that it would have been obvious to modify the Spindler-Long combination further in view of Wang and Bogineni to arrive at claim 11. *See above*, Section XVII.A.

H. Claims 13-15, 17, 21, 23-26, and 30

307. Claims 13-15, 17, 21, 23-26, and 30 are computer-implemented

method and storage medium claims that otherwise recite limitations identical to the system steps recited in claims 2-3, 5, 7, and 11. In my opinion, the Spindler-Long-Wang-Bogineni combination discloses or renders obvious these claims for the same reasons as I respectively explain for claims 2-3, 5, 7, and 11 above. *See above*, Sections XVII.B-XVII.C, XVII.E-XVII.G.

XVIII. CONCLUSION

308. In signing this declaration, I recognize that the declaration will be filed as evidence in an *inter partes* review before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination within the United States during the time allotted.

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

Executed on this 17th day of September 2026, in London, United Kingdom.

/Bernard J. Jansen/

Bernard J. Jansen, Ph.D.