

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SALESFORCE, INC.,
Petitioner

v.

IQX CORP.,
Patent Owner

Case IPR2026-00478
U.S. Patent No. 12,438,978

**DECLARATION OF BERNARD J. JANSEN, PH.D.,
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 12,438,978**

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Salesforce EX1003
Salesforce, Inc. v. IQX Corp.
IPR2026-00478

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MY BACKGROUND AND QUALIFICATIONS	2
III.	SUMMARY OF OPINIONS.....	8
IV.	LIST OF DOCUMENTS CONSIDERED	9
V.	LEGAL UNDERSTANDING	11
A.	My Understanding of Claim Construction.....	11
B.	My Understanding of Obviousness	12
C.	A Person of Ordinary Skill in the Art	14
VI.	PERSON OF ORDINARY SKILL IN THE ART	15
VII.	CLAIM CONSTRUCTION	16
VIII.	STATE OF THE ART	17
A.	Mobile messaging and digital content delivery systems were well known before 2018.....	17
B.	Interactive messages containing selectable actions and links were well known before 2018.....	19
C.	Recovery of abandoned online transactions and shopping carts was well known before 2018.....	21
D.	Rich Communication Services messaging was known before 2018.....	22
E.	Mobile-device authentication and identity verification were well known before 2018.....	23
F.	Subscriber classification, profiling, and segmentation were well known before 2018.....	25
G.	Automated and model-based communication optimization and scheduling were known before 2018.....	27
IX.	SUMMARY OF THE '978 PATENT	31
A.	Overview	31
B.	Prosecution History	36
X.	OVERVIEW OF THE PRIOR ART	37

A.	Balasubramanian	37
B.	Woodward	39
C.	Bogineni	40
D.	Spindler.....	41
E.	Anderson	44
XI.	THE CLAIMED FEATURES LACK WRITTEN DESCRIPTION SUPPORT IN THE EARLIER-FILED APPLICATIONS FORMING THE CONTINUITY OF THE '978 PATENT.	46
XII.	GROUND 1A: CLAIMS 1, 2, 5-10, 13-18, and 21-24 WOULD HAVE BEEN OBVIOUS IN VIEW OF BALASUBRAMANIAN.	48
A.	Independent claim 1	49
1.	[1.P] A computer-implemented method comprising	49
2.	[1.A] configuring an authorized recipient associated with a telephone number, to be subscribed to receive additional content at the telephone number, in response to determining that the authorized recipient has previously provided authentication information;.....	49
3.	[1.B.1] activating one or more customized webpages or applications including at least one customized actionable item for performing online actions	53
4.	[1.B.2] the activating comprising generation of secure access information for performing the online actions	57
5.	[1.B.3] wherein the at least one customized actionable item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey	58
6.	[1.C] generating, for the authorized recipient, a third party message associated with the one or more customized webpages or applications, the third party message including the at least one customized actionable item; and	59
7.	[1.D.1] causing transmission of the generated third party message to the authorized recipient, [1.D.2] wherein the generated third party message facilitates, for the authorized recipient, completion of the online user journey	

- by providing access to an access point corresponding to the prior online actions or intent marker..... 61
- B. Claim 2: The computer-implemented method of claim 1, wherein the at least one customized actionable item comprises a secure link, corresponding to an identity of the authorized recipient, to resume the online user journey at the access point and one or more prompts to complete the online user journey.....62
- C. Claim 5: The computer-implemented method of claim 1, wherein: the online user journey comprises online shopping associated with at least one of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, and an abandoned online wish list associated with the prior online actions or intent marker. 64
- D. Claim 6: The computer-implemented method of claim 1, wherein: the online user journey comprises online browsing associated with at least one of: an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the or intent marker online actions, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker. 65
- E. Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.....66

F.	Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.	68
G.	Independent Claim 9	68
1.	[9.P] A system comprising:.....	68
2.	[9.A] a processor; and	69
3.	[9.B] memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations comprising:.....	70
4.	[9.C.1] – [9.F.2]	71
H.	Claims 10, 13-16	72
I.	Independent Claim 17	72
1.	[17.P] 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 carry out one or more operations comprising:.....	72
2.	[17.A] – [17.D.2].....	73
3.	Claims 18, 19-24	73
XIII.	GROUND 1B: CLAIMS 3, 4, 11, 12, 19, 20 WOULD HAVE BEEN OBVIOUS OVER BALASUBRAMANIAN AND WOODWARD.	74
A.	Obviousness Rationale	74
B.	Claim 3: The computer-implemented method of claim 2, wherein selection of the secure link, on a computing device displaying the secure link, triggers a silent network authentication protocol to confirm the identity of the authorized recipient.	78
C.	Claim 4: The computer-implemented method of claim 3, wherein the silent network authentication protocol is performed by a third party associated with the generated third party message, and accessed through a mobile device carrier.....	80
D.	Claims 11, 12, 19, and 20.....	81

XIV. GROUND 1C: CLAIMS 7, 8, 15, 16, 23, AND 24 WOULD HAVE BEEN OBVIOUS OVER THE BALASUBRAMANIAN-BOGINENI COMBINATION.....	81
A. Obviousness Rationale	81
B. Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.....	84
C. Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.	86
D. Claims 15, 16, 23, and 24.....	87
XV. GROUND 2A: CLAIMS 1-2, 5-10, 13-18, and 21-24 WOULD HAVE BEEN OBVIOUS IN VIEW OF SPINDLER AND ANDERSON.	87
A. Obviousness Rationale	87
B. Independent claim 1	92
1. [1.P] A computer-implemented method comprising:	92
2. [1.A] configuring an authorized recipient associated with a telephone number, to be subscribed to receive additional content at the telephone number, in response to determining that the authorized recipient has previously provided authentication information;.....	93
3. [1.B.1] activating one or more customized webpages or applications including at least one customized actionable item for performing online actions;	95

4.	[1.B.2] the activating comprising generation of secure access information for performing the online actions	97
5.	[1.B.3] wherein the at least one customized actionable item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey	98
6.	[1.C] generating, for the authorized recipient, a third party message associated with the one or more customized webpages or applications, the third party message including the at least one customized actionable item; and [1.D.1] causing transmission of the generated third party message to the authorized recipient, ...	101
7.	[1.D.2] wherein the generated third party message facilitates, for the authorized recipient, completion of the online user journey by providing access to an access point corresponding to the prior online actions or intent marker....	102
C.	Claim 2: The computer-implemented method of claim 1, wherein the at least one customized actionable item comprises a secure link, corresponding to an identity of the authorized recipient, to resume the online user journey at the access point and one or more prompts to complete the online user journey.....	103
D.	Claims 5 and 6	104
E.	Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.....	106

F.	Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.	107
G.	Independent Claim 9	108
1.	[9.P] A system comprising:.....	109
2.	[9.A] a processor; and	109
3.	[9.B] memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations comprising:.....	110
4.	[9.C]–[9.F.2]	111
H.	Claims 10 and 13-16.....	111
I.	Independent Claim 17	112
1.	[17.P] 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 carry out one or more operations comprising:.....	112
2.	[17.A]–[17.D.2].....	112
J.	Claims 18 and 21-24.....	112
XVI.	GROUND 2B: CLAIMS 3-4, 11-12, AND 19-20 WOULD HAVE BEEN OBVIOUS OVER THE SPINDLER-ANDERSON-WOODWARD COMBINATION.	113
A.	Motivation to Combine	113
B.	Claim 3: The computer-implemented method of claim 2, wherein selection of the secure link, on a computing device displaying the secure link, triggers a silent network authentication protocol to confirm the identity of the authorized recipient.	116
C.	Claim 4: The computer-implemented method of claim 3, wherein the silent network authentication protocol is performed by a third party associated with the generated third party message, and accessed through a mobile device carrier.....	117

D.	Claims 11-12, 19-20	119
XVII.	GROUND 2C: CLAIMS 7-8, 15-16, AND 23-24 WOULD HAVE BEEN OBVIOUS OVER THE SPINDLER-ANDERSON-BOGINENI COMBINATION.....	119
A.	Motivation to Combine	119
B.	Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.....	122
C.	Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.	123
D.	Claims 15-16, 23-24	124
XVIII.	CONCLUSION	125

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. 12,438,978 (“the ’978 patent”) (EX1001), which resulted from U.S. Patent Application No. 19/192,732 (“the ’732 application”), filed on April 29, 2025. I understand that the ’978 patent alleges a priority date of September 27, 2018. I also understand that the ’978 patent may only be entitled to a priority date of September 25, 2024. Although my analysis would not change based on either date, in preparing this Declaration, I have reviewed the ’978 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 e-commerce, 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

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>

professor at the College of Science and Engineering, Hamad Bin Khalifa 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 user experience, search 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 Master's 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 '978 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 1-24 of the '978 patent would have been obvious to a POSA prior to September 27, 2018, let alone by September 25, 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, 2, 5-10, 13-18, 21-24	Balasubramanian
1B	§103	3, 4, 11, 12, 19, 20	Balasubramanian, Woodward
1C	§103	7, 8, 15, 16, 23, 24	Balasubramanian, Bogineni
2A	§103	1-2, 5-10, 13-18, 21-24	Spindler, Anderson
2B	§103	3, 4, 11, 12, 19, 20	Spindler, Anderson, Woodward
2C	§103	7, 8, 15, 16, 23, 24	Spindler, Anderson, Bogineni

18. I have been asked to consider how a POSA would have understood the challenged claims in light of the disclosures of the '978 patent. I have also been

asked to consider how a POSA would have understood the prior-art references

Balasubramanian, Woodward, Bogineni, 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 1-24 of the '978 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. 12,438,978 to Spindler et al., issued October 7, 2025 (“the '978 patent”)
1002	File History of U.S. Patent No. 12,438,978 (“’978 Patent File History”)
1005	U.S. Patent Publication No. 2011/0178897 A1 to Balasubramanian et al. (“Balasubramanian”)
1006	U.S. Patent Publication No. 2022/0006895 A1 to Spindler et al. (“Spindler”)
1007	U.S. Patent Publication No. 2015/0052061 A1 to Anderson et al. (“Anderson”)

Exhibit No.	Description
1008	U.S. Patent Publication No. 2016/0014603 A1 to Woodward et al. (“Woodward”)
1009	U.S. Patent No. 10,264,413 B1 to Bogineni et al. (“Bogineni”)
1012	U.S. Patent Publication No. 2016/0239867 A1 to Sinha <i>et al.</i> (“Sinha”)
1014	International Application Publication No. WO 2018/103039 to Wang <i>et al.</i> (“Wang”)
1017	U.S. Patent Publication No. 2016/0364496 A1 to Li et al. (“Li”)
1018	U.S. Patent No. 6,360,254 B1 to Linden et al. (“Linden”)
1019	U.S. Patent Publication No. 2012/0191546 A1 to Phelan et al. (“Phelan”)
1022	File History of U.S. Application No. 18/483,670 (U.S. Patent No. 12,126,752)
1024	“Best Computer Science Scientists” - Data Sources for the 12th Edition of the Research.com Best Computer Science Scientists Ranking (Page 13), accessed at https://research.com/scientists-rankings/computer-science?page=13
1025	Jafarzadeh, H., “A Systematic Review on Search Engine Advertising,” <i>Pacific Asia Journal of the Association for Information Systems</i> , 7(3):1-32 (2015)
1026	Ioannidis, John P.A. (2025), “August 2025 data-update for “Updated science-wide author databases of standardized citation indicators””, Elsevier Data Repository, V8, doi: 10.17632/btchxktyw.8
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”)

Exhibit No.	Description
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 '978 patent. However, my opinions herein would not be affected if the '978 patent is found to only be entitled to the later effective filing date of September 25, 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 '978 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 '978 patent during the September 2018 timeframe, and further during the September 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 e-commerce, computer networking and telecommunications from teaching research, and my military experience as a communications officer.

VII. CLAIM CONSTRUCTION

38. I have been informed that the challenged claims of the '978 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 '978 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 '978 PATENT

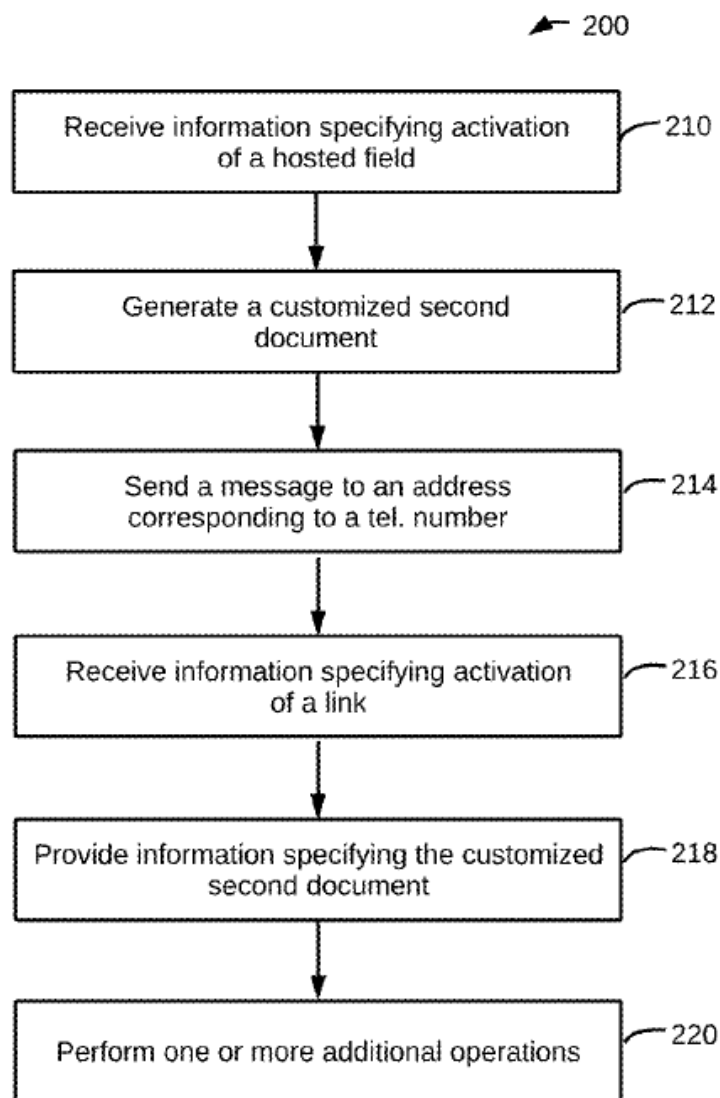
A. Overview

72. I understand that the '978 patent issued on October 7, 2025, from U.S. Patent Application No. 19/192,732 (“the '732 application”), which was filed on April 29, 2025. EX1001, (45), (21), (22). I understand that the '978 patent purports to claim priority, through a long chain of Continuation and Continuation-in-part 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 '978 patent may only be entitled to a priority date of no earlier the filing of U.S. Patent App. No. 18/896,197 on September 25, 2024.

73. The '978 patent relates to “security and access control for cellular handheld devices.” EX1001, 1:31-32. The '978 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, 1:62-64.

74. The '978 patent begins by describing a “method 200 for dynamically generating a customized document.” EX1001, 12:20-23, FIG. 2. This method begins by receiving “information (operation 210) specifying activation of a hosted field in a document.” EX1001, 12:23-28. This information “specifies a willingness

to receive one or more messages from the computer and specifies a telephone number” of the user. EX1001, 12:23-28. 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, 12:30-34.

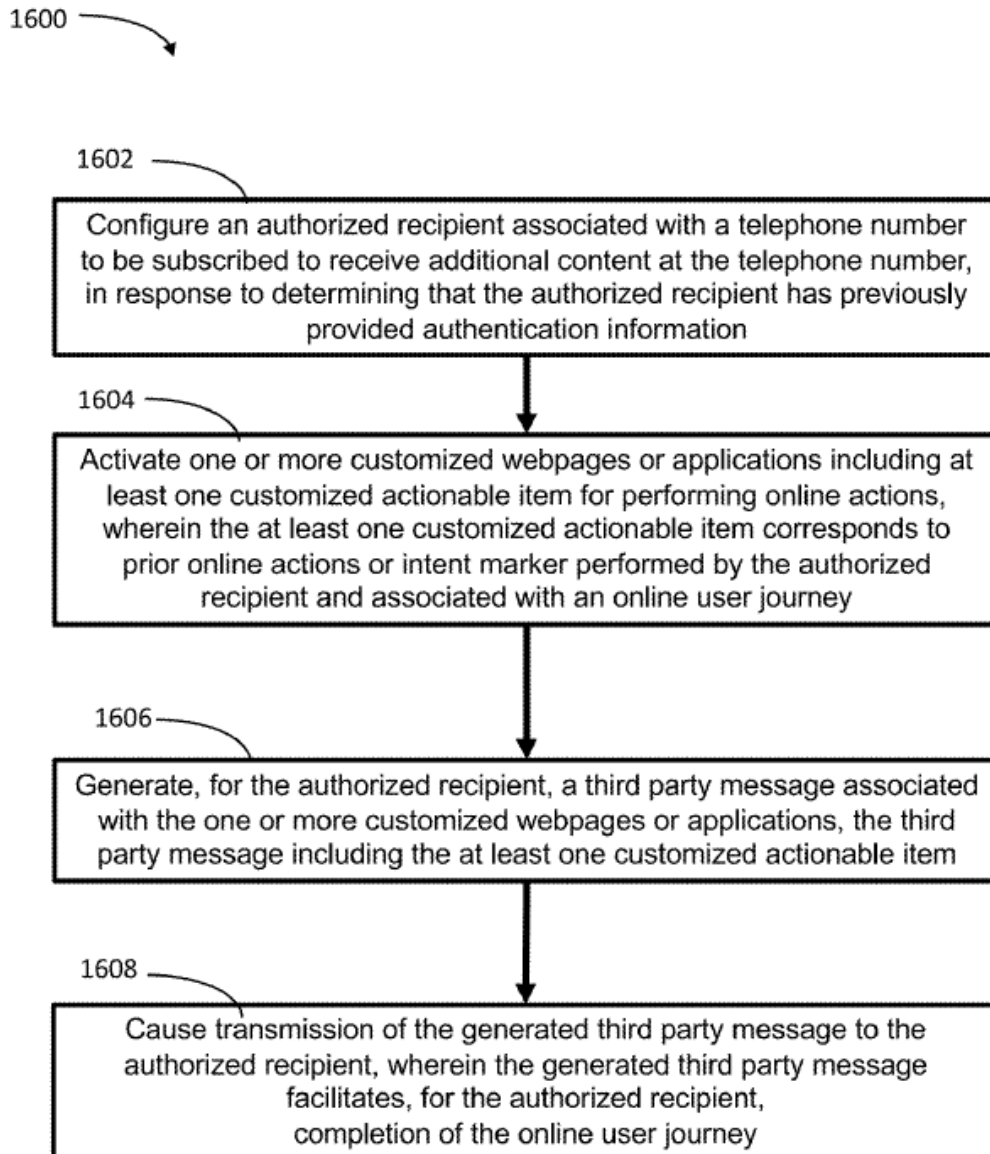


EX1001, FIG. 2.

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, 12:41-45. 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, 12:59-61.

76. The '978 patent further describes steps for performing authentication using a “hot cookie” that “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, 18:10-16. To authorize the electronic device to perform a transaction, the system may validate the hot cookie on the electronic device. EX1001, 18:16-20.

77. In a later embodiment, the '978 patent describes a “process [] for providing a user access to one or more abandoned carts or abandoned user journeys.” EX1001, 37:33-35, FIG. 16.



EX1001, FIG. 16.

78. This process begins by “configuring an authorized recipient,” “who has previously provided authentication information” (for example, “opt in permission or user permission, in general, to receive follow on communications”) and who is “associated with a telephone number.” EX1001, 37:55-60. Next, at step 1604, “one or more customized webpages” may be activated. EX1001, 37:65-67.

The “customized webpages” may “includ[e] at least one customized actionable item for performing online actions,” for example, “a secure link or actionable item ... to resume the online user journey.” EX1001, 37:65-67, 38:28-31. The system may then generate and transmit to the authorized recipient “a third party message associated with the one or more customized webpages or applications.” EX1001, 38:25-34, 38:44-46.

79. In my opinion, however, the claims of the ’978 patent recite only well-known concepts related to resuming an abandoned online shopping transaction. For example, independent claim 1 recites steps of “configuring an authorized recipient,” “activating one or more customized webpages or applications including at least on customized actionable item” that “corresponds to prior online actions or intent marker ... associated with an online user journey,” “generating” a “third party message including the at least one actionable item,” and “causing transmission of the” message. EX1001, 46:46-47:4 (claim 1); *see also* EX1001, 48:1-34 (claim 9), 49:23-50 (claim 17) (reciting substantially the same elements). The claimed “online user journey” is nothing more than “shopping, browsing, form filling, searching, or the like,” which may be abandoned by the user. EX1001, 38:6-10. A POSA would have understood that the claimed “one or more customized webpages or applications” is merely the abandoned shopping cart, and the claimed “customized actionable item” is nothing more than a link for

the user to complete the abandoned transaction. EX1001, 38:29-36. Thus, in my opinion, the claims of the '978 patent, thus, amount to little more than sending a link to a user's electronic device to prompt the user to resume and complete an abandoned transaction. All of these elements were well known in the prior art long before the filing of the '978 patent. *See above*, Section VIII; *see below* Sections XII-XIV.

B. Prosecution History

80. I understand that prosecution of the '978 patent was exceptionally short. *See generally*, EX1002. I understand that the Examiner did not issue a single Office Action, and the claims were not formally rejected at any point during prosecution. *See generally*, EX1002. In my review of the file history of the '978 patent, the only evidence that the Examiner even considered the claims *at all* before allowing the '978 patent to issue is a single Examiner-initiated interview that discussed filing a terminal disclaimer. EX1002, 0024. The claims were in fact allowed after the filing of a terminal disclaimer. EX1002, 0152-0155, 0021-0023, 0013.

81. I understand that, in allowing the '978 patent, the Examiner pointed to the features of “the at least one customizable action item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey” and “generating, for the authorized

recipient, a third party message associated with the one or more customized webpages or applications, the third party message including the at least one customized actionable item.” EX1002, 0022. It is my opinion, however, that such concepts were well known prior to either the earliest priority date or the correct priority date of the ’978 patent.

82. I believe the Examiner failed to appreciate how well known the concept of resuming an abandoned shopping cart was, even by 2018, *see, e.g.*, EX1005, ¶¶45, 55, 75; Section VIII.C, and thus materially erred by allowing the claims of the ’978 patent.

X. OVERVIEW OF THE PRIOR ART

A. Balasubramanian

83. Like the ’978 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.

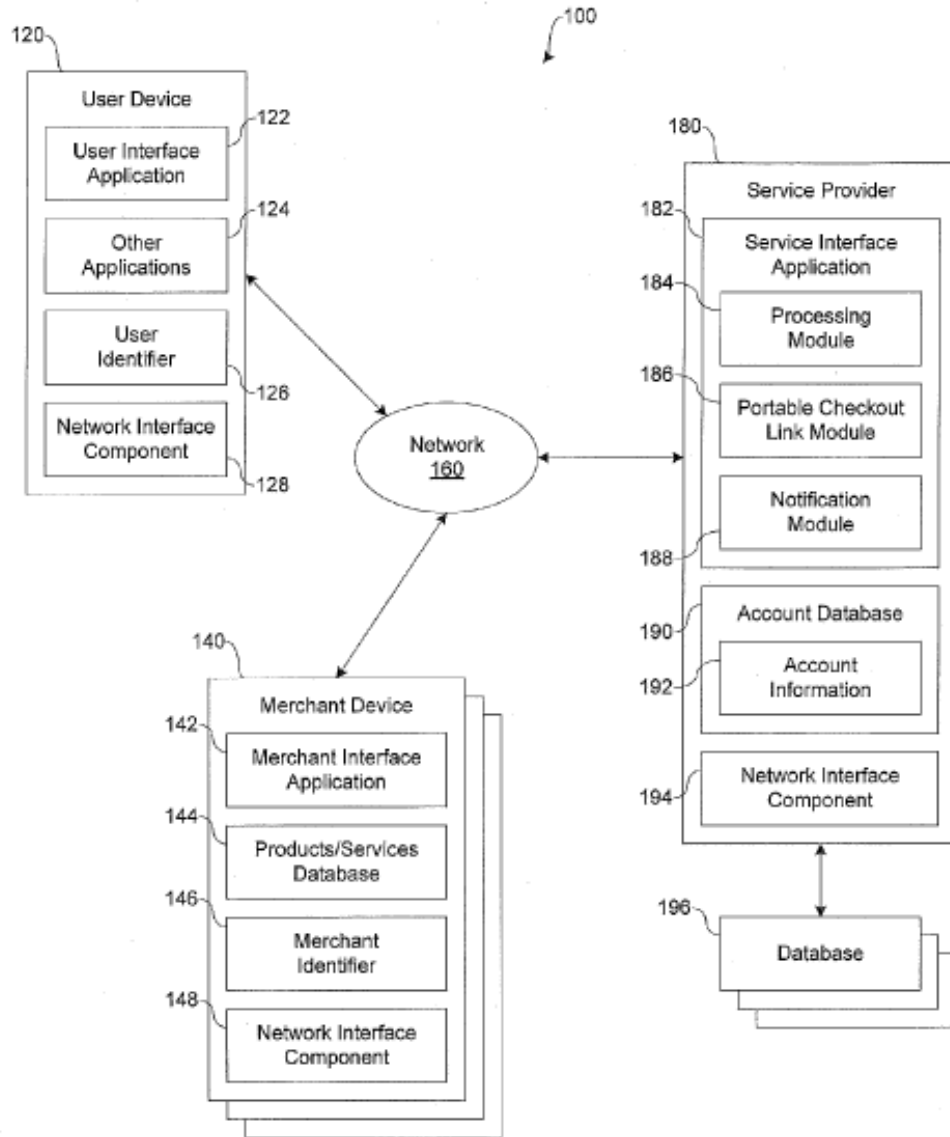


Fig. 1

EX1005, FIG. 1

84. 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.

85. 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. Woodward

86. Woodward discloses techniques “for mobile number verification.” EX1008, Title. Woodward’s technique relies on “signaling system number 7 (SS7)” data that is already collected by entities for purposes such as routing and billing of calls and transaction authentication. EX1008, ¶13. Woodward leverages

SS7 data during customer enrollment and periodically at other times to verify a telephone number provided by a customer. EX1008, ¶14.

87. Specifically, after receiving a telephone number that is to be used to contact a customer, Woodward's verification system "retrieves status data ... related to the customer phone number." EX1008, ¶19. This data may include the date a Mobile ID is created, the date of a Number Change Event, and/or a Network Status (e.g., Active or Deactivated). EX1008, ¶¶20-22. Using this data, Woodward's verification system determines "whether the number is still eligible for a call" or other communication such as a text message. EX1008, ¶¶19, 11. If the phone number is eligible for such a communication, the system "maintains the phone number as continuing to be eligible for receiving calls" or other communications. EX1008, ¶24.

C. Bogineni

88. Bogineni is directed to integrated rich communications services (RCS) messaging. EX1009, Title. Bogineni discloses that "[r]ich communication services (RCS) is a communication protocol between mobile telephone carriers." EX1009, 1:6-7. Bogineni explains that although "RCS provides a text-message system similar to short message service (SMS) message," RCS is capable of providing additional services. EX1009, 1:7-12. A network can be configured to utilize RCS messaging in two ways: (1) an Internet protocol (IP) multimedia subsystem (IMS)-

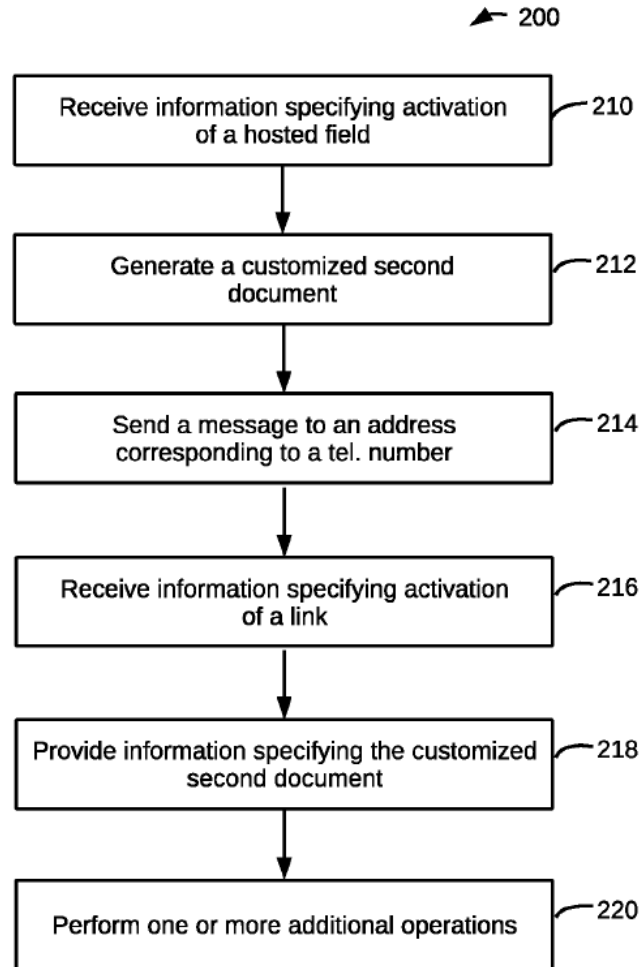
based RCS messaging or (2) non-IMS RCS messaging. EX1009, 1:47-2:22.

Specifically, the IMS-based RCS messaging can be supported by an IMS core or a session initiation protocol (SIP). EX1009, 1:47-52. On the other hand, the non-IMS RCS messaging can be supported by application programming interfaces (APIs) and/or hypertext transfer protocol (HTTP) communications. EX1009, 1:66-2:4. A device in the network can selectively use the IMS-based RCS messaging or non-IMS RCS messaging. EX1009, 1:60-66.

D. Spindler

89. Spindler discloses many of the same concepts as the '978 patent.

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.

90. Spindler’s hosting computer 114 may host “a webpage associated with a third party” which “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.

91. 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.

92. Computer 112 may then “send 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 a Short Message Service (SMS) message (which is sometimes referred to as a ‘text message’).” EX1006, ¶¶34, 50.

93. In response to the subscriber selecting the link, computer 112 may provide “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 “may include information specifying the keyword, client, subscriber customer, and

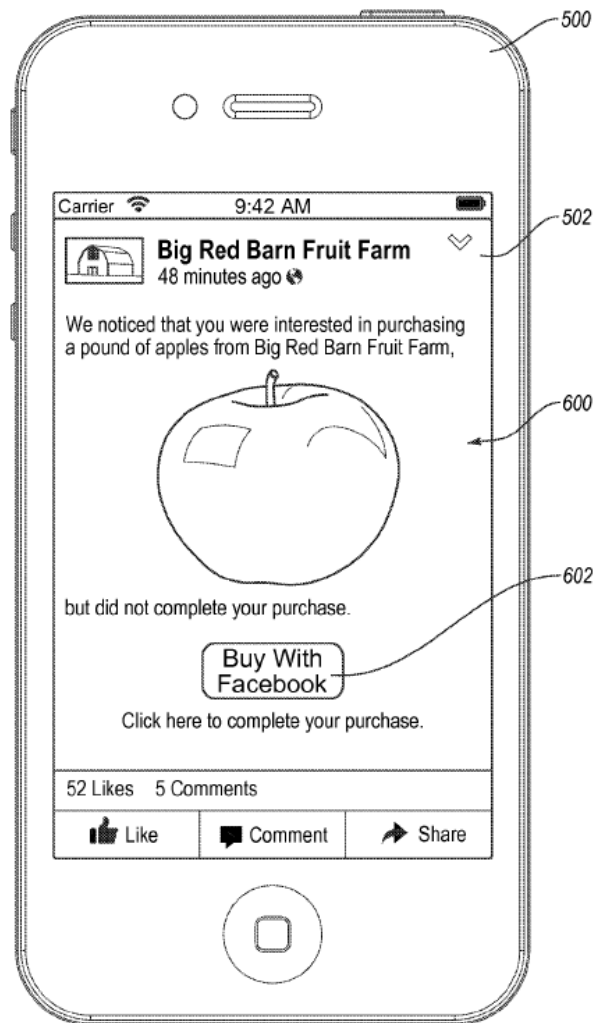
protocol” and that is active for a given period of time. EX1006, ¶¶75, 92. In addition, Spindler describes using various “biometric authentication operation[s]” “to thwart SIM swapping.” EX1006, ¶78. In addition, Spindler describes using various “biometric authentication operation[s]” “to thwart SIM 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.

E. Anderson

94. Like the '978 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 example of such a 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.

95. 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. 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.

XI. THE CLAIMED FEATURES LACK WRITTEN DESCRIPTION SUPPORT IN THE EARLIER-FILED APPLICATIONS FORMING THE CONTINUITY OF THE '978 PATENT.

96. 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.

97. It is my opinion that U.S. Application No. 18/483,670 (“the ’670 application”) fails to provide written description support for all of the elements recited by independent claims 1, 9, and 17 of the ’978 patent. In particular, the ’978 patent includes figures and written support that provide verbatim support for the elements recited by claims 1, 9, and 17 of the ’978 patent that are not included in the ’670 application. In addition, although the ’670 application does describe a method that includes generating “a customized second document” “such as a webpage” that may “include[] information about one or more transactions ... of interest to the individual or subscriber customer,” EX1022, 0374, 0379, 0343 (FIG.

2, step 220), the '670 application does not describe, in any way, any content related to “*prior online actions or intent marker performed by the authorized recipient and associated with an online user journey*,” as recited in each of independent claims 1 and 9, and similarly recited in claim 17 of the '978 patent. In fact, the '670 application does not even use the terms “prior online actions,” “intent marker,” or “online user journey” at all.

98. It is my opinion that the “transactions” described in the '670 application also do not correspond to any of the above terms. This is because a POSA would have understood that the “transactions,” as described in the '670 application, are only described as *future* transactions, “such as one or more *upcoming events* or other purchasable tickets, merchandise products, etc.” EX1022, 0369, 0374, 0375, 0379. Thus, a POSA would have understood that the '670 application describes a method in which a system determines future transactions *that may be of interest* to a subscriber, such as purchasing event tickets, and customizes content to provide those transactions to the subscriber.

99. In contrast, the “customized webpages or applications” described and claimed by the '978 patent include a “customized actionable item” that “corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey.” EX1001, 46:53-60 (claim 1). Claims 5 and 6 provide specific examples of the recited “online user journey” as

being, for example, “online shopping” or “online browsing” associated with “an abandoned online cart,” “an abandoned online purchase,” “an abandoned online wish list,” “an abandoned online form,” etc. EX1001, 47:20-43 (claims 5 and 6). Moreover, the recitation that the “generated third party message” “facilitates ... completion of the online user journey by providing access to an access point corresponding to the prior online actions or intent marker,” EX1001, 46:66-47:4 (claim 1), makes clear that the customized actionable item as claimed in the ’978 patent provides a user with the ability to *resume and complete* an online journey that has been abandoned. A POSA reading the ’670 application would not have understood the ’670 application to provide written description support for the *resumption and completion* of an abandoned online session.

100. Because the ’670 application fails to provide written description support for all of the features recited by independent claims 1, 9, and 17 of the ’978 patent, it is my understanding that the ’978 patent is entitled to priority only as of the disclosure of these features, in the filing of the ’197 application on September 25, 2024.

XII. GROUND 1A: CLAIMS 1, 2, 5-10, 13-18, and 21-24 WOULD HAVE BEEN OBVIOUS IN VIEW OF BALASUBRAMANIAN.

101. In my opinion, Balasubramanian renders obvious claims 1, 2, 5-10, 13-18, and 21-24.

A. Independent claim 1

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

102. In my opinion, Balasubramanian teaches the preamble.

Balasubramanian teaches a “service provider” that “provide[s] processing for network based transactions including online information and/or financial transactions on behalf of the user.” EX1005, ¶40. Furthermore, the service provider can be implemented as a computer system. EX1005, ¶40. Balasubramanian’s service provider 180 implements the methods described with respect to Figures 2A-2C. EX1005, ¶¶62-86. Thus, I believe that the service provider corresponds to a computer configured to perform the method of claim 1.

2. [1.A] configuring an authorized recipient associated with a telephone number, to be subscribed to receive additional content at the telephone number, in response to determining that the authorized recipient has previously provided authentication information;

103. In my opinion, Balasubramanian teaches element [1.A].

104. *First*, Balasubramanian teaches an “*authorized recipient [that] has previously provided authentication information.*”² In particular, Balasubramanian’s user is prompted “to establish a user account for login with the service provider.” EX1005, ¶26. “When establishing a user account, the user may be asked to **provide personal information**, such as name, address, phone number, etc., and

² Claim language is italicized throughout.

financial information, such as banking information, credit card information, etc.”

EX1005, ¶26 (emphasis added). A user identifier 126, which is stored with the service provider, includes these “attributes related to the user” and the service provider utilizes the user attributes “to associate the user with a particular user account maintained by the service provider 180.” EX1005, ¶¶28, 58, 65. The service provider maintains user accounts in an account database 190 that includes account information 192 associated with a user. EX1005, ¶57. These identity attributes include “*authentication information*” because they can be used to authenticate the user, e.g., the service provider “verif[ies] the user account and user identity information provide[d] by user 102 in the user login request by comparing the received user information with account information 192 stored as part of the user account in the account database 190.” EX1005, ¶¶28, 65-66. For example, the identity attributes include personal information such as usernames, passwords, photograph images, and biometric IDs, and are used to associate the user with a user account. EX1005, ¶28. And the information is “*previously provided*” because, as I discuss above, it is provided at the time of registration and stored with the service provider. EX1005, ¶¶26, 58. The user is an “*authorized recipient*” because the user registers with and, as I explain below, is verified by, the service provider.

105. *Second*, Balasubramanian teaches that the “*authorized recipient*” is “*associated with a telephone number.*” The user attributes received by the service provider include a phone number. EX1005, ¶¶26, 28.

106. *Third*, Balasubramanian teaches “*determining that the authorized recipient has previously provided authentication information.*” In the method of Figure 2A, when the service provider processes a user login request, it “attempt[s] to locate and access an account related to the user in the account database.” EX1005, ¶66. “If the user is **determined to be an existing user**,” (i.e., “*the authorized recipient has previously provided authentication information*”), the service provider verifies the login information and proceeds with the method of Figure 2A. EX1005, ¶66 (emphasis added).

107. *Fourth*, Balasubramanian teaches “*configuring [the] authorized recipient ... to be subscribed to receive additional content at the telephone number, in response to [the] determining.*” As part of the method of Figure 2A, which continues “*in response to*” determining the user is an existing user, the service provider “store[s] transaction information related to [an] incomplete transaction ... so that the service provider 180 may remind the user to complete the incomplete transaction at another time.” EX1005, ¶70. Each reminder notification the service provider sends to the user regarding incomplete or abandoned purchase transactions represents the claimed “*additional content.*” EX1005, ¶¶9, 20, 55, 72.

As another example, the “*additional content*” can be alerts that the service provider sends to the user regarding out-of-stock items, price changes, and discounts and coupons. EX1005, ¶47. The user is “*configur[ed] ... to be subscribed to receive*” these notifications and alerts because the service provider 180 stores the incomplete transaction information “as part of the user account in the account database 190” for the purpose of providing such reminders to active user accounts. EX1005, ¶¶66, 70. As a result, the service provider sends notifications to the user periodically. EX1005, ¶20. Just as a person subscribing to newspapers would receive a newspaper on a daily or weekly basis, the user is “*configur[ed] ... to be subscribed to receive*” these notifications and alerts periodically. In my opinion, a POSA would have found it to be obvious that the user receiving the notification has agreed to receive messages, via the registration process, and thus “*subscribed to receive*” messages from the service provider. A POSA would have understood that it was commonplace for users to have to agree to certain terms when registering for these services, and these user agreements often included authorization for the user to receive future marketing messages—i.e., subscribing/agreeing to these messages. For example, Phelan describes that when a user registers or signs up with a marketer, the user opts in and becomes a subscriber to receive messages from the marketer. EX1019, ¶5. Finally, Balasubramanian teaches that these alerts and notifications can be sent via a text

message or a voice message (i.e., “*receive[d] at the telephone number*” associated with the user). EX1005, ¶¶9, 20, 47, 55, 72.

3. [1.B.1] activating one or more customized webpages or applications including at least one customized actionable item for performing online actions

108. In my opinion, Balasubramanian teaches element [1.B.1].

109. Balasubramanian teaches “*one or more customized webpages or applications including at least one customized actionable item for performing online actions.*” As I discuss above, Balasubramanian teaches that the service provider sends a notification to the user regarding incomplete or abandoned purchase transactions via an email, a text message, or other means. EX1005, ¶¶9, 20, 47, 55, 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, or at least found it to be obvious, 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. For example, a POSA would have recognized that changing the delivery mechanism from an email to a text message would not alter the desirability of presenting the notification’s interactive list and

selectable links, which serve the same function of providing access to the identified content. Indeed, Balasubramanian explicitly provides that notifications can be provided by text message as an alternative to email. EX1005, ¶9. As I explain in further detail below, a selectable link is “*at least one customized actionable item*” and an online shopping cart that the selectable link leads to is “*one or more customized webpages.*”

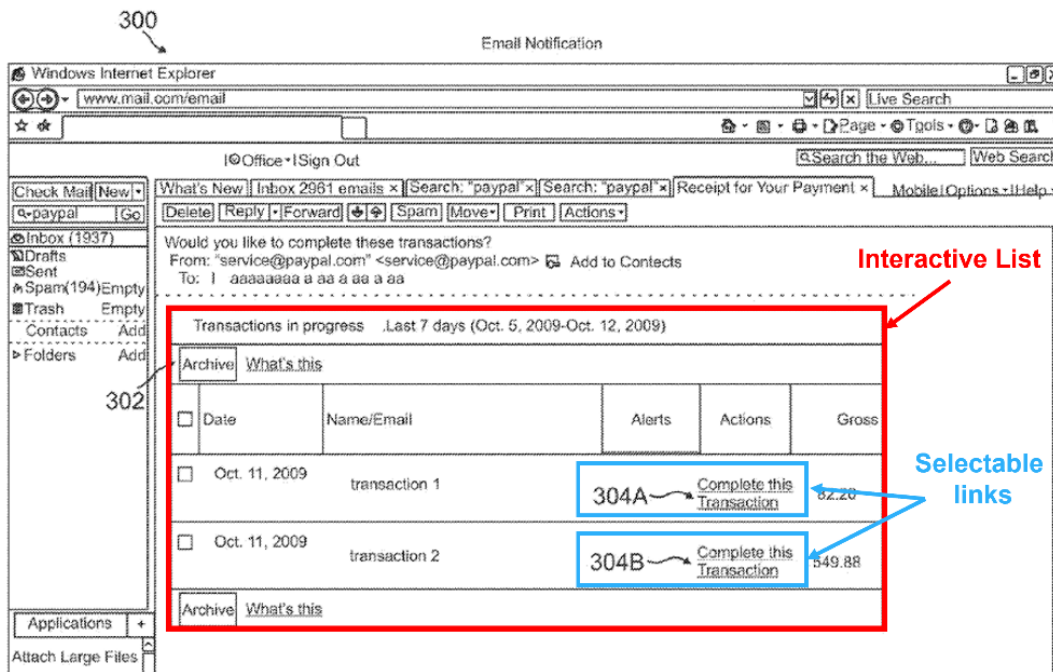


FIG. 3A
EX1005, FIG. 3A (annotated).

110. Regarding the “*at least one customized actionable item,*” the ’978 patent explains that an “actionable item” can be a link to perform actions. EX1001, 17:1-6 (“an actionable item, e.g., a link to purchase tickets or view a customized webpage”), 38:61-64 (“the at least one customized actionable item may include one or more links”), 39:6-8. In my opinion, Balasubramanian’s selectable links

satisfy this definition because the selectable links are portable checkout links (PCLs) to review and request processing of incomplete and/or abandoned transactions. EX1005, ¶¶42, 55, 74. These transactions are online transactions (“*for performing online actions*”) resulting from user’s online navigation and shopping events. EX1005, ¶56. Furthermore, as I discuss above, Balasubramanian teaches that the selectable links correspond to the user’s previously incomplete or abandoned transactions. EX1005, ¶¶45, 75, 76. Thus, the selectable links are “*customized*” to the user.

111. Regarding the “*one or more customized webpages*,” Balasubramanian explains that “the PCL is adapted to direct the user to a specific shopping cart having a state that may be frozen, saved, and/or accessed using a link, such as a URL link.” EX1005, ¶74. Therefore, a POSA would have understood that the shopping cart, accessed using a URL link, is a “*webpage*.”

112. Furthermore, the shopping cart is a “*webpage*” that includes the PCL (“*actionable item*”). Balasubramanian explains that the PCL is the link to previously incomplete and/or abandoned transactions. EX1005, ¶¶42, 55, 74. Thus, the PCL can be a URL pointing to the shopping cart that includes the previously incomplete and/or abandoned transactions. EX1005, ¶¶42, 44. A POSA would also have understood that a webpage is identified and accessed by its URL, and thus it is obvious that the URL is “*includ[ed]*” as part of the webpage. In particular, a

POSA would have understood that webpages are presented by a browser in association with the URL through which the particular webpage was requested. EX1017, ¶¶11-16. The URL therefore forms part of the webpage context maintained by the browser and may be used by the browser to determine the content, state, or behavior of the webpage. For example, a POSA would have understood that when a webpage is opened and viewed in a web browser, its URL is shown in the address bar of the web browser as a part of the webpage. In addition, the source code of the webpage, such as HTML code, can explicitly include the URL. A POSA would have understood that the source code would include metadata of the webpage such as the URL of the webpage.

113. Finally, Balasubramanian's service provider "*activat[es]*" the "*one or more customized webpages*" by creating the virtual shopping cart and the corresponding PCL. The '978 patent explains that "[t]he activating [one or more customized webpages] may include generation of secure access information for performing the online actions." EX1001, 37:65-38:3. As I explain immediately below, Balasubramanian's service provider generates the PCL and corresponding "*secure access information*." Section XII.A.4. Balasubramanian teaches that when the user selects the PCL, the user can return and access a previously abandoned or incomplete purchase transaction and then complete the transaction. EX1005, ¶¶42, 55, 75. Thus, a POSA would have understood that before the service provider

sends the notification to the user, the service provider would activate the virtual shopping cart and the PCL pointing to it so that the user can select the PCL and access the virtual shopping cart upon receiving the notification. Section XII.A.4. In addition, as I explain above, interactive messages containing selectable actions and links and mobile-device authentication and identity verification were well known before 2018. *See above*, Sections VIII.B, VIII.E.

4. [1.B.2] the activating comprising generation of secure access information for performing the online actions

114. In my opinion, Balasubramanian teaches element [1.B.2].

115. In Balasubramanian, a PCL is a unique URL with a token, which is “*secure access information*.” EX1005, ¶44 (“a unique URL with a token (i.e., PCL)”). Although this disclosure is provided in the context of a PCL generated when the user checks out from a merchant, a POSA would have found it obvious that this definition also applies when the service provider generates a PCL included in notifications to send to the user. For example, Balasubramanian explains that the PCL directs the user to the shopping cart that was previously accessed using a URL link. EX1005, ¶¶42, 74. The PCL also enables the user to return to the shopping cart where the user previously left off. EX1005, ¶¶45, 75. Thus, it would have been obvious that the PCL includes a URL so that the user returns to the shopping cart in the same way as it was accessed previously. Furthermore, 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 to the service provider can be avoided.

116. For these reasons, when generating (“*activating*”) a PCL, the service provider generates a unique URL and a token (“*generation of secure access information*”) corresponding to the PCL. A POSA would have understood that the token associated with the URL provides the secure access and thus corresponds to “*secure access information.*” Furthermore, because the URL and the token are included in the PCL, they are “*for performing the online actions*” enabled by the PCL such as completing online transactions. EX1005, ¶¶44, 55, 75.

5. [1.B.3] wherein the at least one customized actionable item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey

117. In my opinion, Balasubramanian teaches element [1.B.3].

118. As I discuss above, Balasubramanian teaches that the selectable links (“*at least one customized actionable item*”) correspond to the user’s **previously** incomplete or abandoned transactions (“*prior online actions ... performed by the authorized recipient*”). EX1005, ¶¶45, 75, 76. Furthermore, the ’978 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, 35:15-18. Thus, the

user's actions of viewing and searching for items, products, and services, and creating the shopping cart represent the "*online user journey*." EX1005, ¶24. When the user withdraws or abandons the checkout or the purchase transaction, the created shopping cart becomes incomplete or abandoned and is later pointed to by the selectable links. EX1005, ¶45. Thus, the selectable links are associated with the user's actions of viewing and searching for items, products, and services, and creating the shopping cart ("*associated with an online user journey*") via the resulting incomplete or abandoned shopping cart. In addition, as I explain above, recovery of abandoned online transactions and shopping carts was well known before 2018. *See above*, Section VIII.C.

6. **[1.C] generating, for the authorized recipient, a third party message associated with the one or more customized webpages or applications, the third party message including the at least one customized actionable item; and**

119. In my opinion, Balasubramanian teaches element [1.C].

120. Balasubramanian's service provider sends a notification ("*message*") that includes PCLs ("*at least one customized actionable item*") that lead the user to a virtual shopping cart ("*the one or more customized webpages*"). EX1005, ¶¶9, 20, 47, 55, 63, 72, 74. Thus, the notification is a message "*associated with the one or more customized webpages*." Furthermore, a POSA would have understood that the service provider is a third party because the incomplete or abandoned purchase transactions are between a user and a merchant (i.e., not the service provider).

EX1005, Abstract, ¶¶8, 24, 32, 41, 57, 61. Because the notification is sent by the service provider, the notification is “*a third party message*.”

121. Furthermore, a POSA would have understood, or at least found it obvious, that, to send the notification to the user, the service provider would “*generat[e]*” the notification first. This is because a message that has not yet been generated cannot be sent. Because the user is the intended recipient, the notification is generated for the user (“*the authorized recipient*”). EX1005, ¶¶9, 20, 47, 55, 72.

122. Finally, as I discuss above, Balasubramanian’s selectable links are “*customized actionable items*.” Section XII.A.3. Because the notification includes “an interactive list having one or more selectable links,” the notification is the “*third party message*” that includes “*at least one customized actionable item*.” EX1005, ¶73, FIG. 3A.

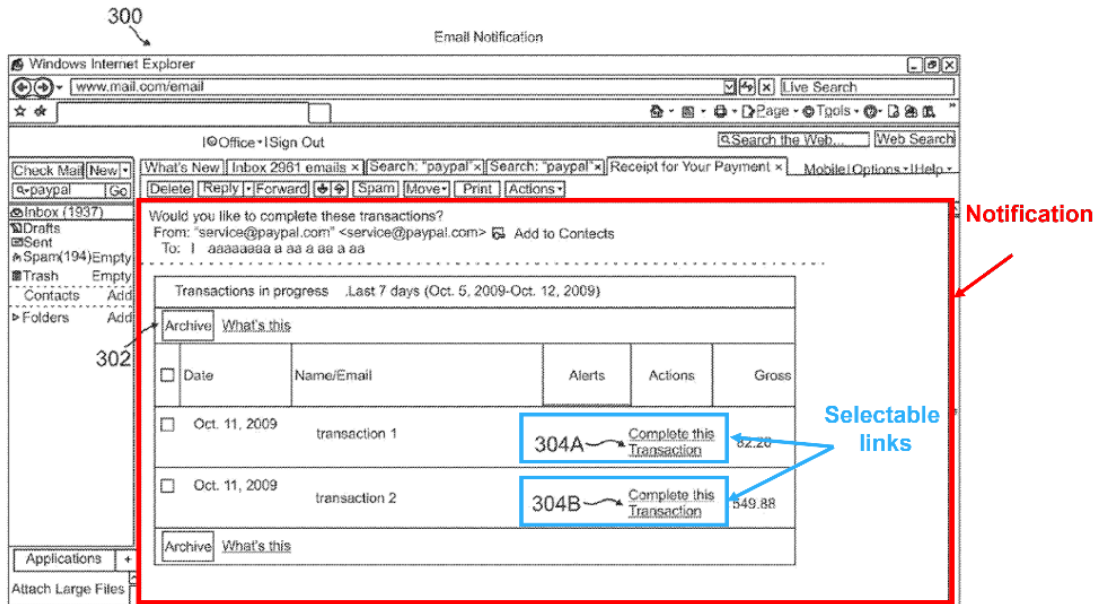


FIG. 3A
EX1005, FIG. 3A (annotated).

7. [1.D.1] causing transmission of the generated third party message to the authorized recipient,
[1.D.2] wherein the generated third party message facilitates, for the authorized recipient, completion of the online user journey by providing access to an access point corresponding to the prior online actions or intent marker.

123. In my opinion, Balasubramanian teaches elements [1.D.1] and [1.D.2].

124. Balasubramanian's service provider sends ("*caus[es] transmission of*") a notification ("*generated third party message*") to the user ("*the authorized recipient*") regarding incomplete or abandoned purchase transactions. EX1005, ¶¶9, 20, 47, 55, 72. Balasubramanian further teaches that when the user selects a PCL included in the notification, the user can return to and access a previously abandoned or incomplete purchase transaction, and then proceed to complete the

transaction “from where the user previously left-off, withdrew, abandoned, or failed to complete the checkout.” EX1005, ¶¶45, 55, 75. Therefore, by providing the user with the PCL included in the notification, the user can access the shopping cart in its original state where the user previously left off. In other words, notification, including the PCL, “*provid[es] access to an access point corresponding to the prior online actions or intent marker.*” Subsequently, the user can complete the purchase of the shopping cart created by the user’s prior actions of viewing and searching for items, products, and services, and creating the shopping cart. Thus, the notification, including the PCL, als “*facilitat[es] ... completion of the online user journey.*” EX1005, ¶¶45, 55, 75, 76, 79.

B. Claim 2: The computer-implemented method of claim 1, wherein the at least one customized actionable item comprises a secure link, corresponding to an identity of the authorized recipient, to resume the online user journey at the access point and one or more prompts to complete the online user journey.

125. In my opinion, Balasubramanian teaches claim 2.

126. As I discuss above, “*the at least one customized actionable item*” is a selectable link that includes a unique URL with a token. Section XII.A.3. A POSA would have understood that a unique URL with a token is “*a secure link*” because it can provide secure access to online resources without needing to enter a username, a password, or other authentication information. *See, e.g.,* EX1018, Abstract. Furthermore, a POSA would have understood that the token can identify

the user. EX1018, 4:3-5 (“The token identifies a particular private resource, such as by identifying a particular user ...”). Therefore, the token corresponds to an identity of the user. Accordingly, the PCL that includes the token “*correspond[s] to an identity of the authorized recipient.*”

127. The PCL enables the user “*to resume the online user journey,*” such as the user’s prior actions of viewing and searching for items, products, and services, and creating the shopping cart, from “where the user previously left-off, withdrew, abandoned, or failed to complete the checkout” (“*the access point.*”) EX1005, ¶¶45, 55, 75.

128. Furthermore, as seen in Figure 3A below, the selectable links (e.g., PCLs) include their respective “*prompts*” for the user, such as hyperlinked text of the selectable links that recites “Complete the Transaction,” as shown here in Figure 3A. EX1005, FIG. 3A. By selecting the selectable links, the user can proceed to complete the purchase of the user’s prior actions of viewing and searching for items, products, and services, and creating the shopping cart (“*complete the online journey*”). EX1005, ¶¶45, 47, 76.

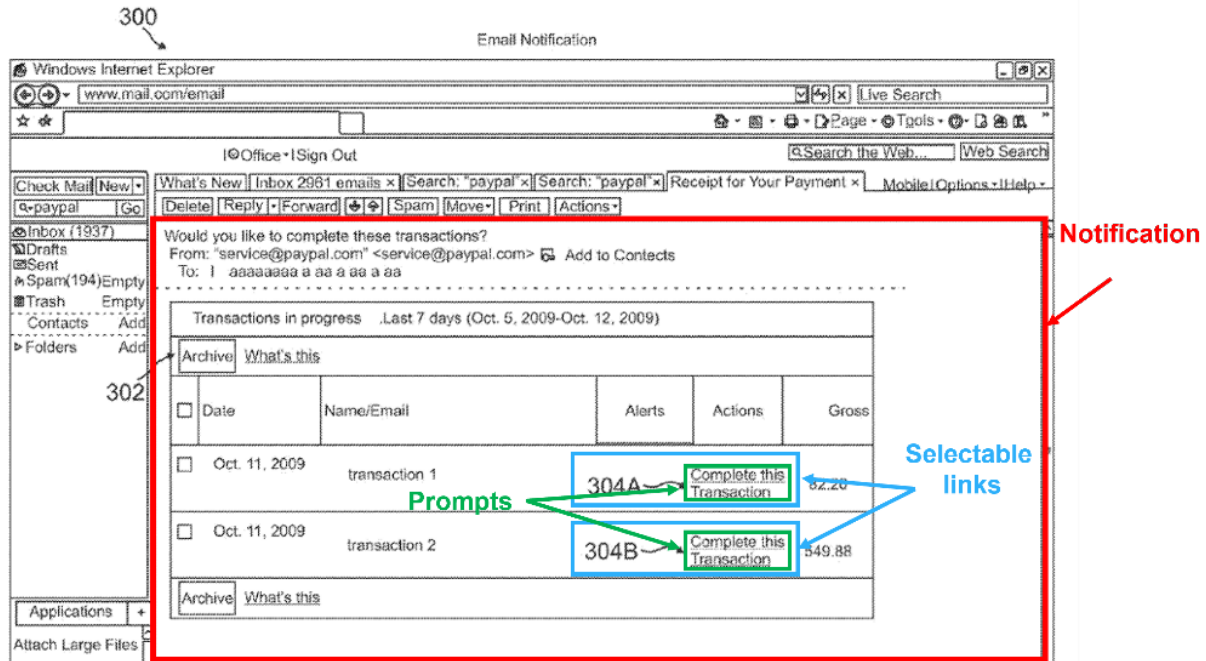


FIG. 3A
EX1005, FIG. 3A (annotated).

C. **Claim 5: The computer-implemented method of claim 1, wherein: the online user journey comprises online shopping associated with at least one of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, and an abandoned online wish list associated with the prior online actions or intent marker.**

129. In my opinion, Balasubramanian teaches claim 5.

130. As I discuss above, the user's prior actions of viewing and searching for items, products, and services, and creating the shopping cart correspond to "*the online user journey.*" Section XII.A.5. Furthermore, Balasubramanian teaches that the service provider can process and monitor user's online navigation and shopping events. EX1005, ¶56. Thus, the user's prior actions of viewing and searching for

items, products, and services, and creating the shopping cart include the user's online navigation and shopping events ("*online shopping*").

131. Finally, the user may withdraw or abandon the user's online navigation and shopping events ("*online shopping*") prior to completion or payment of selected items, products, and/or services. EX1005, ¶45. A POSA would have understood that when the user's online navigation and shopping events are withdrawn or abandoned, the shopping cart becomes abandoned. EX1005, ¶42. Thus, because the user's online navigation and shopping events ("*online shopping*") were previously withdrawn or abandoned without purchase, they are also associated with "*an abandoned online cart associated with the prior online actions.*"

D. Claim 6: The computer-implemented method of claim 1, wherein: the online user journey comprises online browsing associated with at least one of: an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the or intent marker online actions, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.

132. In my opinion, Balasubramanian teaches claim 6.

133. As I discuss above, the user's prior actions of viewing and searching for items, products, and services, and creating the shopping cart correspond to "*the online user journey.*" Section XII.A.5. Furthermore, Balasubramanian teaches that the service provider can process and monitor users' online navigation and shopping

events. EX1005, ¶56. Balasubramanian explains that the user can use a web browser to access merchant websites to view, search, and select items, products, and/or services to purchase. EX1005, ¶25. Thus, the user's prior actions of viewing and searching for items, products, and services, and creating the shopping cart include the user's online browsing (*"online browsing"*).

134. Finally, Balasubramanian explains that "the user may have withdrawn or abandoned the checkout or purchase transaction prior to completion or payment for selected items, products, and/or services." EX1005, ¶45. Therefore, the user's online browsing was abandoned and thus associated with "*an abandoned online browsing session*" and "*an abandoned online search session purchase*," both of which are "*associated with the prior online actions.*"

- E. Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.**

135. In my opinion, Balasubramanian renders obvious claim 7.

136. Balasubramanian teaches that the notification can be a text message, 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, a POSA by the time of the filing of the '978 patent would have understood that it was well known at the time of filing of the '978 patent that a “text message” may include, for example, “a Rich Communication Services message,” a well-known successor to SMS text messaging. *See* Section VIII.D. Thus, a POSA would have understood Balasubramanian’s text message (“*generated third party message*”) renders obvious, using “*an RCS message*,” which was a well-known type of text message. Additionally, a POSA would have known that there were only a finite number of text message protocols in widespread use at the time of the '978 patent—RCS being one of them. Therefore, a POSA would have also found it obvious to try the RCS protocol to implement RCS messages in Balasubramanian’s system

137. Furthermore, Balasubramanian’s notification includes selectable links leading to incomplete and/or abandoned transactions (“*at least one user interface element to select*” “*an abandoned online cart associated with the prior online actions*,” “*an abandoned online purchase associated with the prior online actions*,” “*an abandoned online browsing session associated with the prior online actions*,” “*an abandoned online session associated with the prior online actions*,”

and “*an abandoned online search session purchase associated with the prior online actions*”). EX1005, ¶¶42, 55, 73-74; *see also* Sections XII.C, XII.D.

F. Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.

138. In my opinion, Balasubramanian teaches claim 8. For at least the reasons I discuss above for claim 7, Balasubramanian renders obvious, using “*an RCS message*” as the notification (“*generated third party message*”). Section XII.E (Claim 7).

139. Furthermore, Balasubramanian teaches that the notification includes selectable links to complete the purchase of the shopping cart created by the user’s prior actions of viewing and searching for items, products, and services, and creating the shopping cart (“*at least one user interface element to select to complete an online user journey*”). EX1005, ¶55.

G. Independent Claim 9

140. Independent claim 9 recites a system comprising a “*processor*” and a “*memory configured to store program instructions, that, when executed by the processor, cause the processor to perform operations*” substantially the same as those recited by the method of claim 1.

1. [9.P] A system comprising:

141. In my opinion, Balasubramanian discloses the preamble.

142. Balasubramanian discloses a “system.” In particular, Balasubramanian discloses system 100 including user device 120, one or more merchant devices 140, and service provider 180. EX1005, ¶21, FIG. 1. Balasubramanian’s system corresponds to the claimed system.

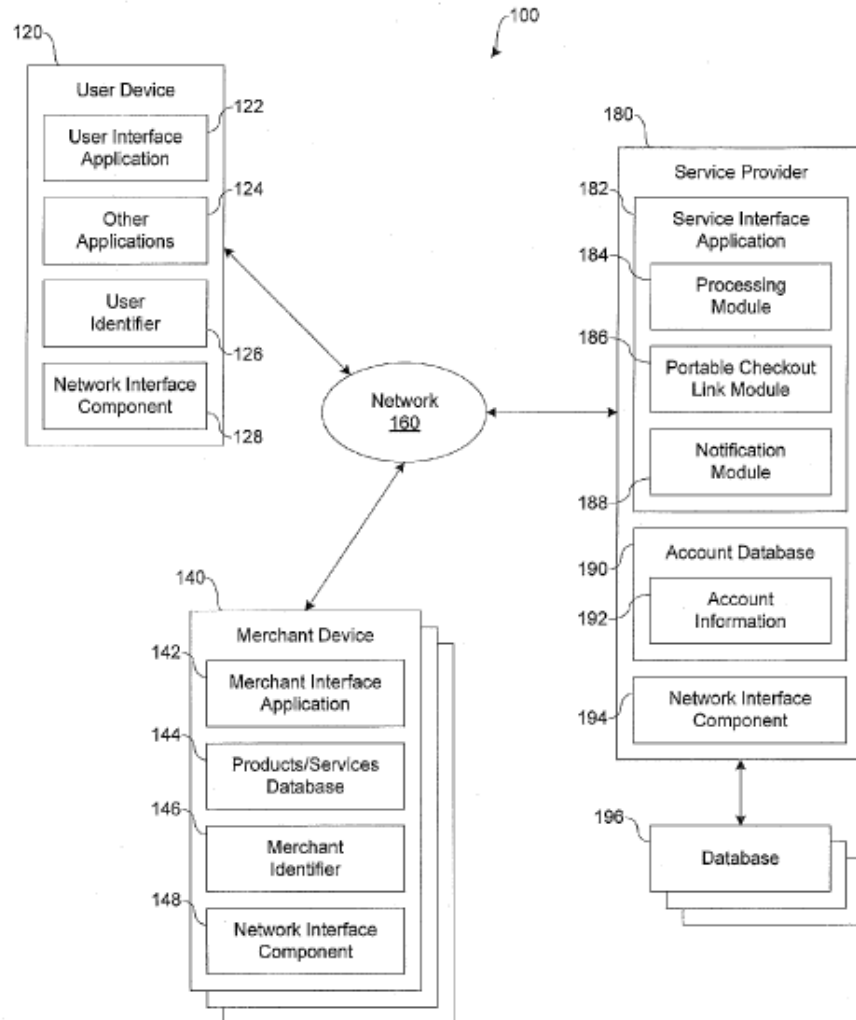


Fig. 1

EX1005, FIG. 1.

2. [9.A] a processor; and

143. In my opinion, Balasubramanian discloses element [9.A].

144. Balasubramanian discloses “a processor.” In particular, Balasubramanian’s user device 120, one or more merchant devices 140, service provider 180 can each be implemented as computer system 400. EX1005, ¶92, FIG. 4. The computer system includes a processing component, such as a **processor**, a micro-controller, a digital signal processor (DSP), etc. EX1005, ¶92.

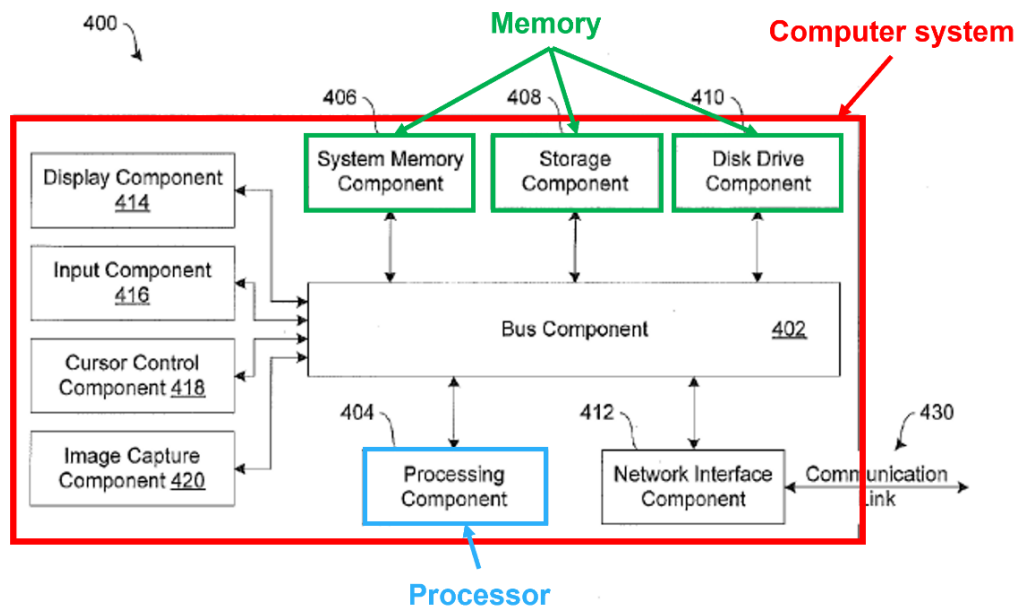


Fig. 4

EX1005, FIG. 4 (annotated).

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

145. In my opinion, Balasubramanian discloses element [9.B].

146. Balasubramanian discloses that the 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 *above*. “[C]omputer 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 (emphasis added). “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.

4. [9.C.1] – [9.F.2]

147. Claim elements [9.C.1] to [9.F.2] correspond to claim elements [1.A] to [1.D.2], respectively. As I explain above, I believe Balasubramanian discloses or renders obvious these elements for the same reasons as those above regarding claim 1. *See above* Section XII.A.

148. I understand that the only substantive difference from claim 1 is that in [9.D.1] and [9.E.1], the claim recites “*one or more customized applications*” instead of “*one or more customized webpages or applications*” as recited in [1.B.1] and [1.C]. However, the ’978 patent makes clear that a web browser for viewing a web link constitutes an “*application*.” EX1001, 8:65-9:1. Thus, Balasubramanian’s web browser application, which displays the shopping cart, corresponds to such “*customized applications*” and contains the PCL.

H. Claims 10, 13-16

149. Claims 10, and 13-16 are system claims that otherwise recite limitations that are identical to the method steps recited in claims 2, and 5-8. In my opinion Balasubramanian discloses or renders obvious these elements for the same reasons as for claims 2 and 5-8, above, respectively. *See above* Sections XII.B-XII.F.

I. Independent Claim 17

150. Independent claim 17 recites a “*non-transitory computer-readable ... storage medium storing program instructions that ... cause the computer to carry out one or more operations*” substantially the same as those recited by the method of claim 1.

1. **[17.P] 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 carry out one or more operations comprising:**

151. In my opinion, Balasubramanian discloses the preamble.

152. Balasubramanian discloses that “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. A POSA would have understood that at least

Balasubramanian's static storage component is a "*non-transitory computer-readable storage medium*."

2. [17.A] – [17.D.2]

153. Claim elements [17.A] to [17.D.2] correspond to claim elements [1.A] to [1.D.2], respectively. As I explain above, I believe Balasubramanian discloses or renders obvious these elements for the same reasons as above regarding claim 1. *See above* Section XII.A.

154. I understand that the only substantive difference in these operations is the recitation, in claim 17, of "*activating one or more customized webpages*" instead of the "*activating one or more customized webpages or applications*" recited by claim 1. Balasubramanian explicitly teaches such "*webpages*." *See above* Section XII.A.3.

3. Claims 18, 19-24

155. Claims 18, and 19-24 are storage medium claims that otherwise recite limitations that are identical to the method steps recited in claims 2, and 5-8. In my opinion, Balasubramanian discloses or renders obvious these elements for the same reasons as above for claims 2, and 5-8, respectively. *See above* Sections XII.B-XII.F.

XIII. GROUND 1B: CLAIMS 3, 4, 11, 12, 19, 20 WOULD HAVE BEEN OBVIOUS OVER BALASUBRAMANIAN AND WOODWARD.

156. In my opinion, the combination of Balasubramanian and Woodward renders obvious claims 3-4, 11-12, and 19-20.

A. Obviousness Rationale

157. Claims 3, 4, 11, 12, 19, and 20 recite limitations related to a “*silent network authentication protocol*” (“SNAP”). Woodward includes explicit discussion of an exemplary silent network authentication protocol. In my opinion, a POSA would have been motivated to modify Balasubramanian in view of Woodward to include such a SNAP. To start, Woodward and Balasubramanian are in the same field of mobile device authentication and authorization for conducting transactions on a mobile device and are thus analogous art to each other and to the ’978 patent. *Compare* EX1008, ¶¶10, 11, 13, *with* EX1001, 1:36-42, 1:62-64, EX1005, ¶¶58, 59, 66, 78, 83.

158. Balasubramanian teaches a system that 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 networks. 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. Balasubramanian explicitly envisions this

technique as being implemented on, for example, “a mobile communication device (e.g., wireless cellular phone),” “a personal computer (PC),” “a personal digital assistant (PDA),” “a notebook computer.” EX1005, ¶23. Balasubramanian also describes performing identity verification, such as “verify[ing] a user account related to the user” “based on user information.” EX1005, ¶¶66, 78, 83. This user information of the user account can be name, address, phone number, etc. EX1005, ¶26. However, Balasubramanian does not provide any specific details on how such user information may be verified and/or validated. Thus, a POSA would have looked to the prior art for guidance as to specific verification/validity techniques that could be used in Balasubramanian’s system. One such well-known technique for verifying such subscriber information would have been a silent network authentication protocol (“SNAP”), such as that taught by Woodward. Woodward verifies a user-provided telephone number silently—that is, without requiring input from the user. EX1008, ¶¶18-22.

159. Woodward, like Balasubramanian, describes that “[c]ustomers often provide a telephone number, such as a number to a mobile device, for a bank to call the customer” for use in contacting the customer, including by voice calls or text messages. EX1008, ¶¶2, 11. However, Woodward recognizes that “[p]roblems may arise when a customer changes a phone number or perhaps inadvertently provides a wrong number when consenting to telephone calls,” which can result in

finer on the entity contacting the user. EX1008, ¶3. To avoid such problems, Woodward describes techniques for “verifying that a phone number ... is authorized for such use.” EX1008, ¶10.

160. In particular, Woodward’s technique relies on the use of “SS7 protocol data,” which is routinely collected by various entities and used to “authenticate a transaction.” EX1008, ¶13. Leveraging this data, Woodward’s technique merely “receives a phone number for a customer,” “retrieves [SS7] status data” that is related to the received phone number from a database, evaluates that data, and then “determines from that evaluation whether the number is still eligible for a call.” EX1008, ¶¶18-19. Woodward’s system is capable of making this determination by evaluating several types of mobile phone data, including a “Mobile ID” creation date, a “Number Change Event date,” and the status of the phone as being active or inactive on the cellular network. EX1008, ¶¶20-22. Woodward also describes that such verification may be performed “periodically” to “verify the availability [of] phone numbers provided by customers.” EX1008, ¶14. Following verification, the phone number may be deleted or saved to a database for future use. EX1008, ¶24.

161. A POSA would have understood that Woodward’s verification technique would have been readily incorporated into Balasubramanian’s computer system. This is because Woodward’s technique relies on nothing more than a

common computing device having only generic computer elements, such as one or more CPUs, a working memory, and a communications system such as a modem operable to connect to, for example, a cellular network, all of which are present in the computing system of Balasubramanian. *Compare* EX1008, ¶¶27-28, *with* EX1005, ¶92, FIG. 4 (a computer system suitable for implementing the user device and the service provider). Implementing Woodward's verification technique in Balasubramanian's computing system would have required nothing more than simply collecting data that was already being collected by other entities and leveraging that data to verify a phone number provided by a user before attempting to communicate with that user. Thus, a POSA seeking to modify Balasubramanian in view of Woodward would not have encountered any unreasonable technical challenges.

162. In my opinion, a POSA would have been motivated to modify Balasubramanian in view of Woodward for exactly the benefit described by Woodward—that such a verification technique can avoid fines and other problems from attempting to contact a phone number that is incorrect or no longer used by the same person. EX1008, ¶3. Such a combination would merely amount to combining prior art elements according to known methods to yield the predictable (yet improved) result of the computer system of Balasubramanian being capable of verifying subscriber phone numbers to avoid using incorrect or inactive phone

numbers, as explicitly taught by Woodward. And, because such a combination would have required using only conventional computing elements and leveraging existing data collection, a POSA would have had a reasonable expectation of success in modifying Balasubramanian in view of Woodward.

B. Claim 3: The computer-implemented method of claim 2, wherein selection of the secure link, on a computing device displaying the secure link, triggers a silent network authentication protocol to confirm the identity of the authorized recipient.

163. In my opinion, the Balasubramanian-Woodward combination teaches claim 3.

164. Balasubramanian's service provider provides the user with an interactive list having selectable links via the user device ("*a computing device displaying the secure link*"). EX1005, ¶¶73, 92. The service provider verifies the user by comparing the user information received from the user's device with the user information stored as part of the user account. EX1005, ¶¶65-66. This user information can include, for example, a phone number. EX1005, ¶¶65-66.

165. Balasubramanian does not expressly disclose "*a silent network authentication protocol to confirm the identity of the authorized recipient.*" As I just discussed, Balasubramanian's service provider verifies the user. EX1005, ¶¶65-66. However, Balasubramanian does not explicitly explain the protocol of the verification. Thus, a POSA would have looked to the prior art for guidance as to specific protocols for performing the verification. This would have led the POSA

to Woodward, which discloses a protocol to verify an identity based on a phone number. EX1008, ¶¶18-19. Thus, a POSA having knowledge of Woodward would have been motivated to have the selection of the secure link, as taught by Balasubramanian, trigger a “*silent network authentication protocol*” to confirm the identity of the authorized recipient. This is because a POSA would have known that using an incorrect or inactive phone number to send the text messages of Balasubramanian may result in fines for the sending entity, as explicitly taught by Woodward. EX1008, ¶3. In my opinion, a POSA would have found it obvious, before sending such a text message, to verify the identity of Balasubramanian’s user (“*the authorized recipient*”) to ensure that the user is a valid recipient for such a text message. And, because Woodward’s silent authentication protocol requires only collecting and leveraging existing data, a POSA would have known that such a protocol could be readily implemented into the method of Balasubramanian before the sending of such a text message, to ensure that the text message would not result in fines or other problems for the sending entity.

166. Accordingly, a POSA would have found it obvious to modify Balasubramanian in view of Woodward to arrive at the configuration recited by claim 3.

C. Claim 4: The computer-implemented method of claim 3, wherein the silent network authentication protocol is performed by a third party associated with the generated third party message, and accessed through a mobile device carrier.

167. In my opinion, the Balasubramanian-Woodward combination teaches claim 4.

168. As I discuss above, the “*silent network authentication protocol*” is performed by the service provider. Section XIII.B. Also as I discuss above, the service provider is “*a third party*” that generates the notification (“*generated third party message*”). Section XII.A.6. Finally, the service provider can be accessed via a wireless telecommunications network (“*a mobile device carrier*”). EX1005, ¶22.

169. Additionally, Woodward teaches that such a phone number verification technique may be performed by an entity of which the user is a subscriber (“*third party*”), such as a bank or other financial institution. EX1008, ¶14. Woodward describes that the purpose of such verification is to avoid the possibility of the subscribed entity incurring fines when sending messages (“*third party message*”) to the subscriber. EX1008, ¶3. Therefore, to the extent that Balasubramanian does not disclose claim 4 on its own, in my opinion, a POSA would have been motivated to modify Balasubramanian’s service provider (“*third party*”) to perform the verification technique of Woodward’s third-party entity, because a POSA would have understood that Balasubramanian’s service provider,

like Woodward's third-party entity, would want to avoid fines when preparing and sending text messages.

170. Accordingly, it is my opinion that a POSA would have found it obvious to modify Balasubramanian in view of Woodward to arrive at the configuration recited by claim 4.

D. Claims 11, 12, 19, and 20

171. Claims 11, 12, 19, and 20 are system and storage medium claims that otherwise recite limitations that are identical to the method steps recited in claims 3 and 4. In my opinion, the Balasubramanian-Woodward combination discloses or renders obvious these elements for the same reasons as for claims 3 and 4 above, respectively. *See above* Sections XIII.B-C.

XIV. GROUND 1C: CLAIMS 7, 8, 15, 16, 23, AND 24 WOULD HAVE BEEN OBVIOUS OVER THE BALASUBRAMANIAN-BOGINENI COMBINATION.

172. In my opinion, the combination of Balasubramanian and Bogineni renders obvious claims 7, 8, 15, 16, 23, and 24.

A. Obviousness Rationale

173. Claims 7, 8, 15, 16, 23, and 24 recite limitations related to a Rich Communication Service (RCS) message. As I explain above, in my opinion, such an RCS message is rendered obvious by Balasubramanian. *See above* Sections XII.E-XII.F. To the extent it is argued that Balasubramanian does not disclose or suggest such an RCS message, Bogineni includes explicit discussion of an "RCS

message.” In my opinion, a POSA would have been motivated to modify Balasubramanian in view of Bogineni to include such an RCS message.

174. 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 ’978 patent. *Compare* EX1009, 1:6-7, 1:47-2:22, *with* EX1001, Abstract, 5:46-48, EX1005, ¶¶21, 23, 24, 29, 31.

175. Balasubramanian teaches a system that includes a network that facilitates communication amongst a user device, merchant devices, and a service provider. EX1005, ¶21. Balasubramanian teaches that the service provider sends a notification to the user device. EX1005, ¶¶9, 20, 48, 55. Balasubramanian generally discusses that the notification can be sent in various ways such as via an email message, a text message, and a voice message. EX1005, ¶¶9, 20, 48, 55. However, Balasubramanian does not discuss benefit or advantages of these types of messages, nor the details about how these messages are implemented. Thus, a POSA would have looked to the prior art for guidance as to specific text message types that could be used in Balasubramanian’s system. One well-known technique for sending messages to a mobile device like Balasubramanian’s user device was via RCS messages, as taught by Bogineni.

176. Bogineni teaches that “RCS provides a text-message system similar to short message service (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. Thus, in my opinion, a POSA having knowledge of Bogineni would have been motivated to implement RCS messages as the specific text message type used for the notification in order to provide the additional functions available with RCS messages.

177. Furthermore, a POSA would have had a reasonable expectation of success to combine Balasubramanian with 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 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.

178. A POSA would have understood that the network in Balasubramanian would support the IMS and therefore support the IMS-based RCS messaging. Furthermore, because the network can be the Internet, the network also supports HTTP communications that enable the 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 the non-IMS RCS messaging via the APIs. EX1005, ¶92. A POSA would therefore not have experienced any unreasonable technical hurdles in implementing these modifications.

179. In my opinion, 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, 1:7-9.

- B. Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.**

180. In my opinion, the Balasubramanian-Bogineni combination teaches claim 7.

181. To the extent it is argued that Balasubramanian does not disclose that *“the generated third party message comprises an RCS message including at least one user interface element,”* the combination with Bogineni does.

182. Specifically, Balasubramanian teaches that the notification (*“the generated third party message”*) can be a text message. EX1005, ¶¶9, 20, 48, 55. Based on Bogineni’s teachings, a POSA would have been motivated to transmit Balasubramanian’s notification as *“an RCS message”* instead of or in addition to the text message in order to provide the additional functionality that RCS messages provide. Section XIV.A.

183. Finally, as I discuss above, Balasubramanian teaches that the notification includes selectable links to incomplete and/or abandoned transactions. EX1005, ¶¶42, 55, 73, 74. When the notification is sent as an RCS message, as disclosed in Bogineni, the RCS message can similarly include the selectable links (*“at least one user interface element”*). Just as with Balasubramanian’s selectable links, the selectable links in the RCS message would then point to the incomplete and/or abandoned transactions disclosed in Balasubramanian (*“select ... an abandoned online cart associated with the prior online actions”*).

184. Accordingly, it is my opinion that a POSA would have found it obvious to modify Balasubramanian in view of Bogineni to arrive at the configuration recited by claim 7.

C. Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.

185. In my opinion, the Balasubramanian-Bogineni combination teaches claim 8.

186. To the extent it is argued that Balasubramanian does not disclose that “*the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey,*” its combination with Bogineni does.

187. As I discuss above, I believe a POSA would have been motivated to send Balasubramanian’s notifications using “*an RCS message,*” as taught by Bogineni. Section XIV.B. Thus, the RCS message would include content of the notification, such as the selectable links that enable the user to complete the purchase of the shopping cart created by the user’s prior actions of viewing and searching for items, products, and services, and creating the shopping cart (“*including at least one user interface element to select to complete an online user journey*”). EX1005, ¶¶55, 75.

188. Accordingly, it is my opinion that a POSA would have found it obvious to modify Balasubramanian in view of Bogineni to arrive at the configuration recited by claim 8.

D. Claims 15, 16, 23, and 24

189. Claims 15, 16, 23, and 24 are system and storage medium claims that otherwise recite limitations that are identical to the method steps recited in claims 7 and 8. In my opinion, the Balasubramanian-Bogineni combination discloses or renders obvious these elements for the same reasons as for claims 7 and 8 above, respectively. *See above* Sections XIV.B-XIV.C.

XV. GROUND 2A: CLAIMS 1-2, 5-10, 13-18, and 21-24 WOULD HAVE BEEN OBVIOUS IN VIEW OF SPINDLER AND ANDERSON.

190. In my opinion, the combination of Spindler and Anderson renders obvious claims 1-2, 5-10, 13-18, and 21-24.

A. Obviousness Rationale

191. I believe a POSA would have been motivated to modify Spindler in view of Anderson to arrive at the computer-implemented method, system, and non-transitory computer-readable storage medium claimed by the '978 patent.

192. To start, Spindler and Anderson are in the same field of endeavor as each other and the problem addressed by the '978 patent. The '978 patent purports to address the problem of “a need for new and useful systems and methods for providing secure access and authentication when using mobile devices to access and/or purchase content” (e.g., “e-commerce”). EX1001, 1:36-42, 1:62-64. I understand that the '978 patent claims priority to Spindler as a CIP, and Spindler is similarly directed towards “techniques for performing [online] transactions” (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. Anderson is also directed towards techniques that “allow users to easily and quickly authenticate themselves [to] pay for [e-commerce] goods and/or services.” EX1007, ¶¶2, 12.

193. 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 applying its techniques to the well-known problem of *prior* potential or abandoned transactions. *See* Section XI. Thus, a POSA would have looked to the prior art for guidance as to specific techniques for extending Spindler’s teachings to such prior transactions. Anderson is such a reference.

194. Like Spindler, Anderson, which published well before Spindler, recognizes that a cumbersome user experience may frustrate users, “caus[ing] potential consumers to abandon their commerce transactions.” EX1007, ¶6. This

prevents a user from completing a transaction “due to a lack of time, a loss of a network connection, or other reasons,” and thus the user’s shopping cart may be “abandoned.” EX1007, ¶¶6, 125. Anderson, like Spindler, attempts to “increas[e] the ease and efficiency of commerce payment” for online consumers. EX1007, ¶11. 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, a POSA reviewing Spindler would have also been aware of Anderson’s concerns regarding abandoned transactions.

195. 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.

196. Like Spindler, Anderson attempts to simplify the online transaction process for consumers. EX1007, ¶9; EX1006, ¶6. Like Spindler, Anderson collects information regarding a user's interests (e.g., Spindler's "transactions of interest," Anderson's virtual shopping cart created by the user). EX1007, ¶113; EX1006, ¶11. Anderson and Spindler each generate a message that includes a link to allow the user to complete transactions related to those interests. EX1007, ¶¶126-128; EX1006, ¶34. Much like Spindler's "customized actionable item" that may be, for example, a link to purchase tickets, Anderson's virtual shopping cart includes a similar "selectable buy option" having a customized function to "allow[] the user to complete the abandoned transaction." EX1006, ¶84; EX1007, ¶127. Anderson also describes various options for sending the message to the user, including sending the link by text message, as in Spindler. EX1007, ¶127; EX1006, ¶34. Given the similarities of the techniques described by Spindler and Anderson, I believe a POSA would not have encountered any unreasonable technical challenges in modifying Spindler in view of Anderson.

197. I also believe a POSA would have had a reasonable expectation of success in modifying Spindler 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.

198. In the Spindler-Anderson combination, I believe a POSA would have been motivated to send Spindler's text messages 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). In my opinion, a POSA would have known 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. 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). Anderson describes that the advantages of such a technique are to "allow[] the user to complete the abandoned transaction" and to "allow a merchant to recapture abandoned carts." EX1007, ¶¶125, 127. In my opinion, modifying Spindler in view of Anderson would have yielded the predictable result of a computer system that customizes and sends transaction information to a user based on past transactions, such as an abandoned virtual shopping cart. I believe a POSA would have understood that Anderson's application would have provided a user with "another opportunity to complete the purchase of items" in an abandoned shopping cart and provided merchants an opportunity to recapture abandoned

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

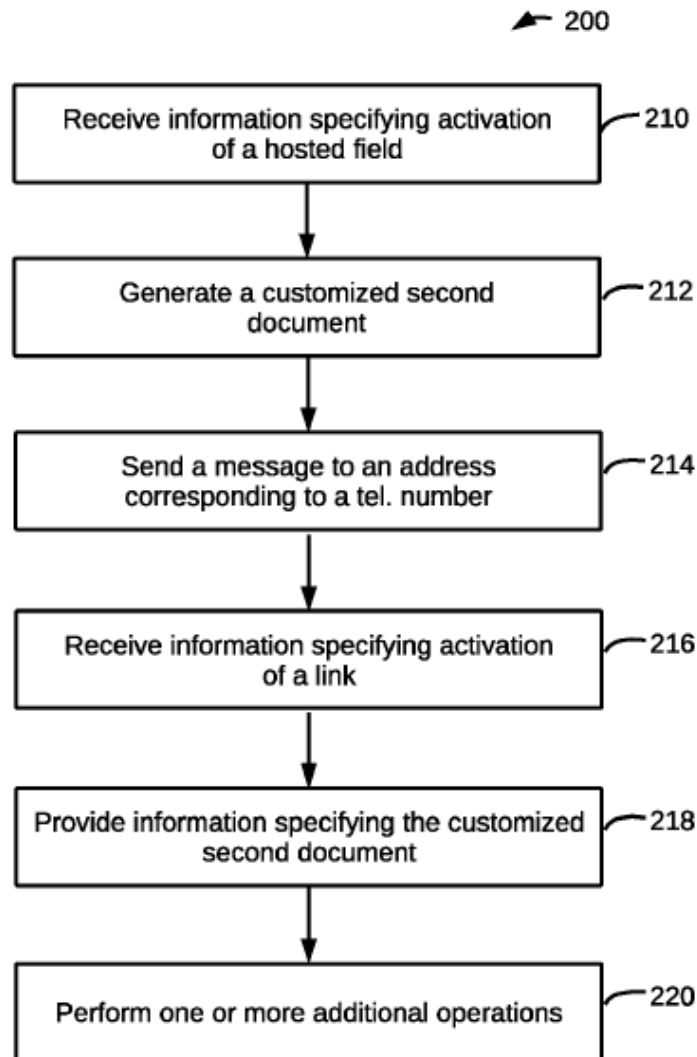
199. It is my opinion that a POSA would have found it obvious to modify Spindler in view of Anderson to arrive at the configuration of elements recited by the claims of the '978 patent, as I explain in detail below.

B. Independent claim 1

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

200. In my opinion, Spindler discloses the preamble.

201. Specifically, 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. Spindler's method 200 is the claimed computer-implemented method.



EX1006, FIG. 2.

2. **[1.A] configuring an authorized recipient associated with a telephone number, to be subscribed to receive additional content at the telephone number, in response to determining that the authorized recipient has previously provided authentication information;**

202. In my opinion, Spindler renders obvious element [1.A].

203. *First*, Spindler discloses “*an authorized recipient associated with a telephone number.*” Spindler’s computer “receives information” from a user

(“*authorized recipient*”) that “specifies a willingness to receive one or more messages from the computer and specifies **a telephone number.**” EX1006, ¶28 (emphasis added). In Spindler, the “user of electronic device 110-1” provides the system with “a telephone number associated with [that] electronic device 110-1.” EX1006, ¶32.

204. *Second*, Spindler discloses “*configuring [the] authorized recipient ... to be subscribed to receive additional content at the telephone number.*” After receiving the customer’s telephone number, Spindler’s computer may attempt to confirm the information. *See* EX1006, ¶85. “When the telephone number details are confirmed, they may become a **subscriber** customer in a data structure.” EX1006, ¶85 (emphasis added). The information from the user also “indicate[s] a willingness to **receive one or more messages**” (“*additional content*”). EX1006, ¶32 (emphasis added). Thus, after providing a telephone number to Spindler’s system, and upon verification of that information by Spindler’s system, a customer may be “*subscribed to receive additional content at the telephone number,*” as claimed.

205. Although Spindler does not explicitly disclose that the “*configuring the authorized recipient*” is “*in response to determining that the authorized recipient has previously provided authentication information,*” I believe Spindler renders this element obvious. In Spindler, the information provided for initially

subscribing to the system may include a “third-party API platform identifier and the subscriber customer telephone number.” EX1006, ¶85. Once this information is confirmed by Spindler’s computer system, the customer “may become a subscriber customer.” EX1006, ¶85.

206. Spindler also discloses the use of authentication information, such as, for example, an authentication cookie. EX1006, ¶¶53, 75, 92. Spindler explains that the use of such authentication information prevents use by a fraudulent user. EX1006, ¶78. Thus, I believe it would have been obvious to modify Spindler’s use of identifiers, such as an API identifier and a customer telephone number, at the time of subscriber registration to also include authentication information, such as an authentication cookie, to prevent fraud.

3. [1.B.1] activating one or more customized webpages or applications including at least one customized actionable item for performing online actions;

207. In my opinion, Spindler discloses or at least renders obvious element [1.B.1].

208. *First*, Spindler discloses “*activating one or more customized webpages or applications.*” In particular, after receiving (and confirming) the telephone number information, Spindler’s computer 112 “dynamically generates” (“*activat[es]*”) a “customized second document.” EX1006, ¶28. Spindler’s customized second document may be a “webpage” and may “include[] information

about one or more transactions ... of interest to an individual,” and thus represents the claimed “*one or more customized webpages.*” EX1006, ¶¶28, 49, Claim 4.

Claim 1 specifically recites that the claimed “*activating*” “*compris[es] generation of secure access information for performing the online actions,*” which Spindler discloses through generation of a hot cookie, as I explain below in detail in Section XV.B.4. Thus, Spindler’s generation of the second document and generation of a hot cookie correspond this step.

209. *Second*, Spindler discloses or at least suggests its customized second document (“*one or more customized webpages*”) “*includ[es] at least one customized actionable item for performing online actions.*” Spindler’s second document allows the subscriber to complete “a given [online] transaction ..., such as purchasing one or more tickets to an upcoming event.” EX1006, ¶52; *see also* EX1006 ¶¶9, 37, Claim 5. Spindler also discloses “an actionable item” such as, “e.g., a link to purchase tickets or view a customized webpage,” the link being sent to the subscriber as part of the message. EX1006, ¶84. Upon selecting the link from the message, “the subscriber can send a command to ... purchase tickets” to the service provider “for fulfillment and payment services.” EX1006, ¶84. As I explain above, I believe a POSA would have known that such a link would include, for example, a URL pointing to the webpage, and that such a URL would also be included in the webpage. *See above* Section XII.A.3. In my opinion, a

POSA would have understood, or at least found it obvious, to include such a link to purchase tickets (“*actionable item*”) as part of the customized second document in order to facilitate the disclosed ticket purchasing functionality. In addition, as I explain above, interactive messages containing selectable actions and links and mobile-device authentication and identity verification were well known before 2018. *See above*, Sections VIII.B, VIII.E.

4. [1.B.2] the activating comprising generation of secure access information for performing the online actions

210. In my opinion, Spindler discloses element [1.B.2].

211. Spindler discloses that “*the activating compris[es] generation of secure access information for performing the online actions.*” For example, Spindler’s computer may also “provide authentication information (such as an authentication cookie) to the [subscriber’s] electronic device to authenticate purchases.” EX1006, ¶53. This cookie may be generated and stored on the subscriber’s electronic device when the user subscribes, and the customized document is generated. *See* EX1006, ¶¶72-75. The cookie may be used to “confirm[] the identity of the client and further allows access 536 to complete a purchase.” EX1006, ¶92. Validation of this cookie “may allow financial information ... to process and pass authorization and processing.” EX1006, ¶93.

212. Spindler’s providing authentication information in the form of a cookie corresponds to the claimed “*generation of secure access information.*”

Spindler's completing a transaction in response to validation of the cookie corresponds to the claimed "*performing online actions.*" Thus, in my opinion, Spindler discloses this claim element.

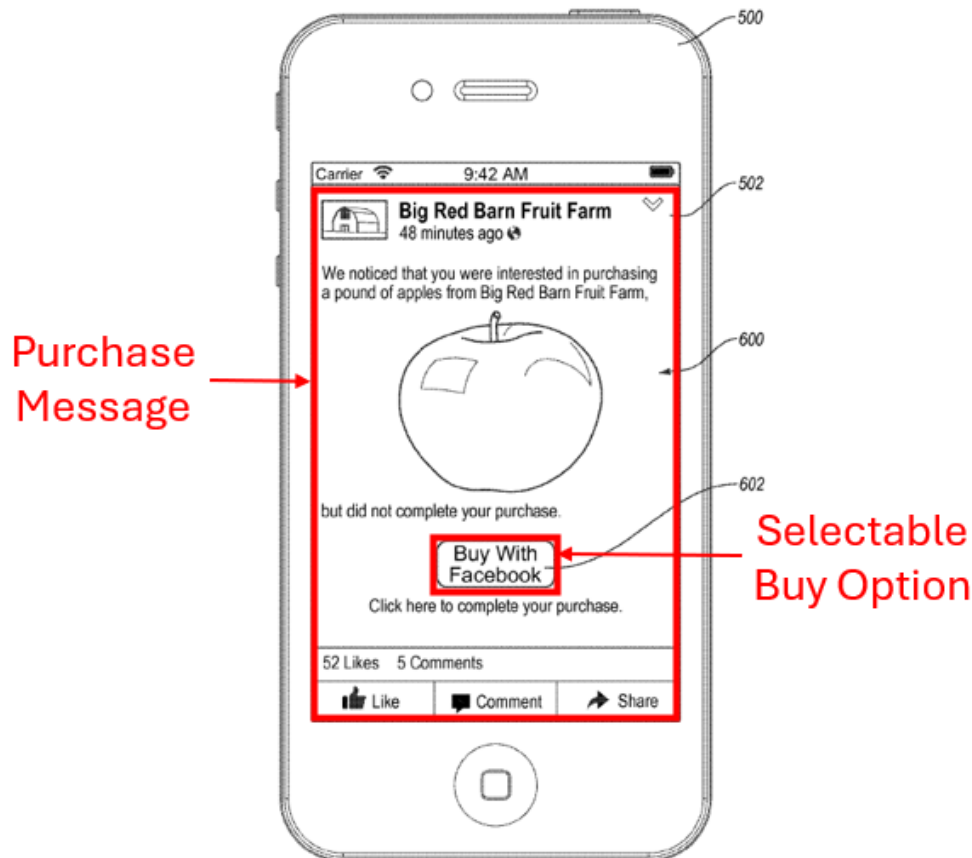
5. [1.B.3] wherein the at least one customized actionable item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey

213. In my opinion, the Spindler-Anderson combination teaches element [1.B.3].

214. As I discuss in Section XV.A, Spindler fails to explicitly disclose element [1.B.3].

215. Anderson, however, teaches "*the at least one customized actionable item corresponds to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey.*" 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 ("*prior online actions or intent marker performed by the authorized recipient*"), 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).

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

217. Anderson’s selectable buy option (“*the at least one actionable item*”) is associated with the abandoned virtual shopping cart (“*prior online action*”) because it allows the user to complete the purchase of items previously added to the virtual cart. 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 ’978 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, 38:6-10.

218. I believe it would have been obvious to a POSA to modify Spindler in view of Anderson to send Spindler’s messages in the case of an abandoned shopping cart, as taught by Anderson. *See* Section XV.A. In the resulting combination, in response to determining that a virtual shopping cart has been abandoned as taught by Anderson, Spindler’s computer would generate a customized second document (e.g., a customized webpage) listing the items in the abandoned shopping cart and then send a message to the user with a link (a “*customized actionable item*”) to the customized second document. The customized second document (“*customized webpage*”) allows the user to complete the transaction. *See above* Section XV.B.3. Thus, the “*customized actionable item*” in Spindler-Anderson “*corresponds to*” the items in the abandoned shopping cart (the claimed “*prior online actions or intent marker performed by the authorized recipient and associated with an online user journey*”).

219. It is my opinion, as I explain above in Section XV.A, that a POSA would have found it obvious to modify Spindler in view of Anderson to include a

customized actionable item corresponding to prior online actions or intent marker performed by the authorized recipient and associated with an online user journey, as claimed. In addition, as I explain above, recovery of abandoned online transactions and shopping carts was well known before 2018. *See above*, Section VIII.C.

6. **[1.C] generating, for the authorized recipient, a third party message associated with the one or more customized webpages or applications, the third party message including the at least one customized actionable item; and [1.D.1] causing transmission of the generated third party message to the authorized recipient,**

220. In my opinion, Spindler discloses elements [1.C] and [1.D.1].

221. *First*, Spindler discloses “*generating, for the authorized recipient, a third party message associated with the one or more customized webpages or applications*” and “*causing transmission of the generated third party message to the authorized recipient.*” Specifically, after dynamically generating the customized second document, Spindler’s computer “sends a message,” for example, a “text message” (e.g., “a Short Message Service (SMS) message”), to the subscriber (“*authorized recipient*”) at “an address corresponding to the telephone number” (“*causing transmission of the ... message*”). EX1006, ¶¶28, 34. The message may “include[] a link to the customized second document” (thereby being “*associated with the one or more customized webpages*”). EX1006, ¶50. Spindler’s message may be sent from the service provider (e.g., “Amplify”) on

behalf of a third-party client (e.g., “a third-party ticket provider or any third-party service or event provider”). EX1006, ¶¶67, 80; *see also* EX1006, ¶¶82, 84.

222. *Second*, Spindler discloses that “*the third party message includ[es] the at least one customized actionable item.*” Spindler’s message includes the “actionable item, e.g., a link to purchase tickets or view a customized webpage.” EX1006, ¶84.

7. **[1.D.2] wherein the generated third party message facilitates, for the authorized recipient, completion of the online user journey by providing access to an access point corresponding to the prior online actions or intent marker**

223. In my opinion, the Spindler-Anderson combination teaches element [1.D.2].

224. As I discuss above, the Spindler-Anderson combination teaches generating a customized second document and sending a text message to a user in response to determining a virtual shopping cart has been abandoned. The Spindler-Anderson combination further teaches “*the generated third party message facilitates, for the authorized recipient, completion of the online user journey by providing access to an access point corresponding to the prior online actions or intent marker.*”

225. Specifically, in the Spindler-Anderson combination, the text message may include a “customized actionable item” that is “an actionable item, e.g., a link to purchase tickets or view a customized webpage.” EX1006, ¶84. Similarly,

Anderson teaches that activating selectable buy option 602 may “direct the user to the virtual cart user interface 508 ... from which the user can complete the purchase of the items in the cart.” EX1007, ¶128. Anderson’s “direct[ing] the user to the [earlier] virtual cart user interface” teaches “*facilitat[ing] ... completion of the online user journey*” (completing the abandoned shopping transaction) “*by providing access to an access point corresponding to the prior online actions or intent marker*” (providing the user access the virtual cart user interface as it existed when the user abandoned the prior shopping transaction), as claimed. Accordingly, I believe this element is rendered obvious by the Spindler-Anderson combination.

C. Claim 2: The computer-implemented method of claim 1, wherein the at least one customized actionable item comprises a secure link, corresponding to an identity of the authorized recipient, to resume the online user journey at the access point and one or more prompts to complete the online user journey.

226. In my opinion, the Spindler-Anderson combination teaches claim 2.

227. First, Spindler discloses that “*the at least one customized actionable item comprises a secure link, corresponding to an identity of the authorized recipient.*” In particular, Spindler discloses that the “actionable item” may be, “e.g., a link to purchase tickets or view a customized webpage, such that the subscriber customer can send a command ... purchase tickets.” EX1006, ¶84. Spindler also discloses various security techniques (e.g., a “hot cookie,” “biometric authentication,” “facial recognition,” “fingerprint recognition”) that protect against

“fraudulent use of a link” and verify the identity of the user device, thereby making the link secure. EX1006, ¶¶78, 91-92.

228. Spindler’s “actionable item” does not “*resume the online user journey and include one or more prompts to complete the online user journey*,” but Anderson teaches this element. Specifically, Anderson’s selectable buy option “allows the user to complete the abandoned transaction.” EX1007, ¶127. In addition, the text “Buy With Facebook” on Anderson’s selectable buy option 602 and the prompt to “Click here to complete your purchase” comprise a “prompt” to complete the online user journey (i.e., completing the online shopping by completing the purchase). EX1006, FIG. 6. Thus, I believe a POSA would have been motivated to modify Spindler’s “actionable item” in view of Anderson’s “selectable buy option” to include a “prompt” to complete the online user journey. And, in my opinion, it would have been obvious for a POSA to modify Spindler in view of Anderson to arrive at the claimed actionable item for at least the same reasons as those I discuss above regarding claim 1.

D. Claims 5 and 6

229. In my opinion, the Spindler-Anderson combination teaches claims 5 and 6.

230. Spindler does not explicitly disclose claims 5 or 6, but the Spindler-Anderson combination does. As I explain above, it would have been obvious to

modify Spindler to also send messages in the case of an abandoned shopping cart that is formed by the user's prior online actions of placing items into a virtual shopping cart, as taught by Anderson. *See above* Section XV.A. Thus, Spindler-Anderson teaches "*the online user journey comprises online shopping associated with*" at least "*an abandoned online cart associated with the prior online actions or intent marker*" and "*an abandoned online search session purchase associated with the prior online actions or intent marker,*" as recited in claim 5.

231. I believe a POSA would have further understood that such a virtual shopping cart would be formed by a user virtually browsing for products or services. Thus, Spindler-Anderson teaches that "*the online user journey comprises online browsing associated with*" at least "*an abandoned online browsing session*" or "*an abandoned online search session purchase,*" each "*associated with the prior online actions or intent marker,*" as recited in claim 6.

- E. Claim 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.**

232. In my opinion, the Spindler-Anderson combination renders obvious claim 7.

233. In my opinion, Spindler renders obvious that “*the generated third party message comprises an 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. A POSA would have known that other text message protocols also existed and were well known prior to the ’978 patent, including RCS. *See* Section VIII.D. Based on Spindler’s disclosure that multiple different text message protocols could be used, I believe a POSA would have found it obvious to implement the generated third-party message as a well-known RCS message.

234. Spindler’s “actionable item” that is a link is a “*user interface element*” that can be selected. EX1006, ¶34.

235. Spindler does not explicitly disclose selecting the user interface element “*to select one or more of: an abandoned online cart associated with the prior online actions or intent marker,*” or “*an abandoned online purchase associated with the prior online actions or intent marker,*” but, in my opinion, the Spindler-Anderson combination teaches these elements. As I explain above, the Spindler-Anderson combination teaches sending text messages in the case of an abandoned shopping cart that is formed by the user’s prior online actions of placing items into a virtual shopping cart, as taught by Anderson. *See above* Section XV.A; *see also* EX1006, ¶34; EX1007, ¶¶126-128. Thus, I believe the Spindler-Anderson combination renders obvious that the generated third-party message includes a user interface element (e.g., a link that is an actionable item) to select at least “*an abandoned online shopping cart*” (e.g., the virtual shopping cart) or “*an abandoned online search session purchase*” that are associated with the prior online actions or intent marker, as claimed.

236. It is my opinion that a POSA would have found claim 7 obvious over the modification of Spindler in view of Anderson.

F. Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.

237. In my opinion, the Spindler-Anderson combination teaches or at least renders obvious claim 8.

238. As I discuss above for claim 7, Spindler renders obvious that “*the generated third party message comprises an RCS message.*” See Section XV.E.

239. The Spindler-Anderson combination further teaches that the message “*includ[es] at least one user interface element to select to complete an online user journey.*” As I explain above, Spindler-Anderson teaches sending such messages in the case of an abandoned shopping cart that is formed by the user’s prior online actions of placing items into a virtual shopping cart, as taught by Anderson, and provides the user a link to return to the virtual shopping cart and resume the transaction. See above Section XV.E. This link is the “*at least one user interface element to select to complete an online user journey.*”

240. It is my opinion that the Spindler-Anderson combination teaches or at least renders obvious that the generated third-party message comprises an RCS message including a user interface element that may be selected to complete an online user journey (e.g., completing the transaction), as claimed.

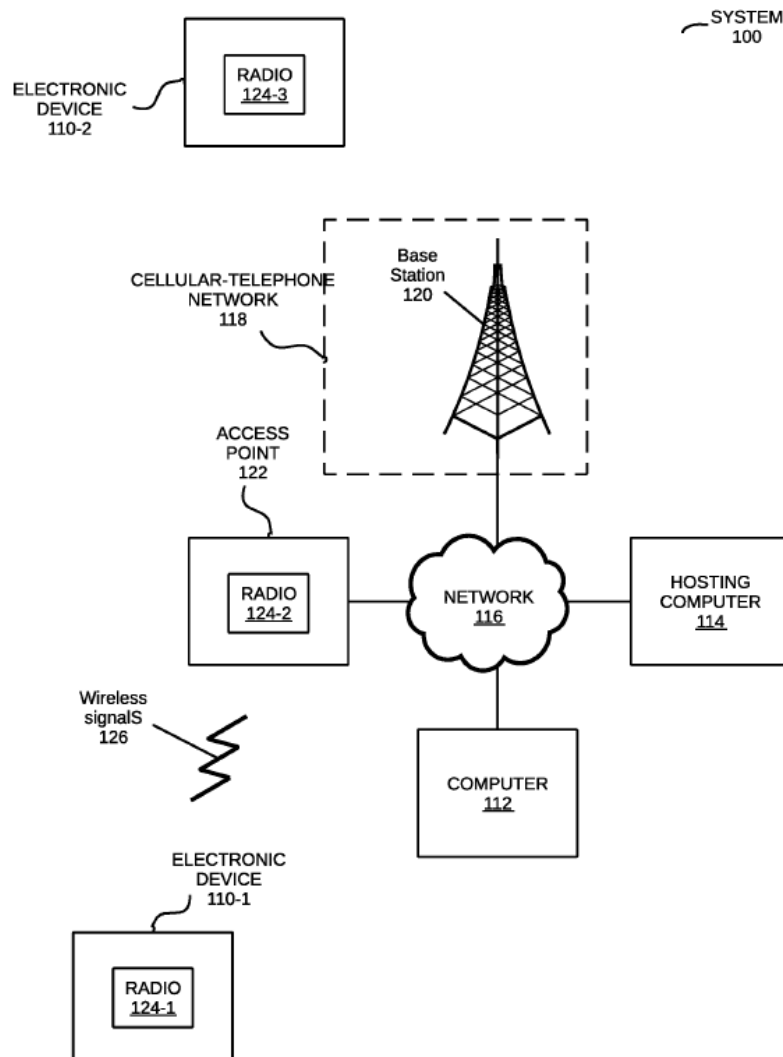
G. Independent Claim 9

241. Independent claim 9 recites a system comprising a “*processor*” and a “*memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations*” substantially the same as those recited in claim 1.

1. [9.P] A system comprising:

242. In my opinion, Spindler discloses the preamble.

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

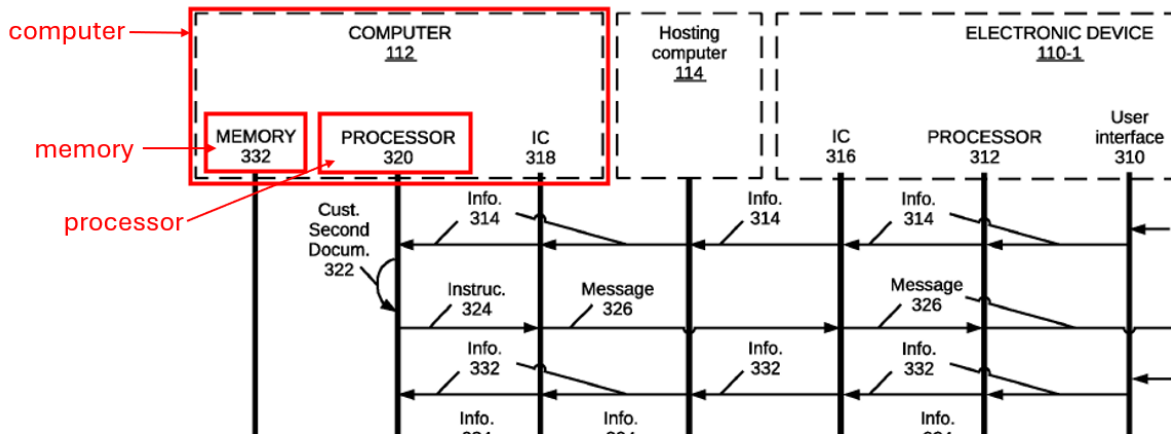


EX1006, FIG. 1.

2. [9.A] a processor; and

244. In my opinion, Spindler discloses element [9.A].

245. Spindler’s cloud-based computer 112 may include **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. [9.B] memory configured to store program instructions, wherein, when executed by the processor, the program instructions cause the processor to perform operations comprising:

246. In my opinion, Spindler discloses element [9.B].

247. Spindler discloses that computer 112 may include **memory 332**.

EX1006, ¶113, 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 actions in method 200.

EX1006, ¶113.

4. [9.C]–[9.F.2]

248. Claim elements [9.C]–[9.F.2] correspond to claim elements [1.A]–[1.D.2], respectively. In my opinion, the Spindler-Anderson combination discloses or renders obvious these elements for the same reasons I explain above regarding claim 1. *See above* Section XV.B. The only substantive difference from claim 1 is that in elements [9.D.1] and [9.E.1], the claim recites “*one or more customized applications*” instead of “*one or more customized webpages or applications*” as recited in elements [1.B.1] and [1.C]. However, the ’978 patent makes clear that a web browser for viewing a web link constitutes an “*application*.” EX1001, 8:65–9:1. Thus, Spindler’s web browser application displaying the webpage containing the URL provided in the link and Anderson’s network application each correspond to such a “*customized application*.”

H. Claims 10 and 13–16

249. Claims 10 and 13–16 are system claims that otherwise recite limitations that are identical to the method steps recited in claims 2 and 5–8. In my opinion, the Spindler-Anderson combination discloses or renders obvious these elements for the same reasons as I respectively explain for claims 2 and 5–8 above. *See above* Sections XV.C–XV.F.

I. Independent Claim 17

250. Independent claim 17 recites a “*non-transitory computer-readable ... storage medium storing program instructions that ... cause the computer to carry out one or more operations*” substantially the same as those recited in claim 1.

1. **[17.P] 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 carry out one or more operations comprising:**

251. In my opinion, Spindler discloses the preamble.

252. 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 carry out*” the operations in method 200. EX1006, ¶127.

2. **[17.A]–[17.D.2]**

253. Claim elements [17.A]–[17.D.2] correspond to claim elements [1.A]–[1.D.2], respectively. In my opinion, the Spindler-Anderson combination discloses or renders obvious these elements for the same reasons I explain above regarding claim 1. *See above* Section XV.B.

J. Claims 18 and 21-24

254. Claims 18 and 21-24 are storage medium claims that otherwise recite limitations that are identical to the method steps recited in claims 2 and 5-8. In my opinion, the Spindler-Anderson combination discloses or renders obvious these

elements for the same reasons as I respectively explain for claims 2 and 5-8 above.

See above Sections XV.C-XV.F.

XVI. GROUND 2B: CLAIMS 3-4, 11-12, AND 19-20 WOULD HAVE BEEN OBVIOUS OVER THE SPINDLER-ANDERSON-WOODWARD COMBINATION.

255. In my opinion, the combination of Spindler, Anderson, and Woodward renders obvious claims 3-4, 11-12, and 19-20.

A. Motivation to Combine

256. Claims 3, 4, 11, 12, 19, and 20 recite limitations related to a “*silent network authentication protocol*” (“SNAP”). Woodward includes explicit discussion of an exemplary “*silent network authentication protocol*.” It is my opinion that a POSA would have been motivated to modify the Spindler-Anderson combination further in view of Woodward to include a SNAP.

257. To start, Woodward, Spindler, and Anderson are in the same field of mobile device authentication and authorization for conducting transactions on a mobile device, and are thus analogous art to each other and to the '978 patent. *Compare* EX1008, ¶¶10-11, 13, *with* EX1001, 1:36-42, 1:62-64; EX1006, ¶¶2-3, 9, 31; EX1007, ¶¶2, 12.

258. The Spindler-Anderson combination teaches a computer system for online transactions that is capable of providing messages to a user about transactions, including in the case of the user abandoning a virtual shopping cart.

Spindler explicitly envisions this technique as being implemented on, for example, “a portable electronic device” or “a cellular telephone,” and describes the use of various cellular telecommunication protocols for implementing the technique. EX1006, ¶¶30-31. Spindler also describes performing “reviews to verify/validate subscriber customers and their information,” such as, for example, reviewing “subscriptions” and “telephone numbers.” EX1006, ¶79. However, Spindler does not provide any specific details on how such subscriber information may be verified and/or validated. Thus, a POSA would have looked to the prior art for guidance as to specific verification/validity techniques that could be used in Spindler’s system. One such well-known technique for verifying subscriber information was a SNAP. Woodward verifies a user-provided telephone number silently—that is, without requiring input from the user.

259. Woodward, like Spindler, describes that “[c]ustomers often provide a telephone number, such as a mobile device” for use in contacting the customer, including by voice calls or text messages. EX1008, ¶¶2, 11. However, Woodward recognizes that calling an incorrect or inactive number can result in fines for the entity contacting the user. EX1008, ¶3. To avoid such problems, Woodward describes techniques for “verifying that a phone number ... is authorized for such use.” EX1008, ¶10.

260. As I discuss above for Ground 1B, Woodward's technique uses "SS7 protocol data," to periodically perform verification of phone numbers. EX1008, ¶¶13-14, 18-22, 24; *see above* Section XIII.A.

261. I believe a POSA would have understood that Woodward's verification technique would have been readily incorporated into Spindler's computer system. This is because Woodward's technique relies on nothing more than a common computing device having only generic computer elements, such as one or more CPUs, a working memory, and a communications system, e.g., a modem operable to connect to a cellular network, all of which are present in Spindler's computing system. *Compare* EX1008, ¶¶27-28, *with* EX1006, ¶97, FIG. 8. In my opinion, implementing Woodward's verification technique in Spindler's computing system would have required nothing more than simply collecting data that was already being collected by other entities and leveraging that data to verify a phone number provided by a user before attempting to communicate with that user. Thus, I believe a POSA seeking to modify Spindler-Anderson further in view of Woodward would not have encountered any unreasonable technical challenges.

262. I also believe a POSA would have been motivated to modify the Spindler-Anderson combination further in view of Woodward for exactly the benefit described by Woodward—namely, that such a verification technique can avoid fines and other problems that arise from attempting to contact an incorrect or

inactive phone number. EX1008, ¶3. In my opinion, such a combination would merely amount to combining prior-art elements according to known methods to yield the predictable (yet improved) result of the computer system of the Spindler-Anderson combination being capable of verifying subscriber phone numbers to avoid using incorrect or inactive phone numbers, as explicitly taught by Woodward. And, because the combination would have required using only conventional computing elements and leveraging existing data collection, I believe a POSA would have had a reasonable expectation of success in modifying the Spindler-Anderson combination further in view of Woodward.

B. Claim 3: The computer-implemented method of claim 2, wherein selection of the secure link, on a computing device displaying the secure link, triggers a silent network authentication protocol to confirm the identity of the authorized recipient.

263. In my opinion, the Spindler-Anderson-Woodward combination teaches claim 3.

264. Spindler discloses that, during the transaction that is initiated by the user activating the actionable item (“*selection of the secure link*”), a “hot cookie” may be generated, including, for example, a client identifier, a subscriber number, and a protocol that are used to verify and authorize a transaction. EX1006, ¶¶91-92.

265. To the extent it is argued that Spindler’s “hot cookie” does not explicitly teach claim 3, the further combination with Woodward does.

266. Specifically, as I discuss above, it is my opinion that a POSA would have been motivated to further have the selection of the secure link, as taught by the Spindler-Anderson combination, trigger a “*silent network authentication protocol*,” as taught by Woodward, to confirm the identity of the authorized recipient. Section XVI.A.

267. Accordingly, I believe a POSA would have found it obvious to modify Spindler-Anderson further in view of Woodward to arrive at the configuration recited by claim 3.

C. Claim 4: The computer-implemented method of claim 3, wherein the silent network authentication protocol is performed by a third party associated with the generated third party message, and accessed through a mobile device carrier.

268. In my opinion, the Spindler-Anderson-Woodward combination teaches claim 4.

269. Spindler discloses that the “hot cookie” may be generated by the “Amplify Decision Delivery Processor (ADDP),” which is a third party between the user and the e-commerce application that is hosted by hosting computer 114, thus “*the silent network authentication protocol is performed by a third party*”. EX1006, ¶¶75, 77. Spindler’s ADDP may also be the entity that “send[s] a text message to the given subscriber customer with a link to the customized document,” thus, the “*third party [is] associated with the generated third party message*.” EX1006, ¶72. Spindler further discloses that the user’s electronic device and the

ADDP may communicate via mobile telecommunication technology (“*accessed through a mobile device carrier*”). EX1006, ¶30. Thus, Spindler discloses or renders obvious claim 4.

270. Nonetheless, to the extent it is argued that the Spindler-Anderson combination does not explicitly teach claim 4, the further combination with Woodward does.

271. Specifically, Woodward teaches that its phone number verification technique may be performed by an entity of which the user is a subscriber (“*third party*”), such as, for example, a bank or other financial institution. EX1008, ¶14. Woodward describes that the purpose of verification is to avoid the possibility of the subscribed entity incurring fines when sending messages (“*third party message*”) to the subscriber. EX1008, ¶3.

272. In modifying the Spindler-Anderson combination further in view of Woodward, I believe a POSA would have understood that Spindler’s Amplify service provider would be a “*third party associated with the generated third party message*.” This is because I believe a POSA would recognize that the entity that may face fines is the entity that actually prepares and sends the text messages (e.g., Spindler’s Amplify). It is thus my opinion that a POSA would have modified exactly this entity in Spindler to perform Woodward’s verification technique, to thereby safeguard itself from incurring fines or other penalties.

D. Claims 11-12, 19-20

273. Claims 11-12 and 19-20 are system and storage medium claims that otherwise recite limitations identical to the method steps recited in claims 3 and 4. In my opinion, Spindler-Anderson-Woodward discloses or renders obvious these elements for the same reasons I explain above for claims 3 and 4. *See above* Sections XVI.B-XVI.C.

XVII.GROUND 2C: CLAIMS 7-8, 15-16, AND 23-24 WOULD HAVE BEEN OBVIOUS OVER THE SPINDLER-ANDERSON-BOGINENI COMBINATION.

274. In my opinion, the combination of Spindler, Anderson, and Bogineni renders obvious claims 7-8, 15-16, and 23-24.

A. Motivation to Combine

275. Claims 7-8, 15-16, and 23-24 recite limitations related to a Rich Communication Service (RCS) message. As I explain above, such an RCS message is rendered obvious by Spindler. *See above* Sections XV.E-XV.F. To the extent it is argued that Spindler does not teach or suggest such an RCS message, Bogineni includes explicit discussion of an “*RCS message*.” It is my opinion that a POSA would have been motivated to modify Spindler-Anderson further in view of Bogineni to include an RCS message.

276. To start, Bogineni, Spindler, and Anderson are in the same field of mobile device communication as the '978 patent, and are thus analogous art to

each other and to the '978 patent. *Compare* EX1009, 1:6-7, 1:47-2:22, *with* EX1001, Abstract, 5:46-48, EX1006, ¶30, EX1007, ¶¶111-112.

277. In the Spindler-Anderson combination, the text message sent to a user “may include a Short Message Service (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, I believe 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.

278. One well-known technique for sending messages to a mobile device like Spindler’s electronic device is RCS messages, as taught by Bogineni. Bogineni teaches that “RCS provides a text-message system similar to short message service (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-Anderson combination in order to provide the additional functionality available with RCS messages.

279. I also believe a POSA would have had a reasonable expectation of success in further modifying the combination of Spindler-Anderson 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 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 have understood 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, 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. Thus, I believe a POSA would not have experienced any unreasonable technical hurdles in implementing these modifications.

280. 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 7: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select amongst one or more of: an abandoned online cart associated with the prior online actions or intent marker, an abandoned online purchase associated with the prior online actions or intent marker, an abandoned online wish list associated with the prior online actions or intent marker, an abandoned online browsing session associated with the prior online actions or intent marker, an abandoned online session associated with the prior online actions or intent marker, an abandoned online search session purchase associated with the prior online actions or intent marker, and an abandoned online form associated with the prior online actions or intent marker.**

281. In my opinion, the Spindler-Anderson-Bogineni combination teaches claim 7.

282. For at least the reasons I discuss above, I believe the Spindler-Anderson combination renders obvious claim 7. *See above* Section XV.E. To the extent it is argued that the Spindler-Anderson combination does not explicitly teach claim 7, the further combination with Bogineni does.

283. In the combination, Spindler’s “message” to the subscriber’s electronic device (“*the generated third party message*”) is specifically transmitted as “*an RCS message*” in order to provide the additional functionality RCS messages provide.

284. Finally, as I discuss above, Spindler teaches that the message may include “an actionable item, e.g., a link to purchase tickets or view a customized webpage.” EX1006, ¶84. When Spindler’s message is sent as an RCS message, as disclosed in Bogineni, the RCS message can similarly include the selectable links (“*at least one user interface element*”). And just as with Spindler’s “actionable item,” the selectable links in the RCS message would then point to the incomplete and/or abandoned transactions taught by the Spindler-Anderson combination.

285. It is thus my opinion that a POSA would have found it obvious to modify the Spindler-Anderson combination further in view of Bogineni to arrive at the configuration recited by claim 7.

C. Claim 8: The computer-implemented method of claim 1, wherein the generated third party message comprises an RCS message including at least one user interface element to select to complete an online user journey.

286. For at least the reasons I discuss above for claim 7, I believe the Spindler-Anderson-Bogineni combination teaches claim 8.

287. To the extent it is argued that the Spindler-Anderson combination does not explicitly teach claim 8, the further combination with Bogineni does.

288. As I discuss above, I believe a POSA would have been motivated to send Spindler’s “text message” using “*an RCS message*,” as taught by Bogineni. Section XVII.B. Thus, when implemented in the Spindler-Anderson combination, the RCS message would include the content of the text message, such as an

actionable item for completing the transaction (“*including at least one user interface element to select to complete an online user journey*”).

289. Accordingly, it is my opinion that a POSA would have found it obvious to modify the Spindler-Anderson combination further in view of Bogineni to arrive at the configuration recited by claim 8.

D. Claims 15-16, 23-24

290. Claims 15-16 and 23-24 are system and storage medium claims that otherwise recite limitations that are identical to the method steps recited in claims 7 and 8. In my opinion, the Spindler-Anderson-Bogineni combination discloses or renders obvious these elements for the same reasons I explain above for claims 7 and 8. *See above* Sections XVII.B-XVII.C.

XVIII. CONCLUSION

291. In signing this declaration, I recognize that the declaration will be filed as evidence in a post-grant 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.

292. 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.