

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,
PETITIONER,

v.

GOTV STREAMING, LLC,
PATENT OWNER.

CASE IPR2023-00757
PATENT 8,989,715

DECLARATION OF MR. STUART LIPOFF



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CURRENT EXHIBIT LIST

No.	Brief Description
1001	U.S. Patent No. 8,989,715
1002	Expert Declaration of Ben Bederson (“Bederson”)
1003	Curriculum Vitae of Benjamin B. Bederson, Ph.D.
1004	File History of U.S. Patent No. 8,989,715
1005	File History of U.S. Patent No. 8,478,245
1006	U.S. Patent Application Publication No. 2007/0150617 (“Hariki”)
1007	U.S. Patent Application Publication No. 2003/0023755 (“Harris”)
1008	U.S. Patent No. 7,447,486 (“Tamura”)
1009	U.S. Patent No. 6,996,627 (“Carden”)
1010	U.S. Patent No. 6,669,564 (“Young”)
1011	U.S. Patent No. 6,732,183 (“Graham”)
1012	U.S. Patent No. 6,507,727 (“Henrick”)
1013	Webpage excerpt from Computer History Museum at https://www.computerhistory.org/tdih/april/6/ (last accessed March 29, 2023)
1014	https://www.webdesignerdepot.com/2009/05/the-evolution-of-cell-phone-design-between-1983-2009/
1015	Excerpts from Dan R. Olsen, Jr., Developing user interfaces (1998)
1016	Alok Sinha, Client-server computing, in Communications of the ACM, 35, 7 (1992)
1017	Tim Berners-Lee, Robert Cailliau, Ari Luotonen, Henrik Frystyk Nielsen, and Arthur Secret, The World-Wide Web, Communications
1018	Eric Kasten, HTML: A Gentle Introduction, Linux Journal (July 1995), available at https://www.linuxjournal.com/article/1081
1019	U.S. Patent Application Publication No. 2013/0124961 (“Linburn ”)
1020	U.S. Patent No. 8,111,326 (“Talwar”)
1021	Order re Scheduling Conference, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , 2:22-cv-07556 (C.D. Cal. issued Feb. 13, 2023) (Doc. 61)
1022	Complaint in <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , No. 2:22-cv-07556-RGK-SHK (C.D. Cal. October 17, 2022)

No.	Brief Description
2001	CAMPBELL-KELLY ET AL., Mainframes to Smartphones: A History of the International Computer Industry, Ch. 11 (Harvard Univ. Press 2015)
2002	GALAZZO, Timeline from 1G to 5G: A Brief History on Cell Phones (Sept. 21, 2020), <i>available at</i> https://www.cengn.ca/information-centre/innovation/timeline-from-1g-to-5g-a-brief-history-on-cell-phones/
2003	Cingular MEdia Mall Games and Motorola Page (March 23, 2006), <i>available at</i> https://web.archive.org/web/20060323054853/http://www-xl.cingularextras.com/fuel/enduser/portal/endUserHTMLDir?c1=3&dc=0 and https://web.archive.org/web/20060323054841/http://www-xl.cingularextras.com/fuel/enduser/portal/endUserHTMLSelectPhone?makeName=motorola&dc=0
2004	Suite, Definition & Meaning - Merriam-Webster, <i>available at</i> https://www.merriam-webster.com/dictionary/suite
2005	U.S. Patent No. 7,380,205 to Bezrukov et al. (filed Oct. 28, 2003)
2006	TUTENEL ET AL., Rule-Based Layout Solving and Its Application to Procedural Interior Generation, Netherlands Organization for Scientific Research and the Netherlands ICT Research and Innovation Authority (2009)
2007	KRÖNER, Adaptive Layout of Dynamic Web Pages, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (2000)
2008	Scheduling Order, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , 2:22-cv-07556 (C.D. Cal. issued Feb 14, 2023) (Doc. 62)
2009	Klausner Decisions re Motions to Stay Pending IPR, Docket Navigator (generated June 8, 2023)
2010	Order Granting Stipulated Stay Pending IPR, <i>Flexstent, LLC v. Abbott Labs.</i> , No. 5-18-cv-02479 (C.D. Cal. Oct. 18, 2019) (Doc.77)
2011	Order Denying Renewed Stipulated Stay Pending IPR, <i>Shenzhen Gooloo E-Commerce Co., Ltd. v. Pilot, Inc.</i> , No. 2-22-cv-02219 (C.D. Cal. Jan. 12, 2023) (Doc. 95)

No.	Brief Description
2012	Renewed Joint Stipulation to Stay Case Pending Resolution of <i>Inter Partes</i> Reviews of '653 Patent, <i>Shenzhen Gooloo E-Commerce Co., Ltd. v. Pilot, Inc.</i> , No. 2-22-cv-02219 (C.D. Cal. Jan. 11, 2023) (Doc. 94)
2013	Klausner Time to Trial in Patent Cases, Docket Navigator (generated June 8, 2023)
2014	U.S. District Court—Judicial Caseload Profile for Central California from Federal Court Management Statistics—Profiles (Mar. 31, 2023), <i>available at</i> https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile0331.2023.pdf
2015	Order Denying Netflix's Motions, including for Invalidity under § 101, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , 2:22-cv-07556 (C.D. Cal. issued May 24, 2023) (Doc. 109)
2016	Order re Scheduling Conference, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , 2:22-cv-07556 (C.D. Cal. issued Feb. 13, 2023) (Doc. 61)
2017	Excerpts from Redacted and De-designated Corrected Declaration of Dr. John Villasenor Regarding Invalidity of U.S. Patent Nos. 8,989,715; 8,478,245; and 8,103,865, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , 2:22-cv-07556 (C.D. Cal. served June 23, 2023)
2018	Declaration of Joshua S. Wyde regarding authentication of exhibits (Aug. 10, 2023)
2019	Excerpts from Trial Transcript Day 2, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , No. 2:22-cv-07556 (C.D. Cal. Oct. 18, 2023)
2020	Excerpts from Trial Transcript Day 3, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , No. 2:22-cv-07556 (C.D. Cal. Oct. 19, 2023)
2021	Defendant Netflix, Inc.'s Notice of Motion and Rule 50(a) Motion for Judgment as a Matter of Law, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , No. 2:22-cv-07556 (C.D. Cal. Oct. 19, 2023) (Dkt. 389)
2022	Intentionally Left Blank
2023	Generate, Free On-Line Dictionary of Computing, <i>available at</i> https://foldoc.org/generate (last updated June 15, 1995).
2024	Output, TechTerms.com; The Computer Dictionary, <i>available at</i> https://techterms.com/definition/output (last updated December 12, 2006)

No.	Brief Description
2025	From, Merriam-Webster.com Dictionary, <i>available at</i> https://www.merriam-webster.com/dictionary/from (last visited December 12, 2023)
2026	Customized, Merriam-Webster.com Dictionary, <i>available at</i> https://www.merriam-webster.com/dictionary/customized (last visited December 29, 2023)
2027	Application-Specific, Wiktionary, <i>available at</i> https://en.wiktionary.org/wiki/application-specific (last visited Dec. 15, 2023)
2028	Excerpt from 10-K statement filed by Netflix with the Securities and Exchange Commission (Jan. 26, 2023)
2029	Excerpt from Netflix Women In Tech Event - UI Engineering - August 2018, Jessica Berglund, Netflix UI engineer, 22:43–23:02, <i>available at</i> https://www.youtube.com/watch?v=YpIGejJiaBo
2030	Ethan Kao Deposition Designations Video, <i>GoTV Streaming, LLC v. Netflix, Inc.</i> , No. 2:22-cv-07556 (C.D. Cal. Oct. 19, 2023) (Dkt. 413-13)
2031	Deposition of Dr. Benjamin Bederson (Jan. 10, 2024) ¹
2032	Second Declaration of Joshua S. Wyde regarding authentication of exhibits (Jan. 29, 2024)

¹ Per Party agreement, Dr. Bederson conducted a consolidated deposition regarding U.S. Patent Number 8,989,715 in IPR No. IPR2023-00757; Patent No. 8,478,245 in IPR No. IPR2023-00758; and U.S. Patent No. 8,103,865 in IPR No. IPR2023-00759. *See* Ex. 2031, 5:21–6:11.

CLAIM LISTING

	Limitation
1[pre]	1. A method of generating content that is renderable by a wireless device, said method comprising:
1[a]	transmitting, to said wireless device, an identification of a custom configuration of a plurality of rendering blocks of said wireless device,
1[b]	wherein said custom configuration is associated with an application and configures said plurality of rendering blocks to render content in a manner customized to said application; and
1[c]	transmitting, to said wireless device, compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application,
1[d]	wherein said compiled content is generated in part from execution of said application,
1[e]	wherein said compiled content comprises render commands expressed in a syntax that is generic to said wireless device, and
1[f]	wherein said custom configuration is applicable to said first and second compiled content,
1[g]	wherein said compiled content and said custom configuration are usable by a graphical user interface comprising said plurality of rendering blocks to generate renderable content based on said compiled content and said custom configuration.
2	2. A method as described in claim 1 wherein said renderable content comprises audio content and display content.
3	3. A method as described in claim 1 wherein said compiled content is partially resultant from said application operating on a remote server.
4	4. A method as described in claim 1 wherein said compiled content is specific to the rendering capabilities of said wireless device.
5	5. A method as described in claim 1 wherein each of said plurality of rendering blocks operates specific to a wireless device type of said wireless device and each is instructed using a syntax that is generic to said wireless device type.
6	6. A method as described in claim 5 wherein said custom configuration comprises a syntax that is generic regarding said wireless device type.
7	7. A method as described in claim 1 wherein said custom configuration comprises configuration information and content specific to said application.
8	8. A method as described in claim 1 wherein said custom configuration is one of a plurality of memory-stored custom configurations stored by said wireless device, and wherein said method further comprises transmitting an identifier that identifies said custom configuration.

	Limitation
9[pre]	9. A non-transitory computer readable medium comprising instructions therein that when executed by a processor implement a method of generating content that is renderable by a wireless device, said method comprising:
9[a]	transmitting, to said wireless device, an identification of a custom configuration of a plurality of rendering blocks of said wireless device,
9[b]	wherein said custom configuration is associated with an application and configures said plurality of rendering blocks to render content in a manner customized to said application; and
9[c]	transmitting, to said wireless device, compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application,
9[d]	wherein said compiled content is generated in part from execution of said application,
9[e]	wherein said compiled content comprises render commands expressed in a syntax that is generic to said wireless device, and
9[f]	wherein said custom configuration is applicable to said first and second compiled content,
9[g]	wherein said compiled content and said custom configuration are usable by a graphical user interface comprising said plurality of rendering blocks to generate renderable content based on said compiled content and said custom configuration.
10	10. A non-transitory computer readable medium as described in claim 9 wherein said renderable content comprises audio content and display content.
11	11. A non-transitory computer readable medium as described in claim 9 wherein said compiled content is partially resultant from said application operating on a remote server.
12	12. A non-transitory computer readable medium as described in claim 9 wherein said compiled content is specific to the rendering capabilities of said wireless device.
13	13. A non-transitory computer readable medium as described in claim 9 wherein each of said plurality of rendering blocks operates specific to a wireless device type of said wireless device and each is instructed using a syntax that is generic to said wireless device type.
14	14. A non-transitory computer readable medium as described in claim 13 wherein said custom configuration comprises a syntax that is generic regarding said wireless device type.
15	15. A non-transitory computer readable medium as described in claim 9 wherein said custom configuration comprises configuration information and content specific to said application.

	Limitation
16	16. A non-transitory computer readable medium as described in claim 9 wherein said method further comprises transmitting an identifier that identifies said custom configuration.
17[pre]	17. A server that is programmed to generate content that is renderable by a wireless device, comprising:
17[a]	a library of applications;
17[b]	a library of custom configuration data comprising a custom configuration that configures a plurality of rendering blocks of said wireless device to render content in a manner customized to an application from said library of applications requested by said wireless device; and
17[c]	a layout solver that transmits compiled content to said wireless device, said compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application,
17[d]	wherein said compiled content is generated in part from execution of said application by said server,
17[e]	wherein said compiled content comprises render commands expressed in a syntax that is generic to said wireless device, and
17[f]	wherein said custom configuration is applicable to said first and second compiled content,
17[g]	wherein said compiled content and said custom configuration are usable by a graphical user interface comprising said plurality of rendering blocks to generate renderable content based on said compiled content and said custom configuration.
18	18. A server as described in claim 17 wherein said renderable content comprises audio content and display content.
19	19. A server as described in claim 17 wherein said compiled content is specific to the rendering capabilities of said wireless device.
20	20. A server as described in claim 17 wherein said custom configuration comprises configuration information and content specific to said application.

I. INTRODUCTION²

¶1. My name is Mr. Stuart Lipoff. I have been retained by GoTV Streaming, LLC, (“Patent Owner” or “GoTV”) to provide my expert assessment and technical opinions in connection with the above captioned inter partes review (“IPR”) of U.S. Patent No. 8,989,715 (“’715 Patent” or “Patent-at-Issue”), Ex. 1001.

¶2. Specifically, I will provide my opinion regarding Claims 1–20 (“Challenged Claims”) over U.S. Patent Application Publication No. 2007/0150617 (“Hariki”) in view of U.S. Patent Application Publication No. 2003/0023755 (“Harris”).

¶3. This declaration is based on information currently available to me. I reserve the right to expand, modify, or supplement my opinions if I become aware of evidence or information that was not available for review at the time I drafted this declaration.

¶4. GoTV is paying me at a rate of \$375 per hour plus expenses for my study and testimony in this case. This compensation is not contingent upon my performance, the outcome of this IPR, or any issues involved in or related to this IPR.

² All emphasis is added in this report unless otherwise noted.

II. PROFESSIONAL BACKGROUND AND QUALIFICATIONS

¶5. I have attached my resume as Appendix A to this declaration. While my resume summarizes my educational background and work history, I will now expound upon my qualifications and professional background related to the field of wireless communication systems for rendering applications on a wireless device, distributed software applications that have a graphical user interface, and related applications and technology.

¶6. I have bachelor's degrees in electrical engineering and in engineering physics, both from Lehigh University. I also have a master's degree in electrical engineering from Northeastern University, and an MBA degree from Suffolk University.

¶7. I was employed for 25 years by Arthur D Little, Inc. as VP and Director of Communications, Information Technology, and Electronics ("CIE"), where I was responsible for the firm's global CIE practice in laboratory-based contract engineering, product development, and technology-based consulting.

¶8. I was employed by Bell & Howell Communications Company for four years as a Section Manager.

¶9. I was employed by Motorola's Communications Division for three years as a Project Engineer.

¶10. At both Bell & Howell and Motorola, I had project-design responsibility for wireless communications devices with graphical user interfaces controlled by remote terminal servers.

¶11. I have extensive experience—over a 50-year period—working on legacy and modern applications that relate to the subject matter of the challenged patents involving the delivery of remote information and multimedia content to be rendered on intelligent devices.

¶12. For Comcast Corporation, I supported a number of their initiatives in public network wireless services. This support included identifying applications and the supporting technologies to add value beyond basic voice services.

¶13. For Securus, a provider of pay per call alternate operator services to prison inmates, I evaluated their technology and assets with an emphasis on their ability to associate calling and calling party phone numbers with databases combined with their employees with multiple language skills. Following this evaluation, I worked with the client to identify and plan for offering services to clients other than prison inmates. Examples of such clients included government operated call centers, hospitals, police departments, and telephone catalog sales call centers making use of intelligent rendering engines in cellphones.

¶14. For International Mobile Machines (“IMM”), a firm that licenses patents to cellphone OEMs, I developed a roadmap of future services, architectures,

and technology to support alternative visions of the development of cellular. I then worked with the firm to generate R&D projects designed to increase the base of patents for IMM to license in the future. The service concepts I generated employed technologies that supported distributed software applications that have a graphical user interface.

¶15. For International Finance Corporation (the venture capital group of The UN's World Bank), I evaluated an investment opportunity in Cellon Inc, a PRC based cellphone design house. This project included inspection of Cellon's facilities in the PRC and France as well as detailed review of Cellon's facility assets, technology strengths, and intellectual property. Of particular focus was Cellon's technology to support enhanced services with graphic user interfaces.

¶16. For the patent and licensing division of The General Electric Company, I evaluated a number of patent portfolios in the wireless telecommunications space and provided feedback to the client on the application and value of these patents.

¶17. For Tele2 (a pan European cellular and wireline telephone company), I supported Tele2's efforts to procure an advanced cordless telephone from contract manufacturers in China ("PRC"). This involved development of detailed technical specifications, coordination of a request for information, ("RFI"), and evaluation of the responses. The devices were all enhanced to provide non-voice services.

¶18. For Millicom International (a cellular provider in several developing nations), I studied capital spending and developed best practice benchmarks. The work products were then employed in forward planning and to develop strategies for improvement of their financial performance. The project involved the collection of data from over 25 systems in 12 countries and developing capital efficiency metrics that were normalized to the specific geographic and demographic specifics of each system. The project not only provided a measure of present and historical capital efficiency but also provided a management system for future deployment.

¶19. For the banks providing financing to The Iridium Mobile Satellite Service, I served as a technical advisor and assisted in developing the contracts between the banks and Motorola in which Motorola secured the loan. As a technical advisor, I had extensive day-to-day interactions with Motorola's manufacturing and product design organizations. The interactions included examination of the manufacturing cost, methods, and processes of Motorola's Subscriber Products Group including voice and data applications of cellphones, pagers, and related portable wireless data communications devices.

¶20. For Sony USA, I supported a feasibility analysis of a planned investment by Sony into a wireless PCS carrier in the USA. This involved the development of advanced concepts employing distributed software applications that have a graphical user interface and exploring alternative business models, financial

analysis, and technical analysis in order to determine financial attractiveness and risk of proceeding with the venture.

¶21. For Samsung Electronics Global Marketing, I developed a strategic framework for a line of portable and personal multimedia products to be introduced in the USA. The project included developing a common theme for a set of products that ranged from cellphones, MP3 music players, electronic books, PDAs, to hand-held games. One common theme was developed, product features and capabilities were detailed, and market adoption models were developed to forecast demand.

¶22. For Korea Mobile Telephone (“KMT”), I supported the project that developed a strategic plan to position KMT relative to Korea Telecom by enhancing their service offerings to support distributed software applications that have a graphical user interface.

¶23. For Symbol Technology, a manufacturer of hand-held industrial computing products, I co-developed the protocol for a wireless local area network that was the basis for the current IEEE 802.11 wireless LAN standard. Later I worked with this same client to select voice over internet protocol (“VoIP”) codecs and algorithms that support the client’s current product offering including cordless industrial voice telephony over a quality of service (“QoS”) managed wireless IP network.

¶24. I helped lead the project for CableLabs that studied the technology and economics of wireless personal communications technology. This project is highlighted in the history of CableLabs in their website as one of the significant accomplishments of “The Labs.” The project included the selection of CDMA technologies and the development of strategies to compete with incumbent cellular carriers including the offering of non-voice multimedia services. This effort led to the formation of a consortium between Sprint and the cable MSOs that has evolved into the present Sprint PCS business.

¶25. For Cambridge Silicon Radio (UK) (“CSR”), I worked with the client to develop a prioritized list of applications for their Bluetooth component offerings. The project mapped applications into specific target customers and was based upon an analysis that considered the market needs with CSR’s capabilities, a prioritized roadmap of products was developed to steer the R&D portfolio. A major focus of this effort was to identify Bluetooth applications for data transfer for multimedia display applications.

¶26. For the investors in Mitel Semiconductor (Canada), I assisted the client in valuing their telephone and business phone system telecommunications semiconductor device products and know-how in the firm. The project required a competitive review of Mitel Products and technology, and an evaluation of the future likely needs of the marketplace. The scope of the project included supporting

graphics displays on the desktop phone for delivery of multimedia information such as weather and stock prices. My recommendations indicated which products should be the basis of further investment and most likely to be valued in a sale or licensing.

¶27. For TRW, I participated in an assignment which reviewed all their non-classified military and defense technology to identify commercial applications. A number of systems I reviewed included applications in security for wireless communications and antifraud that were developed and which became the basis for successful spin-off operations.

¶28. For a corporate cross-sector event organized by Motorola Corporate for all their divisions, I prepared presentations on the visions of the future in each of the major sectors in which Motorola has an interest. The presentations included: consumer electronics, medical, automotive, industrial electronics, and communications. The presentations provided a basis for the cross-sector teams to engage in long term planning for each division.

¶29. For Bell South, I contributed to a major operations improvement project involving developing forecasts for the future competitive environment, customer needs, a strategy to compete, and new business models. The scope of this project included planning for videotex delivery from Bell South servers to consumer desktop videotex terminals. These forecasts were then applied to develop business redesign recommendations and a list of new service offerings.

¶30. I am a registered professional engineer (by examination) in The Commonwealth of Massachusetts and the State of Nevada. I also hold an FCC General Radiotelephone License and a Certificate in Data Processing from the Association of Computing Machinery (“ACM”)-supported Institute for the Certification of Computing Professionals.

¶31. I am a fellow of the Institute of Electrical and Electronics Engineers (“IEEE”) Consumer Electronics, Communications, Computer, Circuits, and Vehicular Technology groups. I am also a member of the IEEE Consumer Electronics Society Board of Governors (i.e., board of directors), and was the Boston Chapter Chairman of the IEEE Vehicular Technology Society. I served as President of the IEEE Consumer Electronics Society from 1996 to 1997 and as Chairman of the Consumer Electronics Society Technical Activities and Standards Committee, as VP of Publications, and most recently at VP of Industry Activities and Standards for The IEEE Consumer Technology Society (formerly Consumer Electronics Society). I am currently the historian for The Society. I have also chaired the search committee for the Sony-supported Mazura Ibuka Award in consumer electronics.

¶32. In my capacity as a fellow of the IEEE Consumer Technology Society, I have chaired conference panels sessions and reviewed papers submitted for publication dealing with all manner of advanced business and consumer multimedia

systems involving distributed software applications that have a graphical user interface.

¶33. As Vice President and Standards Group Chairman of the Association of Computer Users (“ACU”), I served as the ACU representative to the ANSI X3 Standards group. For the Federal Communications Commission’s Citizens advisory committee on CB radio (“PURAC”), I served as Chairman of the task group on user rule compliance. I have also been elected to membership in the Society of Cable Television Engineers, ACM, and the Society of Motion Picture and Television Engineers.

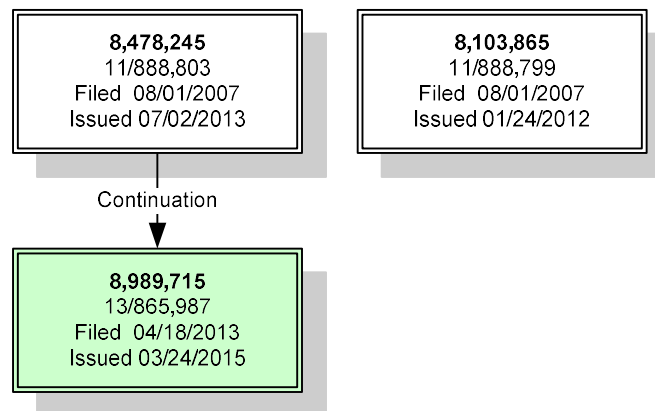
¶34. I am listed as an inventor/co-inventor on the following U.S. patents:

ID	Title	Filing Date
US-8200291-B2	Vehicle safety device for reducing driver distractions	7/23/2008
US-RE44274-E	Ubiquitous imaging device based check image capture	3/14/2012
US-2005108096-A1	Portable electronic authorization system and method	10/20/2004
US-2005116026-A1	Portable electronic authorization system and method	11/12/2004
US-2012252350-A1	Vehicle safety device for reducing driver distractions	6/11/2012
US-2009212110-A1	Virtual barcodes	9/15/2008
WO-2005043438-A1	Portable electronic authorization system and method	10/20/2004
US-5692093-A	Method and apparatus for eliminating television commercial messages	1/4/1994

ID	Title	Filing Date
US-5455630-A	Method and apparatus for inserting digital data in a blanking interval of an RF modulated video signal	8/6/1993
EP-0693215-B1	Method and apparatus for eliminating television commercial messages	1/6/1994
US-4529941-A	FSK Demodulator utilizing multiple-phase reference frequencies	11/29/1982

III. PATENT FAMILY

¶35. The Patent-at-Issue is part of a group of related patents shown as follows.



All three patents share substantially the same specification.

IV. RELEVANT TIME

¶36. I have been asked to assume that the Patent-at-Issue has an effective priority date of August 1, 2007 (“Effective Priority Date”).

V. LEVEL OF ORDINARY SKILL IN THE ART

¶37. I understand that Petitioner has proposed that “[a] person of ordinary skill in the art (‘POSITA’) at the time of the earliest available priority date

(August 1, 2007) for the '865 patent would have had a bachelor's degree in electrical or computer engineering, or a closely related scientific field such as computer science, and two years of work experience with remote page display rendering and/or remote server applications. Alternatively, any lack of work experience could be remedied with additional education (e.g., a Ph.D.) concentrating on multimedia content transmission and/or remote server applications, and likewise, a lack of education can be remedied with additional work experience in multimedia content transmission and/or remote server applications (e.g., 4-5 years)." Pet. 9–10 (citing Ex. 1002, Bederson Dec'1 ¶38).

¶38. I further understand that Patent Owner generally concurs with Petitioner that a POSITA would have an electrical/computer engineering degree or a degree in a closely related field, and Patent Owner's view is that the POSITA would have a couple of years' experience in the "field of wireless communication systems" and "[m]ore particularly, . . . method[s] and system[s] for rendering applications on a wireless device." See Ex. 1001, 1:13–16. Likewise, Patent Owner concurs that more education may substitute for experience, and vice versa.

¶39. I have considered both proposals, and my analysis would not change under either.

¶40. It is my opinion that I would at least qualify as a person of ordinary skill in the art at the relevant time under any of the above descriptions, and that I exceed

this level of knowledge, experience, and education so that I am qualified to provide an expert opinion in this proceeding.

¶41. I have approached my validity analysis from the perspective of a person of ordinary skill in the art as of the effective priority date of the Patent-at-Issue.

VI. GOVERNING LAW

¶42. I am not a lawyer and am not providing any legal opinions. However, I have been informed and understand that certain legal standards are to be applied by technical experts in forming opinions regarding the meaning and patentability of patent claims in an IPR as set forth below.

A. Claim Construction Generally

¶43. My understanding is that claim terms are generally given their plain-and-ordinary meaning. The plain and ordinary meaning of a term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.

¶44. Although the specification may aid in interpreting the meaning of claim language, particular embodiments and examples appearing in the specification will not generally be “read into” the claims.

¶45. Although extrinsic evidence can also be useful, it is less significant than the intrinsic record in determining the legally operative meaning of claim language.

For instance, technical dictionaries may be helpful, but they may also provide definitions that are too broad or not indicative of how the term is used in the patent.

¶46. Two exceptions to the general rule that claim terms are construed according to their plain and ordinary meaning are when the patentee (1) acts as his/her own lexicographer or (2) disavows the full scope of the claim term either in the specification or during prosecution.

¶47. To act as his/her own lexicographer, the patentee must clearly set forth a definition of the disputed claim term, and clearly express an intent to define the term. To disavow the full scope of a claim term, the patentee's statements in the specification or prosecution history must represent a clear disavowal of claim scope.

¶48. Under the doctrine of claim differentiation, each claim in a patent is presumed to have a different scope. The presumption is rebutted when, for example, the construction of an independent claim leads to a clear conclusion inconsistent with a dependent claim. The presumption is also rebutted when there is a contrary construction dictated by the written description or prosecution history. The presumption does not apply if it serves to broaden the claims beyond their meaning in light of the specification.

¶49. Claim terms should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.

B. Enablement

¶50. My understanding is that patents must describe the manner and process of making and using the invention, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention (i.e., be “enabled”). I have been told that the enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the full scope of the claimed invention without undue experimentation as of the patent’s effective filing date.

¶51. Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims.

¶52. I have further been informed that although the knowledge of one skilled in the art is relevant, the novel aspect of an invention must be enabled in the patent. That is, it is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.

C. Means Plus Function Terms

¶53. My understanding is that a patent claim may be expressed using functional language, and this is often referred to as “means plus function” claiming. Under this provision, an applicant can describe an element of his invention by the result accomplished or the function served, rather than describing the item or element to be used. That is, instead of claiming a machine with Part A “connected by a two-penny nail” to Part B, a patentee can claim the same machine more generally as Part A, Part B, and “means of connecting Part A to Part B.” In this way, the patent would cover systems with Part A and Part B connected by any corresponding means of connection disclosed in the patent, as well as equivalents thereof.

¶54. When means plus function claim structure applies, the scope of the functional term is limited to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof. The equivalents are for individual elements of the claim, not to the invention as a whole.

¶55. Construing a means-plus-function limitation involves multiple steps. The first step . . . is a determination of the function of the means-plus-function limitation. The next step is to determine the corresponding structure disclosed in the specification and equivalents thereof. A structure disclosed in the specification is “corresponding” structure only if the specification or prosecution history clearly

links or associates that structure to the function recited in the claim. The focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is clearly linked or associated with the recited function. The corresponding structure must include all structures that actually perform the recited function.

¶56. But no more structure should be identified than necessary to perform the function, and structural features that do not actually perform the recited function do not constitute corresponding structure, and, thus, do not serve as claim limitations.

¶57. While there is a presumption that means plus function claiming applies when the claim language includes the words “means for,” and that it does not apply in the absence of this phrase, the presumption ultimately stands or falls according to whether one of ordinary skill in the art would understand the claim with the functional language, in the context of the entire specification, to denote sufficiently definite structure for performing the function. That is, when a claim term lacks the word “means,” the non means plus function presumption can be overcome if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.

¶58. To define sufficiently definite structure, it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.

¶59. Some well-known “nonce” words (generic or coined structural terms lacking a clear meaning such as “widget”) that can operate as a substitute for “means” in the context of a means plus function analysis include “module,” “mechanism,” “element,” and “device” that reflect nothing more than verbal constructs tantamount to using the word “means,” because they typically do not connote sufficiently definite structure.

¶60. One way to find a means plus function claim anticipated or obvious is to show structure corresponding to the patent’s claimed functional means, or an equivalent thereof, in the prior art. That is, a structural analysis is required when means-plus-function limitations are at issue; a functional analysis alone will not suffice.

D. Obviousness

¶61. I have been informed that the basis for challenging a patent in an IPR for obviousness stems from the statute 35 U.S.C. § 103(a) that reads as follows:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if 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 person having ordinary skill in the art to which said subject matter pertains.

¶62. My understanding of the law is that a patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed in a prior art reference (i.e., anticipated), if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.

¶63. I understand that when considering obviousness, the determination is based upon: (a) the scope and content of the prior art; (b) the differences between the prior art and the claim; (c) the level of ordinary skill in the art; and, (d) certain objective indicators of non-obviousness, if applicable.

¶64. Objective indicators, considered in the last factor (d) of an obviousness analysis, include: (i) commercial success of products covered by the patent claims; (ii) a long-felt need for the invention; (iii) failed attempts by others to make the invention; (iv) copying of the invention by others in the field; (v) unexpected results achieved by the invention as compared to the closest prior art; (vi) praise of the invention by the infringer or others in the field; (vii) the taking of licenses under the

patent by others; (viii) expressions of surprise by experts and those skilled in the art at the making of the invention; and (ix) the patentee proceeded contrary to the accepted wisdom of the prior art. I further understand that these objective indicators are only relevant if they are the result of the merits of a claimed invention, rather than the result of design needs, market-pressure, advertising, or similar activities.

¶65. I have been informed that whether there are any relevant differences between the prior art and the claimed invention is to be analyzed from the view of a person of ordinary skill in the relevant art at the time of the invention.

¶66. In analyzing the relevance of the differences between the claimed invention and the prior art, I have been informed that I must consider the impact, if any, of such differences on the obviousness or non-obviousness of the invention as a whole, not merely some portion of it.

¶67. I understand that the person of ordinary skill faced with a problem is able to apply his or her experience and ability to solve the problem and may also look to any available relevant prior art to help solve the problem. That is, the person is not an automaton, and that I may account for the inferences and creative steps that a person of ordinary skill in the art would have employed in reviewing the prior art at the time of the invention. On one hand, if the claimed invention combined elements known in the prior art and the combination yielded results that were predictable to a person of ordinary skill in the art at the time of the invention, then

this evidence would make it more likely that the claim was obvious. On the other hand, if the combination of known elements yielded unexpected or unpredictable results, or if the prior art teaches away from combining the known elements, then this evidence would make it more likely that the claim that successfully combined those elements was not obvious.

VII. MATERIALS CONSIDERED

¶68. In forming my opinions expressed herein, I have considered the documents listed in the Current Exhibit List beginning on page 6. I have also considered the Petition (Paper 2), Patent Owner’s Preliminary Response (Paper 8), the Institution Decision (Paper 11), Patent Owner’s Request for Rehearing (Paper 13), and Decision Denying Motion for Rehearing (Paper 18).

VIII. OVERVIEW OF THE PATENT-AT-ISSUE

A. Historical Context

¶69. By 2005, people were beginning to “web surf” on their smartphones; however, the Internet capabilities of existing devices were primitive because phones’ internet interfaces were designed for low-bandwidth networks. Ex. 2001, 13–14. For instance, “3G,” launched in Japan by NTT DoCoMo in 2001, only had 2 Mbps data transferring capabilities on average, which allowed “the ability to surf the internet (basic HTML pages at the time).” Ex. 2002, at 2; *see also* Pet. 7 (characterizing 3G as capable of transferring low bandwidth type data, such as

“emails and instant messages”). 3G gave rise to new smartphone form factors, such as the Blackberry (launched in 2002) shown below.



Image of the BlackBerry 5810, Ex. 2002, at 2.

¶70. “The smartphone market changed radically with the arrival of Apple’s iPhone in June 2007.” Ex. 2001, 12. The iPhone, shown below, was touted as “revolutionary” in that it was not just a phone and a music player, but an “Internet communicator” where the entire user interface of the iPhone was a touchscreen. *Id.*



Ex. 2002, at 2–3.

¶71. It was around this time, in August of 2007, that the Patent-in-Suit was filed. At the time, the wireless device marketplace offered many different mobile devices with very different hardware-specific attributes. The Panel can view the

variety by perusing the pictures in the first 75 pages of Petitioner's Exhibit 1014. Therefore, game manufacturers would provide different versions of games based upon phone maker, model, and phone capabilities as seen in the Cingular Games page circa 2006:



Ex. 2003 at 5,7.

¶72. While wireless devices were becoming more powerful, such that each device could run its own applications, interactions with servers were still very limited due to the primitive browser interfaces that were a legacy of the wireless networks' low bandwidths as described above.

¶73. Apple would not unveil its software development kit for the iPhone until March 2008 or launch its App Store until July of that same year. Ex. 2001, at 14. It was not until November 2007, that Google, T-Mobile, HTC, Qualcomm, and Motorola announced the formation of the Open Handset Alliance for the development of the Android operating system, and Google’s own app store, Android Market, was not announced until August 2008. *Id.* 15. 4G wireless networks that had a minimum of 12.5 Mbps bandwidth were not commercially introduced until 2009. Ex. 2002, at 3.

B. Subject Matter

¶74. Circa August 1, 2007, wireless devices generally ran “application[s] locally.” Ex. 1001, 2:3–5. And there were multiple types of portable wireless devices, multiple manufacturers of each type of device, multiple models from each manufacturer, and multiple versions of each model. *Id.* 1:21–32. Each particular combination of type, manufacturer, model, and version of a device potentially had unique “device attributes” (i.e., rendering capability, display resolution, color capability, display size, etc.). *Id.* 1:32–36; 11:20–31; 11:43–56.

¶75. Therefore, developers that wished to write an application to run on multiple devices and “fully utilize” each device’s attributes had to tailor versions of the application per device, building each one “from the ground up.” *Id.* 1:37–43; 51–54. Given that providers had to pay to develop, debug, and qualify every version

of an application, *id.* 1:44–47, many software developers simply chose to limit their titles to a few platforms, *id.* 1:62–67.

¶76. Additionally, maintenance of an application (i.e., upgrades, updates, and patches to the code) across target platforms similarly required a costly per-device effort. *Id.* 2:1–7. And even if the application developer did provide updates, many users failed to install the update to the locally running applications because it was a “laborious process” of “navigating through multiple pages in order to determine whether an update [was] ready” and “actively initiat[ing] the update process.” *Id.* 2:7–14.

¶77. In light of the state of application development at the time, the Patent-at-Issue contemplates a method and system for rendering centrally running remote applications on a wireless device where: (1) the application “output . . . is device specific based on the wireless device attributes,” *id.* 2:22–26, with its own “look and feel,” *id.* 7:55–63; 10:56–58; 18:37–42; yet (2) the developers can still write a “generic application” being less concerned with “tailoring their applications for a given device type,” *id.* 2:22–26. Additionally, the claimed solution allows for developers to maintain applications centrally, “eliminating the need to update/patch each application on each wireless device.” *Id.* 2:37–43.

C. Invention as Illustrated through Embodiments

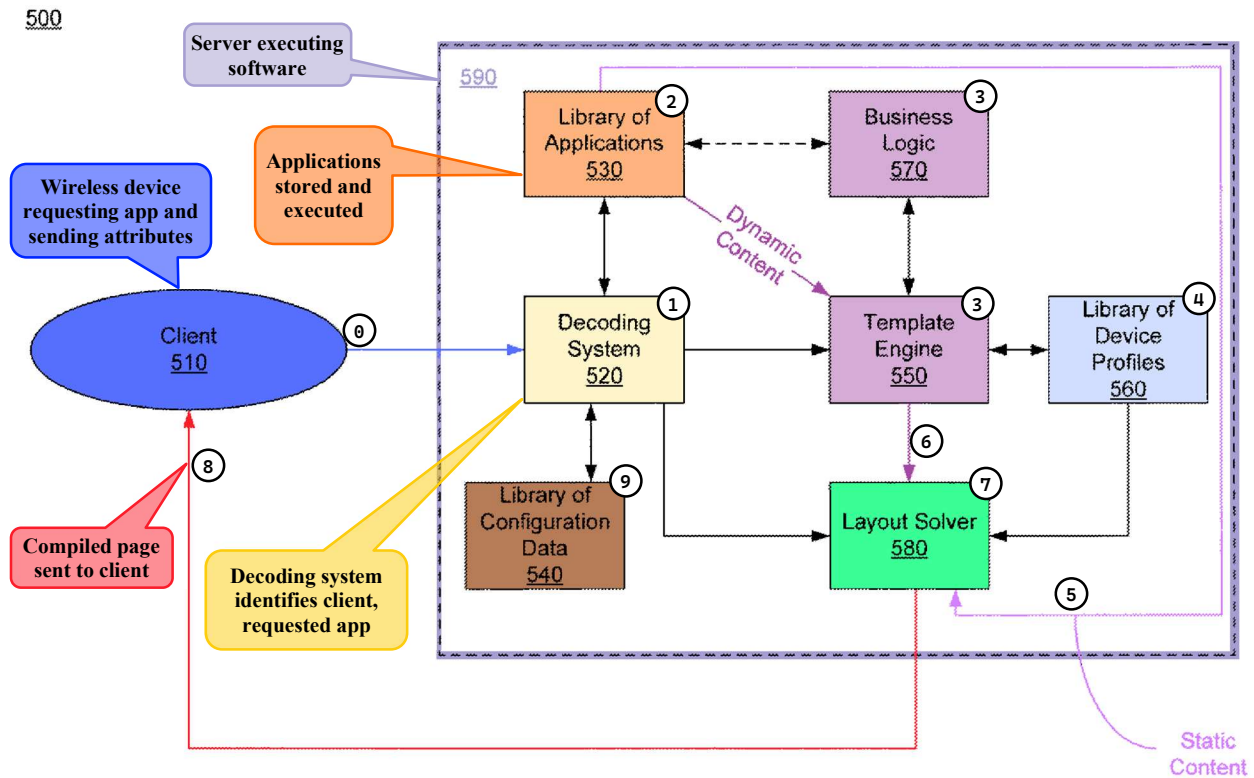
¶78. The following discussion recapitulates key concepts from the Patent-at-Issue specification using concrete examples.

1. Applications

¶79. In the context of the Patent-at-Issue, an application can be “defined by an application description file and a set of static resources, e.g., images, sounds, URLs, etc. The application description file describes all the screens of the application and the custom configuration of the application.” *Id.* 16:45–49. For example, an application may be all the screens, resources, and custom configurations to implement the Texas Hold’em Poker application. *Id.* 16:39–42.

¶80. The Patent-at-Issue’s applications are “stored” and “executed” “on the remote server,” *id.* 2:37–38; 2:63–64; 3:8–9; 5:54–56; 6:6–7; 16:44–45, in contrast to traditional applications that were downloaded and locally run on wireless devices.

¶82. The applications may be stored in a library of applications 530 and are executed on a remote server 590 to generate compiled content.



¶83. Ex. 1001 Fig. 5.³ At ⑧ a client “request[s] an application [and] identif[ies] the client’s 510 type and its capabilities.” *Id.* 16:34–37. In response, at ①, the “decoding system” on the server “locate[s] and execute[s] the requested application.” *Id.* 16:39–42.

¶84. Upon execution, at ②, the application generates the pages “for display on the wireless device.” *Id.* 16:61–62. This page can contain only static content,

³ All color, balloon text, circle numbering, and annotations in figures are additions unless otherwise noted.

such as “pictures or . . . pure text.” *Id.* 16:62–66. Or this page may be a “generic template describing the screen.” *Id.* 17:3–6.

¶85. In the case of the generic template page, at ③, a “template engine,” also executing on the server, may first “merge[] screens of [the] application and dynamic data provided by the business logic” to “provide[] a high level template (e.g., extensible markup language (XML) format),” *id.* 17:6–26, and then consult the “library of device profiles,” at ④, to “eliminate content from its dynamic template output that is not supported by the client,” *id.* 17:27–39. For example, the template engine “may eliminate audio component[s] from the generic template output” when “the client 510 does not have audio capability,” or “eliminate big images” “when the client 510 is short in memory.” *Id.* 17:39–47.

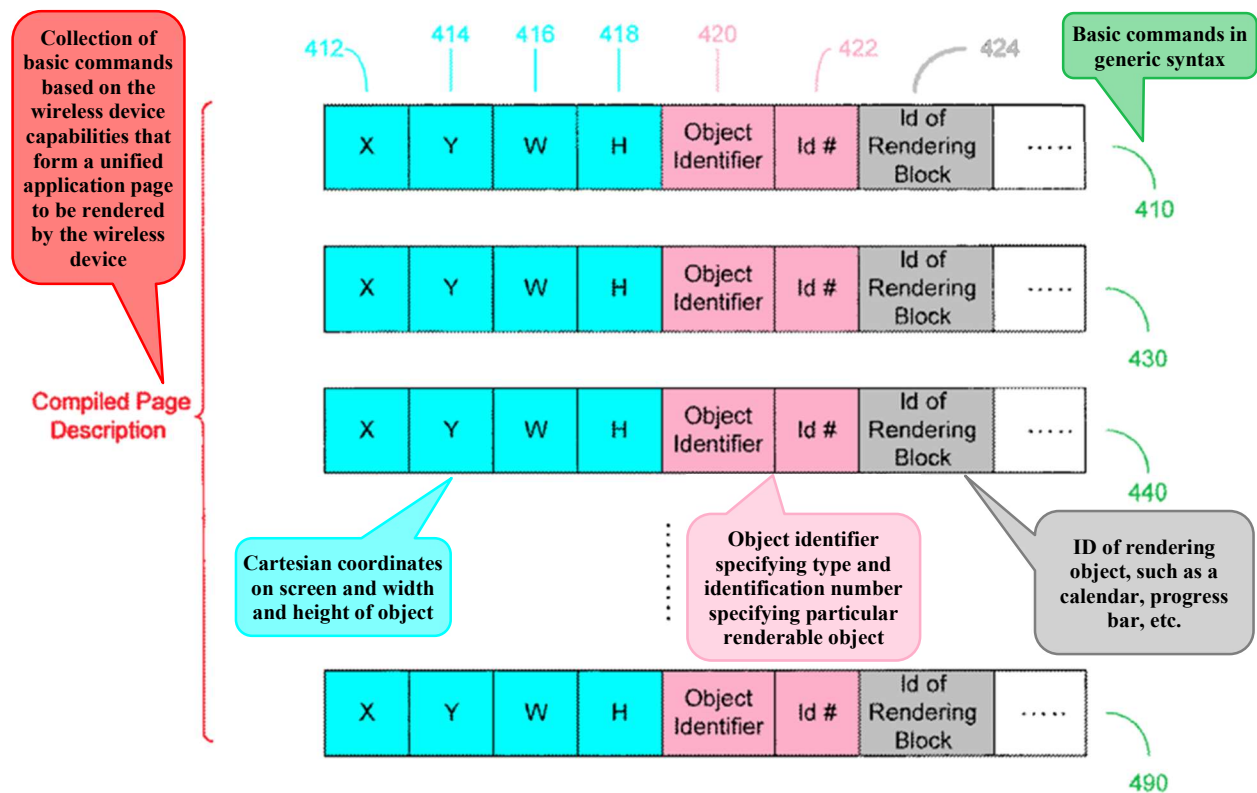
¶86. Whether the page is static (i.e., a “generic template supplied from 530,” at ⑤) or dynamic (i.e., a “template supplied from 550,” at ⑥), the generic application pages at this point “do not contain any specific or actual screen dimensions but rather only contain relative screen locations.” *Id.* 17:48–51. In this sense, they are “wireless device generic.” *Id.*

2. Compiled Content and Rendering Blocks

¶87. The Patent-at-Issue teaches that an application’s generic pages can be fed into a “layout solver,” at ⑦, that actually “translates the received information into a series of basic commands based on the client’s capabilities,” *id.* 17:53–59;

18:1–6, to create a “compiled page” that is sent to the wireless client device at ⑧, *id.* 18:11–14. Note that while the compiled page’s basic commands and their parameters are tailored to, and based on, the wireless device capabilities, the syntax of these commands is still “device generic.” *Id.* 18:7–11.

¶88. The Patent-at-Issue illustrates what a compiled page for an application may look like:



Ex. 1001 Fig. 4. The compiled page contains a series of basic commands, including 410 to 490. Note that the compiled pages may now specify actual “Cartesian coordinates 412 and 414 of a screen region” as well as “the width 416 and the height 418 of the screen region.” *Id.* 16:2–7.

¶89. The basic commands include an “object identifier” that specifies the type of “renderable component” to be displayed (e.g., a designator for “text, image, video, audio, and the like”) and an “identification number” that specifies the particular renderable component of the designated type to be rendered. *Id.* 13:27–29; 16:16–21; 15:60–62.

¶90. The render commands found in the exemplary device specific page description also include the identifications of the “rendering blocks.” Rendering blocks are conceptually part of the wireless device’s graphical user interface (“GUI”) that are “preconfigured to operate and store data” and “perform discrete rendering operations.” *Id.* 2:50–51; 4:7–11; 7:18–22. That is, the rendering blocks “render content and enable a user to interact with the requested application.” *Id.* 8:22–24. Examples of a GUI’s rendering blocks include text; a text box; an image; a pop-up, drop-down or tabbed menu; audio/video controls; a scrolling ticker; check box/radio buttons; a rating panel; poll results; a drawing canvas; a hierarchical tree; scroll bars; a progress bar; a table; a calendar; and the like. *Id.* 8:25–43. By referencing the rendering blocks that were customized by the custom configuration the rendering blocks are “applicable” to the compiled content.

¶91. The specification also notes that not all components of a basic command are shown in Figure 4, and “that basic commands may further include

other field components for additional information[,] e.g., immediate data, such as text.” *Id.* 16:26–28.

¶92. In sum, a “collection of basic commands . . . forms a single unified page to be rendered by the wireless device.” *Id.* 15:63–65.

3. Custom Configuration

¶93. As taught by the Patent-at-Issue, if the client requests to run an application, the decoding system can also “access a library of custom configuration data 540,” shown as ⑨ above, “to customize the appearance of the application” and “send the identified custom configuration to the client.” *Id.* 16:50–60.

¶94. The client can use the custom configuration to configure the GUI’s rendering blocks to set how they “operate and look” that—in aggregate—sets “the look and feel” of the application. *Id.* 7:55–63; 10:56–58; 18:40–42. For example, custom configuration data may configure the GUI rendering blocks’ fonts, colors, border thickness, images, background images, icon type/image, menu styles, sound, video, etc., *id.* 8:50–10:55, such as “customiz[ing] a ‘submit’ icon to look like an airplane flying away when pressed,” *id.* 7:64–8:1.

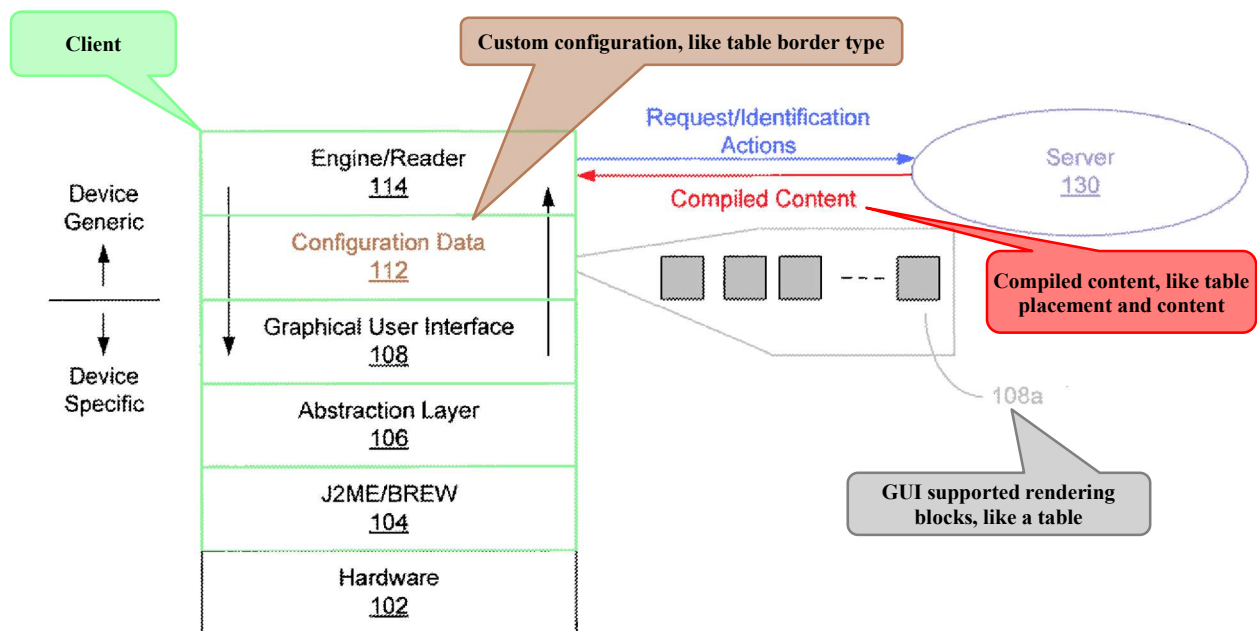
¶95. The custom configuration may be globally applicable to pages of an application. Stated otherwise, new application compiled content can be rendered using the GUI’s rendering blocks that were previously configured without the

application sending new, or resending the previous, custom configuration data.

See, e.g., id. 14:15–43 & Fig. 2B.

4. Client

¶96. The Patent-at-Issue refers to the software on the wireless devices that interacts with the application on the server, displays application content, and detects user interaction with the application as the “client.” *Id.* 6:16–21. The client generally comprises the “software stack” conceptualized as residing at a higher level than the wireless device hardware as shown in “Blocks 104 through 114” below. *Id.* 6:57–59.



Ex. 1001 Fig. 1B. It is the client that “draw[s] the screen according to the description as specified by the received discrete low level basic commands and in accordance with the identified custom configuration.” *Id.* 13:32–35. Specifically, the client can

configure rendering blocks with the configuration data, and then an engine/reader can process the compiled content to ultimately render the remotely running application's pages. *Id.* 7:26–31; 18:62–19:3.

IX. INTERPRETATION OF TERMS

A. District Court Constructions

¶97. The District Court has construed the following terms, Ex. 3004, p. 10:

Term	Construction
custom configuration	A configuration that determines the look and feel of the application
rendering blocks	Blocks that perform discrete rendering operations

I have used these definitions when addressing these terms in my analysis.

B. All Claims Require the Recited “Application” to Run Remotely

1[c]/9[c]/17[c] [transmitting, to said wireless device, / . . . transmits compiled content to said wireless device, said] compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application

1[d]/9[d]/17[d] wherein said compiled content is generated in part from execution of said application [by said server]

¶98. A POSITA looking at the claims would understand that the very concept of transmitting (i.e., “sending”) an application’s “pages” to a wireless client requires that the compiled content was remote before it was sent. It would make no sense for a wireless device with pages of compiled content to “transmit” this compiled content to itself.

¶99. Indeed, the limitations make clear that “compiled content” which is received by the client (having been sent remotely from the wireless device upon which the client is running) requires that the compiled content be “generated” by execution of the remotely running application before it is sent.

¶100. The use of “generated” in the claim term with respect to the execution of an application comports with the well-known meaning in extrinsic references. For example, “generate” is “to produce something according to an algorithm or program or set of rules, or as a (possibly unintended) side effect of the execution of an algorithm or program.” Ex. 2023, Generate, Free On-Line Dictionary of Computing, available at <https://foldoc.org/generate> (last updated June 15, 1995). Since, per the claims, the compiled content is generated before being transmitted to the client, it must by necessity be generated from the application running remotely.

¶101. While all the claims require an application running remotely from the wireless client and that remotely running application to generate the compiled content by the remotely running application’s execution, claim 17 has an additional limitation specifically requiring the content is also generated in part from execution of said application “by said server.” This added limitation is very similar to the added limitations in dependent claim 3 (that depends on claim 1) and claim 11 (that depends on claim 9), and further requires the remote application to one “operating on a . . . server.” Therefore, while claims 1, 9, and 17 must all have remotely (from

the wireless device) executing applications, and claims 1 and 9 *may be* executing on a remote server, claims 2, 11, and 17 *must be* remotely executing on a server.

¶102. To put a finer point on this issue, executing on a server is not the equivalent to run remotely. A server implies some degree of interactivity. That is, a server is able to receive a request for something and then respond to it. It is “serving up” content with respect to requests. So, just for example, something that is transmitting content remotely that is not a server would be broadcast content. For example, some cell phones were designed to pick up multi-media content that was being broadcast, that was not asked for by the wireless device. *See, e.g.,* Ex. 1008, 1:28–37 (“[T]here has been disclosed a method for delivering data to mobile terminals through broadcasting type service channels . . . That is, the users cannot receive and obtain desired contents at desired time or on demand.”). The broadcast would typically simply cycle and send a number of different pages of some multi-media content. And when the broadcaster got to the end of the, say, 10th page it would start over with page one, and it would send it again: sending page one, page two, page three, etc. There were markers in between the pages to allow receivers to synchronize. A real-life example of such a broadcast system was CEEFAX in the UK and in the US it was called Teletext. So, remotely transmitted compiled content is not the equivalent of execution on a server.

¶103. Another example from the specification is the stock ticker program. Such a program may get information from a server, or it may be information that is coming from a broadcast stock information source that simply sends updated prices. *See* Ex. 1001, 7:46–50 (“For example, if a program with a ticker (e.g., stock ticker) is originally selected, then the engine/reader 114 may receive an update for the ticker periodically.”).

¶104. I further note that the only embodiment in the patent is a thin client server model with client software limited to a run time environment that receives generic compiled content from a server and renders this received content on wireless devices such as cellphones. This fact, in addition to the claim language, means a POSITA would not understand that the “application” in the claims to be local. Indeed, from my understanding of the enablement requirements, see Section I.B beginning on page 27, it is my opinion that a POSITA would not understand how to practice the full scope of the claimed invention without undue experimentation as of the patent’s effective filing date if the claims were construed such that the application was not limited to a remote application. This is so, because there is no explanation or description of such a locally running application, there is no example of such a locally running application, and the idea of a locally running application is counter to the “nature” of the invention concerning a remotely executing application.

¶105. Indeed, the Patent-at-Issue first criticizes locally running applications because, as I explained above, it was a “laborious process” to update so many locally running applications. *See, e.g.*, Ex. 1001, 2:7–14. This problem was one of the driving forces that motivated the patentee to invent the remotely running central application that could be updated/patched once, and the users would immediately get the benefit of the update. *Id.* 2:37–43. Having “application” encompass a locally running application, even in part, would vitiate the touted benefits of the central application running remotely from wireless devices because this locally running application would have to be patched/updated on every device, against the teaching of the Patent-at-Issue.

¶106. Additionally, I attended the California trial in its entirety and listened to the testimony of Petitioner’s experts. I heard the expert, Dr. John Villasenor, make very clear and definite statements under oath that the claimed application in the ’715 Patent had to be remotely running on a server. I have reviewed the trial transcript, and this confirmed my recollection that Dr. Villasenor made unreserved and unqualified statements that it was his position that the Patent-at-Issues claims require the application to be remotely executing from the wireless device.⁴ Ex. 2019

⁴ Petitioner was discussing Claim 4, dependent on Claim 1, of the ’715 Patent and Claim 16, dependent on Claim 12, in the ’715 Patent’s Parent, U.S. Patent No. 8,478,245.

(Petitioner Expert’s Testimony), 209:12–14 (“The claimed application—it’s very clear in the claims in the patent—the application has to be executing on the server.”); *id.* 216:8–10 (“So the patents, the asserted claims require an application that’s executing on a server.”); *id.* 222:10–12 (“So it’s important to emphasize that the claims require they recite an application, and that application has to be executing on the server.”); *id.* 225:11–12 (“Well, according to the patent, the application is—needs to be executing on the server.”); *id.* 228:6–9 (“Yeah. The—it has to be for an application, the claimed application. And the claimed application in the patents has to be executing on the server.”); *id.* 229:4–6 (“And that application has to be the same application that I discussed before, the one that’s executing on the server.”); 243:4–24 (“Q. The device has its own software application on it, correct? A. It has software on it. Q. Is that software not an application? A. Well, I just want to be careful to make sure that the word application is not misused. It is not the claimed application . . .”). Such review also showed that Netflix’s attorney, Mr. Indranil Mukerji—who is also an attorney of record in this case—embraced this view. Ex. 2020 (Closing Argument by Petitioner) 39:7–13 (“So remember, I showed you the evidence that both experts agree that the application that’s in the claim is a back-end application. In fact, you remember I asked [Patent Owner’s Expert]: If I download the Netflix app on my phone, is that the application in the claim? He said no. He agreed with me. Both experts agree. The application must be on the back

end.”); 42:12–13 (“[R]emember, the application in the claims is what’s on the server.”); *id.* 46:10–17 (“[F]ocus[ing] on where that application lives . . . both [experts] agree that the application lives on the server, on the back end. No dispute about that.”).

¶107. I additionally note that Petitioner and its trial expert made and emphasized this remote application limitation not in response to Patent Owner’s position. That is, Petitioner and its trial expert did not say “under GoTV’s construction where the application is remote,” but, always made clear that this was Netflix’s and its trial expert’s position, and that GoTV merely agreed with Netflix’s position. Indeed, I note that Petitioner filed a Motion for Judgment as a Matter of Law after the trial that there is no infringement of the ’715 Patent because “[t]he ‘application’ required by the claims is on the server,” again telling the Court that this is Netflix’s position. Ex. 2021, p. 6, ll. 2–3 (citing Ex. 2019, 209:12–14, 216:8–9, 222:7–16).

¶108. I agree with Petitioner and its trial expert that the claims require the application to be remotely running—usually on a server—and generating in part the compiled content remotely, and then to send the compiled content to the wireless device.

¶109. I note that Petitioner’s IPR expert, Dr. Benjamin B. Bederson, has not stated that the application in the Patent-at-Issue could be local, see Ex. 1002, but

instead has made references to “remote server applications,” such as when discussing the relevant field of study for a POSITA, *id.* ¶38, and the claim background, *id.* ¶¶46, 52 (discussing an “*application [that] ran on other computers and sent the graphics commands to a different computer to be rendered*”).

¶110. I recognize that Petitioner initially argued that “claim 3 . . . further limits the ‘application’ in claim 1 to ‘operat[e] on a remote server’ . . . Thus, POSITAs would have understood that the claimed application in claim 1 could reside anywhere, for example on a client or on a server,” Pet. 36 n.10; however, as I have discussed above, claim 1, while requiring a remote application does not require the remote application be running on a server. Thus, claim 3 is not redundant in its further requirement that claim 1 must be running on a server. And, in light of Netflix’s expert and attorney statements at trial, I understand Netflix to have changed its position.

¶111. In sum, the claims, specification, all the experts and the parties now appear to agree that the application must run remotely, usually on a server (as some claims require). It is my expert opinion that this is correct.

C. The Pages of Compiled Content Must Be in Part Generated by the Executing Remote Application

1[d]/9[d]/17[d] wherein said compiled content is generated in part from execution of said application [by said server]

¶112. I have been asked to offer an opinion about the meaning of “generated” in the claim limitation of the independent claims in the ’715 Patent, for example, in the larger claim “transmitting, to said wireless device, compiled content comprising . . . wherein said compiled content is generated in part from execution of said application.”

¶113. Just from reading the limitation, a POSITA would understand that the compiled content is the “output” of the executing application (i.e. what was “generated” during execution).

¶114. This understanding is confirmed by the specification that teaches “applications and basic commands for rendering applications are performed and generated on the server,” Ex. 1001, 4:21–25, “the server 130 generates a device specific result from the generic application,” *id.* 6:34–25, and “[d]uring application execution pages are generated,” *id.* 16:61–62. That is, the specification makes clear that “generation” by “execution” is the output created by the application when it is running.

¶115. Likewise, the “compiled content” in this limitation is sent “from” the remote application, and the specification teaches that the “server tailors the output

of a generic application based on the wireless device capability,” *id.* 5:53–54, “the output is generated from a generic application,” *id.* 2:25–26, “[t]he server will eventually translate the output of the application to a device specific set of commands for transmission to the device,” *id.* 6:9–11, and the wireless device “[r]eceive[s] compiled content generated in part from execution of the application by the server,” *id.* Fig. 6 (item 640). The specification once more tracks the claims where the “generated” compiled content is “produced by” the server application that is received by the wireless device.

¶116. While less important than the intrinsic record, I note that external sources confirm this understanding of “generate.” For instance, the Free On-Line Dictionary of Computing defines “generate” as “[t]o produce something according to an algorithm or program or set of rules.” Ex. 2023, at 1. Or, consulting the definition of “output,” shows that “output” is “[d]ata generated by a computer” including “data produced at a software level,” such as the application referred to in the claims and specification. Ex. 2024, Output, TechTerms.com; The Computer Dictionary. There is no indication that the Patent-at-Issue uses “generated” in an abnormal way, and the common definition of the term in the software field is in alignment with the claims and the specification. This further reinforces my opinion that the limitation regarding generation during execution is referring to the output created by the running application.

¶117. Given the above, “compiled content is generated in part from execution of said application” does not mean that compiled content is generated by one application (e.g., a web server) that is caused by or influenced by the execution of another application (e.g., a web browser). That is the “from” in this limitation means “the source of” not “the cause of.” See Ex. 2025 (Merriam-Webster.com Dictionary).

¶118. I note that the Board in the institution decision seems to suggest that the “in part” language in this claim limitation means that the limitation could be satisfied because one application prompted the actually generating application “to action” or that the generating application took account of the type of requestor when generating the compiled content. Inst. Dec. 79. A POSITA would not have this understanding.

¶119. To a POSITA, “in part” means that at least *some* of the compiled content must be output from the remotely executing application, but “in part” does not change the fact that some of the compiled content must have been *output* and *produced by* the remotely running application as explained above. The way Petitioner has interpreted this claim would mean that an application that output and produced *none* of the compiled content still generated the content, in part, and this removes the common understanding to a POSITA for this term completely.

¶120. For instance, the Patent-at-Issue teaches that the remotely running application may only produce *some of* the compiled content while executing,

because some of the dynamic content may have come from the business logic unit, Ex. 1001, 3:29–34; however, even in this case where the “generation” was done in part by the application, “generation” still clearly means “output.”

D. “Customized to Said Application” Means “Created For” the Application Program

1[b]/9[b] wherein said custom configuration . . . configures said plurality of rendering blocks to render content in a manner customized to said application

17[b] . . . custom configuration that configures a plurality of rendering blocks of said wireless device to render content in a manner customized to an application . . .

¶121. When looking at the limitation “customized to said application” in the full context of limitations 1[b]/9b]/17[b], it is my opinion that a POSITA would read “customized to said application” to mean that the custom configuration was “created for an application,” i.e., made with the application in mind. The word “customized” generally means “to build, fit, or alter according to individual specifications.” *See* Ex. 2026. In this context, a POSITA understands “customized to an application” in the relevant field concerning distributed applications as being “application-specific,” i.e., when discussing software meaning “created or written for a specific application.” Ex. 2027. Therefore, “customized to said application” means to build, create, write, fit, or alter according to specifications for an individual application. Construing “custom configuration” as merely a configuration that happens to be applied to an application would have the effect of removing “custom” from “custom

configuration” and “customized” from “customized to said application” in this limitation. Therefore, I believe the natural reading of the claims is that “customized to said application” means “designed for the application” or “made with the application in mind.”

¶122. Indeed, my understanding is further informed by the specification. Specifically, the specification teaches that the server only picks the custom configuration in response to the requested application. Ex. 1001, 3:9–11 (“[T]he server may identify a custom configuration to be used *for the requested application.*”); *Id.* 16:53–56 (same). That is, the server chooses the custom configuration with the application in mind. Additionally, the Patent-at-Issue teaches that the “library of custom configuration data [is] where each application may have a *corresponding* custom configuration data to customize the appearance of the application.” *Id.* 16:50–53; 19:25–29 (same). That the custom configuration “corresponds” to an application means it was consciously designed for the application. A custom configuration is not one that happens to be applied to an application, but one specifically designed with an application in mind.

E. “Layout Solver” Connotes Understood Class of Structure

¶123. A POSITA would understand “layout solver” to refer to a class of hardware and software structure that perform specific well-defined operations.

¶124. The patent specification makes clear there is a layout solver element in the system that performs specific operations on the compiled content to transform the device independent compiled content to compiled content compatible with device dependent specific capabilities. In particular, the Patent-at-Issue describes a layout solver as the software or hardware of the server that tailors and translates a template and/or static data representing the visual arrangement of an application based on the device profile and capability. Ex. 1001, 3:50–4:1; 16:62–67; 17:54–65; 18:2–6; 19:55–62; Figs. 5 & 7. An example described within the patent makes the job of the layout solver clear: “if the server determines that the wireless device has no audio capability, the content related to audio may be eliminated from the template. Ex. 1001, 3:46-48.

¶125. This is consistent with the common understanding that a layout solver is the structure that places objects in an arrangement, making sure the design rules are obeyed. *See, e.g.*, Ex. 2006, Rule-Based Layout Solving and Its Application to Procedural Interior Generation, 5 (2009) (“The job of the *layout solver*, discussed in the previous section, is to place an object in a layout, making sure the rules defined for that object in the class description hold.”); Ex. 2007 Adaptive Layout of Dynamic Web Pages, 10, 12–13 (2000) (discussing the difficulty of a general “layout solver,” and previewing the role of a specific web page “layout generator”).

¶126. A POSITA then understands that the claim term is used in the pertinent field to designate the class of structures (i.e., software and/or hardware of the server) that tailors and translates a template and/or static data representing the visual arrangement of an application based on the device profile and capability. Ex. 1001, 3:50–4:1; 16:62–67; 17:54–65; 18:2–6; 19:55–62; Figs. 5 & 7. Thus, the term identifies the class of structures and avoids application of section 112 paragraph 6.

X. OVERVIEW OF THE CITED REFERENCES

A. Hariki

¶127. Hariki concerns “a mobile device UI configuration system that allows a UI skin package content provider to easily generate a new UI resource file for new or different mobile devices, and make these UI skin packages available for download and installation on user mobile devices.” Ex. 1006 [0008]. With these “UI skins,” Hariki “provide[s] user interface (UI) customization capabilities that allow users to personalize their phones or mobile devices with custom ringtones, background displays (wallpaper), menu configurations, and the like,” *id.* [0005], to replace the “default user interface for each model of device,” *id.* [0007].

¶128. Specifically, Hariki contemplates a “user interface authoring tool” that “maintains a common database of resources for each mobile device model” “defined by device manufacturers.” *Id.* [0019]. The “resources comprise files, links to files, and/or data or program objects associated with the configurable aspect of the user

interface for each mobile device.” *Id.* [0019]. “Thus, as shown in FIG. 2, a resource profile is provided for device A, and a resource profile is provided for device B. With reference to FIG. 1, these can correspond to resource profiles for mobile devices 108 and 109, respectively.” *Id.* [0031].

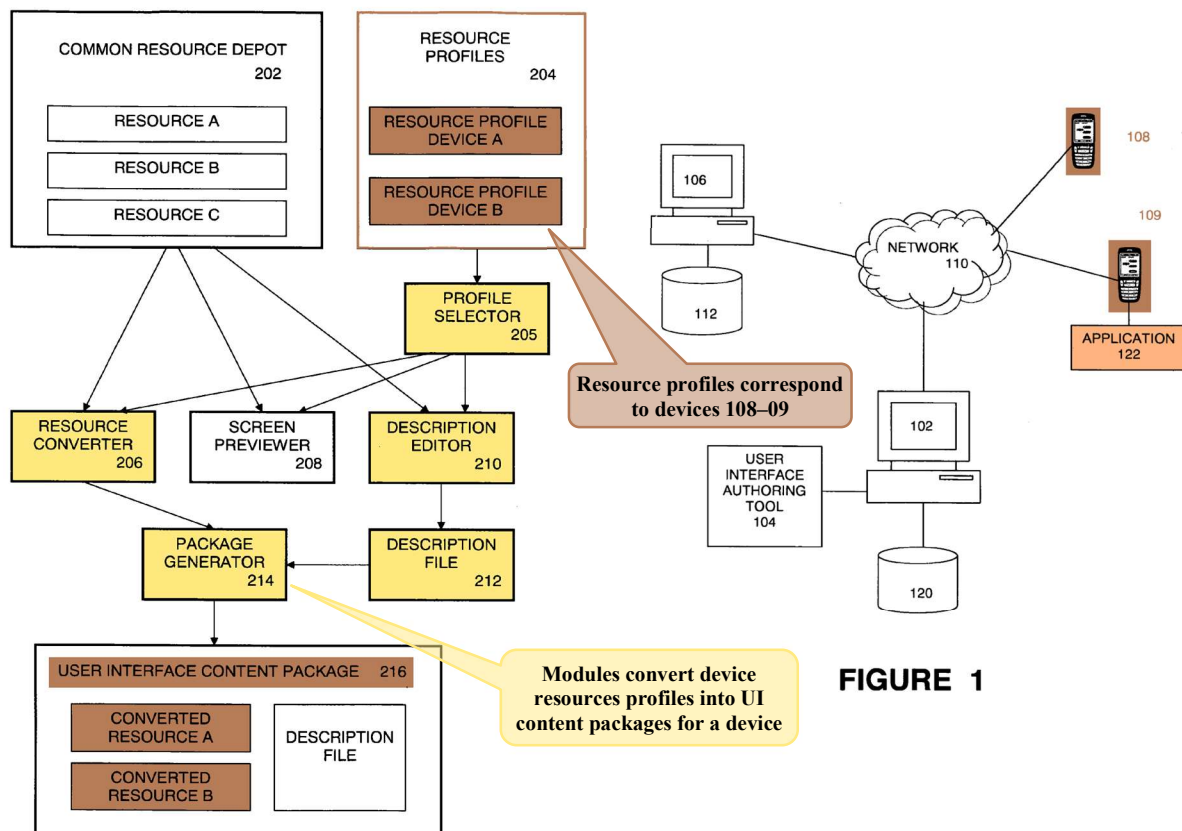


FIGURE 1

FIGURE 2

Ex. 1006 Figs. 1–2.

¶129. Hariki explains that various “modules” (205–12) use the resource profiles for the devices to create a UI content package 216 for a device. *Id.* [0032–33]. Specifically, “[t]he profile selector 205 selects a resource profile 204 depending

upon the device model selected by the content provider. The corresponding resource 202 for that model is then converted by resource converter 206.” *Id.* [0032]. “A description editor component 210 produces description files 212 . . . [and t]he description file 212 and the converted resource output from resource converter 206 are processed by a package generator component 214 . . . [that] takes the resource and description and creates a UI content package 216.” *Id.* [0033].

¶130. Once created, “[t]he actual UI content package to be downloaded is generally selected by the user of the mobile device.” *Id.* [0044]. And “the user can change the UI content by changing the [device’s settings through the] setting application 504.” *Id.* With the skin in place, “one or more application programs 122 or software modules . . . access the resources provided by the UI content package.” *Id.* [0040]. That is, any application or program “can playback or perceive the image, video, sound files, etc. of the resources provided by the UI content package.” *Id.* In this way, “UI skins allow a user to customize the ‘look and feel’ or application program environment of a device by altering display and/or sound output aspects of the device, such as backgrounds, title bars, buttons, alert sounds, and so on.” *Id.* [0024].

B. Harris

¶131. Harris concerns “delivery of the same content to multiple mobile devices using different device protocols.” Ex. 1007 [0002]. To do this, Harris

envisioning a mobile content framework (“MCF”) that uses “a generic markup language, referred to as Wireless Abstract XML (hereafter WAX).” *Id.* [0007]. A designer may author pages “created in WAX originally,” or “content [may be] first translated in to WAX from the original language of the content provider.” *Id.* The content may be stored at any “content location” interfaced with the WAX server. *Id.* [0008].

¶132. Whatever the source and wherever the content resides, the MCF may translate the “WAX language . . . to a requesting device’s native language . . . [or] from WAX to languages like WML, HDML and HTML.” *Id.* [0018]. For example, WAX element “<wax:button>” may be sent “as a ‘soft-key’ for WAP devices, but as a ‘link’ for devices which understand only HTML.” *Id.* [0030].

¶133. However, Harris also notes that “even when two devices employ the same language, there is no guarantee that they each interpret and render content the same way. For example, the way WML is rendered on Nokia devices is very different from the way it is rendered on devices from other manufacturers.” *Id.* [0003]. Therefore, “not only [does Harris] translate[] [WAX] into a specific language appropriate for the device, but . . . [the translation] is tailored based upon the attributes of the requesting device.” *Id.* [0018]. That is, the MCF may handle “the idiosyncrasies of each device,” such as considering the fact that Nokia’s WAP browser “does not display lists in the same fashion as the [WAP] browsers on phones

from other manufacturers.” *Id.* [0017]. The MCF may even “address special characteristics of . . . devices (special character encodings, scripting languages, etc.),” *id.* [0028], by running the translated WAX files, for example intermediate HTML files, through “another level of processing in order to accommodate device requirements such as character encoding,” *id.* [0034].

¶134. Harris also teaches that, in one embodiment, an automated testing environment can make sure the content will be displayed correctly before the translated device-specific files are deployed to a device. *Id.* [0035].

¶135. Ultimately, only the device-specific “customized content is . . . returned to the requesting device.” *Id.* [0024] & Fig. 3.

XI. CITED ART DOES NOT RENDER THE ’715 PATENT UNPATENTABLE AS OBVIOUS

¶136. It is my understanding that Petitioner asserts that the ’715 Patent is obvious over Hariki in view of Harris. I disagree.

A. No *Single Application* Petitioner Identifies Renders Any Independent Claim Obvious

¶137. I note that the independent claims recite “an application” first and then all following references to “application” are to “said application.” The clear implication of this fact is that there is only one application being claimed and all limitations concerning the application must be found in the single identified

application. However, Petitioner points to two applications, a “web browser” and a “web server,” but neither individually meets all of the claim limitations.

¶138. Indeed, Netflix is often “fuzzy” about the boundaries of the two applications. However, a web browser is one application, and a web server is another application. They can interact but they are not the same. The two applications have separate functions, separate locations, different and independently written code, and separate and different inputs/outputs. Indeed, the word “web” connotes that each is designed according to a set of standards to ensure compatibility without knowledge of who or what will be interfacing the programs. And because the way in which they talk to each other is through a published standard to ensure compatibility, this means that they are distant applications that are designed without any knowledge of what the other one is doing. They are designed with knowledge of the common standard but not with respect to the other application.

¶139. The “custom configuration” (UI skin) does not customize rendering blocks to a “web server” as required by limitations 1[b]/9[b]/17[b]. And a “web browser” does not transmit or generate (even in part) compiled content (HTML files) remotely from the wireless device as required by limitations 1[b]–[c]/9[b]–[c]/17[b]–[c].

¶140. Therefore, none of the independent claims are rendered obvious by the Hariki-Harris combination as set forth by Petitioner, and, as dependent claims have

all limitations of the independent claims, Petitioner has also not shown any of the challenged dependent claims obvious. I now discuss why no one application meets all the claimed limitations in further detail.

1. The UI Skin Does Not Configure a Plurality of Rendering Blocks to Render Content in a Manner Customized to a Web Server

1[b]/9[b] wherein said custom configuration . . . configures said plurality of rendering blocks to render content in a manner customized to said application

17[b] . . . custom configuration that configures a plurality of rendering blocks of said wireless device to render content in a manner customized to an application . . .

¶141. Petitioner identifies the “converted resource files . . . in Hariki’s UI content package” as “the claimed ‘custom configuration.’” Pet. 30. Petitioner identifies “the web server process [on server 102] that serves HTML files to the mobile device” as the application. *Id.* 36–37. But these UI skin resource files do not configure a plurality of rendering blocks customized to, web server process as required by the independent claim limitations shown above.

¶142. As described above in the claim construction section, “customized to an application” means that the configuration is made with an application, such as Texas Hold’em referenced in the specification, in mind. So, with the case of the Texas Hold’em, the custom configuration rendering blocks might configure all the suits of cards (spades, clubs, diamonds, hearts). In contrast, the custom configuration that Petitioner points to, the UI skin, was not designed with any web

server in mind. The UI skin is specific to items executing on the phone. The UI skin does not configure a plurality of rendering blocks to render content in a manner customized to a web server not executing on the phone.

¶143. Indeed, in Petitioner's relied upon configuration the web server only sends HTML to the separate application, a web browser. The web server does not render anything on the wireless device where the UI skin is present and has any effect.

¶144. Hariki's web server and Hariki's user interface authoring tool are not so linked as to be considered part of a common "suite" of software. Hariki merely says they reside on the same computer. And it is my opinion that just because the two pieces of software reside on the same computer, does not make Hariki's web server part of a user interface authoring tool "suite." In forming my opinion, I have employed a well-accepted definition of what constitutes a "suite" of software programs: "a set of computer programs designed to work together and usually sold as a single unit." Ex. 2004, Suite, Definition & Meaning - Merriam-Webster, available at <https://www.merriam-webster.com/dictionary/suite>. To the contrary, there is no disclosure in Hariki that the web server and authoring tools interact in any way. Rather, they are described as having very different, and separate, functions. On one hand, the authoring tool is meant to create and package UI skin.

On the other hand, the web server serves HTML pages. The functionality is disparate and there is no teaching that one application relates to the other.

¶145. Hariki does say that the user interface authoring tool “can represent a program or suite of programs, or even hardware circuits, or any combination thereof embodying instructions executed by one or more processing units in server 102,” Ex. 1006 [0027]; however, a POSITA would recognize that this means multiple programs or circuitry may perform the user interface authoring tool functionality.

¶146. Additionally, even if the web server was co-located on a server with the authoring tool that created the UI skin for a wireless device, there is still no teaching that the UI skin was made for this co-resident web server. Indeed, while a UI skin creator must know the characteristics of the mobile device the creator is making the content package for—and in this way the UI skin is customized for that device—there is no way that an author knows what web servers the user of a mobile device will eventually access, if any, so the author would not design a UI skin for unknown web servers. A web server sends the same HTML in response to the same request, regardless of whether the requestor is using a UI skin, and, if so, what UI skin is in use. Likewise, a web browser using a UI skin will render the same HTML from any source the same. There is no teaching that the UI skin is influenced in any way by a particular web server, or that web content from a particular web server is influenced

by a UI skin, much less that a UI skin is specifically “customized to” (read: designed for) any web server.

2. The Web Browser Does Not Transmit HTML Files to a Wireless Device

1[c]/9[c]/17[c] [transmitting, to said wireless device, / . . . transmits compiled content to said wireless device, said] compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application
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¶147. Hariki’s give no indication that its web browser resident on the wireless device is different than a POSITA’s conventional understanding of a web browser. And a conventional web browser *receives* input in the form of HTML syntax. Based on this incoming HTML, the browser processes the HTML. But the browser does not *transmit* HTML as would be required for this web browser application to meet this claim limitation.

¶148. Indeed, a browser’s output to a server is **HTTP** requests, not **HTML**. Other than sharing two letters “H” and “T” these are not the same. Hypertext Transfer Protocol (“HTTP”) is a protocol for requesting and transmitting information such as documents, *see* <https://www.rfc-editor.org/rfc/rfc9110.html>., while HTML is a language primarily for describing documents, *see, e.g.*, <https://html.spec.whatwg.org/multipage/introduction.html#introduction>. Browsers do not transmit the Petitioner-identified compiled content, HTML files.

¶149. Hariki discloses: “For this embodiment, one or more of the mobile devices run a web browser program to access the web pages served by server computer 102 and any other available content provider or supplemental server, such as computer 106.” [0021]. This disclosure makes clear that Hariki’s browser is receiving web pages which are known to be in an HTML syntax and not outputting HTML.

¶150. And what comes out of the browser locally is some wireless device protocol (i.e., through an API to the hardware or lower-level hardware abstraction layer unique to the phone) to causes either a sound to play or something to be displayed on the screen at the wireless device, but again this is not the transmission of HTML.

¶151. The Board’s findings that a browser may “request” HTML files or that the *server* transmits HTML files in response to this request, see Inst. Dec. 72–73, is irrelevant, because the claim does not require “requesting” or “prompting the transmission of” or “receiving” the Petitioner-identified compiled content, HTML files. It requires “transmission” of HTML files, and this the web browser does not do.

3. The Web Browser Is Not Running Remotely from the Wireless Device

1[c]/9[c]/17[c] [transmitting, to said wireless device, / . . . transmits compiled content to said wireless device, said] compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application

1[d]/9[d]/17[d] wherein said compiled content is generated in part from execution of said application [by said server]

¶152. Hariki's web browser cannot correspond to the "application" in the claims of the challenged patent because Hariki discloses the devices runs a web browser (locally) in the wireless device whereas the challenged patents require the application to run remotely as I lay out in the claim construction section above.

4. The Web Browser Does Not Generate in Part from Its Execution HTML Files

1[d]/9[d]/17[d] wherein said compiled content is generated in part from execution of said application [by said server]

¶153. The Harris reference in the offered Hiriki/Harris combination includes a MCF which accepts input in a WAX syntax and outputs HTML that is sent to a browser that runs on the device. It is the MCF which *generates* the HTML that is sent to the wireless devices. The browsers are running locally on the devices, so they are not generating HTML, but, instead, are operating in the conventional way of any other browser: they accept HTML as input and use it to render output to the UI of the device using device and operating specific commands (not HTML).

¶154. Petitioner argues that the web browser generated in part from execution the HTML files because the web browser requested another application to actually generate the HTML, but as I explained in the claim construction section, “generated in part from execution” means to a POSITA “output” or “produced” in part from execution, not that the application played some part in causing another application to generate the compiled content.

¶155. I have considered this limitation in light of the specification’s teachings, goals, and what the inventor intended to claim, and it is my opinion that in the context of the Patent-at-Issue, a web browser does not generate from execution, even in part, any portion the Petitioner-identified compiled content, the HTML files, as a POSITA would understand this term.

B. Hariki’s UI Skin Is Not “Applicable” to the Received HTML Files

1[f]/9[f]/17[f] wherein said custom configuration is applicable to said first and second compiled content

¶156. I understand that Netflix has identified the UI skin resources in the Hariki/Harris combination as corresponding to the custom configuration in the challenged patents. However, the Hariki/Harris combination discloses a browser program running locally in the wireless device that receives HTML from the server. This is true, even if the HTML is customized for the wireless device. There is no assertion that anything other than HTML is sent to the browser. The browser, in turn, responds to the HTML provided from the server to render output. HTML is

well known syntax that includes elements called tags that specify how the page is displayed. The UI skin resources are not responsive to the HTML and, therefore, do not set how the page is displayed.

¶157. In contrast, the claim limitation here notes that the custom configuration needs to be “applicable” to the pages of compiled content (i.e., the target for the compiled content is a rendering block). So, in order to read on the claims, the compiled content must be interpreted by a rendering block; but HTML—a standard set forth by groups such as the World Wide Web Consortium (“W3C”) and Web Hypertext Application Technology Working Group (“WHATWG”)—had and has no provision for interfacing with the Hariki-specific compiled content API. See Ex. 1005, Fig. 5 (item 508).

¶158. Indeed, Harris notes that the HTML may optionally be tested to make sure that the HTML is displayed properly on the web server/MCF before the HTML is even sent to the device (where the UI skin resides). Ex. 1007 [0035]. That this is an option for the developer—that the HTML can be correctly displayed without any UI skin resources—shows that the HTML cannot be a function of or rely upon the Petitioner-identified UI skin. If the HTML did reference and rely upon the UI skin resources that are remotely situated on the wireless device and accessed by reference to resource identifications through a local API, the developer would not have the

opportunity to check the remote display prior to deploying the HTML to the wireless device.

C. Hariki in View of Harris Does Not Teach the “Library” Limitations

17[a] a library of applications;

17[b] a library of custom configuration data comprising a custom configuration that configures a plurality of rendering blocks of said wireless device to render content in a manner customized to an application from said library of applications requested by said wireless device

¶159. I note for these limitations, Petitioner has identified “the user interface authoring tool 104” as the “library of applications.” Pet. 67 (citing Ex. 1002 ¶94). For limitation 17[b], Petitioner identifies “stored in a resource profiles database 204” as the “library of custom configuration.” *Id.* 68 (citing Ex. 1002 ¶¶30–32). However, the user interface authoring tool does not run on the wireless device where “the rendering blocks *of said wireless device*” are located. So, the resource profile database in no manner configures a plurality of rendering blocks of said wireless device to render content for the authoring tool, much less in a manner customized to the authoring tool.

¶160. And while Petitioner does not identify the “web server” as an alleged application in the identified “library of applications” for Claim 17, Pet. 67–69, Petitioner had previously identified the “web server” as supposedly being part of a “suite” with the authoring tool. Pet. 37. But the “resource profiles database” information also does not configure a plurality of rendering blocks of said wireless

device to render content “in a manner customized to” the web server (i.e., designed with the web server in mind), as already explained for limitation in Section XI.A.1 beginning on 65.

¶161. And Petitioner has never argued that the “web browser” is part of a library or part of a suite with the authoring tool, which, of course, it is not. So, the “web browser” too does not meet these limitations.

D. Hariki in View of Harris Does Not Teach the “Layout Solver” Limitation

17[c] a layout solver that transmits compiled content to said wireless device, said compiled content comprising (i) first compiled content specific to a first page of said application and (ii) second compiled content specific to a second page of said application
--

¶162. As noted above, for limitation 17[a], Petitioner has identified “the user interface authoring tool 104” as the “library of applications.” Pet. 67 (citing Ex. 1002 ¶94). The authoring tool is locally running on a remote computer from the wireless device and does not transmit any pages of its application to a wireless device, much less through a “layout solver.” Therefore, again, the authoring tool cannot be an application from a library of applications.

¶163. Petitioner identifies the “web browser” as allegedly being a layout solver. Pet. 71–72. However, as explained in Section XI.A.2 beginning on page 68, a web browser does not transmit petitioner-identified “compiled content,” HTML pages. Indeed, the best Petitioner can say is that Hariki’s browser “processes the HTML,” Pet. 72, but the claim does not require “processing” received HTML; it

requires *transmitting the identified HTML to the wireless device* that a web browser does not do.

E. Harris and Hariki Further Do not Teach Limitations in Dependent Claim 3 and 11

3. A method as described in claim 1 wherein said compiled content is partially resultant from said application operating on a remote server.

11. A non-transitory computer readable medium as described in claim 9 wherein said compiled content is partially resultant from said application operating on a remote server.

¶164. Claims 3 and 11 further require the remotely running application to operate on a server. Of course, the Petitioner identified web browser application does not run remotely on a server or otherwise. *See* Section XI.A beginning on page 63.

XII. CONCLUSION

¶165. It is my expert opinion that all Challenged Claims of the '715 Patent are not rendered obvious over Hariki in view of Harris.

XIII. DECLARATION

¶166. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case 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 on the subject matter of this declaration. If cross examination is required of me, I will appear for cross examination within the United States during the time allotted for cross examination.

¶167. I 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. Further, these statements are made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on January 29, 2024, at Las Vegas ,NV USA.



Stuart Lipoff

APPENDIX A (RESUME)

Stuart J. Lipoff

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My practice focus deals with topics in Communications, Information, Technology, Electronics, E-Business, and Media.

I provide clients with management consulting and technology-based consulting across a wide variety of industries drawing on the base of communications industry and technology expertise. Areas of focus include--public and private network voice and data communications, cable television, cellular mobile radio, broadcasting, security systems, image processing, broadband access technology, internet applications, and consumer electronics.

EDUCATION AND CERTIFICATION:

BS Electrical Engineering- Lehigh University, 1968
BS Engineering Physics- Lehigh University, 1969
MS Electrical Engineering- Northeastern University, 1974
MBA, Suffolk University, 1983
Registered professional engineer- State of Nevada and Commonwealth of Massachusetts
Certificate in Data Processing- Institute for Certification of Computing Professionals (ICCP)
FCC general radio telephone license

PROFESSIONAL ACTIVITIES:

- Fellow of the Institute of Electrical and Electronic Engineers (IEEE)
- Member of IEEE Consumer Electronics Society Board of Governors and past president of The Society
- VP of Publications for IEEE Consumer Electronics Society
- Senior Editor IEEE Consumer Electronics Magazine
- Past Chairman Boston Section of IEEE Vehicular Technology Society
- Past Chairman Boston IEEE Boston Fall 2000 Vehicular Technology Society Conference
- Member of program committee and past conference chairman of IEEE International Conference on Consumer Electronics
- Past Chairman of IEEE Consumer Electronics Standards Committee
- Past Awards chairman of IEEE Ibuka Award for Consumer Electronics
- Elected Member, Society of Motion Picture and Television Engineers (SMPTE)
- Elected Member Society of Cable Television Engineers (SCTE)
- Elected Member Association of Computing Machinery (ACM)
- Past member of USA advisory board to National Science Museum of Israel
- Elected member of Cable TV Pioneers

PREVIOUS EMPLOYMENT:

Arthur D. Little, Inc (25 Years) - VP Communications, Info Technology, & Electronics
Motorola Communications Division (3 years) - project engineer in portable radio products
Bell & Howell Communications Company (5 years) - engineering manager for paging products

AWARDS & RECOGNITION:

- Seven U.S. patents
- Co-author of book on information systems technology: "The Arthur D. Little, Inc Forecast on Information Technology and Productivity", (1991: Wiley)
- Co-author of book on developing mobile radio technology: "New Opportunities at 220 MHz", (1991: National Association of Business and Educational Radio)
- IEEE Centennial Metal in 1984 and Millennium Metal in 2002
- A best paper award at 1989 International Conference on Consumer Electronics

**See website at <http://www.lipoff.org> for internet citations.

SUMMARY

Mr. Lipoff is president of IP Action Partners Inc, a network of consultants who provide services to stakeholders in the TIME (telecommunications, information technology, media, electronics, and ebusiness) field of interest. In providing his clients with consulting services, he draws upon his 40+ years of experience in a wide variety of technologies and industries to assist clients with knowledge-based consulting services involving complex business decisions. Clients turn to him for his unique ability to combine a deep understanding of industry dynamics with his equal depth in the underlying technologies. Because he is at home in either the board room or the laboratory, the services he provides range from top line revenue enhancement to operations and capital efficiency improvement working across all levels of the client organization. His clients include component suppliers, equipment manufacturers, service providers, and those who make investments in technology ventures. Typical assignments involve product development assistance, technology assessments, M&A corporate development, visioning the future, strategic planning, strategic business development support, competitive product positioning, change management, and overall business decision support.

He has assisted clients evaluate product development plans and apply technologies in activities ranging from conceptual studies to detailed development and implementation of products, services, and strategies. Mr. Lipoff has industry expertise in several high-volume manufacturing operations in electronics, electromechanical, and related industries. He has assisted clients in managing their technology, improving the product development process, managing complex external procurements, and resolving problems in design, procurement, and manufacturing.

Mr. Lipoff was employed 25 years by Arthur D Little, Inc (ADL) as VP and Director of Communications, Information Technology, and Electronics (CIE); 4 years by Bell & Howell Communications Company as a Section Manager, and 3 years by Motorola's Communications Division as a Project Engineer. At ADL he was responsible for the firm's global CIE practice. At both Bell & Howell and Motorola, he had project design responsibility for portable wireless

communications and paging products.

Stuart Lipoff has Bachelors Degrees in Electrical Engineering and in Engineering Physics, both from Lehigh University. He also has received a Masters Degree in Electrical Engineering from Northeastern University, and a MBA degree from Suffolk University.

Mr. Lipoff is a fellow of the IEEE Consumer Electronics, Communications, Computer, Circuits, and Vehicular Technology groups. He is a member of the IEEE Consumer Electronics Society (now Consumer Technology Society) National Board of Governors and was the Boston Chapter Chairman of the IEEE Vehicular Technology Society. He served as 1996-7 President of the IEEE Consumer Electronics Society and has served as Chairman of the Consumer Electronics Society Technical Activities and Standards Committees, served as VP of Publications for The Consumer Electronics Society with responsibility for The Society's academic and general publications, and as VP of Industrial Activities and Standards. Currently he serves as the Historian for The Consumer Technology Society. He has also chaired the search committee for Sony supported Mazura Ibuka Award in consumer electronics. As Vice President and Standards Group Chairman of the Association of Computer Users, he served as the ACU representative to The ANSI X3 Standards group. For the Federal Communications Commission's Citizens advisory committee on CB radio (PURAC), he served as Chairman of the task group on user rule compliance. He has been elected to membership in the Society of Cable Television Engineers (SCTE), The Association of Computing Machinery (ACM), and The Society of Motion Picture and Television Engineers (SMPTE).

Stuart Lipoff holds a FCC General Radiotelephone License and a Certificate in Data Processing (CDP) from the ACM supported Institute for the Certification of Computing Professionals (ICCP). He is a registered professional engineer in The Commonwealth of Massachusetts and also in the State of Nevada.

Mr. Lipoff holds seven USA patents and has published articles in Electronics Design, Microwaves, EDN, The Proceedings of the Frequency Control Symposium, Optical Spectra, and numerous IEEE publications. He has presented papers at many IEEE and other meetings. In the fall of 2000, he served as general program chair for The IEEE Vehicular Technology Conference on advanced wireless communications technology. He has organized sessions at The International Conference on Consumer Electronics and was the 1984 program chairman. He conducted an eight-week IEEE sponsored short course on Fiber Optics Systems Design. In 1984, he was awarded IEEE's Centennial Medal and in 2000 IEEE's Millennium Metal.

He served as a member of the USA advisory board to the National Science Museum of Israel and has presented a short course on international product development strategies as a faculty member of Technion Institute of Management in Israel. He has also served as a board member of The Massachusetts Future Problem-Solving Program.

Mr. Lipoff is internationally recognized as an authority and opinion leader in new economy related businesses and technology. Citations supporting his recognition can be found on his web site at <http://www.ipaction.com>.

Some examples of projects he has performed in the broadcasting, cable TV, computer products, consumer electronics, media, telecommunications, and wireless communications sectors include:

- For Comcast Corporation, he supported a number of their initiatives in public network wireless services. This support included evaluation of investment opportunities, valuation of various options for acquiring spectrum in FCC auctions, development of capital investment estimates for several alternative business opportunities, and the development of decision support models used by management to select between alternatives.
- For a provider of pay per call alternate operator services to prison inmates, he evaluated their technology and assets with an emphasis on their ability to associate calling and calling party phone numbers with databases combined with their employees with multiple language skills. Following this evaluation, he worked with the client to identify and plan for offering services to clients other than prison inmates. Examples of such clients included government operated call centers, hospitals, police departments, and telephone catalog sales call centers.
- For International Mobile Machines (IMM), a firm that licenses patents to cellphone OEMs, he developed a roadmap of future services, architectures, and technology to support alternative visions of the development of cellular. He then worked with the firm to generate R&D projects designed to increase the base of patents for IMM to license in the future.
- For International Finance Corporation (the venture capital group of The UN's World Bank), he evaluated an investment opportunity in Cellon Inc, a PRC based cellphone design house. This project included inspection of Cellon's facilities in the PRC and France as well as detailed review of Cellon's facility assets, technology strengths, and intellectual property.
- For the patent and licensing division of The General Electric Company, he has evaluated a number of patent portfolios in the wireless telecommunications space and provided feedback to the client on the application and value of these patents.
- For Tele2 (a pan European cellular and wireline telephone company), he supported their efforts to procure an advanced cordless telephone from contract manufacturers in China (PRC). This involved development of detailed technical specifications, coordination of a request for information, (RFI), and evaluation of the responses.
- For Millicom International (a cellular provider in several developing nations), he studied capital spending and developed best practice benchmarks. The work products were then employed in forward planning and to develop strategies for improvement of their financial performance. The project involved the collection of data from over 25 systems in 12 countries and developing capital efficiency metrics that were normalized to the specific geographic and demographic specifics of each system. The project not only provided a measure of present and historical capital efficiency but also provided a management system to be employed for the future.
- For the banks providing financing to The Iridium Mobile Satellite Service, he served as a technical advisor and assisted in developing the contracts between the banks and Motorola in

which Motorola secured the loan. As a technical advisor, he had extensive day-to-day interactions with Motorola's manufacturing and product design organization. The interactions included examination of the manufacturing cost, methods, and processes of Motorola's Subscriber Products Group cellphones, pagers, and related portable wireless data communications devices.

- For Sony USA, he supported a feasibility analysis of a planned investment by Sony into a wireless PCS carrier in the USA. This involved the development of alternative business models, financial analysis, and technical analysis in order to determine financial attractiveness and risk of proceeding with the venture.
- For Samsung Electronics Global Marketing, he developed a strategic framework for a line of portable and personal multimedia products to be introduced in the USA. The project included developing a common theme for a set of products that ranged from cellphones, MP3 music players, electronic books, PDAs, to hand-held games. One common theme was developed, product features and capabilities were detailed, and market adoption models were developed to forecast demand.
- For Korea Mobile Telephone, he supported the project that developed a strategic plan to position KMT relative to Korea Telecom.
- For Symbol Technology, a manufacturer of hand-held industrial computing products, he co-developed the protocol for a wireless local area network that was the basis for the current IEEE 802.11 wireless LAN standard. Later he worked with this same client to selected voice over internet protocol (VoIP) codecs and algorithms that support the client's current product offering cordless industrial voice telephony over a quality of service (QoS) managed wireless IP network.
- Leadership of the project for CableLabs that studied the technology and economics of wireless personal communications technology. This project is highlighted in the history of CableLabs in their website as one of the significant accomplishments of The Labs. The project included the selection of CDMA technologies and the development of strategies to compete with incumbent cellular carriers. This effort led to the formation of a consortium between Sprint and the cable MSOs that has evolved into the present Sprint PCS business.
- For Rockwell Semiconductor, he supported a major project to identify and explore diversification opportunities beyond their current line of fax modems and compression chips. The project identified opportunities in wireless communications, broadband enterprise networks, and video signal processing. After identification of the opportunities, market forecasts were developed, competitors identified, and an analysis of the attractiveness versus fit with Rockwell was performed to support a request for board approval of diversification plans.
- For Cambridge Silicon Radio (UK), he worked with the client to develop a prioritized list of applications for their Bluetooth component offerings. The project mapped applications into specific target customers and based upon an analysis that considered the market needs with

CSR's capabilities, a prioritized roadmap of products was developed to steer the R&D portfolio.

- TCE markets cordless telephones in the USA under the GE Brand Name. The introduction of cost and size reduced imported products had an unexpected and immediate negative impact on market share. I was retained to develop modifications to the existing product to size reduce the existing product by reworking the existing inventory as well as develop a next generation product for new production. The project involved a combination of industrial design, antenna design, modification of the impedance matching electronics for the new antenna, and re-qualification of device under FCC regulations as a low power unlicensed communications device. The large telescoping antenna was replaced with a center loaded size reduced flexible antenna. An additional printed circuit board was designed and fabricated to tune and match the new antenna to the existing cordphone transceiver. Additional modifications to the transmitter involving component changes were developed to increase the transmitter power to overcome the additional loss in the loaded antenna. Manufacturing process sheets were designed and implemented in the factory to support the rework of the existing inventory. Engineering change orders were prepared for a new product design that included the changes on a single unified printed circuit board.
- For the investors in Mitel Semiconductor (Canada), he assisted the client value their telephone and business phone system telecommunications semiconductor device products and know-how in the firm. The project required a competitive review of Mitel Products and technology, and then evaluating the future likely needs of the marketplace. Our recommendations indicated which products should be the basis of further investment and most likely to be valued in a sale or licensing.
- For the flash memory global marketing group of Samsung, he led a project that explored the opportunities for flash memory in the emerging group of personal multimedia devices. These PMM devices ranged from PDAs, MP3 players, electronic books, to enhanced cellphones. The project developed visions and roadmaps for the rollout of these products and then translated this to the specific flash memory needs. A key aspect of the project was to determine the digital rights management and intelligence needs of the flash memory as content storage media. The analysis drove the Samsung developments and led to their participation in the SD flash consortium.
- For TRW, he participated in an assignment which reviewed all their non-classified military and defense technology to identify commercial applications. A number of systems applications in security for wireless communications and antifraud were developed which became the basis for successful spin-off operations. In addition, this project examined their GaAs design and production capabilities. The project resulted in foundry business for the GaAs fab in large volume consumer applications for direct to home satellite TV receivers.
- For a corporate cross-sector event organized by Motorola Corporate for all their divisions, he prepared presentations on the visions of the future in each of the major sectors in which Motorola has an interest. The presentations included: consumer electronics, medical, automotive, industrial electronics, and communications. The presentations provided a basis

for the cross-sector teams to engage in long term planning for each division.

- For a manufacturer of hand-held industrial computing products, he co-developed the protocol for a wireless local area network that was the basis for the current IEEE 802.11 wireless LAN standard. Later he worked with this same client to select voice over internet protocol (VoIP) codecs and algorithms that support the client's current product offering cordless industrial voice telephony over a quality of service (QoS) managed wireless IP network.
- Leadership of the project that studied the technology and economics of wireless personal communications technology. The project included the selection of CDMA technologies and the development of strategies to compete with incumbent cellular carriers. This effort led to the formation of a consortium between Sprint and the cable MSOs that has evolved into the present Sprint PCS business.
- For Bell South he contributed to a major operations improvement project involving developing forecasts for the future competitive environment, customer needs, a strategy to compete, and new business models. These forecasts were then applied to develop business redesign recommendations and a list of new services offerings.
- For a large multinational cellular service provider, he performed a review of their capital efficiency. The project involved the collection of data from over 25 systems in 12 countries and developing capital efficiency metrics that were normalized to the specific geographic and demographic specifics of each system. The project not only provided a measure of present and historical capital efficiency but also provided a management system to be employed for the future.
- For Tadiran, an OEM supplier of subscriber premise telephony equipment sold in multiple countries he engaged in an operations improvement project looking at all aspects of the design, manufacturing, distribution, and support of this high-volume consumer product. By means of including unique capabilities in the design of the next generation product that allowed for automatic configuration, he was able to improve the firm's performance in multiple dimensions. The new product allowed for a single universal product that reduced inventory costs, simplified distribution, and reduced order fulfillment time. A cost benefit analysis was performed to demonstrate the value of the significant investment required and showed Leadership of the project which developed the series of DOCSIS specifications for high-speed residential cable modems. The scope of work included developing a roadmap and strategic framework for evolving the business from simple high speed internet services to multimedia broadband services combining voice, data, and secure electronic content delivery. This project was performed under contract to the MCNS consortium of cable TV operators representing 85% of the subscriber base in North America and has since been adopted by the United Nations as a global telecommunications standard.
- Whistler is generally known as a large volume manufacturer of radar detectors sold to consumers to avoid speeding violations. He was retained to develop a new recreational marine product called Brite Buoy. This product was a two-part battery powered system consisting of a floating radio receiver that operates a flashing lamp and a handheld coded radio transmitter

operating at 900MHz that activates the lamp. The product was designed to allow a boat owner to find their mooring in the evening. He designed the unit to make maximum use of the existing radar receiver IF section in order to allow the benefits of large volume purchase of common components as well as reduce risk and time to market. He designed and developed a SAW Filter stabilized transmitter incorporating low-cost modulators used in garage door openers. The unit was design for manufacture using the clients existing high volume automated surface mount assembly lines.

- For B&H, he led the team that developed a digital radio paging product employing thick film hybrid RF and custom baseband integrated circuits. The project was designed for high volume manufacturing using in-house production systems.

EXPERT WITNESS ENGAGEMENTS

Case	Jurisdiction	Case Number	Witness for:
One World Technologies, Inc. v. United States, United States Department of Homeland Security, United States Customs and Border Protection, and Commissioner Kevin K. McAleenan	The United States Court of International Trade	18-00200	Plaintiff
Clearplay, Inc. v. DISH Network L.L.C. and EchoStar Technologies L.L.C.	The United States District Court for the District of Utah	2:14-cv-00191-DN	Defendant
Maxell, Ltd. v. Fandango Media, LLC	The United States District Court for the Central District of California	2:17-cv-07534-AG-SSx	Plaintiff
Sisvel International S.A., 3G Licensing S.A., and Sisvel S.P.A. v. HMD America, Inc. and HMD Global Oy	United States District Court for the Southern District of Florida; Miami Division.	20-22051-Civ-Gayles	Plaintiff
Sisvel International S.A. and 3G Licensing S.A. v. ZTE (USA) Inc. and ZTE Corporation	United States District Court for the Northern District of Texas	3:19-cv-01694-N	Plaintiff
The Chamberlain Group, Inc. v. One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment	The United States International Trade Commission	337-TA-1016	Respondent
Dynamics Inc. v. Samsung Electronics, Co., Ltd.	The United States International Trade Commission	337-TA-1170	Respondent

Case	Jurisdiction	Case Number	Witness for:
Universal Electronics, Inc. v. Roku Inc., et al	The United States International Trade Commission	337-TA-1200	Respondent - Roku
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	CBM2018-00033	Petitioner
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	CBM2018-00034	Petitioner
TCT Mobile (US) Inc. and TCT Mobile, Inc. v. Wireless Protocol Innovations, Inc.	The United States Patent Office Trial and Appeal Board	IPR2016-01494	Petitioner
TCT Mobile (US) Inc. and TCT Mobile, Inc. v. Wireless Protocol Innovations, Inc.	The United States Patent Office Trial and Appeal Board	IPR2016-01704	Petitioner
TCT Mobile (US) Inc. and TCT Mobile, Inc. v. Wireless Protocol Innovations, Inc.	The United States Patent Office Trial and Appeal Board	IPR2016-01861	Petitioner
TCT Mobile (US) Inc. and TCT Mobile, Inc. v. Wireless Protocol Innovations, Inc.	The United States Patent Office Trial and Appeal Board	IPR2016-01865	Petitioner
One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment v. The Chamberlain Group, Inc.	The United States Patent Office Trial and Appeal Board	IPR2017-00073	Petitioner
One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment v. The Chamberlain Group, Inc.	The United States Patent Office Trial and Appeal Board	IPR2017-00126	Petitioner
One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment v. The Chamberlain Group, Inc.	The United States Patent Office Trial and Appeal Board	IPR2017-00214	Petitioner
Live Person, Inc. v. 24/7 Customer, Inc. and 24/7 Customer International Holdings, Ltd.	The United States Patent Office Trial and Appeal Board	IPR2017-00610	Petitioner
Live Person, Inc. v. 24/7 Customer, Inc. and 24/7	The United States Patent Office Trial and Appeal Board	IPR2017-00616	Petitioner

Case	Jurisdiction	Case Number	Witness for:
Customer International Holdings, Ltd.			
One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment v. The Chamberlain Group, Inc.	The United States Patent Office Trial and Appeal Board	IPR2017-01132	Petitioner
One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment v. The Chamberlain Group, Inc.	The United States Patent Office Trial and Appeal Board	IPR2017-01137	Petitioner
Google Inc. v. Uniloc USA, Inc. and Uniloc Luxembourg, S.A.	The United States Patent Office Trial and Appeal Board	IPR2017-01683	Petitioner
Google Inc. v. Uniloc USA, Inc. and Uniloc Luxembourg, S.A.	The United States Patent Office Trial and Appeal Board	IPR2017-01684	Petitioner
Google Inc. v. Uniloc USA, Inc. and Uniloc Luxembourg, S.A.	The United States Patent Office Trial and Appeal Board	IPR2017-01685	Petitioner
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	IPR2018-00342	Petitioner
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	IPR2018-00343	Petitioner
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	IPR2018-00344	Petitioner
Comcast Cable Communications, LLC v. Promptu Systems Corporation	The United States Patent Office Trial and Appeal Board	IPR2018-00345	Petitioner
Google LLC v. Hammon Development International, Inc.	The United States Patent Office Trial and Appeal Board	IPR2020-00020	Petitioner
Google LLC v. Hammon Development International, Inc.	The United States Patent Office Trial and Appeal Board	IPR2020-00080	Petitioner

Case	Jurisdiction	Case Number	Witness for:
Google LLC, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. LG Electronics Inc., and LG Electronics U.S.A., Inc. v. Parus Holdings, Inc.	The United States Patent Office Trial and Appeal Board	IPR2020-00846	Petitioner
Google LLC, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. LG Electronics Inc., and LG Electronics U.S.A., Inc. v. Parus Holdings, Inc.	The United States Patent Office Trial and Appeal Board	IPR2020-00847	Petitioner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01157	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01158	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01159	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01160	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01161	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2020-01162	Patent Owner
Dell Inc. v. 3G Licensing S.A.	The United States Patent Office Trial and Appeal Board	IPR2021-00584	Patent Owner
Google LLC v. Parus Holdings, Inc.	The United States Patent Office Trial and Appeal Board	IPR2022-00279	Petitioner
Google LLC, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. LG Electronics Inc., and LG Electronics U.S.A., Inc. v. Parus Holdings, Inc.	The United States Patent Office Trial and Appeal Board	IPR2022-00355	Petitioner

Case	Jurisdiction	Case Number	Witness for:
Google LLC, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. LG Electronics Inc., and LG Electronics U.S.A., Inc. v. Parus Holdings, Inc.	The United States Patent Office Trial and Appeal Board	IPR2022-00358	Petitioner

CLIENTS

ASSA
 Caavo
 Charles Schwab
 Comcast
 Contec
 Dish
 Frost Bank
 GE MDS
 Google LC
 HID Global

Kajeet
 Local Radio
 Maxell
 Production Products Corp.
 RIM
 Roku
 Samsung
 Sisvel MCP
 Unified Patents
 WSOU