UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Bright House Networks, LLC,
WideOpenWest Finance, LLC,
Knology of Florida, Inc.
Birch Communications, Inc.
Petitioners

v.

Focal IP, LLC,
Patent Owner

Patent No. 8,155,298 B2
Filing Date: Jul. 5, 2006
Issue Date: Apr. 10, 2012

TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

Petition for *Inter Partes* Review of
U.S. Patent No. 8,155,298 B2

Inter Partes Review No. 2016-01252

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1028	Crumlish, The ABCs of the Internet
1029	Helmstetter, Increasing Hits and Selling More on your Web Site (1997)
1030	Comer, Internetworking with TCP/IP 2d, Vol. I (1991)
1031	Judson, netmarketing – How Your Business Can Profit from the Online Revolution (1996)
1032	Newton's Telecom Dictionary 15th ed. (Aug. 1999)

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1033	Random House Webster's Computer & Internet Dictionary 3rd ed. (1999)
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1047	Terplan, The Telecommunications Handbook (1999)
1048	Lakshmi-Ratan, The Lucent Technologies Softswitch—Realizing the Promise of Convergence (April-June 1999)
1049	Tanenbaum, Computer Networks 3rd ed. (1996)
1050	IBM PCjr The easy one for everyone (1983)
1051	PacketCable™ 1.0 Architecture Framework Technical Report (1999)
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I. INTRODUCTION

Petitioners request *inter partes* review of claim 1 ("Challenged Claim") of U.S. Patent No. 8,155,298 (EX1001) ("'298 patent"), assigned to Focal IP, LLC. Petitioners respectfully submit that the Challenged Claim is unpatentable as obvious over the prior art references discussed herein. This Petition demonstrates by a preponderance of the evidence that there is a reasonable likelihood that Petitioners will prevail with respect to this claim. Accordingly, it is respectfully requested that the Board institute an *inter partes* review of the Challenged Claim pursuant to 37 C.F.R. § 42.108.

The '298 patent relates to user-selected call features in telephone communications, such as call forwarding or call blocking. The Challenged Claim of the '298 patent discloses methods to allow users to set these call features using a web server, rather than the traditional way—by dialing "star codes," such as "*72" to forward calls. During prosecution of the '298 patent, the applicants also distinguished over prior art references that disclosed implementing the call features using a web server in a user's local telephone office, rather than at a central location in the telephone network. *See, e.g.* EX1008, 1685-86.

Years prior to the '298 patent's earliest filing date, web-based systems that allowed users to set call features were known. EX1003, EX1004, EX1005. These systems allowed users to access and set call features like call forwarding and call

blocking over the Internet. *Id*. These same systems also implemented the control of these user-set call features outside of the user's local edge switch. *Id*. Much of this art, unfortunately, was not in front of the Patent Office during prosecution of the '298 patent. If this art had been before the Patent Office, the Challenged Claim would not have issued.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

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

Petitioner Bright House Networks, LLC identifies Bright House Networks, LLC and Charter Communications, Inc. as real parties in interest. Additionally, Bright House Networks, out of an abundance of caution based on certain decisions from the PTAB describing the test for real-parties-in-interest, identifies Cisco Systems, Inc., Broadsoft, Inc., Siemens Communications, Inc. Petitioner Bright House is aware of a number of related entities, including predecessor, and successor entities: Nokia Solutions and Networks US, LLC, Nokia Siemens Networks US, LLC, Nokia Corp., Nokia Solutions and Networks Holdings USA, NS Networks, LLC, Nokia Networks Inc., Nokia USA Inc., Nokia, Inc., Alcatel-Lucent USA Inc., Alcatel-Lucent Holdings Inc., Alcatel USA Holdings Corp.), and Sonus Networks, Inc. as potential real parties in interest to Petitioner Bright House Networks, LLC. However, none of these companies have participated in any way in the preparation of, the funding of, or the evaluation of the present Petition; nor

have any of these companies attempted to exercise control over the related litigation nor the present Petition nor contributed funding to the present Petition. It should also be noted that none of these companies have agreed to be listed as a real party in interest for this Petition.

Petitioners WideOpenWest Finance, LLC ("WOW") and Knology of Florida, Inc. ("KOF") identify WideOpenWest Finance, LLC, Knology of Florida, Inc., and Data Connection Ltd. d/b/a Metaswitch Networks as real parties in interest. Additionally, WOW and KOF, out of an abundance of caution based on certain decisions from the PTAB describing the test for real-parties-in-interest, identify WOW's parent company Racecar Holdings, LLC and majority equity holders Avista Capital Partners and Crestview Partners, and KOF's parent companies Knology, Inc. and Kite Parent Corp., as potential real-parties in interest to WOW and KOF. However, none of these companies have participated in any way in the preparation of, the funding of, or the evaluation of the present Petition; nor have any of these companies attempted to exercise control over the related litigation nor the present Petition nor contributed funding to the present Petition. It should also be noted that none of these companies have agreed to be listed as a real party in interest for this Petition.

Petitioner Birch Communications, Inc. identifies Birch Communications, Inc. and Birch Communications Holdings, Inc. as real-parties-in-interest.

Additionally, Birch Communications, Inc., out of an abundance of caution based on certain decisions from the PTAB describing the test for real-parties-in-interest, identifies Broadsoft, Inc., Sonus Networks, Inc., Data Connection Ltd. d/b/a Metaswitch Networks, Acme Packet, Inc. (Petitioner Birch Communications is aware of successor Oracle Corp. through acquisition), Holcombe T. Green, Jr., and R. Kirby Godsey, as potential real-parties in interest to Birch Communications, Inc. However, none of these companies have participated in any way in the preparation of, the funding of, or the evaluation of the present Petition; nor have any of these companies attempted to exercise control over the related litigation nor the present Petition nor contributed funding to the present Petition. It should also be noted that none of these companies have agreed to be listed as a real-party-in-interest for this Petition.

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

Case	(Patent Asset Licensing LLC v.) Opposing Party
3:15-cv-00742 (M.D. Fla.)	*Bright House Networks, LLC*
3:15-cv-00744 (M.D. Fla.)	*YMAX Corp.*
3:15-cv-00747	*T3 Communications, Inc.*
3:15-cv-00743 (M.D. Fla.)	*WideOpenWest Finance, LLC et al.*
3:15-cv-00746	*Birch Communications, Inc.*
IPR2016-1254	*IPR Petition of '113 patent by Cisco Systems, Inc.*
IPR2016-1257	*IPR Petition of '113 patent by Cisco Systems, Inc.*

Petitioners will concurrently file a related petition for *Inter Partes* Review of claim 20 of the '298 patent asserting similar grounds. Because the issues and prior

art substantially overlap, Petitioners ask the Board to consider the two petitions together.

Petitions for *Inter Partes* Review of related U.S. 7,764,777 and 8,457,113 will also be filed concurrently with this Petition. Also related is the pending prosecution of U.S. App. No. 14/737,243, filed June 11, 2015 (*see* EX1052).

C. Lead and Back-Up Counsel under 37 C.F.R. § 42.8(b)(3)

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D. Service Information under 37 C.F.R. § 42.8(b)(4)

Please direct all correspondence to lead and back-up counsel at the above addresses. Petitioners consent to electronic service at the email addresses above.

III. PAYMENT OF FEES - 37 C.F.R. § 42.103

This Petition requests *inter partes* review of one claim of the '298 patent and is accompanied by a request fee payment of $23,000. *See* 37 C.F.R. § 42.15. This petition meets the fee requirements under 35 U.S.C. § 312(a)(1). Payment is authorized for any additional fees due in connection with this Petition to be charged to Deposit Account 501283.

IV. GROUNDS FOR STANDING UNDER 37 C.F.R. § 42.104(A)

Petitioners certify the '298 patent is eligible for *inter partes* review and that each Petitioner is not barred or estopped from requesting *inter partes* review challenging the Challenged Claim on the grounds identified within this Petition.

V. REASONS FOR REQUESTED RELIEF (37 C.F.R. §§ 42.22 AND 42.104(B))

As explained in §§VII of this Petition and in the attached Declaration of Petitioners' Expert, Dr. Thomas La Porta ("La Porta") (EX1002, "TLP"), the methods claimed in the Challenged Claim are obvious over the prior art.

Specifically, this Petition and La Porta explain where each element is found in the prior art and why each claim would have been obvious to a person of ordinary skill in the art ("POSA") at the time of the invention. *See* §VII. This Petition and La Porta also describe additional prior art references to provide a technology background as of the earliest possible filing date of the '298 Patent, further explanation as to why a person of ordinary skill in the art (POSA) would combine the teachings of the cited references, and support for why a POSA would have a reasonable expectation of success in such combinations.

A. Summary of the '298 Patent

The '298 patent is a continuation of application no. 10/426,279, filed on April 30, 2003, which itself is a continuation-in-part of application no. 10/565,565, filed May 4, 2000, the '298 patent's earliest possible filing date. [1]

The '298 patent relates generally to systems and methods for allowing telephone service subscribers to select call features using the Internet and for

[1] The priority date for the Challenged Claim is not put at issue by the prior art references relied upon in this Petition and is therefore assumed to be May 4, 2000, for purposes of this proceeding only. *See* EX1001. However, Patent Owner has alleged it may be entitled to a priority date as early as June 1, 1999. The invalidity analysis and opinions presented in this Petition are the same under either date. TLP ¶¶27, 36.

providing connections between the PSTN and VOIP networks. EX1001, 1:20-23, 12:46-13:35, 14:60-15-28, cl. 20; TLP ¶¶91-94. The ’298 patent acknowledges that prior art systems existed to allow a telephone service subscriber to add, modify, and/or control, the telephony features of his or her own telephone service using the Internet. EX1001, 1:31-38, 1:57-60, 2:1-13, 2:23-24, 2:48-50, 3:31-32, 4:64-5:4, 6:52-53. Call features that the ’298 patent acknowledges were well known include “conditional call blocking, call forwarding, call altering, time-of-day conditions, day-of-week conditions, follow-me, caller recognition/ password, caller ID, call screening/retrieval from voice mail, speed dialing, interactive voice response, and speech recognition.” EX1001, 5:42-50 *see also id.* 2:4-6, 2:15, 2:38-40, 7:1-4. The ’298 patent also acknowledges that “Voice over Internet Protocol (VoIP) products emerging that provide better user interfaces and control.” EX1001, 2:48-50; TLP ¶91.

The ’298 patent states that problems with these systems related to either the location of where the call features were applied—in the terminating central office edge switches of telephone service providers or through subscriber edge devices, such as phones or public branch exchanges (PBX)—(*id.*, 1:60-64, 2:6-13, 2:38-48; *see also id.* at 2:14-19, 3:26-28; TLP ¶¶91-94)—or the type of providers that offered the services—web-based toll systems that rely upon the toll network through the use of “800” numbers. *Id.*, 1:38-41, 2:23-30, 3:32-36; TLP ¶¶91-94.

The ’298 patent’s solution for the claimed invention was to provide web-based call selection features through a controller connected to a **tandem** switch rather than an **edge** switch, to provide the telephony features. EX1001, 1:65-67, 3:24-28; 3:44-48, 3:36-37, 4:52-66, 5:21-42; TLP ¶93. The ’298 patent discloses that its controller and system uses known technologies and conventional computer and telephony equipment. EX1001, 1:31-34, 1:38, 1:43-48, 2:48-51, 3:31-32, 4:15-24, 4:55-5:4, 5:27-32, 5:33-40, 5:41-50, 5:53, 6:10, 6:52-53, 6:64-7:4; TLP ¶¶91-94.

But, as set out in §§V.E, VI, and VII below, the concept of providing users web-based call feature selection via controllers connected to tandem switches was well known in the art and was one of the driving forces of the development and standardization of the IN more than a year before the earliest priority date of the ’298 patent. TLP ¶¶41-90, 98-114.

B. Prosecution History

During prosecution of U.S. Patent No. 7,764,777, the ’298 patent’s sister, application no. 11/948,965 (“ ’965 Application”), which has the same specification and priority claim as the ’298 patent (EX1010), the applicant distinguished over prior art rejections by amending the claims to include “switching facilities,” which were “any point in the switching fabric of converging networks, also referred to in industry as a signal transfer point (STP), signal control point (SCP) . . . gateway,

access tandem, class 4 switch . . . trunk gateway, hybrid switch, etc." EX1010, 87 n.1. The applicant also amended the claims to specify that the "controller," "controlling device," or "web-enabled processing system" was "coupled to" or "in communication with" such a "switching facility", rather than an "edge switch." *Id.*, 75, 80, 84, 86-87, 93-94. The applicant argued that its claimed switching facility architecture was an improvement over the edge-switch connected prior art, because its switching facility architecture could apply call features anywhere in the PSTN, while the prior art edge switch architecture could only apply call features to a local geographic area. *Id.*, 75, 80, 84, 86-87, 93-94.

In response to the applicant's amendments and arguments, the '965 Application was allowed and issued as U.S. 7,764,777 on July 27, 2010. *Id.*, 33, 51. Almost a year after the '965 Application was allowed, the applicant made similar "switching facility" amendments to the claims in the '298 patent application. EX1008, 62-67. Two months after applicant amended the claims in the '298 patent's application to include the "switching facility" limitations, the application was allowed and the '298 patent issued on April 10, 2012. *Id.*, 21, 92.

However, as set forth below, it was well known, and in fact standard practice, to implement subscriber-selected call features using intelligent servers located within, or coupled to centralized "switching facilit[ies]" in the PSTN, as opposed to an "edge switch." TLP, ¶¶150-181, 210-231, 282-286.

C. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

Claim terms construed during *inter partes* review are given their broadest reasonable interpretation (BRI). 37 C.F.R. § 42.100(b). Claim terms that are not construed are to be given their plain and ordinary meaning to a POSA at the time of the claimed invention when read in light of the specification and file history. Petitioner believes the claims terms in the challenged claim are readily understood by a POSA in light of the specification and file history, and therefore have applied the petitioned claim terms in accordance with their plain and ordinary meaning. Petitioner provides additional explanation of what a POSA would understand the plain and ordinary meaning to be where relevant in section VII.C.

D. A POSA's Level of Skill in the Art

A POSA is a hypothetical person who is presumed to be aware of all pertinent prior art, thinks along conventional wisdom in the art, and is a person of ordinary creativity. With respect to the '298 Patent, a POSA would have been an engineer or computer scientist with at least a bachelor's degree, or equivalent experience in electrical engineering, or a related field, and at least three years of industry experience in the fields of analog and digital communications, inclusive of exposure to telecommunications standards as applied in wired and wireless broadband networks. TLP ¶¶27-34. The education and experience levels may vary between POSAs, with some persons holding a Bachelor's degree with two to three

years of work experience, and others holding a Master's degree, with one to two years of work experience. *Id.*

E. State of the Art

As of the late 1990s and early 2000, the state of the art pertinent to the '298 patent included web-based provisioning of user-selected call features across circuit- and packet-switched networks. TLP ¶¶41-90.

1. Circuit-Switched and Packet-Switched Communication Networks

Circuit-switched networks are the traditional networks for carrying voice data in the form of telephone calls. TLP ¶51; EX1049, 58-59. Circuit-switched networks operate to transfer information using dedicated paths or circuits. TLP ¶¶51-53; EX1049, 58-63; EX1030, 15. A common circuit-switched network is the Public Switched Telephone Network (PSTN) that handles most of the world's traditional telephone calls, as discussed below. TLP ¶¶51, 54; EX1030, 15.

Packet-switched networks, on the other hand, do not use dedicated paths for the transmission of information. TLP ¶¶51-53; EX1030, 15; EX1037, 146-149. In packet-switched networks, information is broken into pieces, known as packets. *Id.* Each packet contains a destination address. TLP ¶¶51-53; EX1049, 58-63. The packet network consists of numerous interconnected routing devices that form a web-like structure. TLP ¶¶51-53; EX1049, 58-63. A packet is forwarded by an initiating device to a router in the network; that router reads the destination

address of the packet and forwards the packet to another router, or to the final destination address. TLP ¶¶51-53; EX1049, 60-62. As a result, different packets of information from the same source may traverse different paths in the packet network to reach the destination. A common packet-switched network is the Internet, which uses the Internet Protocol (IP) for packet addressing and the TCP/IP protocol stack. TLP ¶¶41, 51-53, 80; EX1049, 70-71, 72-96.

2. PSTN Architecture

In the mid-1990s and 2000, telephony services, including voice-based telephone calls and fax messaging, were traditionally provided over the Public Switched Telephone Network (PSTN). TLP ¶¶54-57; EX1037, 91-92, 95-102. The PSTN has existed since the 1970s and comprises a global network of circuit switches arranged in a geographical hierarchy. TLP ¶¶54-57; EX1037, 64-69. In the PSTN hierarchy, tandem switches, or class 4 switches, serve to interconnect geographical regions and edge switches, or class 5 switches, connect between tandem switches and end-user devices, like telephones, within a local area. TLP ¶¶54-57; EX1037, 106-113, 119-122, 137-138, Fig. 4-4; EX1001, 1:42-51.

In the traditional Bell telephone system of the 1980s, edge switches were operated by local telephone service providers and housed in what are known as terminating central offices. TLP ¶¶54-57; EX1037, 59-62, 97-100, 106-110. Calls that could be routed between users connected to the same edge switch are

known as local calls. TLP ¶¶54-57; EX1037, 90-92, 106-113. Calls that were required to be routed to tandem switches for connection to other edge switches are known as long distance calls and generally incurred a toll for use of the tandem switching facilities and network. TLP ¶¶54-57; EX1037, 64, 106-113. Tandem switches that interconnect edge switches and other tandem switches are housed in what are known as toll offices. TLP ¶¶54-57.

3. PSTN Call Components – Signaling and Media

Traditional telephone calls over the PSTN consisted of two distinct parts—signaling and media. EX1038, 32-33, 55-62, 156-158; EX1037, 117, 132-133, Fig. 8-1. The signaling portion of telephone calls was used for call setup and feature selection—i.e. a phone ringing is the result of call request signaling. EX1037,130-135; TLP ¶¶57-61. The media portion of telephone calls consisted of the actual voice traffic after a call has been established. TLP ¶¶54-57; EX1051, 9-12, 22-25. Once a telephone is answered, the call accept signal was used to finalize the path, or circuit, over which the voice traffic (i.e. media) of the call travels. TLP ¶¶54-57; EX1037, 98-105, 131-135, Fig. 3-8, Fig. 8-1; EX1027, 9-10. Signaling is used in parallel to notify the switches that the call is completed.

The PSTN is operated in accordance with the ITU-T standards which provide for the global telephone numbering scheme, as well as the signaling and data protocols used in the PSTN. TLP ¶¶54-57; EX1027, 1-3. Since 1975, the most

prominent signaling protocol for use in the PSTN has been Signaling System 7 (SS7). TLP ¶¶43, 59-65; EX1027, 1. The SS7 signaling protocol provides for call setup and teardown in the PSTN. TLP ¶¶58-61; EX1027, 1-3.

4. PSTN Call Features and Intelligent Networks

In the late 1960s and early 1970s, AT&T developed a suite of call features that users could select by dialing special codes from their telephone numbers. TLP ¶¶62-63; EX1038, 13. These call features included call blocking and call forwarding, among others. For example, call forwarding could be implemented by dialing "*72." TLP ¶¶62-63; EX1037, 60-61, 114. These calling features were originally implemented by the local service provider in the edge switch. TLP ¶¶62-65; EX1038, 66-67, 75.

By the early 1990s these, and additional calling features, became ubiquitous and, as part of an effort to streamline the deployment of additional call features and network capacity, the Intelligent Network (IN) concept was developed and standardized. TLP ¶¶42, 45-47, 62-64; EX1038, 89-90. The IN took many of the functions that had traditionally been located in terminating central offices or edge switches, including these call features, and moved them into dedicated functional blocks that could be located anywhere in the PSTN, including in tandem switches. TLP ¶¶45-47, 62-68 (user call features implemented in the "SSF"); EX1038, 8-9, 29-34, 58-59, 62-63; EX1020.

5. VoIP and Internet Telephony

In the 1990s, voice data for real-time communication began to be carried over the Internet as packet data using the Internet Protocol (IP). TLP ¶¶67-69, 84; EX1026, 3-5; EX1018; EX1024. This became known colloquially as VoIP or voice over Internet Protocol. By the late 1990s, the PSTN and VoIP networks were interconnected such that a single call could traverse both the PSTN and the Internet or another packet network. TLP ¶¶71-79; EX1026, 3-5; EX1016, 1:16-3:10; EX1018; EX1025. Protocols for handling VOIP calls, including H.323 and the SIP signaling protocol, were standardized in the late 1990s. EX1018; EX1024; EX1025.

6. Web-Based Call Feature Selection

By the time the ’298 patent was filed, a number of systems provided users with the ability to set up or change call features associated with their accounts directly over the Internet. TLP ¶¶45-50. These systems provided users with web-based access to call feature selection tools through the use of centralized, intelligent servers that connected to the features of IN used to control call routing and call features. TLP ¶¶42-50; EX1037, 55-59; EX1038, 90-92. Web-based call feature selection systems from 1997 and 1998 are illustrated in the figures below:

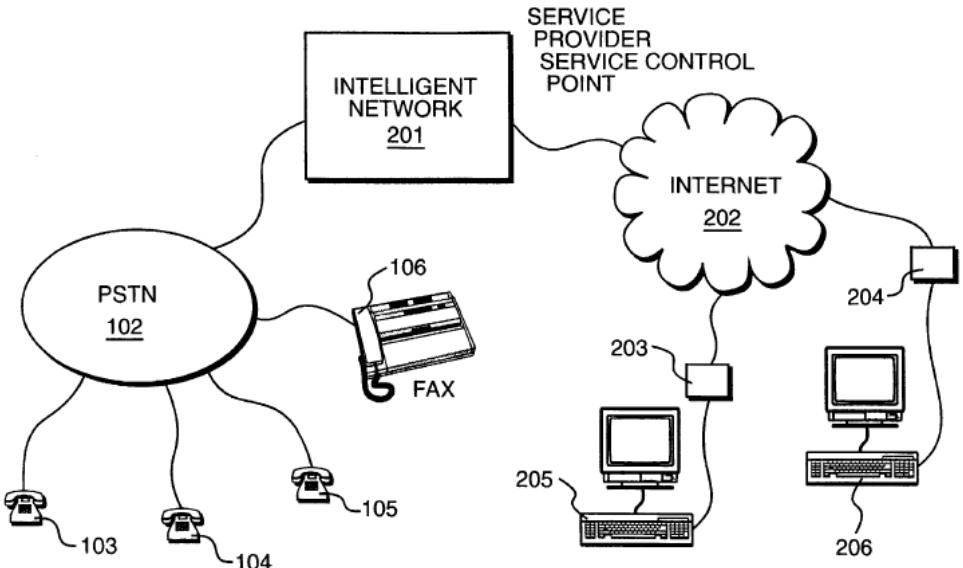

Figure 2

TLP ¶¶67-70; EX1011, Figs. 2-3, 5:16-30, 6:3-4, 6:21-7:22, 9:15-12:11.

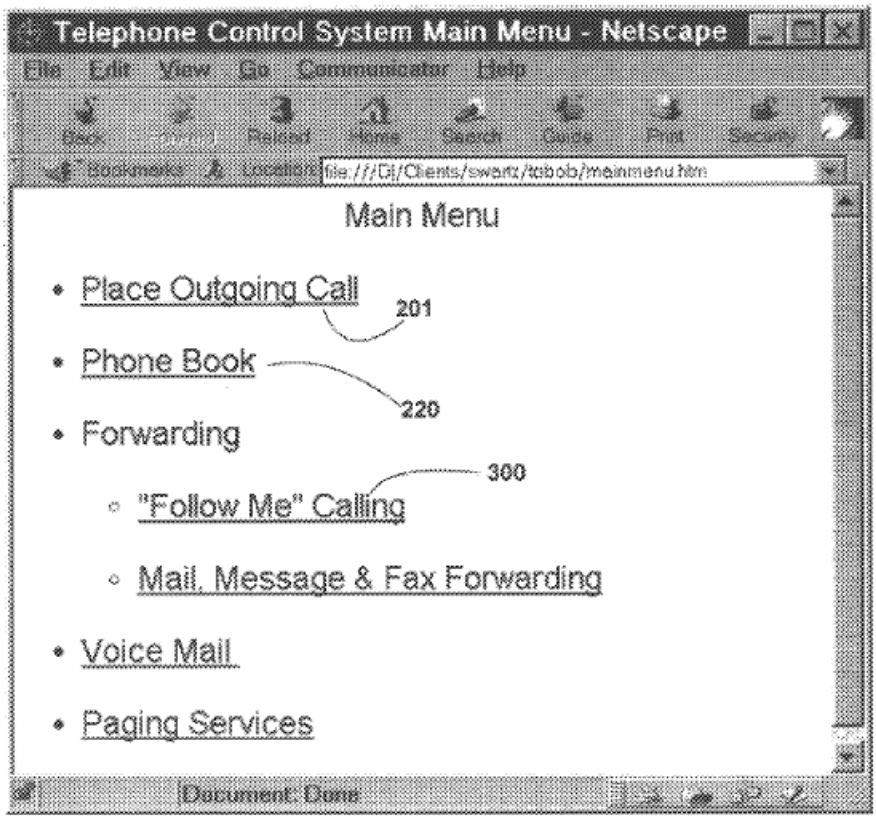

Fig. 2

EX1005, 3:39-58; 5:39-7:10, Figs. 2-3, 5-7, 9-10; TLP, ¶¶67-70.

VI. IDENTIFICATION OF CHALLENGES UNDER 37 C.F.R. § 42.104(B)

A. Challenged Claim and Statutory Grounds for Challenges

Claim 1 of the ’298 patent is challenged in this Petition. The Grounds are set forth in detail below and summarized as follows:

Challenge 1: Claim 1 is obvious under 35 U.S.C. § 103 over U.S. Patent No. 6,683,870 (“Archer,” EX1003) in view of U.S. Patent No. 5,958,016, (“Chang,” EX1004).

Archer was filed June 25, 1998 and issued January 27, 2004, to Michael Archer, (“Archer,” EX1003). Archer depends through divisionals to application no. 08/798,350, filed February 10, 1997. Archer is prior art to the ’298 patent under at least 35 U.S.C. § 102(e), because it issued from an application filed prior to the ’298 patent.

U.S. Patent No. 5,958,016, titled “Internet-Web Link for Access to Intelligent Network Service Control,” was filed July 13, 1997, and issued September 28, 1999, to Chang *et al*. (“Chang,” EX1004). Chang is prior art to the ’298 patent under at least 35 U.S.C. § 102(e) because it is an issued patent that was filed prior to the filing date of the ’298 patent. On its face, Chang is also prior art to the ’298 patent under 35 U.S.C. § 102(a) because it issued as a patent before the earliest stated priority date, May 4, 2000, of the ’298 patent.

Archer was not cited, applied by, or disclosed to, the Examiner during prosecution of the ’298 patent. Chang was identified by the applicant in information disclosure statements (IDS) submitted during prosecution of the ’298 Patent. The Examiner did not apply Chang, or otherwise cite to either reference, nor did the Examiner consider the combination of the teachings of Chang with Archer, as set forth in this Petition.

VII. HOW THE CHALLENGED CLAIM ARE UNPATENTABLE (37 C.F.R. § 42.104(B))

A. Summary of Asserted References

1. Archer

Archer relates to telephone services involving both circuit-switched networks (118, 136), like the PSTN, and VOIP-capable packet networks (130), like the Internet. EX1003, 2:26-51, Fig. 2; TLP ¶¶99-102. Archer teaches systems and methods that allow users to set call features for calls over the circuit network and packet network, including call forwarding and find-me-follow-me services. EX1003, 2:26-51, 3:45-62, 4:3-16, 6:31-39. Archer teaches that users can set these call features by logging onto the Internet and changing settings in a call feature database (138). EX1003, 7:30-50. When the user is called, the call request is received by the call feature server (128), which accesses the database (138) and then forwards the calls based on the settings in the database (138). EX1003, 2:45-51, 6:63-7:13, 8:57-9:55, Fig. 4, Fig. 5.

2. Chang

Chang relates to the development of a system for web-based user control of call features using the Intelligent Network features of the PSTN. EX1004, 4:45-58, 7:9-16, Fig. 1; TLP ¶¶104-106. Chang shows that users access a webserver (25, 525) over the Internet to set call features in the service control point (SCP, 19) of the PSTN. EX1004, 8:55-63, 11:9-12:30, 16:1-11, 18:66-19:11, 22:33-49, Fig. 1, Fig. 2. Chang's SCP controls calls by coupling to both tandem switches (11_T) and terminating central office edge switches (11_E) through the service transfer point (STP, 15) using standard SS7 signaling. EX1004, 8:23-9:7, 10:33-60, Fig. 1.

B. Combinability of Archer and Chang

A POSA would understand the asserted prior art references are analogous to the '298 patent and are combinable in the ways set out in Section X below. To be proper prior art in an obviousness analysis, the references must be analogous to the claimed invention. *In re Bigio,* 381 F.3d 1320, 1325 (Fed. Cir. 2004). A reference is analogous if: (1) it is from the same field of endeavor as the claimed invention (even if it addresses a different problem); or (2) it is reasonably pertinent to the problem faced by the inventor (even if it is not in the same field of endeavor). *See Bigio*, 381 F.3d at 1325.

Archer and Chang are both in the same field of endeavor as the '298 patent—user selection of call features involving the PSTN and packet-switched

networks. EX1001, 1003-04, (Abstract); TLP ¶¶112-114. Further, Archer and Chang are all reasonably pertinent to the problem faced by the ’298 patent inventor; that is, providing user-based selection of calling features in telephony networks via the Internet. EX1001, 1:19-23, 2:55-3:6; EX; 1003, 1:58-2:60; EX1004, 4:45-5:15.

C. Independent Claim 1 is Obvious Under Ground 1

Petitioners’ ground 1 renders every limitation of claim 1 obvious. Petitioner believes Archer teaches or renders obvious every limitation of claim 1, but adds Chang for additional disclosure of the web server and web-enabled processor connected to a switching facility in the preamble.

1. Claim 1[pre] – preamble ([i]-[v] added)

1[pre]	***[i]*** A method for providing user control selections for routing of one or more communications between users of one or more communications networks, wherein the users either 1) initiate a communication, 2) receive a communication, or 3) control a communication, ***[ii]*** the user control selections provided by a user via access to a web server of a web-enabled processing system connected to operate at least in part with the one or more communication networks, ***[iii]*** wherein at least one of the communication networks is a network comprising edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, ***[iv]*** the web server of web-enabled processing system facilitating direct access by a user for providing user control selections to the at least one of the switching facilities, ***[v]*** the user having a communications device with which to communicate with the web server of the web-enabled processing system, the method comprising the steps of:

(a) Claim 1[pre(i)]: *A method for providing user control selections for routing of one or more communications between users of one or more communications networks, wherein the users either 1) initiate a communication, 2) receive a communication, or 3) control a communication …* Archer teaches providing user control selections for routing communications between users of communications networks for receiving and controlling communications in the form of its server processor (128) executing software instructions in conjunction with database (138) to route calls between packet network (130) and circuit-switched network (118/136). EX1003, Fig. 2 (128, 138, annotated in red below), 4-6, 2:41-43, 6:47--42, 8:50-9:61; TLP ¶¶116-122.

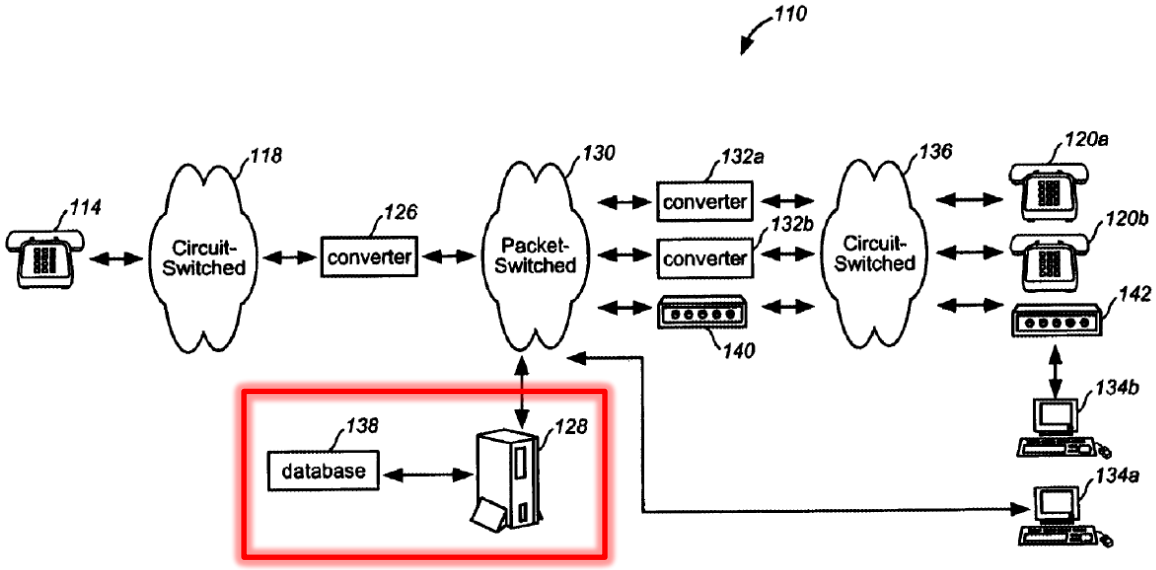

FIG. 2

Archer teaches that database (138) can receive user control selections for routing calls, including call forwarding numbers, directly from subscribers over the Internet. EX1003, 7:43-50; TLP ¶¶116-122.

When a communication (such as a call notification from telephone (114)) is directed to a subscriber's find-me/follow-me number, it is sent to server processer (128), which queries database (138) to retrieve subscriber's control selections in the form of call forwarding numbers and priorities. EX1003, Figs. 2 (114, 128, 138), 4-5, 6, 4:31-42, 6:47-67, 8:42-9:9, 2:45-49, 2:9-18. Server processor (128) will then forward the call in accordance with the subscriber's call forwarding settings in database (138), by generating and multicasting call packets to multiple call forwarding numbers at the same time. EX1003, Figs. 2, 4-6, 7:3-13, 9:10-9:30, 2:45-49, 2:9-18.

Archer teaches two or more communications networks in the form of circuit-switched network (118/136) and packet-switched network (130). EX1003, Figs. 2, 6 (118, 130, 136), 5:32-56; TLP ¶120, 124. The circuit-switched network (118/136) can be the PSTN and the packet-switched network (130) can be the Internet. EX1003, Fig. 6, 5:4-32, 6:1-17, TLP ¶¶120, 123-125. Server processor (128) receives a call request directed to the subscriber's find-me/follow-me number over circuit-switched network (118), which is converted to the packet network by converter (126). EX1003, Abstract, 5:32-56, 6:31-55, 8:50-62. Figure 4

illustrates an example of how server processor (128) implements the user control selection on receiving a call through executing software:

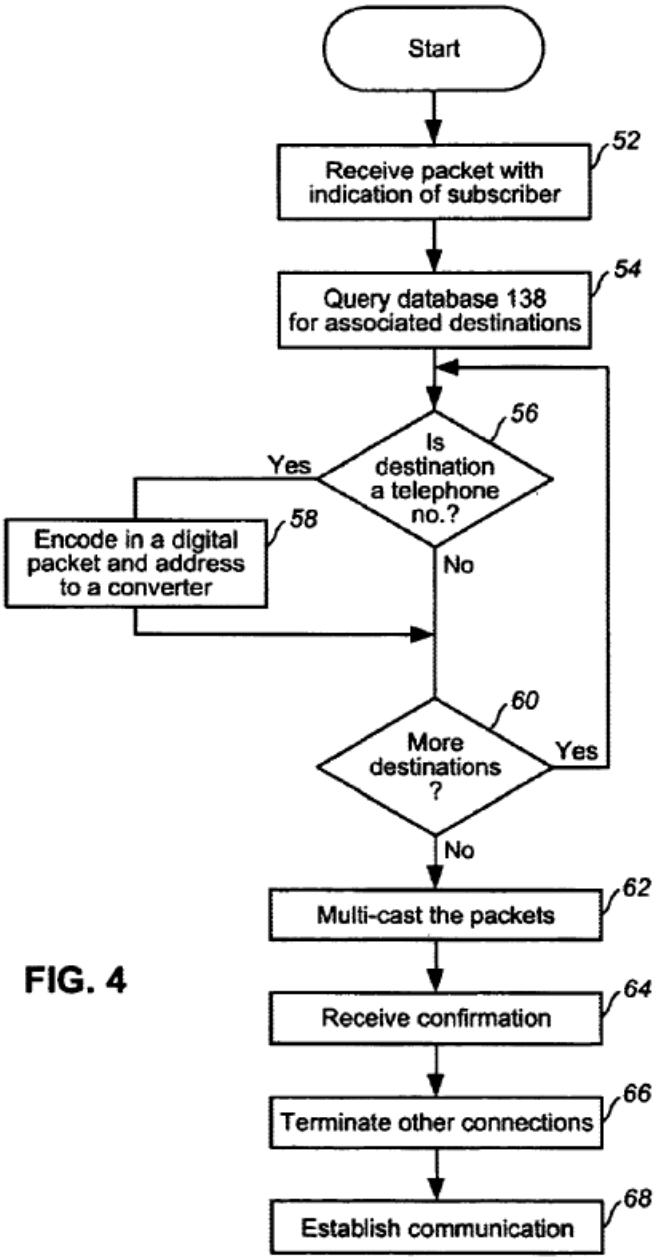

FIG. 4

EX1003, Fig. 4-5, 8:43-9:62, TLP ¶118. Server processor (128) can forward the call to devices (e.g. 120a) connected to either the circuit-switched network (136)

through a converter (*e.g.*, 132) or to devices (e.g. 134a) connected to packet-switched network (130). EX1003, Fig. 2, 9:10-28, TLP ¶¶117-118.

(b) **Claim 1[pre (ii)]** … *the user control selections provided by a user via access to a web server of a web-enabled processing system connected to operate at least in part with the one or more communication networks* … (i) Archer teaches the user provides the control selections via access to a web server of a web-enabled processing system by disclosing that users can "log onto the Internet" to change or add their call control features in database (138) which are used by server processor (128) to route calls to users. EX1003, 7:44-47, 8:8-10, 8:43-9:9, Figs. 4-5, 6:60-63; TLP ¶¶123-125. Archer teaches a subscriber can access the packet-switched network (130) (the Internet) from a "home PC" such as "computer 134b, which is a personal computer, includes a modem, and "executes a browser (e.g. Netscape Navigator or Internet Explorer"). EX1003, 7:65-8:11; TLP ¶¶132.

A POSA would understand that database (138) contains web server functionality because it is a computer system that allows subscribers to access it and make changes to it by logging onto the Internet. TLP ¶¶81-83, 123-125; EX1003, 7:30-50. The server processor (128) is "coupled to" the database (138). EX1003, 7:23-24; TLP ¶¶123-125. Server processor (128) is a web-enabled processor because it is a component of packet-switched network (130, e.g., the Internet), has an IP address for sending and receiving data, and interacts with

database (138), converters (126, 132) and computers (134). EX1003, 4:31-42, 6:47-7:31, 8:50-9:62; TLP ¶¶124-129. Server processor (128) is connected to interoperate with both packet-switched networks (130, *e.g.*, the Internet), and circuit-switched networks (118, 136), such that server processor (128) can receive calls from, and place calls over, both the circuit-switched networks (118, 136) and packet-switched networks (130). EX1003, 6:1-17, 6:30-37, 8:42-9:9, 2:25-27, 2:41-45, 4:20-25, 4:42-51, 5:23-30, 7:23-24, Figs. 2, 6. The double-headed arrows in Figure 2 indicate bidirectional communication between the various networks and components, including server processor (128). *Id*., TLP ¶124. Archer teaches that computers (134a, b) are digital communications devices that can utilize the same protocol as a packet-switched network (130, e.g., the Internet), that database (138) is coupled to. EX1003, 7:55-60, 7:22-28.

(ii) *To the extent the Board finds Archer does not expressly disclose user access to a web server of a web-enabled processing system, it is inherent*. TLP ¶¶126-129. To be inherent, a limitation must necessarily be present. Web servers are well-known computers connected to the Internet that host web pages accessed by a user using a computer that is running a web browser. TLP ¶¶80-85, 126-129. For the subscribers to access database (138) by logging onto the Internet to add or change call forwarding numbers as taught by Archer (EX1003, 7:44-50), a POSA would understand that the subscriber must necessarily have a communications

device running a web browser—such as a personal computer (134a, b)—in order to do so. TLP ¶¶126-129. Similarly, Archer's preferred embodiment must necessarily include a web server to allow subscribers to access the database (138) over the Internet using such a communications device and a web-enabled processing system to store the call forwarding numbers entered by the user. TLP ¶¶80-85, 126-129.

(iii) *Alternatively, user access to a web server of a web-enabled processing system using a communications device is obvious based on the knowledge of a POSA* – To the extent the Board finds Archer does not disclose a web server accessed by a user using a communications device, it would be obvious based on the knowledge of a POSA to use a web server to provide a subscriber access to the database by logging onto the Internet with a computer running a web browser. TLP ¶¶130-133.

First, adding a web server to implement web-based access by users to the communication network through the Internet would be nothing more than applying a known technique to a known device ready for improvement to yield predictable results. TLP ¶131. Using web servers to allow subscribers to access a web-based interface (e.g. on a web page) and make selections of call control features using a computer running a web browser (e.g., computer 134a) was well known before the '298 patent's earliest claimed priority date of May 4, 2000. TLP ¶131; *see, e.g.*, EX1004, 4:45-58, 13:7-11, 6:64-7:12, 13:15-27; EX1005, 1:54-65, 5:45-60.

Providing subscribers with web-based access to database (138), such as through computer (134a) running a web-browser (e.g. Netscape Navigator or Microsoft Explorer), would improve Archer's system by allowing subscribers to access their control features at any time. TLP ¶131; EX1003, 7:44-47. As a result, a POSA would have found it obvious to combine a web server, web-enabled processor, and computer running a web browser, with Archer's server processor (128) and database (138) because it would have been nothing more than the addition of conventional technology with predictable results that would have improved the ease of access by subscribers to Archer's database (138). TLP ¶130-133.

Second, a POSA would have been motivated to make such a combination due to commercial pressures and the express teachings of Archer. TLP ¶132. As of May 2000, a number of commercial devices were available or under development that provided subscriber access systems over the Internet using a computer running a web browser to interface with a web server of a web-enabled processing system. TLP ¶132; *e.g.*, EX1004, 4:45-58, 6:64-7:12, 13:15-27; EX1005, 1:54-65, 5:45-60. Market pressures to allow subscribers to personally access and control their communication services from their personal computer, without cumbersome software or hardware, would have prompted and motivated a POSA to use a web-based user interface in the prior art communication systems and methods. TLP ¶¶66, 81, 84-85, 132. Moreover, Archer provides express motivation to add a web

server and web-enabled processor, stating that the database (138) is "preferably arranged" to allow subscriber access to the database anytime, such as over the Internet. EX1003, 7:44-50; TLP ¶133. Archer further teaches that end-user devices, such as personal computers (*e.g.*, 134b) can use web browsers. EX1003, 8:2-11. Web browsers are software which allows users to view web pages provided on the Internet by web servers. TLP ¶¶80-85, 133. As a result of these obviousness rationales, a POSA would be motivated to combine Archer's database (138) and server processor (128) with a web server, web-enabled processor, and computer running a web browser, to allow subscribers to change their call forwarding settings in database (138) over the Internet at any time and to satisfy the commercial pressures driving services online during the "Dot.Com" boom. TLP ¶133.

(iv) *To the extent the Board does not find Archer teaches and renders obvious user access to a web server with a web-enabled processing system using a communications device*, it would have been obvious to combine the web-based user control interface and user communication device teachings of Chang with the server processor and database of Archer. TLP ¶¶134-149.

(v) *Chang teaches a web server with a web-enabled processor and a user communications device communicating with the web server* – Chang teaches a web server with a web-enabled processor for allowing subscribers to set call features in

the form of its Secure Access Platform (25) that controls the SCPs (19) of the PSTN Intelligent Network. EX1004, Fig. 1 (19, 25), 4:45-51, 21:10-27; TLP ¶¶135-140. Chang's Secure Access Platform (25) connects over the Internet (27) to a user's personal computer ("PC" or "terminal device") (29), which runs common web browser (293) software to obtain web pages from a web server. EX1004, Figs. 1 (25, 27, 29), 2 (25, 27, 29, 293), 4:49-58, 11:35-40, 12:11-17, 12:64-13:28, 17:45-48, TLP ¶¶135-136. Chang's Secure Access Platform contains computer (255), which includes a web-enabled processor running the Web Service Management Sys application (257). EX1004, Fig. 2 (25, 255, 257), 16:1-7; TLP ¶¶136-140. Chang's Secure Access Platform (25) also contains a web server in its firewall (251) which is shown in detail in Figure 5 to contain a Web Server (525). EX1004, Figs. 1, 2, 4, 5 (251, 525, annotated in red below), 18:66-19:12, 19:32-36; TLP ¶136-138.

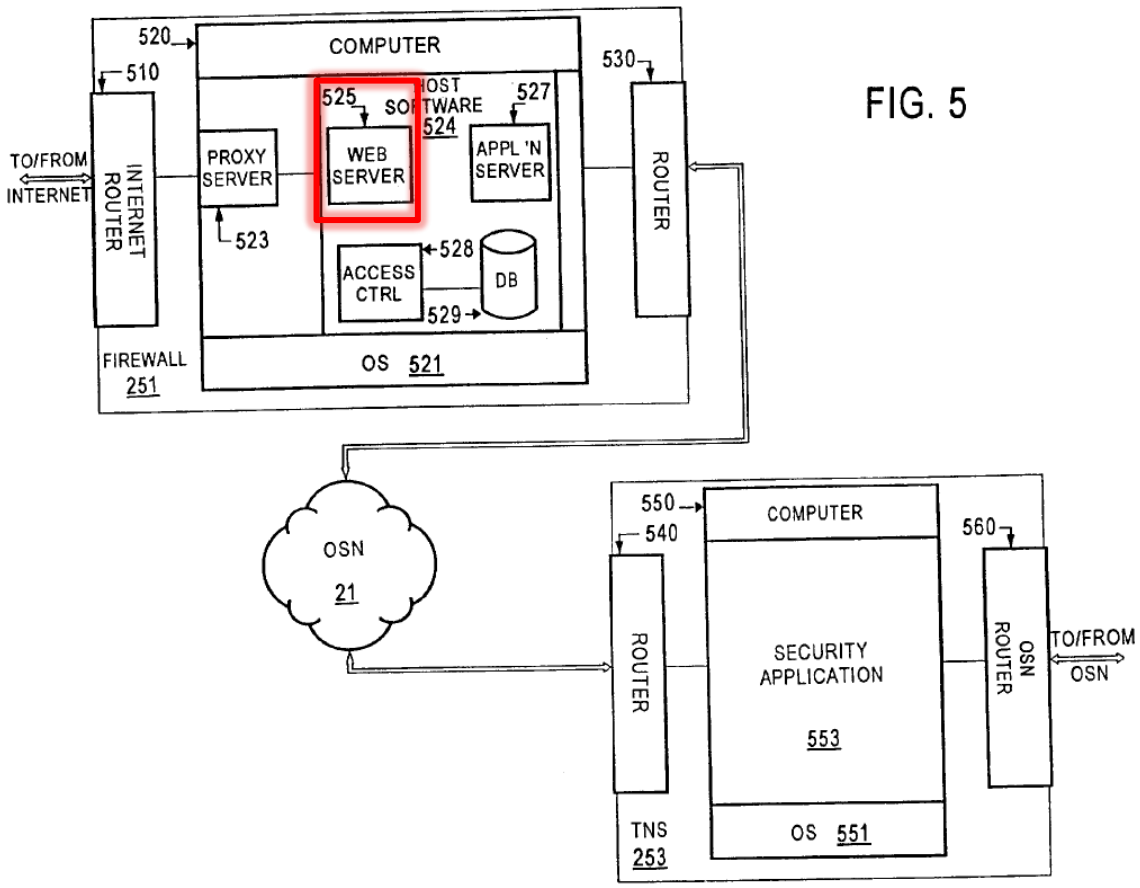

FIG. 5

(vi) *Combining the web server and web-enabled processor, and user PC communications device communicating with the web server, teachings of Chang with the server processor and database of Archer would have been obvious to a POSA.* TLP ¶¶141-149. First, combining Chang's teachings of a web server, web-enabled processor (25, 525), and user PC (29), with Archer's server processor (128) and database (138) would have been nothing more than applying a known technique to a known method ready for improvement to yield predictable results. TLP ¶¶142-143; EX1004, 13:18-28, 4:29-42, 12:64-13:18. Chang teaches the web interface is a "standard graphical user interface" and preferably an Internet web

page, which was well known as of May 2000. EX1004, 5:3-15; TLP ¶142. Archer teaches that subscribers can access its database over the Internet. EX1003, 7:44-50, TLP ¶142-143. Adding Chang's web server would have improved Archer's process server and database in predictable ways by allowing easy user access over the Internet using a standard computer and web browser to set control features, rather than specially-designed terminals or software. EX1004, 13:18-28, 4:29-42, 12:64-13:18, TLP ¶143. Thus, a POSA would have recognized applying Chang to Archer would have yielded such predictable results and resulted in an improved method for communication over a network using standard computer equipment and software. TLP ¶143-147 (citing EX1004, 4:29-43 Ex. 1026, 3, 6-7; Ex. 1038, 127-130). Second, as set forth in § VII.C(1)(b)(ii), a POSA would be motivated to make such a combination because of Archer's express teachings and of the commercial pressures to move services to the web. TLP ¶146. A POSA would have been further motivated to add Chang's web server and web-enabled processor to Archer because of the commercial pressures to increase online usership during the "Dot.Com" boom in the late 1990s and early 2000s. TLP ¶146. As a result of these obviousness rationales, a POSA would be motivated to combine Archer's database (138) and server processor (128) with Chang's teachings of a web server and web-enabled processor (25, 525) as set out above. TLP ¶¶142-149.

(c) Claim 1[pre(iii)]: … *wherein at least one of the communication networks is a network comprising edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas* … -- Archer teaches that one of its communications networks contains the claimed edge switches and switching facilities in the form of circuit-switched networks (118, 136) which can be the PSTN. EX1003, 5:5-32, TLP ¶150. The PSTN consists of switches known as tandem switches or class 4 switches (switching facilities in the claims) which serve to interconnect between different geographical regions and edge switches or class 5 switches, which connect to end-user devices, like telephones, within a local geographic area. EX1001, 1:42-55; EX1004, TLP ¶¶150-153, 80-85; *supra* §V(B), V(E)(2). Archer also discloses converters/gateways (126, 132) which are switching facilities that serve to interconnect tandem switches in the PSTN and the packet-switched network. TLP ¶¶150-154, EX1003, Figs. 2, 6, 5:32-36, 5:42-46, 5:59-62; *supra* §V(B); see also TLP ¶¶161-164. To the extent the Board finds that Archer does not expressly disclose the claimed switching facilities and edge switches, they are inherent because the PSTN's structure (Archer's preferred circuit-switched network 118) necessarily requires tandem switches (i.e., switching facilities) interconnecting edge switches, each servicing a respective local geographic area, and to route communications between Archer's

converters/gateways (126, 132) and such edge switches. TLP ¶¶80-85, 155-158; EX1003, 5:23-25; Ex. 1037, 64-69, 11-92, 106-113, 119-122, 137-138, 139-145.

(d) Claim 1[pre(iv)] … *the web server of web-enabled processing system facilitating direct access by a user for providing user control selections to the at least one of the switching facilities* … (i) As discussed above in limitation 1[pre(ii)], Archer teaches or renders obvious the web server of a web-enabled processing system facilitating direct access by a user for providing user control selections through Archer's database (138) coupled to server processor (128), in view of the knowledge of a POSA and/or Chang's teaching of a web server and web-enabled processor (25, 525). *Supra* §VII(C)(1)(b); TLP ¶¶159-166. Archer's database (138) allows direct user access via the Internet to set call forwarding numbers (control selections) that are accessed and used by server processor (128, i.e., web-enabled processor) to direct the forwarding of calls to the subscriber. *Supra* §VII(C)(1)(b); EX1003, Fig. 2, 7:44-50, 8:43-9:9; TLP ¶159, 164.

Archer's server processor (128) and database (138) provide the user's control selections to switching facilities of the PSTN in the form of the converter/gateways (e.g., 132a, b), tandem switches, and SCPs. EX1003, Fig. 2 (120a, b, 132a, b), 5:34-35 (noting "converter: can be referred to as a "gateway"); TLP ¶¶159-163, §V(B) (citing EX1010 at 87 n.1), VII.C(1)(c). Archer's server processor (128) provides the user-selected control choices (forwarding addresses

and telephone numbers) to the gateways/converters (e.g., 132a, b) in the form of call packets. EX1003, 6:63-67, Figs. 2 (120a, b, 132a, b), 4 (56, 58), 5:23-35, 8:18-30, 8:61-9:15; TLP ¶¶159-163. The converter/gateways (e.g., 132a, b) are coupled to, and therefore part of the circuit-switched network (118, 136, e.g., the PSTN), and convert the call packets from server processor (128) into circuit-switched telephone calls. *Id*.; TLP ¶163; *supra* §VIII.C(1)(c). The circuit-switched telephone calls created by converter/gateways (e.g., 132a, b) are routed through other switching facilities (e.g., tandem switches and SCPs) of circuit-switched network (118, 136) to edge switches respectively connected to telephones (120a, b), causing each telephone to ring. *Id*.; TLP ¶¶161-164; §VIII.C(1)(c).

(ii) … *providing user control selections to the at least one switching facilit*y. To the extent the Board finds that Archer does not disclose providing control selections to a switching facility, it is inherent. In order to be inherent, a limitation must necessarily be present. As discussed above, a POSA would understand that by placing calls that are routed through the PSTN, based on the forwarding telephone numbers (control selections) encoded into the call packets by server processor (128), which were retrieved from database (138), server processor (128) necessarily provides user control selections to switching facilities in the form of converter/gateways (132a, b), tandem switches, and SCPs. TLP ¶164; *see also supra* §VIII.C(1)(c). A POSA would understand the control selections are

necessarily provided to these switching facilities in order to properly connect the call to the subscriber of the circuit-switched network. EX1003, 7:18-21, TLP ¶164.

(iii) *In the alternative, it would be obvious to a POSA in view of Chang's teachings of a web server of a web-enabled processor providing user control selections to a switching facility (e.g. SCP or tandem switch)*. EX1004, 7:18-21, TLP ¶167-181. As set out above, Chang discloses a web server and web-enabled processor in the form of its Secure Access Platform (25). EX1004, Fig. 1 (25), Fig. 5 (525), TLP ¶¶168-169, *supra* §VII.C.1(b). Chang's Secure Access Platform (25, 525) provides control selections to switching facilities in the PSTN by providing the user control selections to the SCPs (19), which in turn control tandem switches (11T) in the PSTN using SS7 signaling, shown as path A in annotated Figure 1 below. EX1004, Fig. 1 (11T, 19, 25), 5 (525), 18:66-19:12, Abstract; *supra* §V(B) (SCPs and tandem switches are switching facilities), TLP ¶¶168-170. Chang discloses that the Secure Access Platform (25) connects to SCPs (19) through the OSN (21) to provide the user control features to tandem switching offices (11T, switching facilities) through STPs (15) using SS7 signaling. EX1004, Fig. 1 (11T, 15, 19, 21, 25, annotated in red below and designated path A), 18:66-19:12; TLP ¶¶168-172. Chang also discloses providing control switching from the Secure Access Platform (25) to the IP signaling and voice channels (23). EX1004, Fig. 1 (23, 25, also annotated in red below and designated path B). While path B is

disclosed as connecting to an edge switch central office (11E), Chang states that the intelligent peripherals (IP, 23) connect to all of the central offices, including the tandem offices (11T), as indicated by the "TO COs" and dashed arrow in Figure 2. EX1004, 9:38-58; TLP ¶¶170-172.

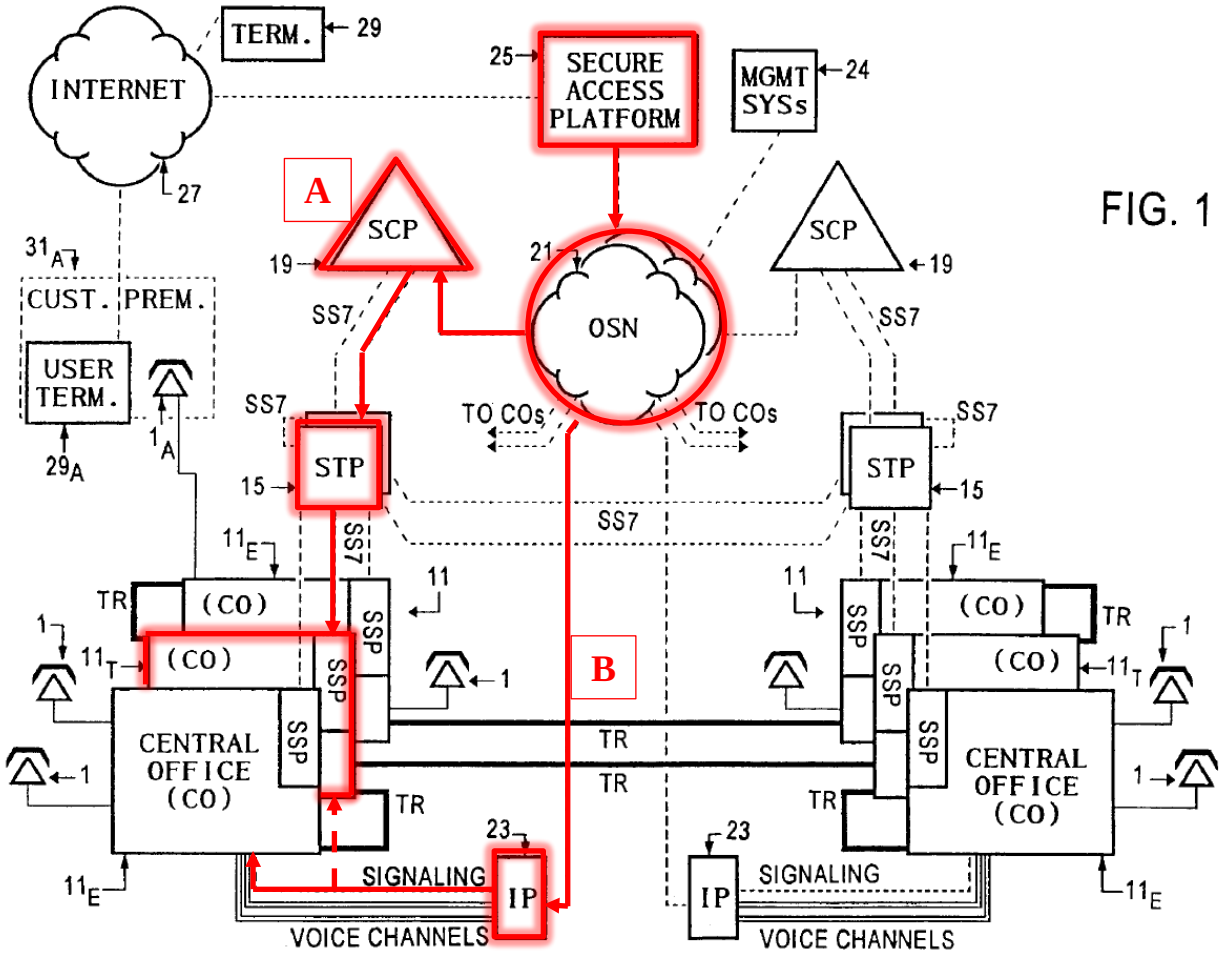

FIG. 1

(iv) *Combining Chang's teachings of a web server and web-enabled processor that provides user control features to switching facilities with the server processor and database system of Archer would have been obvious to a POSA.* TLP ¶ 172-181. A POSA would combine the web server and web-enabled processor features of Chang with the control features selection system and method

of Archer based on the server processor (128) and database (138) for the reasons set out above, including it is merely the combination of prior art elements and commercial pressures and Archer itself motivates the combination. *Supra* §VII(C)(1)(b)(iii)-(vi); TLP ¶¶141-149, 172-181.

In addition, it would have been obvious to combine Chang's teaching of providing the user control features to a switching facility (SCP, 11_T) with Archer's user call feature selection system and method based on server processor (128) and database (138). TLP ¶¶173-181. First, the combination of Archer's user control feature selection method with Chang's provision of those control selections directly to a switching facility is nothing more than the combination of known prior art techniques in conventional ways, achieving predictable results to a system ready for improvement. EX1004, 7:13-16; TLP ¶¶173-174. As shown by Archer and Chang, user-directed call feature selection over the Internet was known in the art. EX1003, Figs. 2, 4-6, 7:44-50, 8:42-9:62; EX1004, Figs. 1-2, 5, Abstract. Further, as shown by Chang, provision of user feature selections to switching facilities in circuit-switched networks was known in the art, in the form of providing control selections to standard AIN switching components (i.e., switching facilities), such as SCPs and tandem switches (11_T) using the SS7 signaling protocol. EX1004, Figs. 1 (11_T, 19,), 2; TLP ¶¶170, 174; *supra* §V(B) (noting switching facilities include SCPs and tandem switches) (EX1010, 87 n.1).

Allowing Archer to use Chang's provision of control features to switching facilities would allow Archer to use existing, standardized AIN components in the PSTN without modification, which would lead to predictable results and reduce barriers to entry and costs for developing the system. TLP ¶¶174.

Further, provision of feature control selections to AIN switching facilities would achieve one of Archer's stated goals of reducing switching traffic on the PSTN by allowing the intelligent routing functionality of Archer's server processor to select the appropriate switching facility or switching facilities to handle the call in order to minimize switching traffic. EX1003, 2:63-66 ("system also reduces switch traffic for telephone companies"). For example, by providing switching control selections to AIN switching facilities, Archer could off-load calls to subscriber's find-me/follow-me numbers through gateway/converters without requiring the calls to traverse switching facilities in the PSTN. TLP ¶175-176. Further, if Archer's server processor (128) determined that all forwarding numbers were on the PSTN (18, 36), and connected to different edge switches than the initiating device (e.g., having different area codes), providing the call control features to the appropriate SCPs in communication with the appropriate tandem switches would minimize the number of switches the calls would need to traverse. TLP ¶175-177; EX1003, Fig. 2; EX1004, Fig. 1. Further, by allowing direct control of calls at switching facilities, Archer could route call media to other

circuit-switched network devices (120a, b) directly, without conversion to a packet-based network. TLP ¶178. In this way Archer would only have to convert call media to the packet-switched network format when the call was directed to devices on the packet network (130), such as computer (134a), which would minimize delays and improve call quality. EX1003, Fig. 2 (120a, b, 134a), 1:48-52 (VOIP suffers from problems, including poor quality and conversion delays); TLP ¶177-178. Taking advantage of providing call features to switching facilities using the PSTN's standard AIN components and protocols would therefore improve Archer's system in predictable ways by allowing additional flexibility and reducing switching traffic and unnecessary protocol conversion. TLP ¶¶175-178. As a result, a POSA would be motivated to combine Chang's provision of control feature selections to switching facilities with Archer's control feature selection systems and methods. *Id*.

Second, a POSA would have been motivated to make such a combination based on Archer's express goal of reducing switching traffic and using Internet Service Providers (ISPs) as routers. EX1003, 2:63-66; TLP ¶¶-175179. By providing the user's feature control selections to proper switching facilities, rather than to a single edge switch, the switch traffic generated by Archer's multicasting could be reduced. TLP ¶175; EX1003, 2:63-66, 9:10-25. As Dr. LaPorta explains, providing control features to the appropriate switching facility in Archer's

multicasting system reduces switching traffic because the call would not need to be routed all the way to a fixed destination edge switch before being offloaded to the packet-switched network (130) and then rerouted back across multiple additional switches. TLP ¶¶175-176. Instead, the call could be routed to the converter/gateway at the first switching facility it encountered, reducing traffic in and out of the destination edge switch and any intermediate switches. TLP ¶¶161-163, 174-181. As a result, a POSA would be motivated by Archer's express goal of reducing switch traffic to combine Archer's server processor (128) and Internet accessible database (138) with Chang's teachings of providing call control features to switching facilities in the PSTN to reduce switching traffic over the telephone network. *Id*.

(e) Claim 1[pre(v)] (i) … *the user having a communications device with which to communicate with the web server of the web-enabled processing system, the method comprising the steps of:* As discussed above in limitation 1[pre(ii)], Archer teaches or renders obvious in view of the knowledge of a POSA and/or Chang the user having a communications device with which to communicate with the web server of the web-enabled processing system, in the form of Archer's computer (134a) and/or Chang's user terminal (29). *Supra* §VII.C.1.(b); EX1003, Fig. 2 (134a); EX1004, Figs. 1 (29), 2 (29); TLP ¶¶132, 182-189.

For example, Archer teaches the user has a communication device with which to communicate with the web server of the web-enabled processing system in the form of computers (134a, b) which are connected to the packet network (130, e.g., the Internet) and can run web browsers, such as Netscape or Microsoft Explorer. EX1003, Fig. 2 (130, 134a, b), 7:44-8:17, 6:1-17 (network 130 can be the Internet); TLP ¶¶132, 182-184. Archer discloses that subscribers can access and change their call control features in database (138) by logging onto the Internet. EX1003, 7:44-50. Archer teaches that computers (134a, b) are digital communications device that can utilize the same protocol as a packet-switched network (130, e.g., the Internet), that database (138) is coupled to. EX1003, 7:55-60, 7:22-28.

Chang also teaches a user's personal computer ("PC" or "terminal device") (29) that runs common browser software to obtain web pages from the web server to access and control the Secure Access Control Point (25) over the Internet (27). EX1004, 4:49-58; 11:35-40; 12:11-17; 12:64-13:28; Fig 2 (25, 27, 29). TLP ¶¶190-195.

2. Claim limitation 1[a] – Facilitating access ([i]-[iii] added)

1 [a]	***[i]*** Facilitating access by authorized users to the web-enabled processing system, via the web server, ***[ii]*** the web enabled processing system coupled to at least one of the switching facilities of the network, ***[iii]*** the web-enabled processing system configured to route a communication from a specific one of the users to an intended recipient of the users,

(a) Claim 1[a(i)] *Facilitating access by authorized users to the web-enabled processing system, via the web server* (i) As set out above for the preamble, Archer's server processor (128) and database (138) teaches or renders obvious the web-enabled processing system in view of the knowledge of a POSA and/or Chang's Secure Access Platform (25). *Supra* §VII.C.1.(b), (d); TLP ¶¶123-132, 159-163, 196. Further, Archer teaches facilitating access by authorized users in the form of allowing "subscribers" access to database (138) to add or change call forwarding settings by logging onto the Internet. EX1003, 7:44-50; TLP ¶¶196-200. As Dr. LaPorta points out, Archer only discloses providing "subscribers" access to database (138) over the Internet; that is, users that have subscribed to, and are therefore authorized to use, Archer's find-me/follow-me service, not random users of the communication networks. TLP ¶¶196-200.

(ii) *Alternatively, facilitating access by authorized users via the web server is inherent in Archer*. To be inherent, a limitation must necessarily be present. As Dr. LaPorta points out, Archer only discloses providing "subscribers" access to database (138) over the Internet; that is, users who have subscribed to, and therefore must necessarily be authorized to use, Archer's find-me/follow-me service, not random users of the communication networks. TLP ¶¶197-200. Thus, Archer necessarily teaches that server processor (128) and database (138) facilitate access by authorized users. TLP ¶¶197-200.

(iii) *Alternatively, facilitating access to the web-enabled processing system by authorized users via the web server would be obvious in view of knowledge of a POSA.* TLP ¶¶201-203. To the extent the Board finds Archer does not expressly or inherently disclose facilitating access by authorized users via the web server, it would be obvious at least because (1) adding user authorization techniques to the method in Archer for accessing the database (138) through the Internet would simply require using a known technique to improve a similar method in the same way; (2) Archer suggests incorporating a web server and web-enabled processor facilitating access by authorized users by teaching that "subscribers"—not anyone—should be able to access database (138) over the Internet, and (3) commercial pressures for increased data and information security were pushing services to be moved onto the Internet. TLP ¶¶201-203. As a result of these obviousness rationales, a POSA would be motivated to facilitate access by authorized users to database (138) and server processor (128) the web-enabled processing system to implement Archer's preferred embodiment where a subscriber can access his service information through the Internet and to promote network and information integrity. TLP ¶¶201-203.; EX1003, 7:30-47.

(iv) *Alternatively, it would have been obvious to combine the secure access platform of Chang with Archer's communication network.* TLP ¶¶204-209. Chang teaches facilitating access by authorized users in the form of Chang's

Secure Access Platform (25), which includes a web server (525), which "validates predetermined users" as "subscribers to the communication network" by implementing an online user interface. EX1004, 4:67-5:15; Fig. 2 (25, 251), Fig. 5 (251, 525). The Chang platform includes "a firewall and service management system," (*id*., 5:42-45), and validates the identity of subscribers before the subscriber can access his telephone network service data. *Id.*, 11:42-54. In fact, the subscribers must "log onto" the system to use it. EX1004, 7:45-46, TLP ¶¶205-206.

(v) *Combining Chang's teachings of facilitating access by authorized users to the Secure Access Platform with the user-based call feature control of Archer would be obvious to a POSA* for the same reasons it would be obvious to add a web server and web-enabled processor of Chang to Archer's server processor (128) and database (138) set out above for the preamble. *Supra* §VII.C.1.(b)(v)-(vi), (d)-(e); TLP ¶¶134-149, 207-209. These rationale include: (1) implementing Chang's Secure Access Platform (25) that includes facilitating access by authorized users would be nothing more than applying a known technique to a known device ready for improvement to yield predictable results, (2) Archer suggests incorporating a web server and web-enabled processor facilitating access by authorized users by teaching that "subscribers"—not anyone—should be able to access database (138) over the Internet, and (3) commercial pressures driving the

"Dot.Com" boom were pushing services to be moved onto the Internet. *Supra* §VII.C.1.(b)(v)-(vi), (d)-(e); TLP ¶¶134-149, 207-209.; EX1003, 7:44-50; EX1004, 2:64-67, 4:45-58, 6:64-7:16, 13:15-27; EX1005, 1:54-65, 5:45-60. As a result of these obviousness rationales, a POSA would be motivated to make such a combination to implement Archer's preferred embodiment of allowing subscribers to change their call forwarding settings over the Internet at any time in a secure fashion to protect each subscriber's respective personal information. TLP ¶¶207-209; EX1003, 7:30-50.

(b) Claim 1[a(ii)] … *the web-enabled processing system coupled to at least one of the switching facilities of the network* … (i) As discussed above for limitations 1[pre(ii), (iv)], Archer teaches or renders obvious in view of the knowledge of a POSA and/or Chang, the claimed web-enabled processing in the form of its server processor (128), database (138), and/or Chang's secure access platform (25, 525). *Supra* §VII.C.1.(b), (d); TLP ¶¶210-214.

(ii) … *coupled to at least one of the switching facilities* … – Archer teaches that preferred embodiments of its server processor (128) and database (138) system are coupled directly to gateway switching facilities (126, 132a, b), and indirectly to tandem switch and SCP switching facilities of the PSTN (118, 136) through packet-switched network (130) and gateway switching facilities (126, 132a, b). EX1003, Fig. 2 (126, 128, 132a, b, 138), 5:23-25 (PSTN is preferred

network (118)), 5:33-35, 5:59-67, 6:30-33, 8:18-25, also 2:41-45, 4:20-25, 4:42-51, 5:23-30, 6:30-37, 7:22-50; *supra* §V(B) (switching facilities include gateways, SCPs and tandem switches) (EX1010, 87 n.1); TLP ¶¶210-214. The PSTN that is coupled to Archer's server processor (128) contains switching facilities in accordance with the claims and the prosecution history. TLP ¶¶210-214; EX1001, 1:42-48 (PSTN contains edge switches and tandem switches connecting edge switches).

Notably, the claims do not state the web-enabled processor is *directly* coupled to a switching facility of the network and the specification does not require direct coupling, only coupling to the PSTN. TLP ¶211; *see* EX1001, cl. 1, Abstract ("tandem access controller (TAC), coupled to the PSTN"). Regardless, according to Dr. LaPorta in a circuit-switched network, like the PSTN, switches couple to one another forming a direct and dedicated path for communicating voice data or other media across the network. TLP ¶¶211-213. And a POSA would understand the plain and ordinary meaning of "coupled" in light of the claims and specification, without the requirement of directly, to simply mean the ability to transfer signals or data, which is the case in Archer's disclosed system. TLP ¶¶211-214.

(iii) *To the extent the Board finds Archer does not expressly disclose a web-enabled processing system coupled to at least one of the switching facilities of*

the network, it is inherent. TLP ¶¶215-217. To be inherent, a limitation must necessarily be present. As set out immediately above, the PSTN contains tandem switches which are switching facilities. TLP ¶¶159-166; 210-214. By Archer's server processor (128) receiving calls from, and placing calls to, telephones connected to the PSTN, Archer's server processor must necessarily be coupled to tandem switches in the PSTN such that call signals and voice data can transfer between Archer's server (128) and switching facilities in the PSTN. TLP ¶¶215-217; EX1003, 8:50-9:16.

(iv) *Alternatively, the web-enabled processing system connected to the switching facilities of the Archer network is obvious based on the knowledge of a POSA.* TLP ¶¶218-221. It would be obvious that Archer's server processor (128) is coupled to tandem switches in the PSTN, because as set out immediately above, Archer's server processor can receive calls from and place calls to the PSTN. EX1003, 8:50-9:16; TLP ¶¶210-221. In order for Archer's server processor (128) to make and receive calls to and from the PSTN, it would be obvious to a POSA that server processor (128) was capable of transmitting signals to switching facilities in the PSTN because those switching facilities are necessary parts of calls flowing through the PSTN for calls to devices serviced by different edge switches. TLP ¶¶218-221; EX1001, 1:42-4; *see also* TLP ¶¶54-61. As a result of these obviousness rationales, a POSA would be motivated to couple Archer's database

(138) and server processor (128) to a switching facility in the PSTN to implement Archer's preferred embodiment where circuit-switched networks (118, 136) are the PSTN and server processor (128) can receive calls from, and place calls to, devices connected to the PSTN. TLP ¶¶218-221; EX1003, 5:23-25, 8:27-35.

(v) *Alternatively, it would be obvious to couple a web-enabled process to a switching facility based on Archer's server processor in view of Chang's teaching of a web-enabled processor coupled to switching facilities* – As set out for claim limitation 1[pre(iv)] Chang teaches a web-enabled processor that is coupled to switching facilities in the form of its Secure Access Platform (25) that couples to tandem switches (11T) through the OSN (21) and SCPs (19) and STPs (15) using SS7 signaling and through IPs (23). *Supra* §VII.C.1.(d); EX1004, Fig. 1 (11T, 15, 19, 21, 23, 25); TLP ¶¶167-172.

(vi) *It would be obvious to combine Chang's teaching of a web-enabled processor coupled to a switching facility with Archer's server processor and database* for the same reasons set out for claim limitation 1[pre(iv)], above. TLP ¶¶173-181, *supra* §VII.C.1.(d). The rationale for combining Chang's teaching of a web-enabled processor coupled to a switching facility with Archer's server processor (128) and database (138), include that it would have been nothing more than the combination of known prior art elements in known ways to yield predictable results in improving a system, and that commercial pressures and

Archer itself suggest the combination. *Supra* §VII.C.1.(d); TLP 159-181. As a result of these obviousness rationales, a POSA would be motivated to combine Archer's database (138) and server processor (128) with Chang's teachings of a web server and web-enabled processor (25, 525) coupled to implement Archer's preferred embodiment of reducing switching traffic on the telephone networks and using ISPs as intelligent routers. TLP ¶173-181, EX1003, 10:3-10.

(c) Claim 1[a(iii)] … *the web-enabled processing system configured to route a communication from a specific one of the users to an intended recipient of the users* … As discussed above for limitations 1[pre(ii), (iv)], Archer teaches or renders obvious in view of the knowledge of a POSA and/or Chang, the claimed web-enabled processing in the form of its server processor (128), database (138), and/or Chang's secure access platform (25, 525). *Supra* §§VII.C.1.(b), (d); TLP ¶¶159-181. Archer discloses a processor configured to route a communication from particular users of a network to an intended recipient of that user in the form of its server processor (128) and database (138) which receives a call from a user of network (118) using telephone (114) intended for a subscriber. EX1004, Figs. 2 (114, 118, 126, 128, 138), 4, 8:50-60; TLP ¶¶116-122, 232-236. After receiving the call from the user of network (118) to the intended recipient subscriber, server processor (128) routes the call to the subscriber by looking up the subscriber's

contact addresses in database (138) and initiating calls to those addresses in the form of call request packets. EX1003, Figs. 4-5, 8:61-67, 9:9-16.

3. Claim limitation 1[b] – Executing control criteria ([i]-[ii] added)

1[b]	***[i]*** Executing control criteria, via the web-enabled processing system, to control the routing of the one or more communications via the web-enabled processing system, ***[ii]*** the control criteria predetermined by the users control selections via the web server before the control criteria are executed via the web-enabled processing system, wherein the web-enabled processing system is configured to perform the following operations to execute the control criteria:

(a) Claim 1[b(i)] *Executing control criteria, via the web-enabled processing system, to control the routing of the one or more communications via the web-enabled processing system* … (i) As discussed above for limitations 1[pre(ii), (iv)], and 1[a], Archer teaches or renders obvious a web-enabled processing system providing control features to a switching facility of a network, through its server processor (128), database (138) coupled to circuit-switched networks (118, 136), and further in view of the knowledge of a POSA and/or Chang's web server and web-enabled processor. *Supra* §VII.C.1.(b), (d); TLP ¶¶159-181.

(ii) *Executing control criteria, … to control the routing of the one or more communications* … As discussed above for claim limitation 1[a(iii)], Archer teaches the server processor (128) controls the routing of communications in the form of multicasting call request packets to the addresses of subscribers' communications devices stored in database (138) when server processor receives a

call directed to a subscriber. *Supra* §VII.C.1.2.(c); TLP ¶¶116-122, 232-236. Archer teaches that server processor (128) executes control criteria by executing software program instructions using the called party's (subscribers) designated communications device addresses and forwarding priorities (control criteria) to encode IP call packets with the proper IP addresses and telephone number for routing through packet network (130) and circuit-switched network (118, 136). EX1003, Figs. 4-5, 6:48-7:18, 8:33-38, 8:61-67, 9:9-16; TLP ¶¶237-238.

(b) Claim 1[b(ii)] … *the control criteria predetermined by the users control selections via the web server before the control criteria are executed via the web-enabled processing system, wherein the web-enabled processing system is configured to perform the following operations to execute the control criteria* – (i) As discussed above for limitations 1[pre(ii), (iv)], and 1[a], Archer teaches or renders obvious a web server and web-enabled processing system providing control features to a switching facility of a network, through its server processor (128), database (138) coupled to circuit-switched networks (118, 136), and further in view of the knowledge of a POSA and/or Chang's web server and web-enabled processor. *Supra* §VII.C.1.(b), (d); VII.C.2; TLP ¶¶159-181, 210-214.

(ii) … *the control criteria predetermined by the users control selections via the web server before the control criteria are executed* … Archer teaches that users predetermine control criteria prior to execution by allowing subscribers to log

onto the Internet to change or add telephone numbers in database (138), which are later looked up by the server processor (128) when a call is directed to the subscriber. EX1003, 7:44-50 (subscriber access to database (138) via the Internet), 8:61-65 (server processor (128) performs a lookup on database (138) which "has been setup beforehand"); TLP ¶¶239-240. As set out for claim limitation 1[b(i)], server processor (128) executes the control criteria (in the form of subscriber's contact numbers) stored in database (138). *Supra* §VII.C.3.(a); TLP ¶¶237-240.

4. Claim limitation 1[c] – Receiving a message

1[c]	first, receive a message indicating a communication request from a user initiating a communication for an intended recipient user, wherein the message request is transmitted using a signaling [*sic*] protocol of the at least one communication network;

Archer teaches that server processor (128) receives a call message indicating a communication request from a user to an intended recipient in the form of server processor (128) receiving a call from telephone (114) on network (118) initiated by a caller (a user of network 118). EX1003, cl. 1 ("receiving a request for a call to a telephone number of the called party"), Fig. 2, 6:48-67, 8:50-60, 10:27-44 (user can also initiate a call using a computer (114) over packet network (130)). Archer teaches that the call signaling over circuit network (118) is converted by converter/gateway (126) into IP packets for transmission over packet network (130), which include a header that includes a "call originate" message and the called telephone number. EX1003, 4:25-41, 6:57-67, cl. 1. Archer teaches that the

communication is for an intended recipient user, in the form of the call to the called party (subscriber). EX1003, 8:50-65, 4:25-42, 6:57-67, cl. 1. Archer teaches that server processor (128) identifies the intended recipient (subscriber) by extracting the subscriber identification information from the call request packets. EX1003, 6:48-67. Archer further teaches that, in the preferred embodiment, the call request is transmitted from converter (126) to server processor (128) using standard TCP/IP communications protocols. EX1003, 8:46-49, 5:39-46, 6:20-29, 7:51-64; TLP ¶241-247 (explaining TCP/IP is the signaling protocol for TCP/IP packet networks like the Internet and H.323 is the signaling protocol associated with VOIP). In addition, Archer teaches that the preferred circuit-switched network (118) is the PSTN, which a POSA would understand uses SS7 signaling protocol. EX1003, 5:23-24; TLP ¶¶241-247.

5. Claim limitation 1[d] – Validate and acknowledge request

1[d]	second, validate and acknowledge said communications request without first forwarding said request to a terminating edge switch within the geographic area of the intended recipient of the users;

(i) Archer teaches validating and acknowledging the communications request without first forwarding the call in the form of server processor (128) receiving a VOIP packet from converter/gateway (126) over TCP/IP network (130). EX1003, 8:43-49, 7:9-14; TLP ¶¶248-252. At the time of Archer's filing, POSA would understand that VOIP packets are transmitted over TCP/IP networks,

such as the Internet, using the H.323 signaling protocol. TLP ¶¶242-247. Archer discloses the VOIP signaling in the form of server processor receiving a call packet from converter/gateway (126) containing a "call originate" message in the header. EX1003, 4:25-30. A POSA would understand that in TCP protocol networks, communications are established using a three-part handshake consisting of a SYN request, an SYN-ACK acknowledgement and a confirmation. TLP ¶249. Data transfer over TCP/IP networks also uses an ACK protocol; that is, every data packet received by server processor (128) is validated by checking its sequence number and CRC checksum. TLP ¶¶249-250. If the packet is validated, server processor (128) sends an acknowledgement of packet receipt (ACK) prior to forwarding the packet to an application. TLP ¶¶249-250. As a result, in order for converter (126) to communicate the call request from the caller on network (118) to the server processor (128), converter (126) will send a SYN request to server processor (128). TLP ¶¶249-250. Server processor (128) as a component of the TCP/IP network (130) will first validate the communication request and send a SYN-ACK to converter 126. TLP ¶¶249-250. In addition, for every data packet received using the TCP/IP protocol, server processor (128) will first validate the sequence number and CRC checksum of the packet and acknowledge receipt with an ACK, prior to providing the packet to the application. TLP ¶¶249-250. Because the TCP/IP protocol requires validation and acknowledgement of packets prior to

providing the packet to an application, this validation and acknowledgment will occur prior to server processor (128) executing its call forwarding application. TLP ¶¶249-250.

In addition, the VOIP signaling protocol H.323 also provides for validation and acknowledgement of calls prior to forwarding. TLP ¶¶71-77, 252. H.323 relies on the H.225 and Q.931 standards for call origination. TLP ¶¶71-77, 252; EX1018; EX1036. The Q.931 standard provides that calls are initiated using the call SETUP message which are validated and responded to with CALL_PROCEEDING messages before forwarding the call. TLP ¶71-77, 252; EX1036. As a result, a POSA would understand that the converter/gateway (126) call originate message in the packet sent to server processor (128) would be an H.323 call SETUP message. TLP ¶245-246, 252; EX1003, 4:25-42; EX1018. The server processor (128) would respond to the call SETUP message with a CALL_PROCEEDING message before entering the call establishment state. TLP ¶¶75-77, 245-246, 252; EX1018. A POSA would understand that server processor (128) would be acting as an endpoint in the VOIP signaling because it terminates the first call initiated by the user and initiates a second call in the form of multicasted IP call request packets. TLP ¶¶245-256, 252; EX1018; EX1003, 4:38-41, 7:3-15, 9:9-16. However, even if server processor (128) was acting as a pass-through gatekeeper in an H.323 network and passed the call SETUP message through, it would be validated and

returned by converter/gateway (132) forwarding the call to the terminating edge switch connected to the subscriber's telephone (120). TLP ¶245-246, 252.

(ii) *To the extent the Board finds that Archer does not expressly disclose the claimed verification and acknowledgement, it is inherent* for the reasons set out above because a POSA would understand it is necessarily present as a required part of communicating in a TCP/IP network carrying VOIP data like network 130. TLP ¶253.

(iii) *Further, it would be obvious that server processor (128) would verify and acknowledge the communication request, in a packet network (130) like the Internet*, because it is the only option for communicating packets using the TCP/IP network using a VOIP protocol and has the predictable result of allowing communications. TLP ¶254. A POSA would also be motivated to use validation and acknowledgements required by the TCP/IP and VOIP standards to allow Archer to implement its preferred embodiment of server processor (128) being connected to the Internet (a TCP/IP network) and because of the commercial pressures driving and improving services on the Internet during the "Dot.Com" boom. TLP ¶254; EX1003, 4:44-50; see also TLP ¶¶201-203.

6. Claim limitation 1[e] – Determine control criteria

1[e]	third, determine the control criteria for access to the intended recipient of the users;

Archer teaches determining the control criteria for access to the intended recipient of devices of the find-me/follow-me subscriber in the form of server processor (128) looking up the subscriber's forwarding device addresses and forwarding priorities in database (138), in order to generate call packets addressed to those devices. EX1003, Figs. 4 (54), 5 (106), 6:57-67, 7:3-21, 7:30-50, 8:61-65; TLP ¶¶255-256; *see also* TLP ¶¶232-236.

7. Claim limitation 1[f] – Select a routing path

1[f]	fourth, facilitate selection of a routing path over the at least one communication network in accordance with the control criteria for the intended recipient user;

Archer teaches facilitating selection of a routing path over a network in accordance with the control criteria in the form of server processor (128) generating multicast call notifications in the form of packets containing the IP addresses or telephone numbers of the subscriber's communication devices (previously located by server processor (128) in database (138)). EX1003, 6:63-7:21, 9:9-16; *supra* §VII(C)(6); TLP ¶¶257-258. As Dr. LaPorta explained, IP addresses are used to route packets in IP protocol networks and telephone numbers are used to route calls in circuit-switched networks. TLP ¶¶257-258.

8. Claim limitation 1[g] – Route the communication

1[g]	fifth, route the communication in accordance with the control criteria, and

As discussed above regarding limitations 1[a(iii)], [b(i)], [e], Archer teaches routing the communication in accordance the control criteria in the form of server processor (128) routing the call to the subscriber by multicasting call packets containing the IP addresses and/or telephone numbers of the subscriber's communications devices based on the information in database (138). *Supra* §VII.C.2.(c), VII.C.3.(a), VII.C.6; EX1003, Figs. 4-5, 6:48-7:18, 8:33-38, 8:61-67, 9:9-16; TLP ¶¶117-122, 259-260.

9. Claim limitation 1[h] – Complete the communication link

1[h]	sixth, complete a communications link between the user initiating the communication and the intended recipient of the users, when the intended recipient of the users accepts the communication from the user initiating the communication.

Archer teaches completing a communication link upon the recipient user accepting the communication in the form of server processor (128) initiating voice digitization and voice packet routing to the destination in order to commence the voice connection when server processor (128) receives a pickup notification from one of the subscriber's communication devices. EX1003, Figs. 4 (68, "Establish communication"), 5 (109, "Commence communication"), 7:14-21, 9:30-37, 9:50-59 ("At this point, the call is completed and conversation commences."); TLP ¶¶261.

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Petition complies with the type-volume limits of 37 C.F.R. § 42.24(a)(1)(i) because it contains 11,767 words, excluding the parts of this Petition that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Petition.

Dated: June 23, 2016

By: /Wayne Stacy /
Wayne Stacy
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Lead Counsel

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e) and 42.105(b), the undersigned certifies that on June 23, 2016, a complete and entire electronic copy of this **Petition for *Inter Partes* Review of U.S. Patent No. 8,155,298**, including Exhibit Nos. 1001-1052 and a Power of Attorney, was served via FEDERAL EXPRESS, costs prepaid, to the Patent Owner by serving the correspondence address of record as follows:

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