

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner

v.

FLYPSI, INC.,
Patent Owner

Patent No. 10,051,105

**DECLARATION OF DR. BILL LIN
IN SUPPORT OF PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 10,051,105**

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I, Bill Lin, declare as follows:

I. INTRODUCTION

1. I have been retained as an independent expert consultant in this proceeding before the United States Patent and Trademark Office (“PTO”) regarding U.S. Patent No. 10,051,105 (“the ’105 patent”) (Ex. 1001).¹ I have been asked to consider whether prior art references disclose or suggest the features recited in claims 1-11 (“the challenged claims”) of the ’105 patent. My opinions are set forth below.

2. I am being compensated at my standard consulting rate for my work in this proceeding. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other interest in this proceeding.

¹ In this Declaration, I refer to exhibits that I understand are to be attached to the petition for *Inter Partes* Review of the ’105 patent.

II. BACKGROUND AND QUALIFICATIONS

3. My qualifications are stated more fully in my curriculum vitae, which is attached as Ex. 1003. Below is a summary of my education, work experience, and other qualifications.

4. I am currently a Professor of Electrical and Computer Engineering at the University of California, San Diego (UCSD).

5. I received a Bachelor of Science in Electrical Engineering and Computer Sciences from University of California, Berkeley in May 1985; a Master's of Science in Electrical Engineering and Computer Sciences from the University of California, Berkeley in May 1988; and a Ph.D. in Electrical Engineering and Computer Sciences from the University of California, Berkeley in May 1991.

6. I joined UCSD in 1997, and I have been a tenured professor since 1999. My teaching and research focus on computer architecture and computer network problems, including the design of high-performance switches and routers, high-speed packet processors, wireless networks, data networks, and various hardware accelerators for networking applications. I regularly teach a senior-level design course on the design of advanced processors, and I have taught graduate courses and advanced special topics in computer architecture and computer networks.

7. At UCSD, I am a Principal Investigator in the UCSD Center for Networked Systems (CNS). CNS brings together researchers to work on a range of challenges in the design of future networked systems. My contribution to CNS has been expertise in the design of computer architecture solutions for packet processing, computer networking, and network measurements. I am also a Principal Investigator in the UCSD Center for Wireless Communications (CWC). CWC brings together researchers to work on a range of challenges in the design of future wireless communications systems. My contribution to CWC has been expertise in the design of computer architecture solutions for wireless networking and mobile computing.

8. Prior to joining UCSD, I was the Head of the Systems and Communications Group at IMEC in Leuven, Belgium, where I led a team of researchers who worked on a range of computer design problems, including specialized processors for wireless communications and computer networking.

9. During my career, I have received or worked on research efforts that received millions of dollars in research funding from both government agencies and industry, including funding for research in packet processing, computer networks, network measurements, and wireless communications.

10. I have served as an Associate or Guest Editor for several journals published by the Association for Computing Machinery (“ACM”) and the Institute of Electrical and Electronics Engineers (“IEEE”). I have also served as General Chair of several ACM/IEEE conferences, and on the Organizing or Steering Committees of many ACM/IEEE conferences, and I have served on the Technical Program Committees of numerous ACM/IEEE conferences. I am the author of over 190 top-tier peer-reviewed publications in the field of computer engineering dating to the 1980s, including journal articles, conference papers, book chapters, technical reports, and invited papers. A number of these publications have received best paper awards or distinguished paper citations. I have also given numerous invited and keynote talks around the world.

11. I am a named inventor on five patents in the fields of computer design and computer networking: U.S. Patent Nos. 8,443,444, 7,860,004, 7,672,005, 5,870,588, and 5,748,487.

III. MATERIALS REVIEWED

12. The opinions contained in this Declaration are based on the documents I reviewed, my professional judgment, as well as my education, experience, and knowledge regarding systems and processes in the field of online advertising.

13. In forming my opinions expressed in this Declaration, I reviewed the following materials:

Ex. 1001	U.S. Patent No. 10,051,105 to Zhidov et al. (“the ’105 patent”)
Ex. 1003	Curriculum Vitae of Bill Lin, Ph.D.
Ex. 1004	Prosecution History of U.S. Patent No. 10,051,105
Ex. 1005	U.S. Patent Publication No. 2013/0295892 to Backhaus et al.
Ex. 1006	U.S. Pat. App. No. 61/660772 Backhaus Provisional
Ex. 1007	U.S. Patent Publication No. 2009/0052437A1 to Taylor
Ex. 1008	U.S. Patent Publication No. 2006/0077956A1 to Saksena
Ex. 1011	Signaling System No. 7 (SS7/C7) Protocol, Architecture, and Services (excerpts)
Ex. 1015	U.S. Patent Publication No. 2010/0128857 to Logan
Ex. 1020	U.S. Patent Publication No. 20090310598A to Winbladh
Ex. 1021	European Pat. No. EP1119168A2 to Burg

I also considered any other documents and materials I refer to in this Declaration.

14. My opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my appreciation of how a person of ordinary skill in the art would have understood the state of the art, the prior art, and the claims and the specification of the '105 patent at the time of the alleged invention, which I discuss below.

15. I have been asked to initially consider that the time of the alleged invention of the '105 patent was around 2013 (including and up to July 17, 2013), which corresponds to the filing date of the earliest patent application associated with the '105 patent. (Ex. 1001, Cover.)

16. Based on my experience and expertise, it is my opinion that certain references disclose and/or suggest all the features recited in challenged claims of the '105 patent, as I discuss in detail below.

IV. PERSON OF ORDINARY SKILL IN THE ART AND THE TIME OF THE ALLEGED INVENTION

17. I am familiar with the level of ordinary skill in the art regarding the '105 patent as of what I understand to be around July 17, 2013, which is the filing date of the earliest patent application associated with the '105 patent. (Ex. 1001, Cover.) Considering the '105 patent, the technology, the educational level and experience of workers in the field relating to the patent, and problems and solutions in that field, and drawing on my own experience, I believe a person of ordinary skill in the art at the time of the alleged invention (around July 17, 2013) would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with two years of work experience in the field of telecommunication. More education can supplement practical experience and vice versa. (*See* '105 patent (Ex. 1001) at 1:18-23 (“The present invention relates to systems and methods for setting up and connecting telephone calls, and delivering information related to such telephone calls using an Internet Protocol (IP) or other data channel while delivering the voice portion of the call in accordance with CDMA, GSM or like voice channel delivery standards.”).)

18. My opinions in this Declaration regarding the '105 patent and the prior art (including the state of the art) are from the perspective of one of ordinary

skill in the art as I defined above, during the relevant timeframe (e.g., the time of the alleged invention), which I discussed above as being around July 17, 2013.

V. TECHNICAL BACKGROUND

19. Below, I present a brief overview of certain aspects of systems and processes relating to telecommunication and associated features prior to and at the time of the alleged invention for the '105 patent. The functionalities and concepts I describe below in this technical background section reflect the state of the art that a person of ordinary skill in the art would have had knowledge of and understood prior to and at the time of the alleged invention of the '105 patent. I rely on, and incorporate as applicable (even if not expressly mentioned below in Section IX), the following disclosures and opinions to support my opinions in this Declaration, including those opinions relating to how the prior art discloses and/or suggests the challenged claims of the '105 patent and how and why a person of ordinary skill in the art would have been motivated to consider and combine the disclosures and suggestions from that prior art as I explain below in Section IX. The concepts below would have been within the knowledge and mindset of a person of ordinary skill in the art at the time.

A. Telecommunications Signaling

20. A telecommunication network is formed by a conglomerate of many different components (e.g., servers, switches, and terminal devices), and in order to efficiently provide telecommunication services (e.g., call routing and call forwarding

through these various components), the network components must indicate or signal information to each other so as to coordinate amongst the components to provide the intended services. (Ex. 1011, 6 (“In telecommunications, the network’s components must indicate (that is, signal) certain information to each other to coordinate themselves for providing services. As such, the signaling network can be considered the telecommunications network’s nervous system. It breathes life into the infrastructure.”).) In fact, it was generally known that:

Without signaling, networks would be inert and passive aggregates of components. Signaling is the bond that provides dynamism and animation, transforming inert components into a living, cohesive and powerful medium.

(Ex. 1011, 6.)

21. For instance, if a telecommunication service subscriber (e.g., a subscriber to AT&T’s telephone services) intends to place a telephone call, the call must be signaled to a switch, which provides an access point to the telecommunication network. (*Id.*, 6; Ex. 1007, [0004] (“[e]xternal digital communication systems typically communicate with the PSTN by interfacing with [local exchanges or switches 12].”)) Such a switch is also known as a local switch or a local exchange. (Ex. 1011, 6; *see also id.*, 6-7 (describing that calls are

established and routed by switches across the PSTN, including a calling party's local switch and a destination's local switch), 11, 15, 82 (disclosing that a local exchange/switch "provides network access for the subscriber".) Once the called party's number is received by the local switch, it begins signaling to other nodes/components of the network to establish a communication path, formed by the interconnected components, between the calling and called parties to provide a bi-directional communication. (*Id.*, 6-7.)

22. In addition to providing an access point to a network for a subscriber's device, a local switch may also be an access point to a network for a server. For example, Ex. 1007 shows a server 50 that communicates with the Public Switched Telephone Network (PSTN, discussed further below) through a local switch 12. (Ex. 1007, [0008]; *see also id.*, [0004] ("External digital communication systems typically communicate with the PSTN by interfacing with an exchange such as [local switch] 12"), FIG. 1A (showing a local switch 12 that is in communication with server 50).)

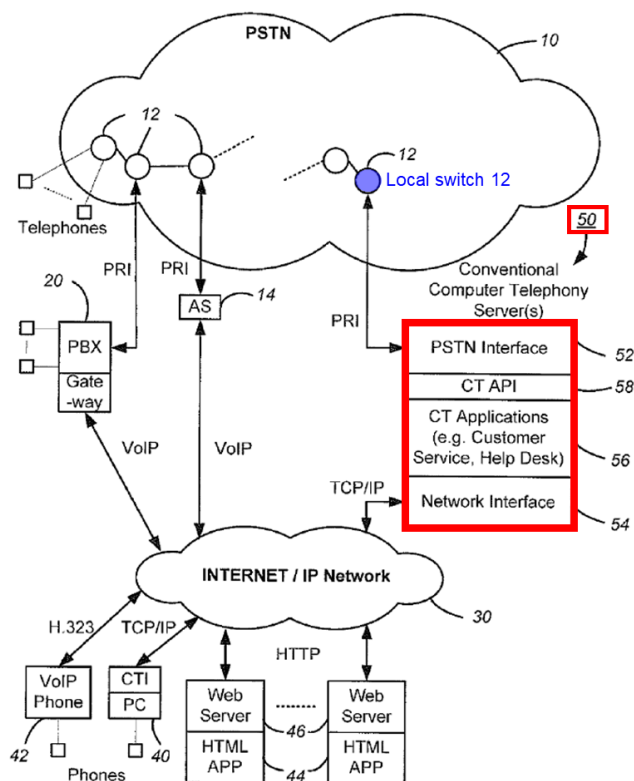


FIG. 1A (Prior Art)

(Ex. 1007, FIG. 1A (annotated).) In particular, as shown in Figure 1 above, server 50 may be configured to interface via a PSTN interface 52 with an exchange 12 to receive and process calls pertaining to a predefined set of telephone numbers on the PSTN, where the server “executes telephony applications that can provide custom services such as interactive voice response, customer service or help desk for an organization.” (*Id.*, [0008].)

23. While the main function of telecommunication signaling is to set up and clear calls, signaling may take place even when there is not a call in place, which is used to transfer data between network nodes. For example, telecommunication signaling may be used for “query and response with telecommunications databases to support cellular networks, intelligent networks, and supplementary services.” (Ex. 1011, 7.)

The main function of signaling is still that of circuit supervision: setting up and clearing down circuits (that is, trunks). Traditionally, once a circuit was set up, no other signaling was performed apart from releasing the call; therefore, all calls were simple, basic telephone service calls. **However, modern telephone networks can perform signaling while a call is in progress, especially for supplementary services—for example, to introduce another called party into the call, or to signal the arrival of another incoming call (call waiting) to one of the parties. In fact, since the 1980s, signaling can take place even when there is not a call in place.** This is known as non-circuit related signaling and is simply used to transfer data between networks nodes. It is primarily used for query and response with telecommunications databases to support cellular networks, intelligent

networks, and supplementary services. For example, in Public Land Mobile Networks (PLMNs), the visitor location register (VLR) that is in charge of the area into which the subscriber has roamed updates the home location register (HLR) of the subscriber's location. PLMNs make much use of non-circuit-related signaling, particularly to keep track of roaming subscribers. Chapter 13, "GSM and ANSI-41 Mobile Application Part (MAP)," covers this topic in more detail.

(Ex. 1011, 7.)

B. The Public Switched Telephone Network (PSTN)

24. One of the well-known telecommunication networks is the PSTN. Consistent with as discussed above (that a network is formed by many different components), the PSTN includes various equipment and interconnecting components that provide phone services to the public. (Ex. 1011, 81.) The PSTN began in the 19th century with a manual mechanical switchboard that connected different parties and allowed them to carry on a conversation. (*Id.*) In modern days, the PSTN is "a network of computers and other electronic equipment that converts speech into digital data and provides a multitude of sophisticated phone features,

data services, and mobile wireless access,” and the PSTN also transports speech or voice-band data, which is data that has been modulated to voice frequencies. (*Id.*)

25. The PSTN is known to be providing reliable communications to its subscribers and operates using the Signaling System No. 7 (SS7) protocol, which provides control signaling for the network (like I discussed above regarding network signaling to coordinate amongst the network components) and “is the most advanced and widely used signaling system for both cellular and fixed-line telecommunications networks.” (*Id.*, 5 (“Signaling System No. 7. Today, Signaling System No. 7 is the most advanced and widely used signaling system for both cellular and fixed-line telecommunications networks”), 81-82 (“SS7 provides control signaling for the PSTN”), 103-105 (discussing the use of SS7 protocol in the PSTN since the 1990s).)

SS7/C7 is the protocol suite that is employed globally, across telecommunications networks, to provide signaling; it is also a private, “behind the scenes,” packet-switched network, as well as a service platform. Being a signaling protocol, it provides the mechanisms to allow the telecommunication network elements to exchange control information.... SS7/C7 is the key enabler of the public switched telephone network (PSTN), the integrated

services digital network (ISDN), intelligent networks (INs), and public land mobile networks (PLMNs).

(Ex. 1011, 43.)

26. The core of the PSTN are digital switches, which are also known as signal switching points (SSPs). (Ex. 1011, 81 (“At the core of the PSTN are digital switches”).) A SSP “is a voice switch” that “processes voice-band traffic.” (*Id.*, 62-63; *see also* Ex. 1007, [0004] (describing that “[t]elephone service is traditionally carried by the PSTN,” which “includes a network of interconnected local exchanges or switches 12;” “[v]oice or data is carried from a source node to a destination node on the network by establishing a circuit path along the PSTN effected by appropriately switching the interconnecting exchanges;” and “[e]xternal digital communication systems typically communicate with the PSTN by interfacing with an exchange such as 12.”). As such, it has been known that a switch is responsible for connecting a voice channel to create a conversation path between the calling and the called parties. (Ex. 1011, 99 (“The switch is responsible for many tasks, but one of its primary function is connecting voice channel to create a bi-directional conversation path between two phone subscribers.... Once a circuit is set up between the two subscribers, the connection remains for the duration of the call.”).)

VI. THE '105 PATENT

A. Description

27. The '105 patent generally describes setting up and connecting phone calls using a data channel, and delivering voice portions of the call using a voice channel. (Ex. 1001, 1:18-23.) As an example, the '105 patent explains with reference to Figure 3 (reproduced below) communications between a handset 340 and a server 100 may utilize a data channel (e.g., the Internet 316). (*Id.*, 4:35-40.)

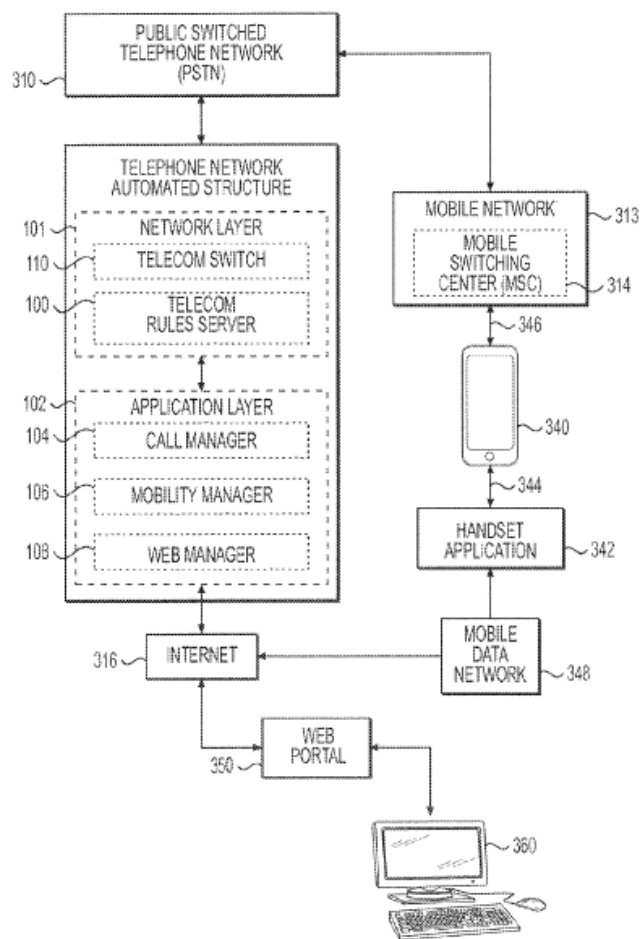


FIG. 3

(Ex. 1001, FIG. 3.) “Conversely, communications between the switch 110 and the handset over the PSTN 310 may be transmitted and received in accordance with CDMA, GSM or like standards as opposed to using IP. Such CDMA, GSM or like governed communications, when used to carry voice information, are referred to herein as being conducted over a ‘voice channel.’” (*Id.*, 4:40-46.)

28. For instance, a user may subscribe to a handset application 342 using the data channel connection between handset 340 and server 100, and a handset application 342 may be transmitted to the handset from the server 100 to be installed on the handset. (*Id.*, 4:52-63.) Through the handset application 342, a user may “select one or more secondary telephone numbers to be referenced to a primary telephone number for the handset.” (*Id.*, 4:64-5:2.)

29. Using the handset 340, a user may transmit call processing rules via the data channel to the server 100 by “select[ing] call processing rules for handling incoming and outgoing voice channel calls to and from the handset 340.” (*Id.*, 5:15-18.) Call processing rules may provide call routing based on locational information, caller ID, and temporal data. (*Id.*, 6:9-18 (“The call processing rules may govern how calls are handled and may provide automated call routing or call dropping based on location data of the calling and/or called party. The call processing rules may further govern handling calls based on incoming caller ID, which may identify a calling party as being on an accepted caller ID list or a non-accepted caller ID list. The call processing rules may further provide call routing based on weekday, weekend, holiday, time of day, biometrics data, and accelerometer data information.”).) Additionally, call processing rules may include preset responses for

incoming calls including custom voicemail or text message responses. (*Id.*, 5:31-39.)

30. Figure 3 of the '105 patent also depicts the call routing process for receiving an incoming call to or placing an outgoing call from a secondary telephone number. (*Id.*, 5:51-55, 7:20-23.) For incoming calls to a secondary telephone number, the call is routed over PSTN 310 to switch 110. (*Id.*, 5:55-66.) In response to the incoming call, applications (e.g., call manager 104 as shown in Figure 3) associated with server 100 may access certain call processing rules in database 120 to determine how to handle the incoming call. (*Id.*)

31. If the call processing rules allow receiving the incoming call, then call manager 104 may transmit pre-call notification information to handset 340 via the data channel, where such information includes a bridge telephone number and other information (e.g., calling party's number/name and the called secondary number to be displayed on handset 340). (*Id.*, 6:32-44.) If the user opts to accept the call, handset 340 calls the bridge number over the voice channel, which is then routed to switch 110. (*Id.*, 6:62-67.) Switch 110 then bridges the call directed to the bridge number (which is from handset 340) with the incoming call (that calls the secondary

number associated with handset 340) in order to connect the calling party to handset 340 via the voice channel. (*Id.*, 6:67-7:10; *see also id.*, FIG. 2, FIG. 4.)

32. The '105 patent also describes processes for placing outgoing calls, where a bridge number is used to connect the outgoing call, and the user may choose a secondary telephone number as the originating telephone number. (*Id.*, 7:20-8:53.)

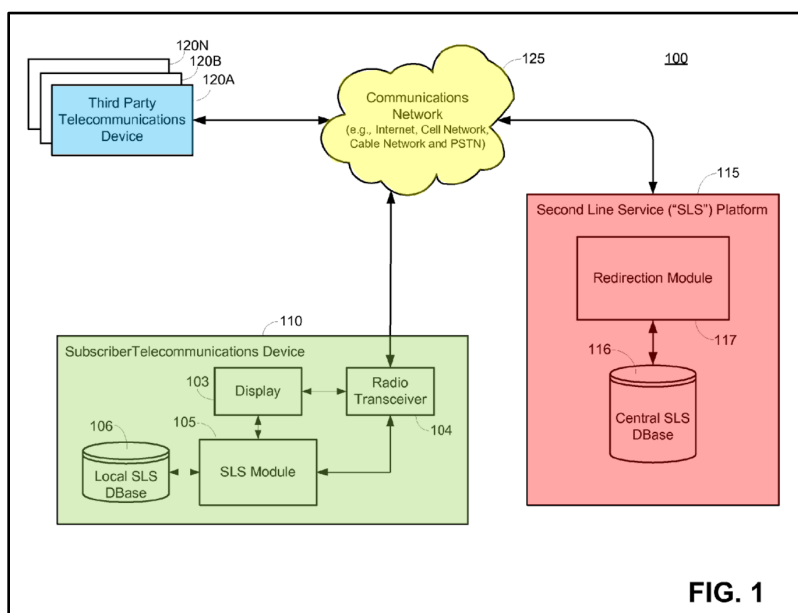
33. The alleged invention includes features that were well known to a person of ordinary skill in the art at/before the time of the alleged invention, such as using the PSTN as a voice channel, the Internet as a data channel, uses of primary and secondary telephone numbers, uses of a switch and a bridge telephone number to connect to calls. (*See generally* Ex. 1004.) As demonstrated below, the claimed features were either disclosed and/or suggested by the prior art or prior art combination.

VII. OVERVIEW OF THE PRIOR ART

A. Backhaus

34. Backhaus discloses a method for routing calls between a third party telecommunication device (“TD”) and a subscriber TD through a communication network. (Ex. 1005, Abstract, [0009].) Backhaus discloses a relationship number that may be used to, e.g., route calls to a service platform. (*Id.*, Abstract.)

35. Backhaus discloses with reference to Figure 1 a high-level diagram of an exemplary system 100 that includes a second line service (“SLS”) platform 115 (highlighted in red), which provides the SLS to a subscriber operating TD 110 (highlighted in green). (*Id.*, [0031].)



(Ex. 1005, FIG. 1 (annotated).) System 100 also includes a communication network 125 (highlighted in yellow), where calls directed from third party TD 120 (highlighted in blue) to subscriber TD 110 are transmitted via communication network 125. (*Id.*, [0032] (“any call[s]...are transmitted from a third party TD 120 to the subscriber TD 110 by way of communications network 125.”).)

36. Backhaus discloses that subscriber TD 110 is associated with a primary phone number that is assigned to it by a primary service provider. (*Id.*, [0031].) Subscriber TD 110 is also associated with a secondary phone number (or SLS number) provided by SLS platform 115. (*Id.*) A subscriber to the SLS “may receive calls at TD 110 that are directed to either of the primary phone...or the secondary phone number.” (*Id.* (“TD 110 is...associated with a primary phone number assigned to it by a primary service provider.... A subscriber to a [SLS]...may receive calls at TD 110 that are directed to either of the primary phone number...or the secondary phone number...provided, serviced and or facilitated by the SLS platform 115.”).) Backhaus explains that since subscriber TD 110 is associated with multiple phone numbers, e.g., primary and SLS phone numbers, it allows the subscriber to separately manage communications on each number, e.g., separating a personal number from a business number. (*Id.*, [0008] (“providing a plurality of

dedicated phone numbers to a single telecommunications device in such a manner that the user of the device can separate and manage communications on each”); *see also id.*, [0003]-[0007] (describing known use of multiple numbers with a telecommunication device to separate personal from business phone numbers).)

37. Consistent with Second Line Service Master ID Table 305 of Figure 3A (reproduced below and annotated), Backhaus discloses that “the primary number...assigned to the subscriber TD 110...is associated with [the subscriber] and his SLS number.” (*Id.*, [0044], FIG. 3A; *see also id.*, [0044] (“The SLS service provider...has a group of SLS numbers...and are provided to subscribers of the SLS service.”), [0050] (“The relationship between the subscriber’s primary number and the SLS number is reflected in Second Line Service Master ID Table 305 of FIG. 3A.”), [0060] (“SLS platform 115...may recognize that...subscriber’s primary number...(which is associated with the subscriber’s SLS number”).)

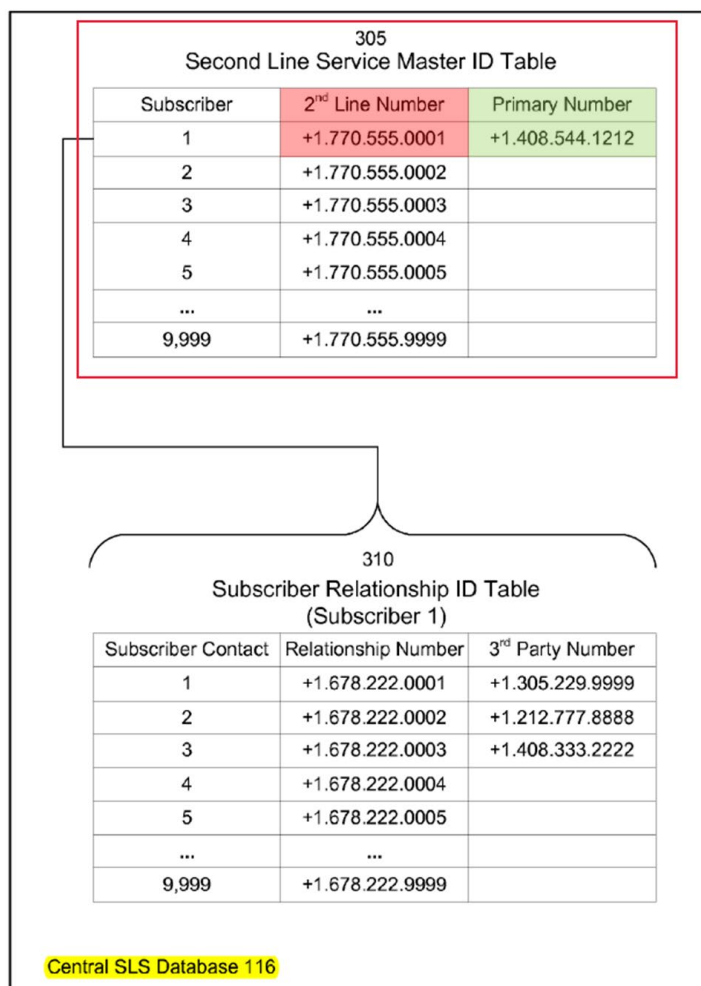


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) In particular, as indicated in Table 305 (top portion of Figure 3A), Subscriber #1, *e.g.*, the user of TD 110 (“handset”), is issued SLS number 1.770.555.0001 (highlighted in red). (*Id.*, [0044].) The SLS number is also associated with the primary number, 1.408.544.1212 (highlighted in green), which is assigned to TD 110. (*Id.*)

38. As to the call routing processes for different numbers called, Backhaus explains that a call from third party TD 120 to subscriber TD 110's primary number is routed via network 125 to TD 110 (*id.*, [0033]), while a call from third party TD 120 to subscriber TD 110's SLS number is first routed by network 125 to SLS platform 115, and then routed to TD 110 (*id.*, [0034]-[0035]). In addition to processes for routing calls to subscriber TD 110 (described above), Backhaus also discloses processes for routing calls that originate from subscriber TD 110 to the third party TD 120. (*Id.*, [0036] ("methods for receiving a call from a third party TD 120 and making a call to a third party TD 120 by way of the SLS platform 115 will be described below relative to FIGS. 4-7."); *see also id.*, [0009]-[0010] (describing processes for handling calls directed to subscriber TD 110), [0011] (describing processes for handling calls originated from subscriber TD 110).)

39. When a third party calls a subscriber's SLS number for the first time, SLS platform 115 creates a relationship between the subscriber's SLS number and the third party's number by assigning a relationship number to the combination of these two numbers (i.e., subscriber's SLS number and the third party's number). (*Id.*, [0052] ("SLS platform 115 accepts the call (without connecting the voice path to the third party TD 120A) and determines that the call is for SLS number...and

that [the SLS number] does not yet have a ‘relationship’ set up for the [third party calling number”), [0053].) The relationship information is stored in a database in each of SLS platform 115 and subscriber TD 110 (*id.*, [0053]-[0057]) and may be utilized when the subscriber calls the third party using his/her SLS number (*id.*, [0058]-[0061]).

40. For example, when the subscriber “dials the third party number,” subscriber’s TD 110 by using the stored relationship information “translates...[the] third party number...to relationship number” and “calls the relationship number”—even though TD 110 may display that it is calling the third party number. (Ex. 1005, [0059], FIGs. 3A-3B.)

To place calls from his SLS number, Subscriber #1 uses the SLS phone app of SLS module 105 [of subscriber TD 110] as his dialer, as a non-limiting example of one potential embodiment. In the SLS dialer (not depicted in the Figures), *Subscriber #1 dials the third party number...which is reflected in the Private Relationship ID Tables 310, 315 as being associated with his Contact #1. The SLS module 105 queries Subscriber Relationship ID Table 315 in local SLS database 106 and translates the called third party number...to relationship number.... The SLS module 105 may indicate to the subscriber via display*

103 that it is calling [the third party number], but instead
it calls the relationship number....

(Ex. 1005, [0059].) “By calling the relationship number..., the network 125 routes the call to the SLS platform 115 instead of directly to third party TD 120A phone.” (*Id.*) SLS platform 115 then “modif[ies] the ‘calling number’ field in the signaling,” instead of populating the field with the actual number of the calling device (i.e., subscriber’s primary number), “populate it with the SLS number....” (*Id.*) Thus, it appears to the third party that “he is receiving a call originating from the SLS number of the subscriber instead of the primary number...associated with subscriber TD 110.” (*Id.*; *see also id.*, [0060]-[0061] (disclosing additional processes for handling a call originated from an SLS subscriber).)

41. Backhaus discloses that, when a subscriber elects not to answer a call to the SLS number, subscriber TD 110 “use[s] a voicemail service or message service in response to the unanswered call” or provides “automated responses.” (*Id.*, [0068] (“the SLS module 105 [of subscriber TD 110]...may use a voicemail service or message service in response to the unanswered call”), [0035] (“The SLS module 105 [of subscriber TD 110] is designed to...provide services uniquely associated with the second line number such as, but not limited to, dedicated voicemail, ringtones, caller ID, automated responses, etc.”).) Backhaus explains that “similar

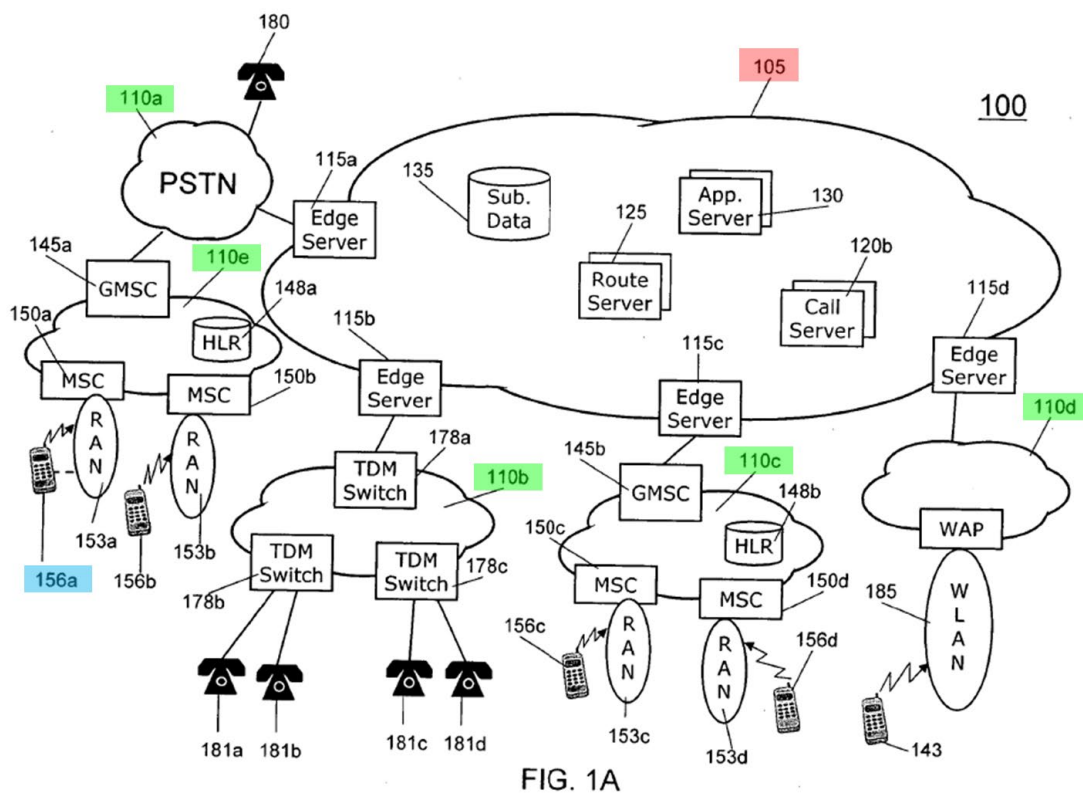
features and services associated with the subscriber's primary number" may be provided. (*Id.*, [0068]; *see also id.*, [0130] ("an SLS service may provide features and services dedicated to the SLS subscriber and separate from similar features and services associated with the subscriber's primary number").)

42. Backhaus discloses further details regarding processes for providing telephony services. For example, Figures 4A-4D describe various scenarios for processing calls originated either from an SLS subscriber or from a third party. (Ex. 1005, [0062].) Specifically, Figure 4A describes processes for handling calls originated from an *unrecognized* third party (i.e., who calls the SLS number for the first time) to an SLS subscriber. (*Id.*, [0062]-[0066].) Figure 4B describes processes for handling calls originated from a *recognized* third party (i.e., who has previously called the SLS number) to an SLS subscriber. (*Id.*, [0067]-[0068].) Figure 4C describes processes for handling calls originated from an *SLS subscriber* to a third party. (*Id.*, [0069]-[0070].) Figure 4D describes processes for handling calls originated from an SLS subscriber, where such calls were *data communications with SLS platform 115*, e.g., where subscriber TD 110 requests from SLS platform 115 a relationship number for a third party number the subscriber desires to call. (*Id.*, [0071]-[0074].)

43. Moreover, Backhaus discloses with references to Figures 5-7D additional processes for handling calls. For example, Figure 5 describes processes for handling calls from subscriber TD 110 to a third party TD 120A. (*Id.*, [0075]-[0076].) Figure 6 describes processes for handling calls from third party TD 120A to subscriber TD 110. (*Id.*, [0077]-[0078].) Figures 7A-7D describe processes for routing calls with a session initiated protocol (SIP). (*Id.*, [0079]-[0139].)

B. Saksena

44. Saksena describes providing telephony services to multiple subscriber devices. (Ex. 1008, Abstract; *see also id.*, [0057], [0072] (describing that the disclosed process allows, e.g., “[t]he user of four devices associated with four different networks [to] manage one set of universal telephony services for all of his different devices.”).) For example, Saksena discloses with reference to Figure 1A (reproduced below and annotated) a centralized network 105 (highlighted in red) that provides telephony services to multiple devices, e.g., cellular device 156a (highlighted in blue) and other devices, that are associated with different networks, e.g., 110a-110e (highlighted in green). (*Id.*, [0077].)



(Ex. 1008, FIG. 1A (annotated).) Saksena explains that calls made by a subscriber's mobile device 156a on cellular network 110e may be routed through both the PSTN 110a and network 105 to device 180, such that network 105 is involved in the calls and may provide services to which the subscriber subscribes. (*Id.*, [0119]-[0120]; *see also id.*, [0121]-[0129] (describing processes to connect a call between the caller and callee with network 105 involved in the call).)

45. Network 105 includes a call server 120, a route server 125, an application server 130, and a subscriber database 135, where each server handles

certain processes and the server can be implemented using multiple servers or all of the servers can be combined and implemented into a single server, or some partial combination. (*Id.*, [0078].)

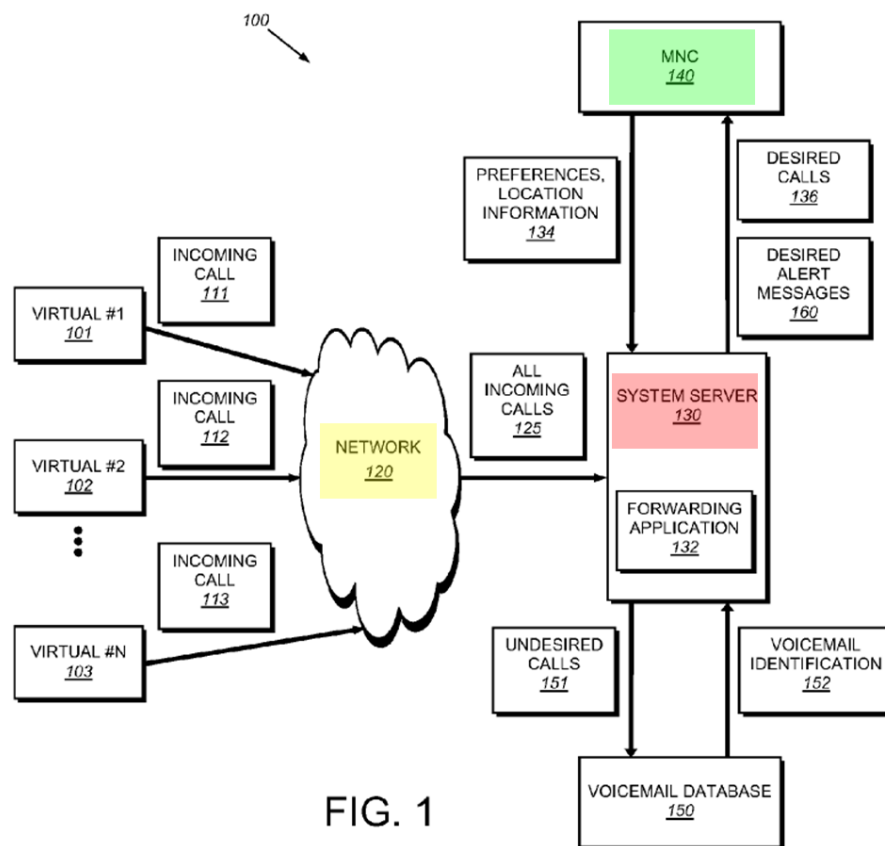
[T]he call server 120 handles the session management and signaling (e.g., calls, videos, gaming). The route server 125 provides the routing information to route a call. The application server 130 determines the services to which the subscriber has subscribed, and often remains in the call loop to provide additional services during the call. The subscriber database 135 includes information about the subscriber and the services to which the subscriber has subscribed and services specific data.

(*Id.*)

46. Saksena further discloses that mobile device 156a on cellular network 110e may operate using known standards, such as either the Global System for Mobile Communications (GSM) or Code-division multiple access (CDMA) standards. (*Id.*, [0053], [0082] (“For example, when a subscriber subscribes to cellular service with Verizon, they buy a cellular mobile device with CDMA technology. If a subscriber subscribes to cellular service with T-Mobile, they buy a cellular mobile device with GSM technology.”).)

C. Logan

47. Logan discloses with reference to Figure 1 (below) a server 130 (highlighted in red) that forwards calls received over network 120 (highlighted in yellow) to a user's multi-number cellphone (MNC) 140 (highlighted in green)—“but only when that user is in the appropriate location, or meets other user-specified preferences”—otherwise, the calls may be forwarded to a voicemail database. (Ex. 1015, [0026], [0027] (“In an illustrative embodiment...[i]f the user is not at the appropriate location, then the call is not forwarded and goes into the voicemail database.”), FIG. 1).



(Ex. 1015, FIG. 1 (annotated).) Logan discloses that MNC 140 can receive calls towards multiple numbers associated with the device, including, for example, a base number and virtual numbers. (*Id.*, [0011] (“a cellular telephone user, based upon his or her unique user preferences, can control the forwarding of calls from the caller to a series of virtual numbers, as well as the users cellular telephone ‘base’ or owned number (i.e. the number that is the user cellular telephone-specific number).”),

[0021] (“forwarding telephone calls to a plurality of ‘virtual’ numbers, associated with a user cellular telephone that has a single ‘base’ number”).)

48. Logan additionally discloses that “a user, via his [MNC] 140 can enter a set of preferences that are transmitted to the system server 130 via datastream 134” by using an internet-based application to “notify the system server of which calls a user desires to receive” based on preferences such as the location of the user, time of the day, and/or the identity of the caller for each of the numbers, e.g., the base and virtual numbers, associated with MNC 140. (*Id.*, [0029]; *see also id.*, [0011], [0046] (“a very important customer, identified via caller ID...might be routed to the MNC no matter the location.”), [0055] (“preferences submitted by the subscriber via a web interface”), claim 2 (“user preferences are provided through an interface including...an internet-based application”).)

This invention...provid[es] a system and method for call forwarding, employing virtual phone numbers associated with landline and other discrete telephone units, in which a cellular telephone user, based upon his or her unique user preferences, **can control the forwarding of calls from the caller to a series of virtual numbers, as well as the users cellular telephone “base” or owned number** (i.e. the number that is the user cellular telephone-specific

number). **The forwarding of calls to the owned number and virtual numbers can be based on a variety of factors.** In an illustrative embodiment, the forwarding factors can include the **location** of the cellular telephone, determined by GPS, triangulation or another mechanism, or the **time of day**. In this manner, the user can designate a virtual number as a home number, an office number, and a traveling number. Calls are received at each number when the user cellular telephone is located at the predetermined location, or it is the predetermined time of day. When calls are received to one of the virtual numbers, or to the base number, outside of the permitted receipt time, as provided by the user preferences, the call is routed to a voicemail database by the system server, which implements a call forwarding application.

(Ex. 1015, [0011].)

49. For instance, a user may designate a phone number as a home number or an office number, and calls may be routed by server 130 to the specific phone number when the phone is “located at the predetermined location, or it is the predetermined time of day.” (*Id.*, [0011].) Otherwise, the call is routed to a voicemail associated with server 130. (*Id.* (“When calls are received to one of the virtual numbers, or to the base number, outside of the permitted receipt time, as

provided by the user preferences, the call is routed to a voicemail database by the system server, which implements a call forwarding application.”); *see also id.*, [0027] (“If the user is not at the appropriate location, then the call is not forwarded and goes into the voicemail database.”), [0028] (“The forwarding application [of server 130] determines which virtual number was dialed by the calling party and then determines if the preferences set up by the called party indicate whether the call should be forwarded to the user.”), [0039] (“The single system server of the illustrative procedure 200 employs a forwarding application at step 220, which determines if the incoming call is a desired call at step 230 by verifying the user-specified preferences.”), [0043] (“only desires to receive business-related phone calls from, for example, 8 am to 5 pm, Monday through Friday”).)

50. Logan discloses location-based call processing rules to route a call to the personal number only when the MNC 140 is located at home, and to the business number only when the device is located in the office. (Ex. 1015, [0024] (“The MNC user can also behave largely as before, providing his or her contacts with home and office telephone numbers in the traditional manner, however receiving only ‘home’ calls while at home and only business-related calls while at the office”).) Time-based call processing rules can route calls to MNC 140 when it is within the time

period designated by the subscriber for the specific number(s). (*Id.*, [0024] (“The benefits to the user are multiple, and include having only one telephone, one consolidated voicemail message storage, and a lack of undesired calls reaching the user at an inopportune location or time-of-day”).)

51. Logan explains that features, like those described above, are “highly desirable” for mobile phone users as these features would have helped a subscriber to manage communications associated with multiple numbers that the subscriber uses based on the subscriber’s preferences. (*Id.*, [0040] (“when a person utilizes their cell phone for multiple business calls, it is highly desirable for the user to not receive personal and other household phone calls and inquiries during the course of business”), [0043] (“This is highly desirable, for example, for a person who works from home, but still desires to have a distinct home phone number and business phone number, and only desires to receive business-related phone calls from, for example, 8 am to 5 pm, Monday through Friday.”).)

D. Winbladh

52. Winbladh discloses a system for establishing a telephone connection between two terminals, A and B. (Ex. 1020, [0028] (“The system is adapted to establish a telephone connection between a first terminal A and a second terminal B.”); *see also id.*, [0031]-[0032] (disclosing that the system is connected to telephone

α_n ” that is dialed by first terminal A. (*Id.*, [0029]; *see also id.*, [0037]-[0051] (disclosing processes for establishing user information and allocating the common telephone numbers for each of terminals A and B).) Furthermore, “host resource 110 is associated with a database 120, which stores one entry <CLIA, # α_n , CLIB> for each unique combination of: the first network identity CLIA of each of the first terminals A; the second network identity CLIB of each of the second terminals B; and a respective first common telephone number # α_n to be dialed by each first terminal A to reach each of the second terminals B.” (*Id.*, [0030], [0036].) Moreover, host resource 110, via the first and second legs L1 and L2, may set up a bi-directional primary connection between the first terminal A and the second terminal B.” (*Id.*, [0031]-[0032], FIG. 1.)

54. Winbladh discloses that, after having set up the connection between the terminals A and B, the host resource 110 is configured to receive a termination request from the second terminal B. (Ex. 1020, [0033].) In response to such a request, the host resource 110 disconnects the second leg L2. (*Id.*, [0033]; *see also id.*, [0052]-[0054] (disclosing processes “for setting up [a] telephone connection between a first terminal A and a second terminal B via the host resource 110”).) During a threshold period after having disconnected the second leg L2, the host

resource 110 is adapted to maintain the first leg L1, i.e. the first terminal A is placed on-hold. (*Id.*) “If a return call to a predefined telephone number is received from the second terminal B before expiry of the threshold period, the host resource 110 establishes a bi-directional secondary connection between the first terminal and the second terminal.” (*Id.*; *see also id.*, [0034] (“The predefined telephone number, which is associated with first leg L1, may either be a fixed number for all the second terminal’s B service requests to the system, or the number may be assigned on a call-by-call basis.”).).

55. Winbladh further discusses this feature in the context of Figure 4. Winbladh explains that, once “a two-legged L1, L2 bi-directional primary connection has been set up between the first terminal A and the second terminal B,” “the terminal B may disconnect the second leg L2, reconnect to the host resource 110 at a local-call rate, and reestablish the connection with the terminal A.” (*Id.*, [0056]-[0057]; *see also id.*, [0059]-[0062] (disclosing processes for connecting calls between terminals A and B).)

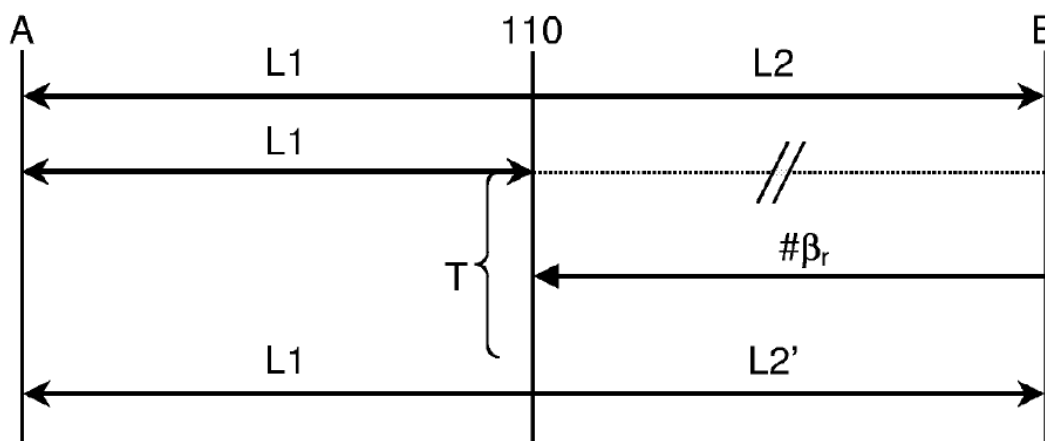


Fig. 4

(Ex. 1020, FIG. 4.) “If a return call to a predefined telephone number $\# \beta_r$ is received from the second terminal B before expiry of the threshold period T,” the host resource 110 establishes a new second leg L2’ and associates this leg with the first leg L1, “such that a bi-directional secondary connection L1, L2’ is established between the first terminal A and the second terminal B.” (*Id.*, [0058].)

VIII. CLAIM CONSTRUCTION

56. I understand that when considering the meaning of patent claims, one must consider the language of the claims, the specification, and the prosecution history of the patent. I also understand that claim terms are typically given their ordinary and customary meanings as would have been understood by a person of ordinary skill in the art ordinary skill in the art at the time of the invention for the

patent. For the '105 patent, as I explained above in Section IV, the relevant time that I have been asked to consider is around July 17, 2013. For purposes of my opinions in this declaration, I have been asked to consider the challenged claims under their plain and ordinary meanings as understood by a person of ordinary skill in the art at the time of the alleged invention, and I have applied such understandings in my analysis of the '105 patent and the prior art.

IX. THE PRIOR ART DISCLOSES AND/OR SUGGESTS ALL RECITED FEATURES OF CLAIMS 1-11 OF THE '105 PATENT

57. In my opinion, the prior art discussed below discloses and/or suggests the limitations of claims 1-11.²

A. Backhaus in View of Logan Discloses and/or Suggests the Limitations of Claims 1

1. Claim 1

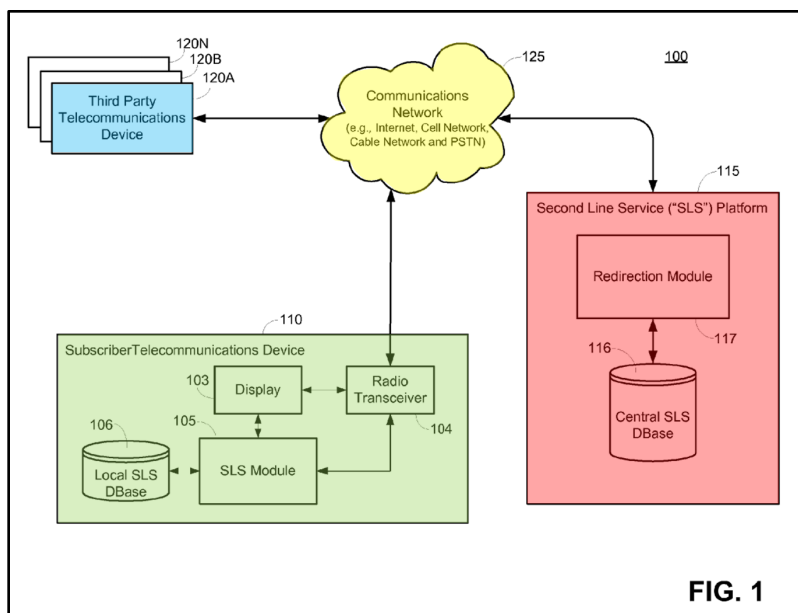
i) [1.pre] “A method of providing telephone service, comprising:”

58. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 1 is limiting. Under such an assumption, Backhaus discloses the limitations therein. Backhaus discloses a method for routing calls between a third party telecommunication device (“TD”) and a subscriber TD, where the call routing is facilitated by using a relationship number. (Ex. 1005, Abstract, [0009], [0030] (“the terms ‘call’ and ‘communication,’ in their

² In this section (Section IX), I refer to exhibits other than those identified prior art reference(s) that disclose and/or suggest the claimed limitations. Such exhibits reflect the state of the art known to a person of ordinary skill in the art at the time of the alleged invention.

noun forms, envision any data transmission routed across a network from one device to another including, but not limited to, a voice transmission, a text message, a video message, a page, a data transmission, etc”)..)

59. Backhaus discloses with reference to Figure 1 a high-level diagram of an exemplary system 100 that includes a second line service (“SLS”) platform 115 (highlighted in red), which provides the SLS to a subscriber operating TD 110 (highlighted in green). (Ex. 1005, [0031].)



(Ex. 1005, FIG. 1 (annotated).) System 100 also includes a communication network 125 (highlighted in yellow), where calls directed from third party TD 120 (highlighted in blue) to subscriber TD 110 are transmitted via communication

network 125. (Ex. 1005, [0032] (“any call[s]...are transmitted from a third party TD 120 to the subscriber TD 110 by way of communications network 125.”).)

60. Backhaus discloses that subscriber TD 110 is associated with a primary phone number that is assigned to it by a primary service provider. (Ex. 1005, [0031].) Subscriber TD 110 is also associated with a secondary phone number (or SLS number) provided by SLS platform 115. (*Id.*) As such, a subscriber to the SLS “may receive calls at TD 110 that are directed to either of the primary phone...or the secondary phone number.” (*Id.* (“TD 110 is...associated with a primary phone number assigned to it by a primary service provider.... A subscriber to a [SLS]...may receive calls at TD 110 that are directed to either of the primary phone number...or the secondary phone number...provided, serviced and or facilitated by the SLS platform 115.”).) Backhaus explains that since subscriber TD 110 is associated with multiple phone numbers, e.g., primary and SLS phone numbers, it allows the subscriber to separately manage communications on each number, e.g., separating a personal number from a business number. (Ex. 1005, [0008] (“providing a plurality of dedicated phone numbers to a single telecommunications device in such a manner that the user of the device can separate and manage communications on each”); *see also id.*, [0003]-[0007] (describing known use of

multiple numbers with a telecommunication device to separate personal from business phone numbers); Ex. 1006, 43 (“Personal & Business Phone Numbers on a Single SIM/Device,” “Provide a public number for social communities: Privacy controls, Safe environment, Protect personal number”), 59 (“A social network subscriber can have a social (virtual) number to allow other connections to make contact [w]hile maintaining their ‘Prime Number’s Privacy’”).)

61. As to the call routing processes for different numbers called, Backhaus explains that a call from third party TD 120 to subscriber TD 110’s *primary number* is routed via network 125 to TD 110 (Ex. 1005, [0033]), while a call from third party TD 120 to subscriber TD 110’s *SLS number* is first routed by network 125 to SLS platform 115, and then routed to TD 110 (*id.*, [0034]-[0035]). In addition to processes for routing calls *to subscriber TD 110* (such as those described above), Backhaus also discloses processes for routing calls that originate from subscriber TD 110 *to the third party TD 120*. (*Id.*, [0036] (“methods for receiving a call from a third party TD 120 and making a call to a third party TD 120 by way of the SLS platform 115 will be described below relative to FIGS. 4-7.”); *see also id.*, [0009]-[0010] (describing processes for handing calls directed to subscriber TD 110), [0011] (describing processes for handing calls originated from subscriber TD 110).)

62. When a third party calls subscriber's SLS number for the first time, SLS platform 115 creates a relationship between the subscriber's SLS number and the third party's number by assigning a relationship number to the combination of these two numbers (i.e., subscriber's SLS number and the third party's number). (Ex. 1005, [0052] ("SLS platform 115 accepts the call (without connecting the voice path to the third party TD 120A) and determines that the call is for SLS number...and that [the SLS number] does not yet have a 'relationship' set up for the [third party] calling number"), [0053].) The relationship information is stored in a database in each of SLS platform 115 and subscriber TD 110 (*id.*, [0053]-[0057]) and may be utilized when the subscriber calls the third party using his/her SLS number (*id.*, [0058]-[0061]).

63. For example, as the subscriber "dials the third party number," subscriber's TD 110 by using the stored relationship information "translates...[the] third party number...to relationship number" and "calls the relationship number"—even though TD 110 may display that it is calling the third party number. (Ex. 1005, [0059].)

To place calls from his SLS number, Subscriber #1 uses the SLS phone app of SLS module 105 [of subscriber TD 110] as his dialer, as a non-limiting example of one

potential embodiment. In the SLS dialer (not depicted in the Figures), **Subscriber #1 dials the third party number**...which is reflected in the Private Relationship ID Tables 310, 315 as being associated with his Contact #1. The SLS module 105 queries Subscriber Relationship ID Table 315 in local SLS database 106 and **translates the called third party number...to relationship number....** The SLS module 105 may indicate to the subscriber via display 103 that it is calling [the third party number], but instead it calls the relationship number....

(Ex. 1005, [0059].) “By calling the relationship number..., the network 125 routes the call to the SLS platform 115 instead of directly to third party TD 120A phone.” (*Id.*) SLS platform 115 then “modif[ies] the ‘calling number’ field in the signaling,” instead of populating the field with the actual number of the calling device (i.e., subscriber’s primary number), “populate it with the SLS number....” As such, it appears to the third party that “he is receiving a call originating from the SLS number of the subscriber instead of the primary number...associated with subscriber TD 110.” (*Id.*; *see also id.*, [0060]-[0061] (disclosing additional processes for handling a call originated from an SLS subscriber).)

64. Backhaus discloses further details regarding processes for providing telephony services. For example, Figures 4A-4D describe various scenarios for

processing calls originated either from an SLS subscriber or from a third party. (Ex. 1005, [0062].) Specifically, Figure 4A describes processes for handling calls originated from an *unrecognized* third party (i.e., who calls the SLS number for the first time) to an SLS subscriber. (*Id.*, [0062]-[0066].) Figure 4B describes processes for handling calls originated from a *recognized* third party (i.e., who has previously called the SLS number) to an SLS subscriber. (*Id.*, [0067]-[0068].) Figure 4C describes processes for handling calls originated from an *SLS subscriber* to a third party. (*Id.*, [0069]-[0070].) Figure 4D describes processes for handling calls originated from an SLS subscriber, where such calls were *data communications with SLS platform 115*, e.g., where subscriber TD 110 requests from SLS platform 115 a relationship number for a third party number the subscriber desires to call. (*Id.*, [0071]-[0074].)

65. Moreover, Backhaus discloses with references to Figures 5-7D additional processes for handling calls. For example, Figure 5 describes processes for handling calls from subscriber TD 110 to a third party TD 120A. (Ex. 1005, [0075]-[0076].) Figure 6 describes processes for handling calls from third party TD 120A to subscriber TD 110. (*Id.*, [0077]-[0078].) Figures 7A-7D describe processes for routing calls with a session initiated protocol (SIP). (*Id.*, [0079]-[0139].)

66. Accordingly, Backhaus discloses a method of “providing telephone service.”

- ii) **[1.a] “automatically storing electronic information that indicates an association of a secondary telephone number and a primary telephone number with a telephone handset in a computer memory associated with a server;”**

67. Backhaus discloses this limitation. To begin, Backhaus discloses that subscriber TD 110 is a “telephone handset,” as claimed. Backhaus explains that the terms “telecommunications device” (TD) and “wireless *handset*” “are used interchangeably.” (Ex. 1005, [0029]; *see also id.*, [0031], [0033] (disclosing that TD 110 may be “a portable and wireless device”), [0050] (“subscriber TD 110...has mobile phone service...using mobile phone number”), [0081] (“subscriber’s mobile device”).)

68. Backhaus also discloses associating “a secondary telephone number and a primary telephone number with” subscriber TD 110. For example, Backhaus explains that a SLS subscriber may receive calls at TD 110 directed to either of the primary number or the SLS number. (Ex. 1005, [0031] (“A subscriber to an [SLS] offered through exemplary system 100 may receive calls at TD 110 that are directed to either of the primary phone number provided by the primary service provider or the [SLS phone number] provided, serviced and or facilitated by the SLS platform

115.”).) Indeed, Backhaus discloses that a third party may call “the **primary number associated with subscriber TD 110**” (*id.*, [0033]) and “an **SLS number associated with subscriber TD 110**” (*id.*, [0034]). (*See also id.*, [0060] (“SLS platform 115...may recognize that...subscriber’s primary number...(which is associated with the subscriber’s SLS number”), [0075] (disclosing with reference to Figure 5 processes “for routing calls from a telecommunications device associated with a primary number and a second line number, such as subscriber device 110, to a third party telecommunications device, such as third party TD 120A”).) Thus, Backhaus discloses “an association of a secondary telephone number and a primary telephone number with a telephone handset.”³

³ While the precise bounds of the claimed “primary telephone number” and “secondary telephone number” are unclear, they would at least encompass Backhaus’s disclosures associated with the claimed features as discussed above. Indeed, like the ’105 patent disclosing that a primary telephone number may be a number assigned to the handset at the time of activation (Ex. 1001, 5:2-4), Backhaus discloses that the subscriber’s device is “associated with a primary phone number assigned to it by a primary service provider” (Ex. 1005, [0031]).

69. Backhaus also discloses “automatically storing electronic information...in a computer memory associated with a server,” where such information indicates the above-described association of primary and SLS numbers with TD 110. For example, Backhaus discloses with reference to Figure 3A a SLS Master ID Table 305 (reproduced below and annotated) that includes an association of the primary and SLS numbers with subscriber TD 110. (Ex. 1005, [0042].)

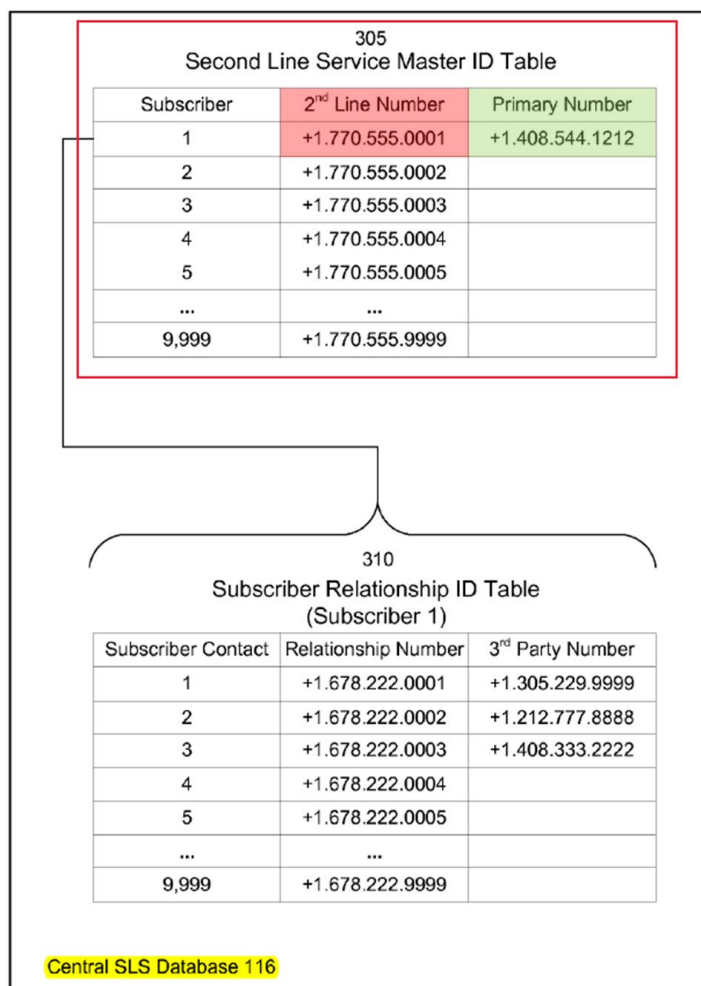


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) In particular, as indicated in Table 305 (top portion of Figure 3A), Subscriber #1, *e.g.*, the user of TD 110 (“telephone handset”), is issued with SLS number 1.770.555.0001 (highlighted in red). (Ex. 1005, [0044].) The SLS number is also associated with the primary number, 1.408.544.1212 (highlighted in green), which is assigned to TD 110. (*Id.*)

70. Moreover, Backhaus discloses that Table 305 (which includes the claimed “association of a secondary telephone number and a primary telephone number with a telephone handset,” as discussed above) may be “automatically stor[ed]” in a central SLS database 116 (the claimed “computer memory”), which is a part of SLS platform 115. (Ex. 1005, [0039]-[0040].) For example, Backhaus discloses that “[t]he [SLS] Master ID Table 305...may be stored in a central SLS database 116.” (*Id.*, [0042]; *see also id.*, [0043] (“The SLS platform 115 maintains a master list of SLS phone numbers that are in service.”).) Such a “storing” process is performed “automatically” because the assignment of the subscriber’s primary number and the SLS number and association of the numbers with subscriber TD 110 is performed by the service providers and SLS platform 115—as opposed to being performed by a user manually. (*Id.*, [0044] (disclosing that “[t]he SLS service provider that manages the SLS platform 115 essentially has a group of SLS numbers that are his inventory and are provided to subscribers of the SLS service” and that “in Second Line Service Master ID Table 305 the primary number...that is assigned

to the subscriber TD 110 by the primary service provider 201 is associated with subscriber #1 and his SLS number....”).)⁴

71. Moreover, Backhaus discloses that the electronic information that indicates the association of the primary and secondary numbers with TD 110 is stored “in a computer memory associated with a server.” For example, as explained in Backhaus, SLS database 116 (“computer memory”) is a part of the SLS server

⁴ The ’105 patent appears to contrast a process that is performed *automatically* with one that is performed *manually*. (Ex. 1001, 9:32-35 (“If the conference call invitation is accepted and it is time for the call, each accepting invitee handset may *automatically* or *manually* dial the bridge telephone number using a voice channel”), 9:49-54 (“Thereafter, the late joining invitee handset may dial the bridge telephone number *automatically* or *manually* using a voice channel”).) Backhaus and/or the combinations of prior art stemming from Backhaus likewise discloses and/or suggests the claimed “automatic[]” processes recited in limitations [1.b, 1.c, 1.e, 1.f, 2.a, 3.b, 8.d, 8.e] because each of the processes is performed by a server (limitations [1.b, 1.c, 1.e, 1.f]), a network (limitations [2.a, 3.b, 8.d]), and by a telecommunication device (limitation [8.e]).

205 (“server”). (Ex. 1005, [0039], [0040] (disclosing that SLS server 205 includes processor 209 and memory 211, where memory 211 includes a redirection module 117 and central SLS database 116).)

72. Accordingly, Backhaus discloses “automatically storing electronic information that indicates an association of a secondary telephone number and a primary telephone number with a telephone handset in a computer memory associated with a server,” as claimed.

iii) [1.b] “automatically storing electronic information that indicates a selection of call processing rules for the primary telephone number in the computer memory;”

73. Backhaus in view of Logan discloses and/or suggests this limitation. To begin, Backhaus discloses that, when a subscriber elects not answering a call to the SLS number, subscriber TD 110 “use[s] a voicemail service or message service in response to the unanswered call” or provides “automated responses.” (Ex. 1005, [0068] (“the SLS module 105 [of subscriber TD 110]...may use a voicemail service or message service in response to the unanswered call”), [0035] (“The SLS module 105 [of subscriber TD 110] is designed to...provide services uniquely associated with the second line number such as, but not limited to, dedicated voicemail, ringtones, caller ID, automated responses, etc.”).) Backhaus explains that “similar

features and services associated with the subscriber's primary number" may be provided. (*Id.*, [0068] ("an SLS service may provide features and services dedicated to the SLS subscriber and separate from similar features and services associated with the subscriber's primary number").) Thus, Backhaus at least suggests features associated with voicemail/message services and automated responses are also available for calls directed to subscriber's primary number on subscriber TD 110.

74. Such voicemail/message and automated response services for calls directed to the primary number correspond to "call processing rules for the primary telephone number" because these services process unanswered calls directed to the primary number by providing voicemail/message services or automated responses. Indeed, the '105 patent acknowledges that call processing rules include "preset responses for incoming calls, such as custom stored voice message(s) and/or custom stored text message(s) to be associated with the primary and/or one or more secondary telephone numbers" or "stock rules used for all telephone numbers, such as an option to accept or not accept (i.e., drop) an incoming call." (Ex. 1001, 5:31-45.)

The call processing rules may include *preset responses* for incoming calls, such as custom stored *voice message(s)* and/or custom stored *text message(s)* to be associated with

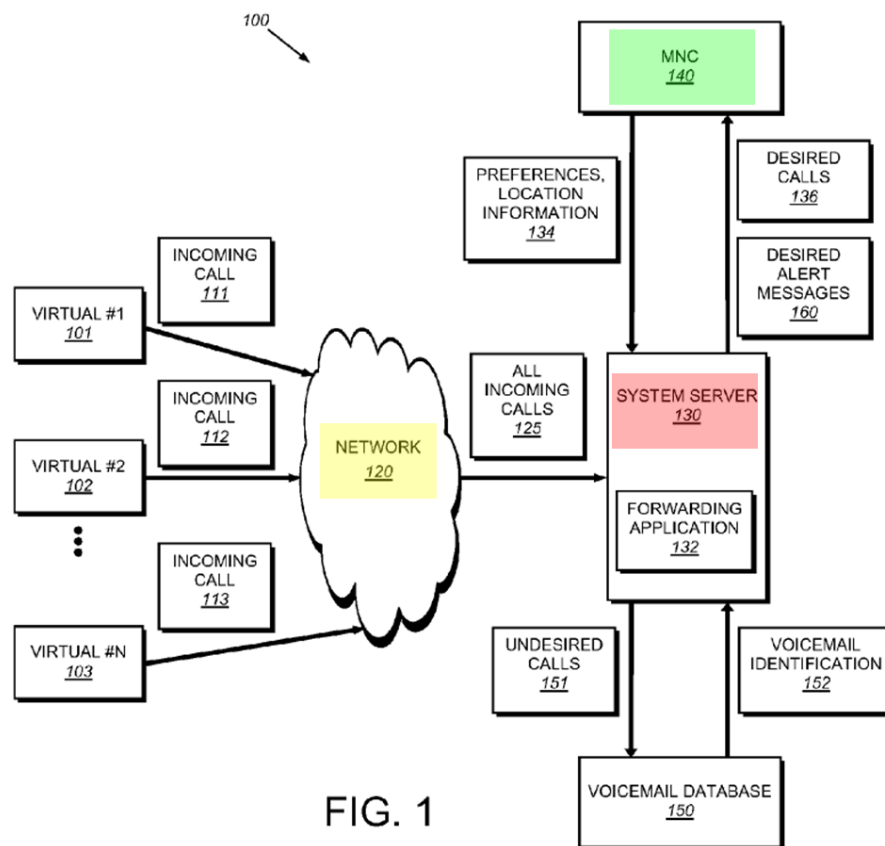
the primary and/or one or more secondary telephone numbers. The call processing rules may further permit the handset 340 to be used to control the availability of the secondary telephone numbers as well as activation of additional secondary telephone numbers and deactivation of existing secondary telephone numbers. Information indicating the call processing rules for the primary telephone number and secondary telephone numbers may be stored automatically in memory associated with the handset 340. The call processing rules may further include stock rules used for all telephone numbers, such as an option to accept or not accept (i.e., drop) an incoming call.

(Ex. 1001, 5:31-45.) Accordingly, Backhaus at least suggests “call processing rules for the primary telephone number.”

75. I have been asked to consider a scenario where the prior art does not disclose “automatically storing electronic information that indicates a selection of call processing rules for the primary telephone number in the computer memory.” Under that scenario, a person of ordinary skill in the art would have been motivated to implement this feature in view of Logan.

76. Like Backhaus, Logan is directed to providing telephone services through communication networks. (Ex. 1015, [0026], FIG. 1.) For example, as

shown in FIG. 1 below, Logan discloses a server 130 (highlighted in red) that forwards calls received over network 120 (highlighted in yellow) to a user's multi-number cellphone (MNC) 140 (highlighted in green)—“but only when that user is in the appropriate location, or meets other user-specified preferences”—otherwise, the calls may be forwarded to a voicemail database. (*id.*, [0026], [0027] (“In an illustrative embodiment...[i]f the user is not at the appropriate location, then the call is not forwarded and goes into the voicemail database.”), FIG. 1) Thus, Logan is similar to Backhaus, which discloses routing calls to a service platform/network, such that the service platform/network may provide services to which the subscriber subscribes.



(Ex. 1015, FIG. 1 (annotated).) Furthermore, similar to Backhaus that discloses subscriber TD 110 being capable of receiving calls towards multiple numbers associated with the device (e.g., the primary and SLS numbers), Logan discloses that MNC 140 can likewise receive calls towards multiple numbers associated with the device (e.g., a base number and virtual numbers). (Ex. 1015, [0011] (“a cellular telephone user, based upon his or her unique user preferences, can control the forwarding of calls from the caller to a series of virtual numbers, as well as the users

cellular telephone ‘base’ or owned number (i.e. the number that is the user cellular telephone-specific number).”), [0021] (“forwarding telephone calls to a plurality of ‘virtual’ numbers, associated with a user cellular telephone that has a single ‘base’ number”).) Thus, a person of ordinary skill in the art would have been motivated to consider the teachings of Logan when implementing Backhaus’s system/method.

77. Logan additionally discloses that “a user, via his [MNC] 140 can *enter a set of preferences* that are transmitted to the system server 130 via datastream 134” by using an Internet-based application to “notify the system server of which calls a user desires to receive” based on preferences such as the location of the user, time of the day, and/or the identity of the caller for each of the numbers, e.g., the base and virtual numbers, associated with MNC 140. (Ex. 1015, [0029]; *see also id.*, [0005] (“cellphone [using] wireless Internet/network connectivity (WiFi)”), [0011] (disclosing that a user “based upon his or her unique user preferences, can control the forwarding of calls from the caller to a series of virtual numbers, as well as the users cellular telephone ‘base’ or owned number (i.e. the number that is the user cellular telephone-specific number)” and that “[t]he forwarding of calls to the owned number and virtual numbers can be based on a variety of factors,” including e.g., “the location of the cellular telephone...or the time of day.”), [0046] (“a very

important customer, identified via caller ID...might be routed to the MNC no matter the location.”), [0055] (“preferences submitted by the subscriber via a web interface”), claim 2 (“user preferences are provided through an interface including...an internet-based application”).)

78. For instance, a user may designate a phone number as a home number or an office number, and calls may be routed by server 130 to the specific phone number when the phone is “located at the predetermined location, or it is the predetermined time of day.” (Ex. 1015, [0011].) Otherwise, the call is routed to a voicemail associated with server 130. (*Id.* (“When calls are received to one of the virtual numbers, or to the base number, outside of the permitted receipt time, as provided by the user preferences, the call is routed to a voicemail database by the system server, which implements a call forwarding application.”); *see also id.*, [0027] (“If the user is not at the appropriate location, then the call is not forwarded and goes into the voicemail database.”), [0028] (“The forwarding application [of server 130] determines which virtual number was dialed by the calling party and then determines if the preferences set up by the called party indicate whether the call should be forwarded to the user.”), [0039] (“The single system server of the illustrative procedure 200 employs a forwarding application at step 220, which

determines if the incoming call is a desired call at step 230 by verifying the user-specified preferences.”), [0043] (“only desires to receive business-related phone calls from, for example, 8 am to 5 pm, Monday through Friday”).)

79. Accordingly, because Logan discloses that a user may set call processing preferences for each of the base number (“primary telephone number”) and the virtual number (“secondary telephone number”), Logan discloses making “a selection of call processing rules for the primary telephone number” as recited in limitation [1.b].

80. Additionally, Logan discloses that the user-entered “preferences notify the system server of which calls a user desires to receive” (Ex. 1015, [0029]), and that the server “determines if the preferences set up by the called party indicate whether the call should be forwarded to the user” (*id.*, [0028]). Moreover, Logan explains that the “undesired phone calls are transmitted to a voicemail database 150,” which is associated with the server. (*Id.*, [0030], FIG. 1; *see also id.*, Abstract (“the call can be forwarded to a voicemail database where a voicemail message may be stored”), [0011] (“the call is routed to a voicemail database by the system server, which implements a call forwarding application”), [0039] (“The single system server...determines if the incoming call is a desired call at step 230 by verifying the

user-specified preferences.”)) Thus, a person of ordinary skill in the art would have understood that the user-entered preferences and associated configurations for each of the base and virtual numbers are at least temporarily stored at the server and/or at a database accessible by the server for later retrievals and application of the same. Such a process of storing the user-entered preferences and associated configurations is performed “automatically” because such a process would have been performed by server 130—as opposed to being performed by a user manually. Accordingly, Logan discloses “automatically storing electronic information that indicates a selection of call processing rules for the primary telephone number in the computer memory.”⁵

81. A person of ordinary skill in the art would have been motivated to implement the server-based call processing rules features (including their associated features, e.g., acquiring, storing, and application of the user-selected preferences/rules) similar to as discussed in Logan when implementing Backhaus’s

⁵ For the same reason, Logan also discloses “automatically storing electronic information that indicates a selection of call processing rules for the secondary telephone number in the computer memory” (limitation [1.c]), as discussed in limitation [1.c] below.

telephony service system. For instance, such a person would have understood that there would be common situations where subscriber TD 110 is not able to provide voicemail/preset responses to the unanswered call, e.g., when it is turned off or out of battery. Thus, it would have been beneficial to implement voicemail/preset response capabilities in a server that is associated with subscriber TD 110, i.e., SLS server 205 in SLS platform 115, as it would have allowed the server to provide voicemail/preset responses to unanswered calls even when subscriber TD 110 is unable to provide the same. To implement voicemail/preset response capability in SLS server 205 as discussed above, a person of ordinary skill in the art would have likewise been motivated to acquire the voicemail/preset responses and associated configurations specified by the user/subscriber from the subscriber TD 110, and store the same in a database accessible to SLS server 205 (e.g., central SLS database 116) for responding to incoming calls when subscriber TD 110 is not available. (*Id.*)

82. Moreover, a person of ordinary skill in the art would have also found it beneficial to specify/select call forwarding/processing preferences for each of the multiple numbers associated with a handset, similar to as disclosed in Logan when implementing Backhaus. For example, Backhaus discloses providing multiple phone numbers (e.g., primary and SLS numbers) to a single telecommunications

device for separating personal from business numbers. (*Supra* Section IX.A.1(i) (limitation [1.pre]); *see also* Ex. 1005, [0003]-[0008]; Ex. 1006, 43, 59.) Logan’s teaching would have allowed the subscriber in Backhaus to better manage incoming calls to each of the primary and SLS numbers by automatically processing these calls based on subscriber-specified preferences (e.g., location-based and/or time-based call processing/forwarding features). For instance, location-based call processing rules would have routed the call to the personal number only when the subscriber TD 110 is located at home, and to the business number only when the device is located in the office. (Ex. 1015, [0024] (“The MNC user can also behave largely as before, providing his or her contacts with home and office telephone numbers in the traditional manner, however receiving only ‘home’ calls while at home and only business-related calls while at the office”).) Time-based call processing rules would have routed calls to subscriber TD 110 when it is within the time period designated by the subscriber for the specific number(s). (*Id.*, [0024] (“The benefits to the user are multiple, and include having only one telephone, one consolidated voicemail message storage, and a lack of undesired calls reaching the user at an inopportune location or time-of-day”).) Indeed, Logan explains that features like those described above are “highly desirable” for mobile phone users. (*Id.*, [0040] (“when a person

utilizes their cell phone for multiple business calls, it is highly desirable for the user to not receive personal and other household phone calls and inquiries during the course of business”), [0043] (“This is highly desirable, for example, for a person who works from home, but still desires to have a distinct home phone number and business phone number, and only desires to receive business-related phone calls from, for example, 8 am to 5 pm, Monday through Friday.”).) Accordingly, a person of ordinary skill in the art would have been motivated and found it beneficial to implement Logan’s teaching, when implementing Backhaus’s telephony service system, which would have included acquiring voicemail/preset responses and/or associated configurations specified/selected by the subscriber (e.g., call forwarding preferences based on time/location) from the subscriber TD 110 for calls directed to each of the primary and SLS numbers, and storing the subscriber’s selection in a database accessible to SLS server 205 for responding to incoming calls directed to either of the primary or SLS numbers when subscriber TD 110 is not available.

83. A person of ordinary skill in the art would have had the skill in implementing, and expectation of success in achieving, the above-discussed Backhaus-Logan combination. For example, it was well known to implement voicemail/preset response and call forwarding capability on a network server

associated with a telecommunication device. (Ex. 1008, [0158]-[0159] (disclosing a web-based voicemail box), [0164] (describing a web-based call answering feature); Ex. 1015, claim 1 (“the user cellular telephone being interconnected by a network to the system server so as to send and receive telephone calls through the network”, where “a voicemail database operatively connected with the system server...stores messages...”), [0030] (describing custom voicemail greetings stored in a voicemail database that is associated with a server), [0025]-[0037] (describing with reference to FIG. 1 a server with an associated database that stores voicemail for responding to calls).) Moreover, Backhaus discloses that SLS platform 115 may also provide telephony services for the primary phone number, i.e., SLS platform 115 is not limited to providing the secondary line service. (Ex. 1005, [0031] (“Notably...the primary service provider and the SLS platform (i.e., the second line service provider) may be the same provider....”); *see also id.*, [0038] (“TDs 110 and 120 may be associated with a common service provider”), [0050] (“SLS provider and the primary service provider 201 may be one and the same provider”), [0071] (“SLS platform 115 determines that the communication is a data communication over network 125 that originated from an SLS client of a subscriber TD.”).) Thus, a person of ordinary skill in the art would have understood that calls directed to

subscriber's primary number may be processed by SLS platform 115, e.g., for providing voicemail/preset responses and call forwarding features as discussed above.

84. Moreover, the combination of Backhaus and Logan would have involved applications of known technologies (e.g., known use of a network server for executing call processing rules to forward calls) according to known methods (e.g., known techniques for obtaining user-specified call forwarding preferences from users' devices) to yield the predictable result of acquiring such information from a handset digital information indicating primary and secondary call processing rules for handling calls to each of those numbers, automatically storing such information that indicates the user's selection of call processing rules for the primary/secondary telephone number in the computer memory, and applying the user-specified call processing rules.

85. Accordingly, Backhaus in view of Logan discloses and/or suggests this limitation.

- iv) **[1.c] “automatically storing electronic information that indicates a selection of call processing rules for the secondary telephone number in the computer memory;”**

86. Backhaus in view of Logan discloses and/or suggests this limitation.

87. To begin, Backhaus discloses “call processing rules for the secondary telephone number.” For example, as discussed in limitation [1.b], Backhaus discloses that, when a subscriber does not answer a call to the SLS number, subscriber TD 110 “use[s] a voicemail service or message service in response to the unanswered call” and/or provides “automated responses.” (Ex. 1005, [0068]; *see also id.*, [0035]; Section IX.1(iii) (limitation [1.b]); Ex. 1001, 5:31-59 (acknowledging that a call processing rule may include “preset responses for incoming calls, such as custom stored voice message(s) and/or custom stored text message(s) to be associated with the primary and/or one or more secondary telephone numbers” or “stock rules used for all telephone numbers, such as an option to accept or not accept (i.e., drop) an incoming call.”).)

88. I have been asked to consider a scenario where the prior art does not disclose “automatically storing electronic information that indicates a selection of call processing rules for the secondary telephone number in the computer memory.” Under that scenario, a person of ordinary skill in the art would have been motivated to implement this feature in view of Logan for similar reasons discussed in limitation [1.b]. (Section IX.1(iii) (limitation [1.b]).) For example, Logan discloses acquiring from MNC 140 user-specified preferences regarding call forwarding/processing

configurations via an Internet-based application for handling calls directed to each of the base number (“primary telephone number”) and virtual number (“secondary telephone number”). (*Id.*) A person of ordinary skill in the art would have found it beneficial to implement server-based call processing rules features as it would have (1) provided user-specified voicemail/preset responses and call forwarding features when subscriber TD 110 is not able to provide these features to the unanswered call directed to the SLS number, e.g., when it is turned off or out of battery; (2) provided capabilities to specify call forwarding preferences for each of the multiple numbers associated with subscriber TD 110, including the SLS number (“secondary telephone number”). Accordingly, a person of ordinary skill in the art would have been motivated and found it beneficial to implement Logan’s teachings, when implementing Backhaus’s telephony service system, which would have included acquiring user-specified voicemail/preset responses and configurations for call forwarding features from the subscriber TD 110 and automatically storing the user-specified voicemail/preset responses and configurations in a database accessible to SLS server 205 for handling incoming calls directed to the SLS numbers when subscriber TD 110 is not available.

89. Thus, Backhaus in view of Logan discloses and/or suggests “automatically storing electronic information that indicates a selection of call processing rules for the secondary telephone number in the computer memory.”

- v) **[1.d] “receiving an electronic indication of an incoming call to the secondary telephone number at the server, said electronic indication of an incoming call being received from a switch associated with the server;”**

90. Backhaus discloses this limitation. Backhaus discloses “receiving an electronic indication of an incoming call to the secondary telephone number at the server.” For example, as discussed in limitation [1.pre], Backhaus discloses that a call from third party TD 120 to subscriber TD 110’s *SLS number* (“secondary telephone number”) is first routed by network 125 to SLS platform 115, and then routed to TD 110. (Section IX.A.1(i) (limitation [1.pre]); Ex. 1005, [0034]-[0035]; *see also id.*, [0032]). Backhaus discloses that SLS platform 115 includes “an SLS server 205 configured to receive calls directed to and from a second line number associated with subscriber TD 110.” (Ex. 1005, [0039].) A person of ordinary skill in the art would have understood that when SLS server 205 of SLS platform 115 receives an incoming call to the SLS number, it receives an electronic signal (“electronic indication”) of the incoming call directed to the SLS number because components in telecommunication networks “must indicate (that is, signal) certain

information to each other to coordinate themselves for providing services.” (Ex. 1011, 5-6.) Moreover, Backhaus discloses that SLS platform 115 is able to use the *called SLS number* (along with the calling third party’s number) to identify a relationship number, which further supports that SLS platform 115 receives an electronic indication of the incoming call to the SLS number (“an incoming call to the secondary telephone number”). (Ex. 1005, [0067] (“the SLS platform 115 queries the central SLS database 116 for the relationship number that maps to the combination of the third party CLID and *subscriber’s SLS number*.”); *see also id.*, [0034] (disclosing that network 125 “recognizes where the call needs to be routed *based on the called number* (the SLS number associated with the subscriber)”).) Accordingly, Backhaus discloses “receiving an electronic indication of an incoming call to the secondary telephone number at the server.”

91. Moreover, Backhaus discloses “said electronic indication of an incoming call being received from a switch associated with the server.” First, Backhaus discloses a “switch,” as claimed, e.g., a local switch in network 125. Backhaus explains that network 125 “envision[s] *any and all* networks for transmitting and terminating communications between telecommunications devices such as, but not limited to, cellular networks, PSTNs, cable networks and the

Internet.” (Ex. 1005, [0032], FIG. 1.) Network 125 may use, e.g., signaling system seven (SS7) for “effecting the transmission of data across communications network 125 from one device to another, including call setups, terminations and the like are understood by those of ordinary skill in the art of data transmission.” (*Id.*) A person of ordinary skill in the art would have understood that the disclosed PSTN has been known to operate using the SS7 protocol. (*Id.*, claim 10 (“the leg of the redirected call between the SLS platform and the third party TD is conducted over the public switched telephone network (‘PSTN’) via SS7 protocol.”); Ex. 1011, 5-6 (SS7 is “the most advanced and widely used signaling system for both cellular and fixed-line telecommunication networks”), 43 (SS7 is “a protocol suite that is employed globally, across telecommunications networks,” “provid[ing] the mechanisms to allow the telecommunication network elements to exchange control information,” and “the key enabler of the public switched telephone network (PSTN)...”), 103-105 (discussing the use of SS7 protocol in the PSTN since the 1990s).)

92. Network 125 necessarily includes the claimed “switch,” such as the signal switching points (SSPs, which are known as “switches” or “exchanges”) included in the disclosed PSTN. Indeed, as a person of ordinary skill in the art would have understood, a SSP is a necessary part of the PSTN, and “a voice switch” that

“processes voice-band traffic.” (Ex. 1011, 62-63, 81 (“At the core of the PSTN are digital switches”); *see also* Ex. 1007, [0004] (disclosing that “[t]elephone service is traditionally carried by the PSTN,” which “includes a network of interconnected local exchanges or switches 12;” “[v]oice or data is carried from a source node to a destination node on the network by establishing a circuit path along the PSTN effected by appropriately switching the interconnecting exchanges;” and “[e]xternal digital communication systems typically communicate with the PSTN by interfacing with an exchange such as 12.”).)

93. A person of ordinary skill in the art would have also understood that calls are established/routed through the PSTN by SSPs in network 125, including the use of a local SSP. A local SSP is a switch connecting to a telecommunication device or server so as to allow the device/server to access the PSTN. (Ex. 1011, 6-7 (describing that calls are established and routed by switches across the PSTN, including a calling party’s local switch and a destination’s local switch), 82 (disclosing that a local exchange/switch “provides network access for the subscriber”).) For example and consistent with a person of ordinary skill in the art’s knowledge, Ex. 1007 shows a local switch that communicates with a server 50. (Ex. 1007, [0004] (“External digital communication systems typically communicate with

the PSTN by interfacing with an exchange such as [local switch] 12”), FIG. 1A (showing a local switch 12 that is in communication with server 50).)

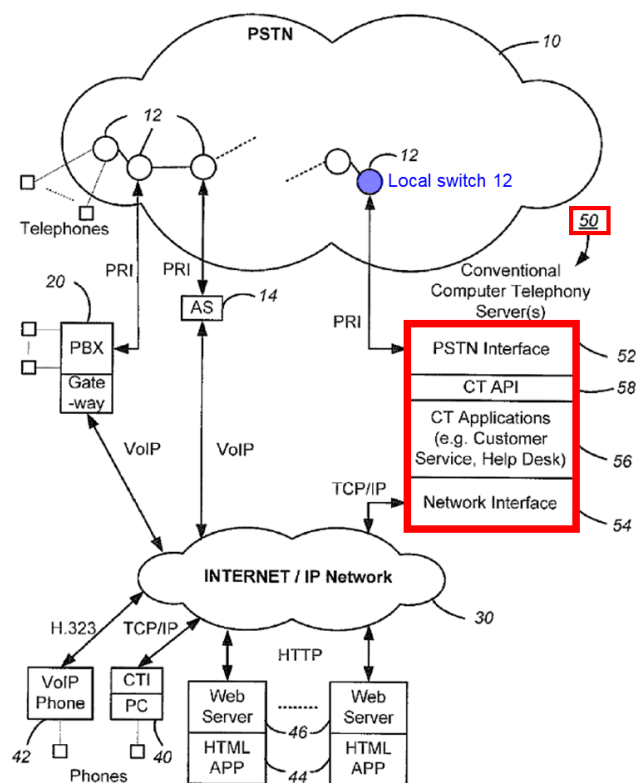


FIG. 1A (Prior Art)

(Ex. 1007, FIG. 1A (annotated).) Accordingly, Backhaus discloses a local switch in network 125 (the claimed “switch”).

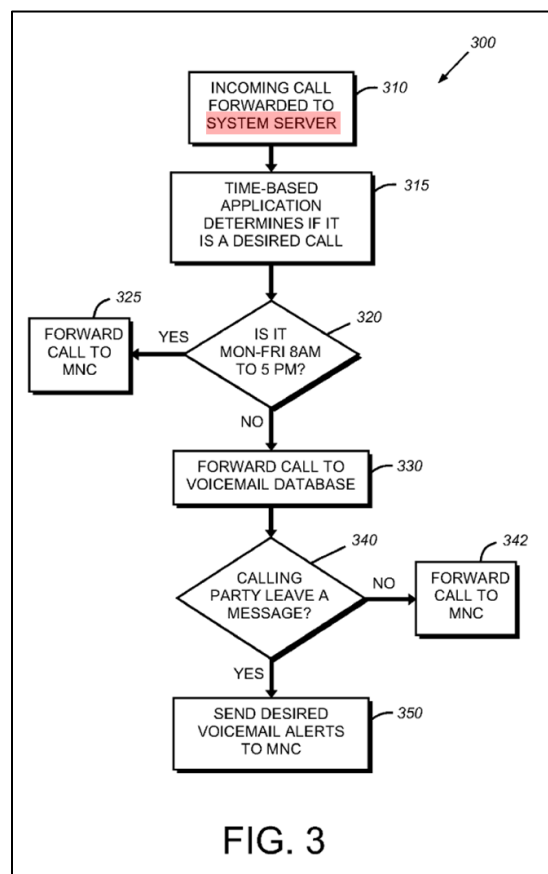
94. Given that the incoming call to the SLS number is routed *by network 125* to SLS platform 115, consistent with as discussed above regarding the local switch in network 125, the switch necessarily receives the incoming call directed to

the SLS number before routing the same to SLS platform 115 (including SLS server 205 therein). (*See supra.*) Thus, Backhaus discloses that the incoming call that SLS server 205/platform 115 receives is received from the local switch in network 125 (“said electronic indication of an incoming call being received from a switch”). Moreover, the local switch in network 125 (the claimed “switch”) is associated with SLS platform 115/server 205 (claimed “server”) because network 125 (including the local switch) is in communication with SLS server 205. (Ex. 1005, [0034]-[0035] (disclosing that a call from third party TD 120 to subscriber TD 110’s SLS number is first routed by network 125 to SLS platform 115), [0039] (disclosing that SLS server 205 is “configured to receive calls directed to and from a [SLS] number associated with subscriber TD 110.”), [0040].)

95. Accordingly, Backhaus discloses “receiving an electronic indication of an incoming call to the secondary telephone number at the server, said electronic indication of an incoming call being received from a switch associated with the server.”

- vi) **[1.e] “automatically accessing the call processing rules for the secondary telephone number under the control of the server responsive to the receipt of the electronic indication of the incoming call to the secondary telephone number;”**

96. Backhaus in view of Logan discloses and/or suggests this limitation. For example, Logan discloses with reference to Figure 3 (reproduced and annotated below) a process for executing a user's time-based call forwarding preference, "allow[ing] a person working from home to maintain distinct operations for home and business, using, for example, a single phone while maintaining separate phone numbers for personal, home-related matters and another for business matters," where the person "only desires to receive business-related phone calls from, for example, 8 am to 5 pm, Monday through Friday." (Ex. 1015, [0042]-[0043].)



(Ex. 1015, FIG. 3.) Specifically, Logan discloses that, in step 310, the system server receives an incoming call to a user's business number, which is different from a user's home number, where either of the business or the home number corresponds to the claimed "secondary telephone number." (*Id.*, [0043] (a user "hav[ing] a distinct home phone number and business phone number"), [0044] ("at step 310, the incoming call, directed to a user's business phone number is forwarded to the system server.")).) At steps 315 and 320, the server determines whether the call directed to the business number is a desired call based on the user's time-based preference. (*Id.*, [0044] ("The system server employs a time-based application at step 315 to determine if it is a desired call. This is performed by decision step 320, which determines if it is Monday through Friday, 8 am to 5 pm, to determine if this is a call which the user desires to receive.")).) At steps 325 and 330, if it is during the designated time period to receive a business call, the server forwards the call to the MNC; if not, then the call is forwarded to a voicemail database. (*Id.*)

97. Because the server receives the incoming call to a "secondary telephone number" and then determines how the call should be routed based on user's preference for that number, Logan discloses "automatically accessing the call processing rules for the secondary telephone number under the control of the server

responsive to the receipt of the electronic indication of the incoming call to the secondary telephone number.” (Ex. 1015, [0028] (“The system server 130 is responsible for determining which calls a user desires to receive. Accordingly, the server employs a forwarding application 132 to determine if it is a desired call. The forwarding application determines which virtual number was dialed by the calling party and then determines if the preferences set up by the called party indicate whether the call should be forwarded to the user.”).)

98. As discussed in limitations [1.b] and [1.c], it would have been beneficial to implement voicemail/preset response capabilities in a server that is associated with subscriber TD 110, i.e., SLS server/platform 115, which involves acquiring user-specified voicemail/preset responses and associated configurations for each of the primary number and the SLS number (“secondary telephone number”) from the subscriber TD 110 and automatically storing the same in a database accessible to SLS server 205/platform 115 (e.g., central SLS database 116) for responding to incoming calls directed to either of the primary or SLS numbers. (Sections IX.A.1(iii)-(iv) (limitations [1.b]-[1.c]).) For reasons similar to those discussed in limitations [1.b]-[1.c], a person of ordinary skill in the art would have been motivated and found it beneficial to implement Logan’s teaching (as discussed

above) in Backhaus's system such that it allows SLS server 205/platform 115 to automatically access the user-specified preference for the SLS number from central SLS database 116 ("automatically accessing call processing rules for the secondary telephone number under the control of the server") in response to a call directed to the SLS number ("responsive to the receipt of the electronic indication of the incoming call to the secondary telephone number"). Thus, Backhaus in view of Logan discloses and/or suggests this limitation.

vii) [1.f] "automatically handing [sic] the incoming call in accordance with the accessed call processing rules for the secondary telephone number;"

99. Backhaus in view of Logan discloses and/or suggests this limitation.⁶ As discussed in limitations [1.b]-[1.c], Logan discloses a server 130 that forwards calls to a user's MNC 140—"but only when that user is in the appropriate location, or meets other user-specified preferences"—otherwise, the calls may be forwarded to a voicemail database. (Sections IX.A.1(iii)-(iv) (limitations [1.b]-[1.c]); Ex.

⁶ Regarding the apparent error in the claim language of limitation [1.f], I have been asked to assume that it reads "automatically hand[l]ing the incoming call..." consistent with the '105 patent specification. (Ex. 1001, 2:5 ("automatically handling the incoming call...").)

1015, [0011], [0026]-[0030], [0039], [0043].) Logan explains that these call forwarding preferences may be specified and executed for each of the base number (“primary telephone number”) and virtual number (“secondary telephone number”). (Sections IX.A.1(iii)-(iv) (limitations [1.b]-[1.c]); Ex. 1015, [0011] (disclosing that a user “based upon his or her unique user preferences, can control the forwarding of calls from the caller *to a series of virtual numbers, as well as the users cellular telephone ‘base’ or owned number* (i.e. the number that is the user cellular telephone-specific number)” and that “[t]he forwarding of calls to the owned number and virtual numbers can be based on a variety of factors,” including e.g., “the location of the cellular telephone...or the time of day.”).) Indeed, as discussed in limitation [1.e], at steps 315 and 320, the server determines whether the call directed to the business number is a desired call *based on the user’s time-based preference*; and at steps 325 and 330, if it is during the designated time period to receive a business call, the server forwards the call to the MNC; if not, then the call is forwarded to a voicemail database. (Section IX.A.1(vi) (limitation [1.e]; Ex. 1015, [0044].) Given that Logan discloses that its server automatically handles the incoming call by forwarding the same to MNC 140 or to the voicemail according to user-specified preferences for each of the base number (“primary telephone

number”) and virtual number (“secondary telephone number”), Logan discloses “automatically handing [sic] the incoming call in accordance with the accessed call processing rules for the secondary telephone number.”

100. Also discussed in limitations [1.b]-[1.c], a person of ordinary skill in the art would have been motivated and found it beneficial to implement Logan’s teachings (discussed above, for example), when implementing Backhaus’s telephony service system. (Sections IX.A.1(iii)-(iv) (limitations [1.b]-[1.c]).) Such a person would have likewise been motivated and found it beneficial to implement Logan’s teaching in Backhaus’s system such that it allows SLS server 205 in SLS platform 115 to automatically handle the incoming call directed to the SLS number according to the user-specified preference for the SLS number accessed from central SLS database 116. (*See also* Sections IX.A.1(vi) (limitation [1.e] (discussions showing that a person of ordinary skill in the art would have been motivated and found it beneficial to implement Logan’s teaching in Backhaus’s system such that it allows SLS server 205 in SLS platform 115 to automatically access the user-specified preference for the SLS number from central SLS database 116 in response to a call directed to the SLS number).) Accordingly, Backhaus in view of Logan discloses and/or suggests “automatically handing [sic] the incoming call in

accordance with the accessed call processing rules for the secondary telephone number.”

viii) [1.g] “transmitting pre-call information via a data channel to the handset under the control of the server, said pre-call information including a bridge telephone number for connecting the handset to the incoming call at the switch; and”

101. Backhaus discloses and/or suggests this limitation. Backhaus discloses “transmitting pre-call information via a data channel to the handset under the control of the server, said pre-call information including a bridge telephone number.”

102. Backhaus discloses this limitation in **a first way**. For instance, Backhaus discloses that SLS module 105 of subscriber TD 110 “translate[s] any number calling the subscriber, or called by the subscriber, into the appropriate Relationship Number” and “uses a relationship number to access the SLS platform 115 over the telephone network 125.” (Ex. 1005, [0049]; *see also id.*, Abstract (“Calls directed from the subscriber TD to the third party use the relationship number to route the call to the SLS platform.”).) “[B]y leveraging the relationship numbers, an SLS service provider may insert itself into the middle of a call between a third party TD 120 and a subscriber TD 110.” (Ex. 1005, [0049]; *see also id.*, [0043] (“providing a second line service leverage intermediate phone numbers to ensure that calls meant for the user of subscriber TD 110 route to the SLS platform 115”),

[0057] (“the relationship...may also provide a mechanism by which the SLS platform may intercept calls originating from subscriber TD 110 via SLS number”).) Thus, the relationship number in Backhaus discloses the claimed “bridge telephone number.”

103. Moreover, Backhaus discloses that a relationship number (“bridge telephone number”) may be assigned when third party TD 120A calls subscriber’s SLS number *for the first time*. In particular, when SLS platform 115 accepts the call and determines that the subscriber’s SLS number “does not yet have a ‘relationship’ set up” for the third party TD 120’s number (Ex. 1005, [0052]), SLS platform 115 then “creates the following relationship in Subscriber Relationship ID Table 310:

When [subscriber’s SLS number] receives (or places) a call from/to [third party’s number], the interaction with the subscriber’s phone [that is associated with its primary number] will use [a] dialable [relationship number].”

(Ex. 1005, [0053]; *see also id.*, [0053] (explaining that “a given relationship number...may be used...for many different SLS subscribers.”), [0054] (“the relationship number...established in connection with subscriber #1 and the calling third party”).)

104. The relationship number (“bridge telephone number”) may then be stored in central SLS database 116 of SLS platform 115 as shown in Subscriber Relationship ID Table 310 of FIG. 3A (reproduced below and annotated). (Ex. 1005, [0042], [0053]-[0054], FIG. 3A.)

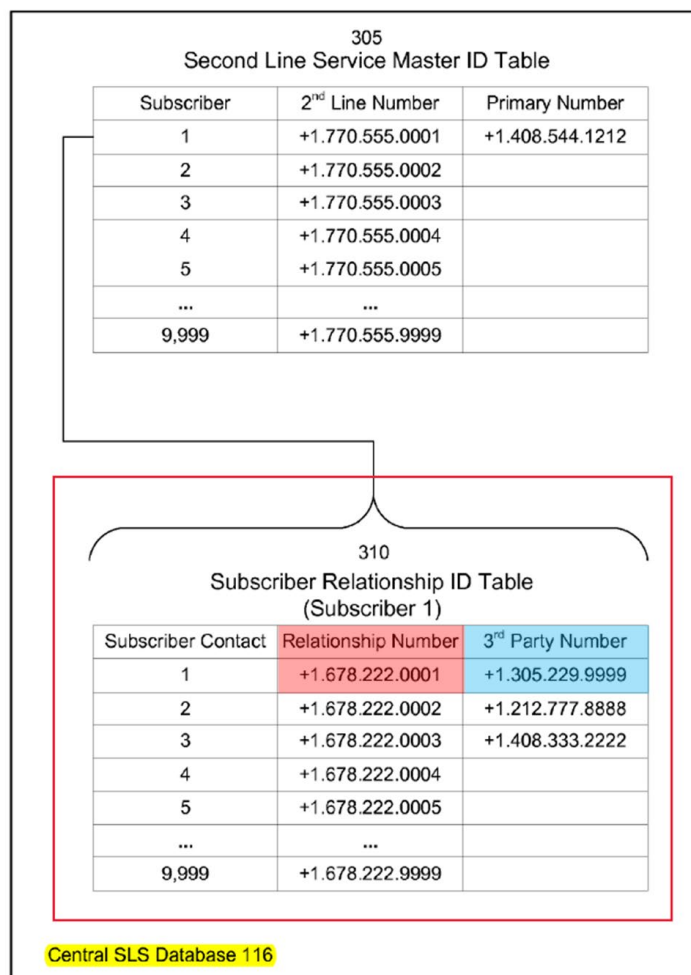


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).)

105. With “the relationship number...ha[ving] been established in connection with subscriber #1 and the calling third party, the SLS platform 115 may proceed to establish the second half of the call—the call from the SLS platform 115 to the subscriber’s TD 110” by “plac[ing] the call to the primary number...that points to subscriber TD 110....” (Ex. 1005, [0054].) Backhaus discloses that the “**calling party field of the call placed from SLS platform 115 to subscriber TD 110** may contain a **specially encoded message for the SLS phone app running on SLS module 105** [of subscriber TD 110],” where the calling party field may “**contain the relationship number established by the SLS platform 115...and the actual primary number of the calling third party.**” (*Id.*, [0055]; *see also id.*, [0010] (“the relationship number and third party calling number combination may be forwarded to the subscriber TD, thus enabling an application on the subscriber TD to save the combination in a local database of the subscriber TD.”), [0064].) A person of ordinary skill in the art would have understood that the encoded message described above corresponds to the claimed “pre-call information” because the encoded message is transmitted before the voice call is connected between the calling third party and the called subscriber. (Ex. 1005, [0055] (disclosing transmission of the encoded message), [0056] (disclosing that SLS platform 115 connects the call once

the subscriber answers the call).) Moreover, given that it is SLS platform 115 that places the call, which contains the disclosed “pre-call information,” Backhaus discloses that such information is transmitted “under the control of the server,” i.e., SLS platform 115 (or SLS server 205 therein). (Ex. 1005, [0039] (“SLS platform 115 may include an SLS server 205 configured to receive calls directed to and from a second line number associated with subscriber TD 110.”), [0040] (disclosing that “the processor 209 and the memory 211 [of SLS server 205] may serve as a means for executing one or more of the method steps described herein”), FIG. 2.)

106. A person of ordinary skill in the art would have understood that the encoded message (the claimed “pre-call information”), containing the relationship number and the third party number (from SLS platform 115 to subscriber TD 110), is transmitted to subscriber TD 110 via a “data channel” rather than a voice channel because Backhaus discloses that that a voice path is not connected until the call is answered by the callee. (Ex. 1005, [0052] (“the third party uses TD 120A to place a call to the subscriber #1 SLS number.... As described above, the call is routed to the SLS platform 115. The SLS platform 115 accepts the call (**without connecting the voice path** to the third party TD 120A) and determines that the call is for SLS number”), [0056] (disclosing that SLS platform 115 connects the call once the

subscriber answers the call).) Thus, Backhaus discloses “transmitting pre-call information via a data channel to the handset under the control of the server, said pre-call information including a bridge telephone number” in a first way.

107. I have been asked to consider a scenario where Backhaus does not disclose that the disclosed “pre-call information” is transmitted “via a data channel.” In that scenario, a person of ordinary skill in the art would have been motivated to implement this feature in Backhaus. Backhaus discloses that IP-based communications may be used for establishing the relationship between various numbers and associated databases (as described above). (Ex. 1005, [0073] (“Such channels can be used in setting up the relationship databases, sharing information between the SLS module 105 and the SLS platform 115, initiating voice communication establishment from the TD 110 to the SLS platform 115”).) Moreover, Backhaus explains that the IP-based communication “minimize[s] temporal delays in allocating and acquiring relationship numbers between an SLS module 105 and an SLS platform 115.” (*Id.*) Thus, a person of ordinary skill in the art would have found it beneficial to implement this feature. Furthermore, such a person would have had the skill in implementing, and expectation of success in achieving, the above implementation as Backhaus already use IP-based

communications for transmitting data between TD 110 and SLS platform 115. (Ex. 1005, claim 15, [0029], [0032], [0073].) An IP-based communication corresponds to the claimed “data channel” and consistent with the “data channel” described in the ’105 patent. (Ex. 1001, 4:6-12, 4:38-46.) Thus, Backhaus discloses and/or suggests using a “data channel” for transmitting the disclosed “pre-call information.”

108. Backhaus discloses transmitting pre-call information to subscriber TD 110 (“handset”) under the control of the server, where the pre-call information includes the relationship number (“bridge telephone number”) “via a data channel” **in a second way**. Backhaus discloses with reference to FIG. 4D processes for handling data communication between subscriber TD 110 and SLS platform 115 over network 125. (Ex. 1005, FIG. 4D, [0071]-[0074].) When, for example, the subscriber of TD 110 desires to call a third party but “no relationship number has been associated with the actual third party number,” the SLS module 105 on subscriber TD 110 provides a “request for the new relationship number, along with the third party number it desires to call, to the SLS platform 115 via the communication.” (*Id.*, [0071].) SLS platform 115 then returns the next available relationship number to subscriber TD 110. (*Id.*, [0074] (“the determined next available relationship number is returned to the SLS module 105 of the subscriber

TD 110.”)) A person of ordinary skill in the art would have understood that the transmitted information (which includes a relationship number) described above corresponds to the claimed “pre-call information” because such information is transmitted before a call is connected between a third party and the subscriber (e.g., before a call is connected when the third party calls the subscriber as described in the context of Figure 4B). (Ex. 1005, [0071] (disclosing that subscriber TD 110 requests for “the new relationship number, along with the third party number it desires to call”), [0074] (“Consequently, using the newly acquired relationship number may essentially start over the method 400 with the SLS platform receiving a communication.”); *see also id.*, [0067]-[0068] (describing with reference to Figure 4B processes for handling calls originated from a recognized third party to an SLS subscriber), [0071]-[0074].) Moreover, given that it is SLS platform 115 that determines the next available relationship number and/or provides the same to subscriber TD 110, Backhaus discloses that such pre-call information is transmitted “under the control of the server,” i.e., SLS platform 115 (or SLS server 205 therein). (Ex. 1005, [0039] (“SLS platform 115 may include an SLS server 205 configured to receive calls directed to and from a second line number associated with subscriber TD 110.”), [0040] (disclosing that “the processor 209 and the memory 211 [of SLS

server 205] may serve as a means for executing one or more of the method steps described herein”), FIG. 2, [0071]-[0074].)

109. Backhaus discloses that TD 110 may communicate with SLS platform 115 using various protocols/mechanisms, e.g., an unstructured supplementary services data (USSD) protocol (*id.*, [0072]), short message service (SMS) protocol, multimedia messaging service (MMS) protocol, IP-based interaction, cellular data, WiFi, Bluetooth, proprietary wireless or wired technologies (*id.*, [0073]). “Such channels can be used in setting up the relationship databases, sharing information between the SLS module 105 [of subscriber TD 110] and the SLS platform 115, initiating voice communication establishment from the TD 110 to the SLS platform 115, the TD 110 requesting the SLS platform 115 to place a call to a third party TD 120, etc.” (*Id.*) The above-described communication protocols/mechanisms/channels disclosed in Backhaus correspond to the claimed “data channel.” Indeed, these communication protocols/mechanisms/channels are consistent with the “data channel” described in the ’105 patent. (Ex. 1001, 4:6-12 (“A preferred data channel may be an Internet Protocol (IP) channel, which is not a conventional telephone voice channel. However, other data, non-conventional voice, channels over which information may be transmitted between a telephone handset

and a server may be used in alternative embodiments of the invention.”), 4:38-46 (“Such IP governed communications are referred to herein as being conducted over a ‘data channel’”).) Accordingly, Backhaus discloses “transmitting pre-call information via a data channel to the handset under the control of the server, said pre-call information including a bridge telephone number” in a second way.

110. Additionally, Backhaus discloses using the relationship number (claimed “bridge telephone number”) “for connecting the handset to the incoming call at the switch.” For example, Backhaus discloses that, when a known third party calls subscriber’s SLS number, SLS platform 115 “queries the central SLS database 116 for the relationship number that maps to the combination of the third party CLID and subscriber’s SLS number” and “the subscriber’s primary number.” (Ex. 1005, [0067].) SLS platform 115 then calls subscriber’s TD 110 using the relationship number for connecting the incoming call. (*Id.*)

At block 424, the **subscriber’s primary number, as also identified from the query of block 422, is called by the SLS platform 115.** At block 426, the call is received at the subscriber’s TD 110 and the SLS module 105 [of subscriber TD 110] recognizes that it originated from the SLS platform 115. It is envisioned that some embodiments of a SLS module 105 may recognize that an incoming **call**

is from the SLS platform 115 by virtue of the call originating from a relationship number. At block 426, the relationship number in the calling party field of the call signaling causes the SLS module 105 [of subscriber TD 110] to handle the call and display the associated third party CLID for the benefit of the subscriber (the third party CLID may be queried from the local SLS database 106 by use of the relationship number).

(Ex. 1005, [0067]; *see also id.*, [0052]-[0055] (disclosing that, after setting up the relationship with a first-time third party caller, SLS platform 115 sets up the second half of the call where the “calling party field” includes “the relationship number”).)

111. Next, “the subscriber is alerted to the incoming call” and “the call is connected to the subscriber TD 110 by the SLS platform 115 when the subscriber answers the call” although the subscriber may “elect[] not to answer” the call. (Ex. 1005, [0068].) Moreover, as discussed in limitation [1.d], given that the incoming call to the SLS number is routed by network 125 to SLS platform 115, the switch (i.e., the local switch in network 125) necessarily connects subscriber TD 110 to the incoming call from the third party caller. (*Supra* Section IX.A.1(v) (limitation [1.d]).) Accordingly, Backhaus discloses “transmitting pre-call information via a data channel to the handset under the control of the server, said pre-call information

including a bridge telephone number for connecting the handset to the incoming call at the switch.”

- ix) **[1.h] “receiving, at the server via the data channel, an electronic indication of a selection of a call processing rule for handling the incoming call to the secondary telephone number, or”**

112. Backhaus in view of Logan discloses and/or suggests this limitation.

113. **First**, limitation [1.h] could be understood as a process for the server to receive a user’s selection of a call processing rule, which is automatically stored in the computer memory, consistent with as recited in limitation [1.c] (“automatically storing electronic information that indicates a selection of call processing rules for the secondary telephone number in the computer memory”). Backhaus in view of Logan discloses and/or suggests limitation [1.h] in this first read. As explained in limitation [1.b], Logan discloses that “a user, via his [MNC] 140 can enter a set of preferences that are transmitted to the system server 130 via datastream 134” using an internet-based application to “*notify the system server* of which calls a user desires to receive” based on preferences such as the location of the user, time of the day, and/or the identity of the caller for each of the base number (“primary telephone number”) and the virtual number (“secondary telephone number”) associated with MNC 140. (Section IX.A.1(iii) (limitation [1.b]); Ex. 1015, [0029]; *see also id.*,

[0011], [0046], [0055], claim 2.) Given that Logan discloses that server 130 acquires from MNC 140 user preferences regarding call forwarding configurations via the Internet (“via the data channel”) for handling calls directed to the virtual number (“secondary telephone number”), Logan discloses “receiving, at the server via the data channel, an electronic indication of a selection of a call processing rule for handling the incoming call to the secondary telephone number.”

114. Backhaus likewise discloses the capability of “receiving” information provided by the handset “at the server via the data channel.” For example, as discussed in limitation [1.g.], Backhaus discloses that SLS platform 115 receives a request for a new relationship number from the subscriber TD 110 via network 125. (Section IX.A(viii) (limitation [1.g.]); Ex. 1005, [0071] (disclosing that “SLS platform 115 determines that the communication is a *data communication* over network 125 that originated from an SLS client of a subscriber TD” and that “[t]he SLS module 105 [of subscriber TD 110] has provided the request for the new relationship number, along with the third party number it desires to call, to the SLS platform 115 via the communication.”).) TD 110 may communicate with SLS platform 115 using various protocols/mechanisms, e.g., IP-based interaction, cellular data, WiFi, Bluetooth, proprietary wireless or wired technologies. (*Id.*,

[0071]-[0074]). The above-described communication protocols/mechanisms/channels disclosed in Backhaus correspond to “the data channel,” as claimed. Indeed, these communication protocols/mechanisms/channels are consistent with “the data channel” described in the ’105 patent. (Ex. 1001, 4:6-12 (“A preferred data channel may be an Internet Protocol (IP) channel, which is not a conventional telephone voice channel. However, other data, non-conventional voice, channels over which information may be transmitted between a telephone handset and a server may be used in alternative embodiments of the invention.”), 4:38-46 (“Such IP governed communications are referred to herein as being conducted over a ‘data channel’”).)

115. Moreover, as explained in limitations [1.b]-[1.c], it would have been beneficial to implement Logan’s teaching in Backhaus’s system, e.g., implementing voicemail/preset response capabilities in a server that is associated with subscriber TD 110 of Backhaus, i.e., SLS server 205 in SLS platform 115, which would have involved acquiring/receiving the voicemail/preset responses and associated configurations specified by the user/subscriber for calls directed to the primary number and the SLS number (“secondary telephone number”) from the subscriber TD 110 via IP-based interaction (“the data channel”). (Sections IX.A.1(iii)-(iv)

(limitations [1.b]-[1.c]).) Accordingly, the Backhaus-Logan combination discloses and/or suggests “receiving, at the server via the data channel, an electronic indication of a selection of a call processing rule for handling the incoming call to the secondary telephone number” in the first read described above.

116. **Second**, limitation [1.h] could be read as a process for the server to receive a user’s selection of a call processing rule for handling a *pending* incoming call, i.e., an incoming call that reaches the user’s handset awaiting the user to decide how to handle the call based on the user’s selection. Backhaus in view of Logan discloses and/or suggests limitation [1.h] in this second read.

117. For example, Logan discloses that its call processing rule features may apply to a group of users, where the group share a virtual number that may be a location-based number (e.g., forward calls to the group member(s) only when the member(s) is in the user-specified location) or a time-based number (e.g., forward calls to the group member(s) only during weekends). (Ex. 1015, [0061]; *see also id.*, [0062]-[0068] (disclosing that the incoming call may be forwarded to members of the group based on a specified order and whether the user is in a certain location, for example).)

The MNC principles can also be employed by a group of persons according to an illustrative embodiment, such as

that shown by the method steps of FIG. 4. For example, a household in which one or more members have a MNC device can create a ‘virtual family phone number’, akin to a traditional landline household telephone number that is shared by everyone in the household. Each member of the family is assigned the same family phone number as one of its virtual numbers. This can be a location-based number (i.e. within the house) or time-based (i.e. Saturdays and vacations, for example). With such a system, a family, business or other group can enjoy the benefits of a common family phone number without the need for a physical landline phone.

(Ex. 1015, [0062].)

118. Logan also discloses a member of the group may handoff incoming calls without answering the phone. (Ex. 1015, [0069] (“In addition to declining a call, users can also hand off incoming calls without even answering the phone.”).) For instance, “if the system forwards to a salesperson’s handset and such salesperson realizes that the call should go to the manager, for instance, and such manager’s handset is not being rung, *the salesperson can activate a command on the handset that communicates to the server* that the manager’s phone should now also be rung.”

(*Id.*) If the call is not forwarded and/or declined, the caller is sent to the voicemail.

(*Id.*, [0068].)

119. Given that a member user may select to forward or decline a pending incoming call directed to a virtual number (“a selection of a call processing rule for handling the incoming call to the secondary telephone number”) and that such selection is received by the server, Logan discloses “receiving, at the server..., an electronic indication of a selection of a call processing rule for handling the incoming call to the secondary telephone number.” Moreover, as discussed above, Logan’s MNC communicates with the server via an internet-based application (“via the data channel”). Accordingly, Backhaus in view of Logan discloses “receiving, at the server via the data channel, an electronic indication of a selection of a call processing rule for handling the incoming call to the secondary telephone number” based on this second read.

- x) **[1.i] “establishing a voice channel connection between the handset and the switch as a result of the handset calling the switch using the bridge telephone number.”**

120. Claim 1 only requires one of limitation [1.h] or limitation [1.i]. As discussed above, the Backhaus-Logan combination discloses and/or suggests

limitations [1.pre]-[1.h]. Accordingly, the Backhaus-Logan combination discloses and/or suggests claim 1.

B. Backhaus in view of Winbladh Discloses and/or Suggests the Limitations of Claims 2-4 and 6-11

1. Claim 2

- i) [2.pre] “A method for providing telephone service to a telephone handset having a primary telephone number assigned to the telephone handset, wherein at least a secondary telephone number is associated with the primary telephone number assigned to the telephone handset, the method comprising:”**

121. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 2 is limiting. Under such an assumption, Backhaus discloses the limitations therein. As discussed in limitations [1.pre] and [1.a], Backhaus discloses providing telephone services to subscriber TD 110 (“telephone handset”). (Sections IX.A.1(i)-(ii) (limitations [1.pre], [1.a]).) Also discussed in limitations [1.pre] and [1.a], Backhaus discloses that subscriber TD 110 has a primary phone number assigned to it by a primary service provider. (Sections IX.A.1(i)-(ii) (limitations [1.pre], [1.a]; Ex. 1005, [0031] (“TD 110 is also associated with a primary phone number *assigned* to it by a primary service provider”).) Thus, Backhaus discloses “[a] method for providing telephone service to a telephone handset having a primary telephone number assigned to the telephone handset.”

122. Additionally, Backhaus discloses “wherein at least a secondary telephone number is associated with the primary telephone number assigned to the telephone handset.” For example, Backhaus discloses that an SLS number (“secondary telephone number”) is associated with the primary number of subscriber TD 110 (“primary telephone number assigned to the telephone handset”). Consistent with as shown in Second Line Service Master ID Table 305 of Figure 3A (reproduced below and annotated), Backhaus discloses that the primary number “assigned to the subscriber TD 110...is associated with [the subscriber] and his SLS number.” (Ex. 1005, [0044], FIG. 3A; *see also id.*, [0044] (“The SLS service provider...has a group of SLS numbers...and are provided to subscribers of the SLS service.”), [0050] (“The relationship between the subscriber’s primary number and the SLS number is reflected in Second Line Service Master ID Table 305 of FIG. 3A.”), [0060] (“SLS platform 115...may recognize that...subscriber’s primary number...(which is associated with the subscriber’s SLS number”).)

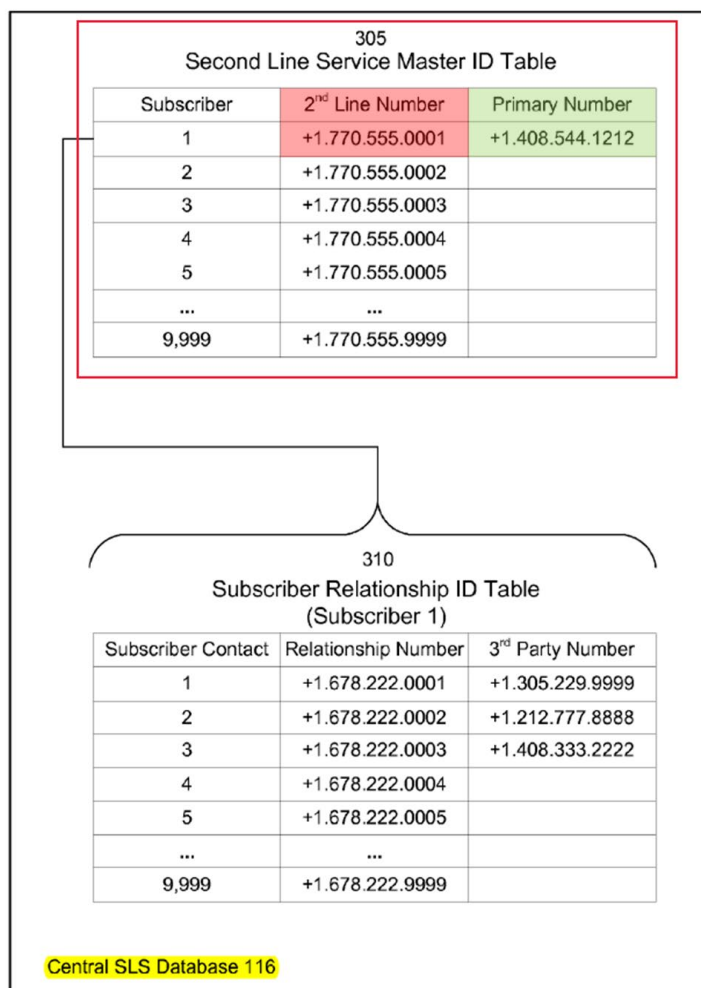


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) In particular, as indicated in Table 305 (top portion of Figure 3A), Subscriber #1, *e.g.*, the user of TD 110 (“handset”), is issued with SLS number 1.770.555.0001 (highlighted in red). (Ex. 1005, [0044].) The SLS number is also associated with the primary number, 1.408.544.1212 (highlighted in green), which is assigned to TD 110. (*Id.*)

123. Accordingly, Backhaus discloses “[a] method for providing telephone service to a telephone handset having a primary telephone number assigned to the telephone handset, wherein at least a secondary telephone number is associated with the primary telephone number assigned to the telephone handset.”

- ii) **[2.a] “A) in response to an incoming call to the secondary telephone number received by a switch, retrieving, by a server from a database, a first bridge telephone number to be used for completion of the incoming call to the secondary telephone number, wherein the first bridge telephone number is associated with the switch such that calls to the first bridge telephone number are automatically routed to the switch; and”**

124. Backhaus discloses this limitation.

125. **First**, Backhaus discloses “an incoming call to the secondary telephone number received by a switch.” For example, as discussed in limitation [1.d], Backhaus discloses a local switch in network 125 (the claimed “switch”) necessarily receives an incoming call directed to the SLS number (“incoming call to the secondary telephone number”) before routing the same to SLS server 205 of SLS platform 115 (because the incoming call to the SLS number is routed by network 125 to SLS platform 115). (Section IX.A.1(v) (limitation [1.d]).)

126. **Second**, Backhaus discloses “in response to” an incoming call to the secondary telephone number received by a switch, “retrieving, by a server from a

database, a first bridge telephone number.” As discussed in limitation [1.d], the local switch of network 125 receives incoming calls from a third party directed to the SLS number before routing the same to SLS server 205 of SLS platform 115. (Section IX.A.1(v) (limitation [1.d]).) Moreover, as discussed in limitation [1.g], in response to the incoming call to the SLS number, if the incoming call to the SLS number is the first time that the third party calls the SLS number (e.g., an unknown/unrecognized third party caller), the SLS platform 115 assigns the next available relationship number (“first bridge telephone number”) and creates a relationship in Subscriber Relationship ID Table 310 indicating the association of the third party number and the SLS number with the relationship number and the primary number. (Section IX.A.1(viii) (limitation [1.g]); Ex. 1005, [0053]-[0054], [0055] (“the relationship number is a new number assigned by the SLS platform 115”), [0064] (“At block 410, the SLS platform 115 may associate a new relationship number with the calling third party number and the subscriber’s primary number and SLS number.”), [0066] (“the SLS platform 115 may assign a next relationship number.”).)

127. Backhaus explains that a new relationship number is determined by querying central SLS database 116. (Ex. 1005, [0071] (“The central SLS database

116 is queried at block 446 to determine the next available relationship number for the subscriber's given SLS number.”.) Because SLS platform 115 queries central SLS database 116 to determine the next available relationship number in response to an incoming call (e.g., from an unknown/unrecognized third party caller) to the SLS number received by the local switch in network 125, Backhaus discloses “in response to an incoming call to the secondary telephone number received by a switch, retrieving, by a server from a database, a first bridge telephone number.”

128. Backhaus discloses this limitation in a different scenario, i.e., when a *known/recognized* third party calls the SLS number (as opposed to the scenario where an unknown/unrecognized third party calls the SLS number discussed above). For example, as discussed in limitation [1.g], when a known third party calls the SLS number (where the call is received by the local switch and forwarded to SLS platform 115, like as discussed above), SLS platform 115 “queries the central SLS database 116 for the relationship number that maps to the combination of the third party CLID and subscriber’s SLS number” and “the subscriber's primary number.” (Ex. 1005, [0067]; Section IX.A.1(viii) (limitation [1.g]).) Accordingly, Backhaus discloses “in response to an incoming call to the secondary telephone number

received by a switch, retrieving, by a server from a database, a first bridge telephone number” in this second way.

129. **Third**, Backhaus discloses that the relationship number (“first bridge telephone number”) is “to be used for completion of the incoming call to the secondary telephone number.” For example, as discussed above and in limitation [1.g], when third party TD 120A calls subscriber’s SLS number for the first time, SLS platform 115 processes the call and assigns a relationship number. (Ex. 1005, [0052]-[0054]; Section IX.A.1(viii) (limitation [1.g]).) The SLS platform 115 then proceeds “to establish the second half of the call—the call from the SLS platform 115 to the subscriber’s TD 110” by “plac[ing] the call to the primary number...that points to subscriber TD 110...” (Ex. 1005, [0054]), where the calling party field of the second half of the call may “contain the relationship number...and the actual primary number of the calling third party.” (*Id.*, [0055]; *see also id.*, [0010].) SLS module 105 of subscriber TD 110 then “stores the combination of the relationship number...and third party actual number... in the local SLS database 106.” (*Id.*, [0056].) “Once the subscriber #1 answers, the SLS platform 115 connects the two legs of the call (leg 1 represented by third party TD 120A to SLS platform 115 and leg 2 represented by SLS platform 115 to subscriber TD 110).” (*Id.*, [0056]; *see also*

id., [0064]-[0066] (disclosing a similar process in the context of Figure 4A).) Thus, given that SLS platform 115 uses the relationship number (“first bridge telephone number”) in the process of completing an incoming call to the SLS number of subscriber TD 110 (“secondary telephone number”), e.g., including in the calling party field of the call placed from SLS platform 115 to subscriber TD 110 the relationship number and storing the relationship number in local SLS database 106 of subscriber TD 110, Backhaus discloses “a first bridge telephone number to be used for completion of the incoming call to the secondary telephone number.”

130. Backhaus likewise discloses this limitation in a scenario where a *known/recognized* third party calls the SLS number of subscriber TD 110. For example, as discussed in limitation [1.g], when a known third party calls subscriber’s SLS number, SLS platform 115 “queries the central SLS database 116 for the relationship number that maps to the combination of the third party CLID and subscriber’s SLS number” and “the subscriber’s primary number.” (Ex. 1005, [0067].) SLS platform 115 then calls subscriber’s TD 110 using the relationship number, where “SLS module 105 [of subscriber’s TD 110] may recognize that...call originating...from a relationship number” and “the relationship number in the calling party field of the call signaling causes the SLS module 105 [of subscriber TD

110] to handle the call.” (*Id.*) Thus, Backhaus discloses “a first bridge telephone number to be used for completion of the incoming call to the secondary telephone number” either when a known or an unknown third party calls the SLS number (“secondary telephone number”).

131. **Lastly**, Backhaus discloses that “wherein the first bridge telephone number is associated with the switch such that calls to the first bridge telephone number are automatically routed to the switch.” Backhaus discloses that subscriber TD 110 “uses a relationship number to access the SLS platform 115 *over the telephone network 125.*” (Ex. 1005, [0049] (“The application run by the SLS module 105 on subscriber TD 110 uses a relationship number to access the SLS platform 115 over the telephone network 125.”); *see also id.*, [0032] (“any call[s] directed to either of the primary phone number or the SLS phone number are transmitted from a third party TD 120 to the subscriber TD 110 by way of communications network 125.”), [0059] (disclosing that “[b]y calling the relationship number..., the network 125 routes the call to the SLS platform 115 instead of directly to third party TD 120A phone.”), [0060]-[0061].) Consistent with as discussed in limitation [1.d], a person of ordinary skill in the art would have understood that a local switch (the claimed “switch”) in network 125 necessarily and automatically receives calls directed to a

relationship number (“first bridge telephone number”) before routing the same to SLS platform 115. (Section IX.A.1(v) (limitation [1.d]).) Accordingly, Backhaus discloses that “wherein the first bridge telephone number is associated with the switch such that calls to the first bridge telephone number are automatically routed to the switch.”

132. For the reasons discussed above, Backhaus discloses “A) in response to an incoming call to the secondary telephone number received by a switch, retrieving, by a server from a database, a first bridge telephone number to be used for completion of the incoming call to the secondary telephone number, wherein the first bridge telephone number is associated with the switch such that calls to the first bridge telephone number are automatically routed to the switch.”

iii) [2.b] **“B) transmitting, from the server to the telephone handset via at least one data channel, pre-call information including the first bridge telephone number, whereby the pre-call information allows the telephone handset to accept the incoming call to the secondary telephone number by making a first bridge call using the first bridge telephone number to connect the incoming call to the telephone handset via the switch.”**

133. Backhaus in view of Winbladh discloses and/or suggests this limitation.

134. **First**, Backhaus discloses and/or suggests “transmitting, from the server to the telephone handset via at least one data channel, pre-call information

including the first bridge telephone number.” As discussed in limitation [1.g], when third party TD 120A calls subscriber’s SLS number *for the first time*, SLS platform 115 assigns a relationship number and establishes the second half of the call, where SLS platform 115 (or SLS server 205 therein, the claimed “server”) transmits to subscriber TD 110 (“telephone handset”) via a data channel an encoded message (as a part of calling party field of the call) that includes the assigned relationship number and the third party number (“pre-call information”). (Section IX.A.1(viii) (limitation [1.g]); Ex. 1005, [0054]-[0055]; *see also id.*, [0010], [0039] (“SLS platform 115 may include an SLS server 205 configured to receive calls directed to and from a second line number associated with subscriber TD 110.”), [0040] (disclosing that “the processor 209 and the memory 211 [of SLS server 205] may serve as a means for executing one or more of the method steps described herein”), FIG. 2.) Thus, Backhaus discloses “transmitting, from the server to the telephone handset via at least one data channel, pre-call information including the first bridge telephone number.”

135. Backhaus discloses the above-quoted limitation in a second way. As discussed in limitation [1.g], Backhaus discloses with reference to FIG. 4D processes for handling data communication between subscriber TD 110 and SLS platform 115

over network 125. (Section IX.A.1(viii) (limitation [1.g]); *see also* Ex. 1005, FIG. 4D, [0071]-[0074].) When the subscriber of TD 110 desires to call a third party but “no relationship number has been associated with the actual third party number,” the SLS module 105 on subscriber TD 110 provides a “request for the new relationship number, along with the third party number it desires to call, to the SLS platform 115 via the communication.” (Ex. 1005, [0071].) SLS platform 115 (or SLS server 205 therein, the claimed “server”) then returns the “next available relationship number” to subscriber TD 110. (*Id.*, [0074] (“the determined next available relationship number is returned to the SLS module 105 of the subscriber TD 110.”); *see also id.*, [0039] (“SLS platform 115 may include an SLS server 205 configured to receive calls directed to and from a second line number associated with subscriber TD 110.”), [0040] (disclosing that “the processor 209 and the memory 211 [of SLS server 205] may serve as a means for executing one or more of the method steps described herein”), FIG. 2, [0071]-[0074].) Moreover, as explained in limitation [1.g], the disclosed “pre-call information” is transmitted via at least one data channel. (Section IX.A.1(viii) (limitation [1.g]); *see also* Ex. 1005, [0072]-[0073] (disclosing that TD 110 may communicate with SLS platform 115 using various protocols/mechanisms, e.g., an unstructured supplementary services data (USSD)

protocol, short message service (SMS) protocol, multimedia messaging service (MMS) protocol, IP-based interaction, cellular data, WiFi, Bluetooth, proprietary wireless or wired technologies). Thus, Backhaus discloses “transmitting, from the server to the telephone handset via at least one data channel, pre-call information including the first bridge telephone number” in a second way.

136. **Second**, Backhaus in view of Winbladh discloses and/or suggests “whereby the pre-call information allows the telephone handset to accept the incoming call to the secondary telephone number by making a first bridge call using the first bridge telephone number to connect the incoming call to the telephone handset via the switch.”

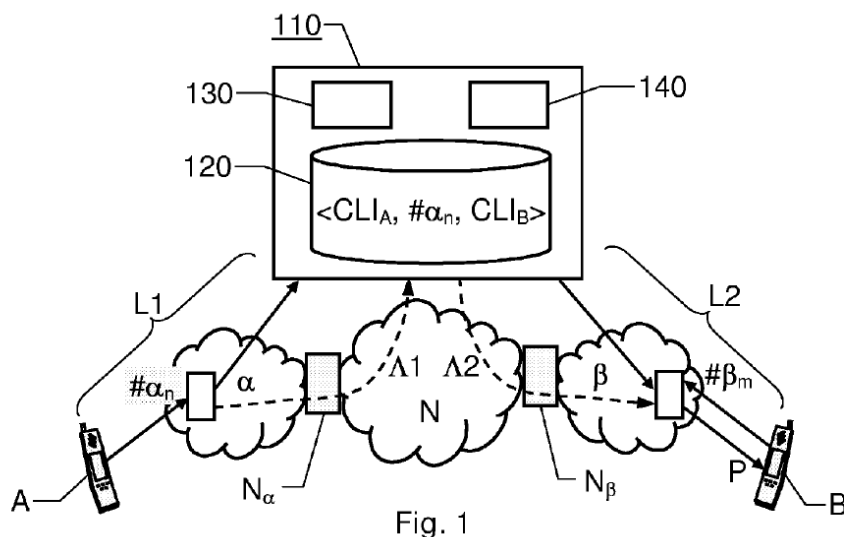
137. As discussed in limitation [1.g], Backhaus discloses that, when third party TD 120A calls subscriber’s SLS number for the first time, SLS platform 115 processes the call and assigns a relationship number. (Ex. 1005, [0052]-[0054]; Section IX.A.1(viii) (limitation [1.g]).) The SLS platform 115 then proceeds “to establish the second half of the call—the call from the SLS platform 115 to the subscriber’s TD 110” by “plac[ing] the call to the primary number...that points to subscriber TD 110...” (Ex. 1005, [0054]), where the calling party field of the call placed from SLS platform 115 to subscriber TD 110 may “contain the relationship

number...and the actual primary number of the calling third party.” (*Id.*, [0055]; *see also id.*, [0010].) “SLS module 105 [of subscriber TD 110] stores the combination of the relationship number...and third party actual number... in the local SLS database 106.” (*Id.*, [0056]; *see also id.*, [0064]-[0066] (disclosing a similar process in the context of Figure 4A).)

138. I have been asked to consider a scenario where the prior art does not disclose “the pre-call information allows the telephone handset to accept the incoming call to the secondary telephone number *by making a first bridge call* using the first bridge telephone number to connect the incoming call to the telephone handset via the switch.” Under that scenario, a person of ordinary skill in the art would have been motivated to implement this feature in view of Winbladh.

139. Like Backhaus, Winbladh discloses a system for establishing a telephone connection between two terminals, A and B. (Ex. 1020, [0028] (“The system is adapted to establish a telephone connection between a first terminal A and a second terminal B.”); *see also id.*, [0031]-[0032] (disclosing that the system is connected to telephone networks α and β , which are interconnected via an interconnecting network N with interface nodes N_α and N_β).) In particular, as shown in Figure 1 (reproduced below), Winbladh discloses a system that is “adapted to

establish a telephone connection between a first terminal A and a second terminal B,” where terminals A and/or B maybe a fixed or a wireless phone operating on networks α and β , respectively, that is “adapted to carry circuit switched telephone traffic.” (*Id.*, [0028], [0035]; *see also id.*, FIG. 1.) “The system includes a host resource 110, which is adapted to, e.g., route a call from the first terminal A to the second terminal B” based on a combination of caller identity and “a first common telephone number $\#a_n$ ” that is dialed by first terminal A. (*Id.*, [0029]; *see also id.*, [0037]-[0051] (disclosing processes for establishing user information and allocating the common telephone numbers for each of terminals A and B).) “[H]ost resource 110 is adapted to set up a bi-directional primary connection between the first terminal A and the second terminal B” via the first and second legs L1 and L2. (*Id.*, [0031]-[0032].) Furthermore, “host resource 110 is associated with a database 120, which stores one entry $\langle CLIA, \#a_n, CLIB \rangle$ for each unique combination of: the first network identity CLIA of each of the first terminals A; the second network identity CLIB of each of the second terminals B; and a respective first common telephone number $\#a_n$ to be dialed by each first terminal A to reach each of the second terminals B.” (*Id.*, [0030], [0036].)



(Ex. 1020, FIG. 1.) Thus, Winbladh is similar to Backhaus, which discloses routing calls between two telephone terminals by establishing two legs of connections via a server associated with a database. Therefore, a person of ordinary skill in the art would have been motivated to consider the teachings of Winbladh when implementing Backhaus's system/method.

140. Winbladh additionally discloses that, after having set up the connection between the terminals A and B, the host resource 110 is adapted to receive a termination request from the second terminal B, and, in response to such a request, disconnects the second leg L2. (Ex. 1020, [0033]; *see also id.*, [0052]-[0054] (disclosing processes “for setting up telephone connection between a first terminal A and a second terminal B via the host resource 110”).) During a threshold period

after having disconnected the second leg L2, the host resource 110 is adapted to maintain the first leg L1, i.e. the first terminal A is placed on-hold. (*Id.*) “If a **return call to a predefined telephone number is received from the second terminal B** before expiry of the threshold period, the host resource 110 establishes a bi-directional secondary connection between the first terminal and the second terminal.” (*Id.*; *see also id.*, [0034] (“The predefined telephone number, which is associated with first leg L1, may either be a fixed number for all the second terminal's B service requests to the system, or the number may be assigned on a call-by-call basis.”).)

141. This feature is further discussed in the context of Figure 4. Winbladh explains that, once “a two-legged L1, L2 bi-directional primary connection has been set up between the first terminal A and the second terminal B,” “the terminal B may disconnect the second leg L2, reconnect to the host resource 110 at a local-call rate, and reestablish the connection with the terminal A.” (Ex. 1020, [0056]-[0057]; *see also id.*, [0059]-[0062] (disclosing processes for connecting calls between terminals A and B).)

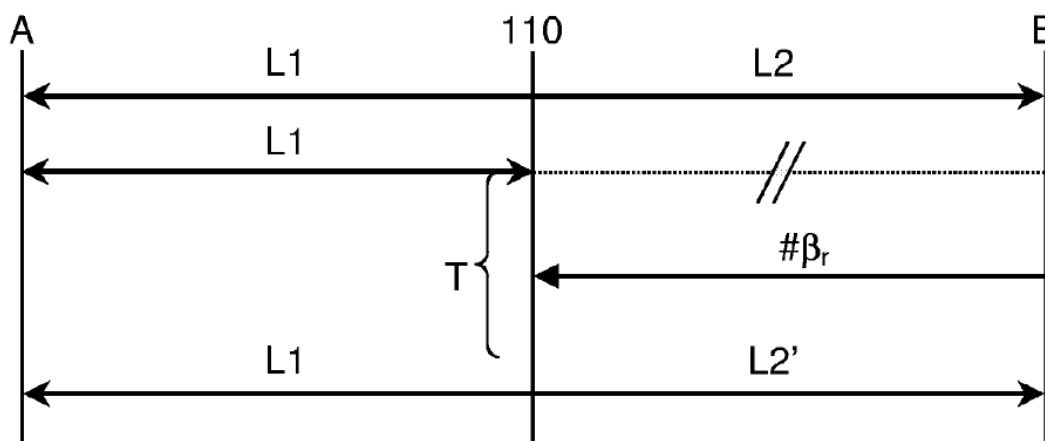


Fig. 4

(Ex. 1020, FIG. 4.) “If a return call to a predefined telephone number $\# \beta_r$ is received from the second terminal B before expiry of the threshold period T,” the host resource 110 establishes a new second leg L2’ and associate this leg with the first leg L1, “such that a bi-directional secondary connection L1, L2’ is established between the first terminal A and the second terminal B.” (*Id.*, [0058].)

142. Accordingly, because Winbladh discloses accepting an incoming call by making a bridge call (from terminal B to host resource 110) using a predefined telephone number $\# \beta_r$ to connect the incoming call to terminal B, Winbladh discloses “accept[ing] the incoming call...by making a first bridge call using the first bridge telephone number to connect the incoming call to the telephone handset.”

143. A person of ordinary skill in the art would have been motivated to implement the call-back feature (e.g., accepting an incoming call by making a bridge call using a predefined telephone number to connect the incoming call to a handset) similar to as discussed in Winbladh when implementing Backhaus's telephony service system. For instance, consistent with Winbladh's disclosure, such a person would have understood that there would be common situations where the incoming call directed to subscriber TD 110 would be a long distance or an international call, which may be relatively expensive. (Ex. 1020, [0002] ("expensive long distance rates"), [0055] ("For long distance calls, this rate may be relatively expensive.").) Winbladh discloses that the call-back feature allows the second leg to "reconnect to the host resource 110 at a local-call rate." (*Id.*, [0056]; *see also id.*, [0018] ("calls may be set up in both directions between the first and second terminals at local call rate, irrespective of the geographical distance separating these devices").) Thus, consistent with as discussed in Winbladh, a person of ordinary skill in the art would have found it beneficial to implement such a call-back feature in Backhaus's system as it would have reduced the cost of making long distance or international calls. (Ex. 1020, [0001] ("The present invention relates generally to cost efficient communication solutions."), [0012] (disclosing that the feature is "highly desirable

because thereby both subscribers can be connected at a very low cost (typically a local telephone rate)”), [0018].)

144. A person of ordinary skill in the art would have had the skill in implementing, and expectation of success in achieving, the above-discussed Backhaus-Winbladh combination. For example, it was well known to accept an incoming call by making an outbound call to a bridge number. (Ex. 1021, [0016] (“If the user chooses to accept the incoming telephone call, wireless device 14...initiates an outbound call to a bridge number.”).) Moreover, like Backhaus that discloses SLS platform 115 providing “pre-call information” that includes the relationship number (“first bridge number”), Winbladh discloses host resource 110 notifying the called second terminal B the second common telephone number that allows terminal B to connect to host resource 110 at a local rate. (Ex. 1020, [0051] (“the host resource 110 is adapted to notify the second terminal B the second common telephone number β_m via a return message $S[A, \beta_m]$, for example in the form of an SMS, specifying the number β_m to be used for calling the first terminal A” and “[g]iven the respective local numbers, i.e. the first and second common telephone numbers α_n and β_m , calls may be set up at local rates in both directions between the first and second terminals A and B respectively.”).) Thus, a person of

ordinary skill in the art would have the skill in implementing, and expectation of success in achieving, the above-discussed Backhaus-Winbladh combination given the well-known call-back process and similarity of the Backhaus and Winbladh's systems.

145. Moreover, the combination of Backhaus and Winbladh would have involved applications of known technologies (e.g., known use of a network server for connecting two legs of a call) according to known methods (e.g., known techniques for connecting to an incoming call by calling the server provided telephone number) to yield the predictable result of the pre-call information allows the telephone handset to accept the incoming call to the secondary telephone number by making a first bridge call using the first bridge telephone number to connect the incoming call to the telephone handset via the switch, which would have reduced the cost of making long distance or international calls. As such, in the modified Backhaus system, a person of ordinary skill in the art would have understood that the disclosed "pre-call information" containing the relationship number ("first bridge telephone number") would allow subscriber TD 110 ("telephone handset") to accept the incoming call to its SLS number of by making a first bridge call to SLS platform 115 using the relationship number to connect the incoming call to

subscriber TD 110, similar to as described in Winbladh, so as to reconnect with the first leg of the call (between the caller and SLS platform 115) via the local switch in network 125 (“switch”).

146. Accordingly, Backhaus in view of Winbladh discloses and/or suggests this limitation.

2. Claim 3⁷

i) [3.a] “The method of claim 2, wherein: the incoming call is from a calling telephone number; and”

147. Backhaus discloses this limitation. As discussed in limitation [2.a], the incoming call is from a third party having a third party number. (Section IX.B.1(ii) (limitation [2.a]); *see also* Ex. 1005, [0064] (“the SLS platform 115 may associate a new relationship number with the *calling third party number* and the subscriber’s primary number and SLS number.”).) Thus, Backhaus discloses this limitation.

⁷ According to the Certificate of Correction for the ’105 patent (Ex. 1004, 181), dependent claims 3-6 were corrected to depend from independent claim 2.

- ii) **[3.b] “the first bridge telephone number stored in the database and to be used for completion of the incoming call is associated with the switch and the calling telephone number, such that calls to the first bridge telephone number from the calling telephone number are automatically routed to the switch.”**

148. Backhaus discloses this limitation. As discussed in limitation [2.a], Backhaus discloses that the relationship number (“first bridge telephone number”) is stored in, e.g., central SLS database 116 (“database”) to be used for completion of the incoming call, and is also associated with the local switch in network 125 (“switch”). (Section IX.B.1(ii) (limitation [2.a]).) Thus, Backhaus discloses “the first bridge telephone number stored in the database and to be used for completion of the incoming call is associated with the switch.”

149. Backhaus further discloses that the relationship number (“first bridge telephone”) is associated with the third party number (“the calling telephone number”), “such that calls to the first bridge telephone number from the calling telephone number are automatically routed to the switch.” To begin, Backhaus discloses that the third party’s handset TD 120 “like TD 110, is equipped with SLS capability.” (Ex. 1005, [0037] (“Notably, although the third party TD 120 is not illustrated to suggest that it, like TD 110, is equipped with SLS capability, it is envisioned that in some embodiments both the subscriber TD 110 and the third party

TD 120 may be SLS enabled.”), [0051] (“although the primary phone number...associated with third party TD 120 is described herein as a primary phone number, it will be understood that it may, in fact, be a second line number in embodiments where the third party is also an SLS subscriber. In such event, the steps taken by the SLS platform 115 in the context of receiving a call to or from the 3rd party number may not change.”)) Moreover, “both the subscriber TD 110 and the third party TD 120 may be SLS enabled” and “either or both of TD 110 and TD 120 may be associated with a primary service provider and a separate SLS provider.” (*Id.*, [0037], [0038] (“TDs 110 and 120 may be associated with a common service provider” and “either or both of TD 110 and TD 120 may be associated with a primary service provider and a separate SLS provider.”).) Thus, Backhaus discloses that the third party TD 120 has the same capability as subscriber TD 110. As such, consistent with as discussed in limitation [1.g], SLS platform 115 may assign a relationship number and associate the same with third party TD 120’s number (“the calling telephone number”). (Section IX.A.1(viii) (limitation [1.g]); *see also, e.g.*, Ex. 1005, [0052]-[0054] (disclosing that SLS platform 115 establishes a relationship amongst the assigned relationship number, the SLS-enabled handset’s numbers, and the calling party’s number), [0071]-[0074] (disclosing that a SLS-enabled handset

requests for a relationship number).) Thus, Backhaus discloses that “the first bridge telephone number...is associated with...the calling telephone number.”

150. Additionally, as discussed in limitation [2.a], Backhaus discloses that calls to the relationship number (“first bridge telephone number”) are “automatically routed to the switch” because a local switch in network 125 necessarily and automatically receives calls directed to a relationship number (“first bridge telephone number”) before routing the same to SLS platform 115. (Section IX.B.1(ii) (limitation [2.a]); *see also* Section IX.A.1(v) (limitation [1.d]); Ex. 1005, [0032], [0049] (“The application run by the SLS module 105 on subscriber TD 110 uses a relationship number to access the SLS platform 115 over the telephone network 125.”), [0059] (disclosing that “[b]y calling the relationship number..., the network 125 routes the call to the SLS platform 115 instead of directly to third party TD 120A phone.”), [0060]-[0061].) Given that the third party TD 120 has the same capability as subscriber TD 110 (e.g., SLS enabled), calls from third party TD 120 to the relationship number (“first bridge telephone number”) are likewise routed through the local switch in network 125 before routing the same to SLS platform 115. Thus, Backhaus discloses that “the first bridge telephone...is associated with the switch and the calling telephone number, such that calls to the first bridge

telephone number from the calling telephone number are automatically routed to the switch.”

151. Furthermore, Backhaus discloses that “a given relationship number...may be used...for many different SLS subscribers.” (Ex. 1005, [0053]; *see also id.*, [0047] (“certain relationship numbers may be used for a plurality of subscriber number and third party number combinations.”)) Thus, consistent with Backhaus’s disclosure that a given relationship number (“first bridge telephone number”) may be used by different SLS subscribers (e.g., subscriber TD 110 and SLS-enabled third party TD 120), a person of ordinary skill in the art would have understood that the relationship number stored in central SLS database 116, as discussed in limitation [2.a], may be used by subscriber TD 110 and SLS-enabled third party TD 120. Accordingly, Backhaus discloses “the first bridge telephone number stored in the database and to be used for completion of the incoming call is associated with the switch and the calling telephone number, such that calls to the first bridge telephone number from the calling telephone number are automatically routed to the switch.”

3. Claim 4

- i) **[4.a] “The method of claim 2, wherein the pre-call information transmitted in B) from the server to the telephone handset via the at least one data channel includes display information to cause a display on the telephone handset of at least one of: a calling telephone number of the incoming call; a calling party name; a calling party location; and the secondary telephone number.”**

152. Backhaus discloses this limitation. As discussed in limitation [2.b], the calling party field of the incoming call signal (“pre-call information”), including the assigned relationship number and the calling third party number (“a calling telephone number of the incoming call”), is provided to subscriber TD 110. (Section IX.B.1(iii) (limitation [2.b]); *see also* Ex. 1005, [0054]-[0055], [0064]-[0066].) Moreover, Backhaus discloses that “the calling party field may be populated...with a combination of the newly assigned relationship number and the third party CLID” and that “third party CLID is displayed to the subscriber,” which “include[s] rendering the CLID itself, rendering a picture of the third party, rendering a name.” (Ex. 1005, [0064]-[0065].) Thus, Backhaus discloses “[t]he method of claim 2, wherein the pre-call information transmitted in B) from the server to the telephone handset via the at least one data channel includes display information to cause a display on the telephone handset of at least one of: *a calling telephone number of*

the incoming call; a calling party name; a calling party location; and the secondary telephone number.”

4. Claim 6

- i) **[6.a] “The method of claim 2, further comprising: C) receiving, by the switch, the first bridge call by the telephone handset to the first bridge telephone number and;”**

153. The Backhaus-Winbladh combination discloses and/or suggests this limitation. As discussed in limitation [2.a], Backhaus discloses that the relationship number (“first bridge telephone number”) is associated with the local switch in network 125 (“switch”) such that calls to the relationship number are automatically routed to the switch. (Section IX.B.1(ii) (limitation [2.a]).) Given that the disclosed “first bridge call” is a call to the disclosed “first bridge telephone number,” the call is received by the disclosed “switch.” Thus, the Backhaus-Winbladh combination discloses and/or suggests this limitation.

- ii) **[6.b] “D) in response to C), bridging, by the switch, the first bridge call to the first bridge telephone number with the incoming call to the secondary telephone number so as to connect the incoming call to the telephone handset.”**

154. The Backhaus-Winbladh combination discloses and/or suggests this limitation. As discussed in limitation [2.b], the Backhaus-Winbladh combination

discloses and/or suggests that, after making the disclosed “first bridge call,” the modified Backhaus system would connect the two legs of the call, i.e., connecting the leg between the caller and SLS platform 115 (first leg) with the leg between SLS platform 115 and the callee (second leg) in order to accept the incoming call directed to the SLS number of subscriber TD 110. (Section IX.B.1(iii) (limitation [2.b]).) Furthermore, given that Backhaus discloses that subscriber TD 110 “uses a relationship number to access the SLS platform 115 *over the telephone network 125*,” a person of ordinary skill in the art would have understood that the local switch of network 125 (the claimed “switch”) necessarily bridges/connects the disclosed “first bridge call” (from subscriber TD 110 to SLS platform) with the incoming call to the SLS number (from the third party to SLS platform). (Ex. 1005, [0049]; *see also id.*, [0032], [0059]-[0061]; Section IX.B.1(iii) (limitation [2.b]).) Accordingly, the Backhaus-Winbladh combination discloses and/or suggests this limitation.

5. Claim 7

- i) **[7.a] “The method of claim 6, wherein: in D), the switch connects the incoming call to the telephone handset via a voice channel; and”**

155. The Backhaus-Winbladh combination discloses and/or suggests this limitation. As discussed in limitation [1.d], network 125 “envision *any and all* networks for transmitting and terminating communications between

telecommunications devices such as...cellular networks, PSTNs, cable networks and the Internet” and may use signaling system seven (SS7) protocol for, e.g., call setups/terminations. (Ex. 1005, [0032], FIG. 1.) Furthermore, a person of ordinary skill in the art would have understood that the disclosed PSTN has been known to operate using the SS7 protocol and necessarily includes a SSP or a local switch that is a “voice switch,” which “processes voice-band traffic.” (Ex. 1011, 62-63, 81; *see also* Ex. 1007, [0004] (disclosing that “[t]elephone service is traditionally carried by the PSTN,” which “includes a network of interconnected local exchanges or switches 12,” “[v]oice or data is carried from a source node to a destination node on the network by establishing a circuit path along the PSTN effected by appropriately switching the interconnecting exchanges;” and “[e]xternal digital communication systems typically communicate with the PSTN by interfacing with an exchange such as 12.”); Section IX.A.1(v) (limitation [1.d]).)

156. Additionally, the ’105 patent indicates that communications over the PSTN are an exemplary voice channel. (Ex. 1001, 4:35-46 (“The communications between the server 100 and the handset 340 over the Internet 316 may utilize IP as a protocol opposed to protocols used to establish communications according to CDMA, GSM, or like standards. Such IP governed communications are referred to

herein as being conducted over a ‘data channel.’ Conversely, communications between the switch 110 and the handset over the PSTN 310 may be transmitted and received in accordance with CDMA, GSM or like standards as opposed to using IP. Such CDMA, GSM or like governed communications, when used to carry voice information, are referred to herein as being conducted over a ‘voice channel.’”), 5:58-59 (“call may be routed over the PSTN 310 to the switch 110”), 6:65-67 (“The return call from the handset 340 to the bridge telephone number may be routed over the PSTN 310 to the switch 110 using a voice channel connection.”).) Moreover, as a person of ordinary skill in the art would have understood the disclosed switch is responsible for connecting a voice channel to create a conversation path between the calling and the called parties. (Ex. 1011, 99 (“The switch is responsible for many tasks, but one of its primary functions is connecting voice channels to create a bi-directional conversation path between two phone subscribers.... Once a circuit is set up between the two subscribers, the connection remains for the duration of the call.”).) As such, because calls are routed through network 125, where the disclosed switch establishes a voice channel through the disclosed PSTN, to facilitate voice communication in the connected call, Backhaus discloses “the switch connects the incoming call to the telephone handset via a voice channel.”

- ii) **[7.b] “a voice channel protocol for communications between the switch and the telephone handset over the voice channel includes at least one of a CDMA standard, a GSM standard, a 3G standard, a 4G standard and an LTE standard.”**

157. Backhaus discloses this limitation. For example, Backhaus discloses that the telecommunication devices disclosed therein are wireless devices that may operate under “third generation (“3G”) and fourth generation (“4G”) wireless technology” standards. (Ex. 1005, [0029].) Thus, given that the connected voice call is established between the calling and the called wireless devices and via the local switch in network 125, a person of ordinary skill in the art would have understood that a voice channel protocol for communication between the switch and subscriber TD 110 over the voice call includes a voice channel protocol under the 3G or 4G standard.

6. Claim 8

- i) **[8.a] “The method of claim 6, wherein: the incoming call to the secondary telephone number is from a first contact telephone number;”**

158. Backhaus discloses this limitation. For example, Backhaus discloses that a third party may call subscriber’s SLS number (“the incoming call to the secondary telephone number”). (Ex. 1005, [0062]-[0063].) When processing the incoming call, “SLS platform 115 may associate a new relationship number with the

calling third party number and the subscriber's primary number and SLS number,” and update “the central SLS database 116...to include the newly created record—*the calling third party is listed as a contact* of the subscriber [“a first contact telephone number”] in the Subscriber Relationship ID Table 310.” (*Id.*, [0064].) Thus, Backhaus discloses “the incoming call to the secondary telephone number is from a first contact telephone number.”

ii) [8.b] “the first bridge telephone number to be used for completion of the incoming call is associated with the switch and the first contact telephone number; and”

159. Backhaus discloses this limitation. As discussed in limitation [2.a], Backhaus discloses that the relationship number (“first bridge telephone number”) is stored in, e.g., central SLS database 116 to be used for completion of the incoming call, and is also associated with the local switch in network 125 (“switch”). (Section IX.B.1(ii) (limitation [2.a]); *see also* Section IX.B.2(ii) (limitation [3.b]).) Furthermore, as discussed in limitation [8.a], “SLS platform 115 may associate a new relationship number [“first bridge telephone number”] with the calling third party number [“first contact telephone number”]” and such an association is recorded in SLS database 116 of SLS platform 115, as shown in Table 310 of Figure 3A (reproduced below and annotated). (Ex. 1005, [0064]; Section IX.B.6(i) (limitation [8.a]); *see also* Section IX.B.2(ii) (limitation [3.b]) (discussions that

Backhaus discloses that the relationship number is associated with the third party number).)

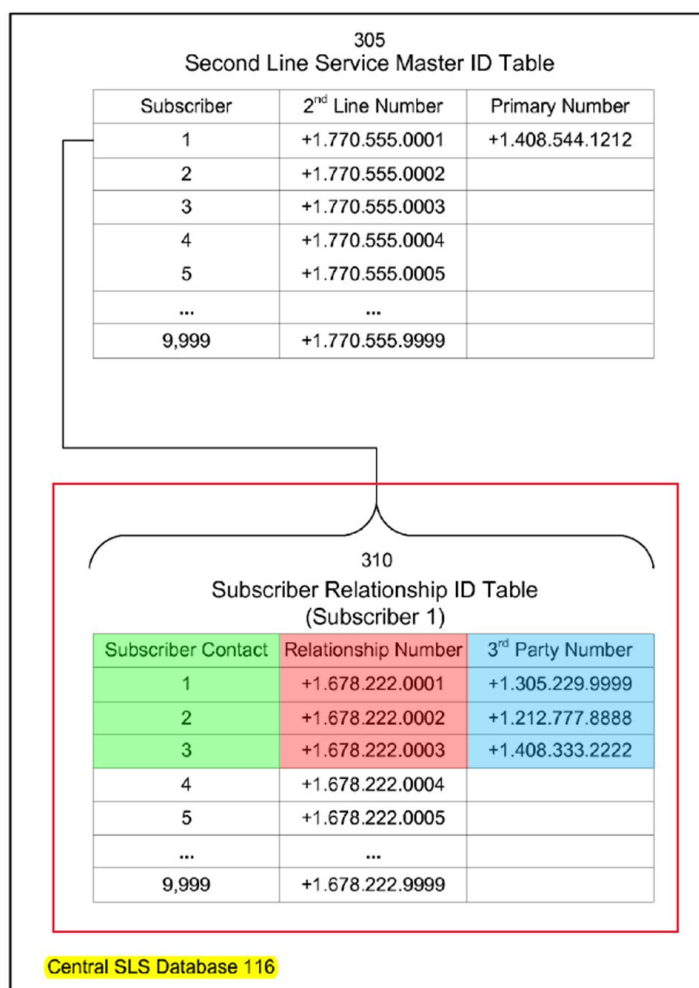


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).)

160. Thus, Backhaus discloses this limitation.

- iii) **[8.c] “the method further comprises: E) receiving, by the server from the telephone handset via the at least one data channel, an outgoing call request to a first contact telephone number to be called by the telephone handset using the secondary telephone number;”⁸**

161. Backhaus discloses this limitation. As discussed in limitation [1.g], Backhaus discloses subscriber TD 110 (“telephone handset”) that provides a “request for the new relationship number, along with the third party number it desires to call,” i.e., the claimed “a [second] contact telephone number,” to the SLS platform 115 (“server”). (Ex. 1005, [0071]; (Section IX.A.1(viii) (limitation [1.g])).) A person of ordinary skill in the art would have understood that such a request is “an outgoing call request to a [second] contact telephone number to be called by the telephone handset *using the secondary telephone number*” because Backhaus discloses that a relationship number is used by a subscriber who intends to call a third party number using the subscriber’s SLS number. (Ex. 1005, [0059])

⁸ The recitation, “an outgoing call request to *a first contact telephone number*,” appears to be a clear error that should instead refer to “an outgoing call request to *a second contact telephone number*,” consistent with limitation [8.d]. I have been asked to interpret limitation [8.c] accordingly.

(disclosing that “[t]o place calls from his SLS number,...Subscriber #1 dials the third party number” and “[t]he SLS module 105 [of subscriber TD 110]...translates the called third party number...to relationship number.”), [0071] (“The central SLS database 116 is queried...to determine the next available relationship number for the subscriber's given SLS number.”); *see also id.*, [0049].)

162. Furthermore, as discussed in limitation [1.g], Backhaus discloses such a request for the relationship number may be made using an “IP-based interaction” (an example of the claimed “data channel”). (Ex. 1005, [0072]-[0073]; Section IX.A.1(viii) (limitation [1.g]).) Accordingly, Backhaus discloses this limitation.

- iv) **[8.d] “F) retrieving, by the server from the database, a second bridge telephone number to be used for completion of an outgoing call from the secondary telephone number to the second contact number, wherein the second bridge telephone number is associated with the switch such that calls to the second bridge telephone number are automatically routed to the switch;”**

163. Backhaus discloses this limitation. To begin, Backhaus discloses that subscriber TD 110 may be associated with multiple relationship numbers and multiple third party numbers, where the associations are stored in central SLS database 116. (Ex. 1005, [0045] (“Referring to the Subscriber Relationship ID Table

310, it can be seen that the SLS service provider has another list of dialable phone numbers, i.e. relationship numbers, which are maintained.”), FIG. 3A.)

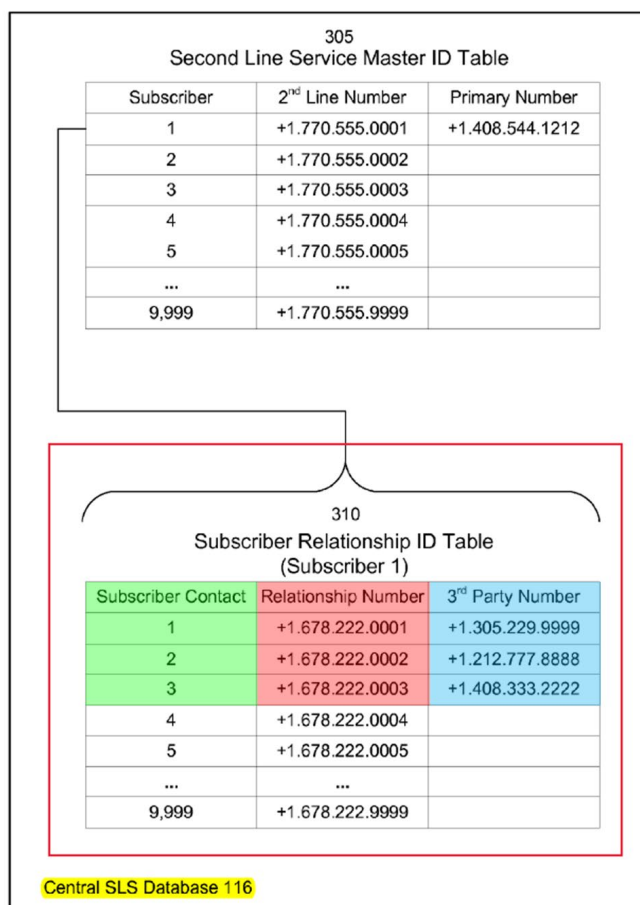


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) Thus, in addition to the disclosed “first bridge telephone number” (as discussed in claim 2 above) and the disclosed “first contact telephone number” (as discussed in limitation [8.a]), Backhaus discloses a “second bridge telephone number” and a “second contact telephone number.”

164. Additionally, Backhaus discloses, when the subscriber intends to call a third party with which no relationship number has been associated with the actual third party number (e.g., “second contact telephone number”), that SLS platform 115 (“server”) queries central SLS database 116 (“database”) to determine the next available relationship number (e.g., “second bridge telephone number”) for the subscriber’s given SLS number (“secondary telephone number”) from which the outgoing call is made. (Ex. 1005, [0071]; *see also id.*, [0070] (“The calling party field of the call is populated with the subscriber’s SLS number”).) Thus, Backhaus discloses “retrieving, by the server from the database, a second bridge telephone number to be used for completion of an outgoing call from the secondary telephone number to the second contact number.”

165. Furthermore, the relationship numbers are used to access the SLS platform 115 over the telephone network 125, which includes the local switch. (Ex. 1005, [0049], [0059]-[0061].) Thus, similar to as discussed in limitation [2.a] (reciting, *inter alia*, “wherein the first bridge telephone number is associated with the switch such that calls to the first bridge telephone number are automatically routed to the switch”), Backhaus likewise discloses “wherein the second bridge telephone number is associated with the switch such that calls to the second bridge

telephone number are automatically routed to the switch.” (Section IX.B.1(ii) (limitation [2.a]).)

- v) **[8.e] “G) transmitting, by the server to the telephone handset via the at least one data channel, outgoing pre-call information including the second bridge telephone number, whereby the outgoing pre-call information causes the telephone handset to automatically make a second bridge call to the second bridge telephone number; and”**

166. Backhaus discloses this limitation. For example, Backhaus discloses SLS platform 115 (or SLS server 205 therein, the claimed “server”) provides the next available relationship number (“outgoing pre-call information including the second bridge telephone number”) to subscriber TD 110—following subscriber TD 110’s request of a relationship number as discussed in limitation [8.d]. (Ex. 1005, [0074]; *see also id.*, [0039], [0040], FIG. 2, [0071]-[0074]; Section IX.B.6(iv) (limitation [8.d]).) Furthermore, consistent with as discussed in limitation [2.b], the disclosed “outgoing pre-call information” is transmitted “via the at least one data channel.” (Section IX.B.1(iii) (limitation [2.b]); Ex. 1005, [0072]-[0072] (TD 110 communicating the pre-call information with SLS platform 115 via “IP-based interaction”).) Thus, Backhaus discloses “transmitting, by the server to the telephone handset via the at least one data channel, outgoing pre-call information including the second bridge telephone number.”

167. Backhaus also discloses “whereby the outgoing pre-call information causes the telephone handset to automatically make a second bridge call to the second bridge telephone number.” Backhaus explains that, while the subscriber dials the third party number, SLS module 105 of subscriber’s TD 110 translates the called third party number to the relationship number and calls the relationship number to connect to SLS platform 115 (“a second bridge call to the second bridge telephone number”)—even though TD 110 may display that it is calling the third party number. (Ex. 1005, [0059].) Accordingly, Backhaus discloses limitation [8.e].

vi) **[8.f] “(H) bridging, by the switch, the second bridge call to the second bridge telephone number with the outgoing call from the secondary telephone number to the first contact telephone number so as to connect the outgoing call to the telephone handset.”⁹**

168. Backhaus discloses this limitation. For example, Backhaus discloses that, by calling the relationship number (“the second bridge call to the second bridge

⁹ Similar to as discussed above for limitation [8.c], the recitation, “the outgoing call from the secondary telephone number to the *first* contact telephone number,” appears to be a clear error that should instead refer to “the outgoing call from the secondary telephone number to the *second* contact telephone number,” consistent with limitation [8.d]. I have been asked to interpret limitation [8.f] accordingly.

telephone number”), the network 125 routes the call to the SLS platform 115 (first leg of the call). (Ex. 1005, [0059].) SLS platform 115 then “cause[s] the calling number to be reflected as the SLS number” and calls the third party number (“the outgoing call from the secondary telephone number to the [second] contact telephone number”) (second leg of the call). (*Id.*, [0060]; *see also id.*, [0069]-[0070] (disclosing a similar process in the context of FIG. 4C).) Once the third party handset answers the call, the two legs of the call are connected. (*Id.*, [0060], [0070]; *see also id.*, [0056].) Because the two legs of the call are both routed through network 125 and thus the local switch therein to connect with SLS platform 115, the disclosed “switch” necessarily connects the two legs of call when connecting the outgoing call to subscriber TD 110. (Ex. 1005, [0049] (“The application run by the SLS module 105 on subscriber TD 110 uses a relationship number to access the SLS platform 115 over the telephone network 125.”), [0051] (“a called party can receive calls over the telephone network 125 from a telecommunications device on any service provider's network”), FIG. 1.) Accordingly, Backhaus discloses this limitation.

7. Claim 9

- i) [9.a] “The method of claim 8, wherein: the switch connects the outgoing call to the telephone handset via a voice channel; and”**

169. Backhaus discloses this limitation for the same reasons as discussed in limitation [7.a] because the outgoing call described here is likewise connected through network 125 that includes the PSTN, which the '105 patent indicates as an exemplary voice channel. (Section IX.B.5(i) (limitation [7.a]).)

- ii) [9.b] “a voice channel protocol for communications between the switch and the telephone handset over the voice channel includes at least one of a CDMA standard, a GSM standard, a 3G standard, a 4G standard and an LTE standard.”**

170. Backhaus discloses this limitation for the same reasons as discussed in limitation [7.b]. (Section IX.B.5(ii) (limitation [7.b]).)

8. Claim 10

- i) [10.a] **“The method of claim 8, further comprising: I) assigning, by the server, the second bridge telephone number associated with the switch and the first contact telephone number such that the combination of the primary telephone number and the second bridge telephone number is uniquely associated with the secondary telephone number and the first contact telephone number; and”¹⁰**

171. Backhaus discloses this limitation. As discussed in limitation [8.d], the disclosed “second bridge telephone number” is associated with the disclosed “switch.” (Section IX.B.6(iv) (limitation [8.d]).) Moreover, consistent with as shown in Figure 3A (reproduced below), each relationship number (“second bridge telephone number”) is associated with a corresponding third party number (“second contact telephone number”).

¹⁰ Similar to as discussed above for limitations [8.c] and [8.f], the recitation, “*first* contact telephone number” in limitation [10.a] and below in [10.b] appears to be a clear error that should instead refer to “*second* contact telephone number,” consistent with limitation [8.d]. I have been asked to interpret this limitation accordingly.

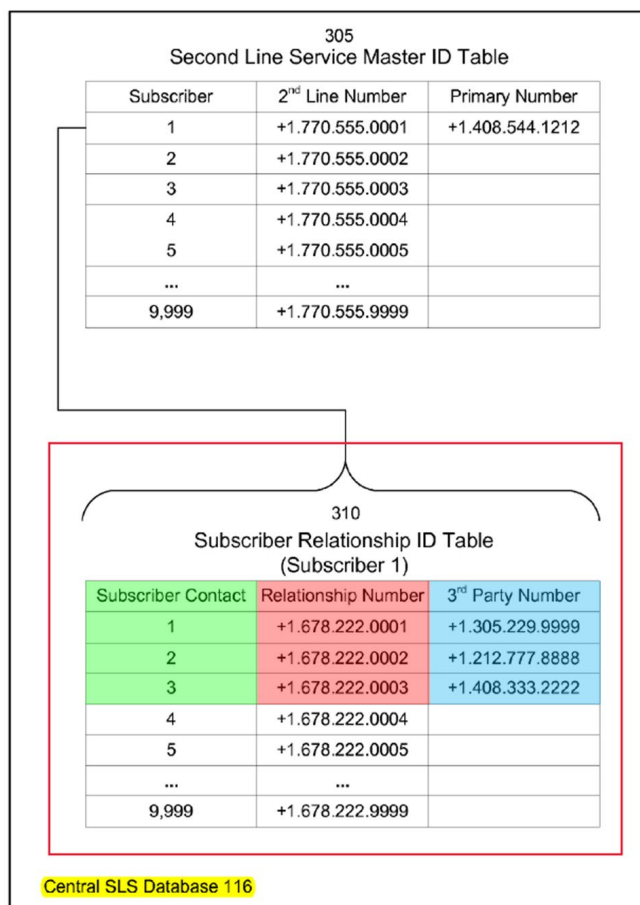


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) Thus, Backhaus discloses “the second bridge telephone number” is “associated with the switch and the [second] contact telephone number.”

172. Furthermore, Backhaus discloses “assigning, by the server, the second bridge telephone number...such that the combination of the primary telephone number and the second bridge telephone number is uniquely associated with the secondary telephone number and the [second] contact telephone number.” For

example, Backhaus discloses that the relationship number (“second bridge telephone number”) is determined/assigned by SLS platform 115 (“server”). (Ex. 1005, [0071] (disclosing that SLS platform 115 queries central SLS database 116 to determine the next available relationship number (e.g., “second bridge telephone number”) for the subscriber’s given SLS number (“secondary telephone number”).)

173. Furthermore, Backhaus discloses that SLS platform 115 creates in central SLS database 116 a relationship (as shown in Subscriber Relationship ID Table 310) that associates the combination of a subscriber’s primary number and relationship number (“second bridge telephone number”) with the combination of a subscriber’s SLS number (“secondary telephone number”) and third party number (“the [second] contact telephone number”):

When [subscriber’s **SLS number**] receives (or places) a call from/to [**third party’s number**], the interaction with the subscriber’s phone [that is associated with its **primary number**] will use dialable [**relationship number**].”

(Ex. 1005, [0053]; *see also id.*, FIG. 3A.) Additionally, because a relationship number may be assigned for each different third party contact number, the combinations of numbers (discussed above) are “uniquely associated with” one another. (Ex. 1005, FIG. 3A (Table 310 showing that a relationship number is assigned to each different third party contact number).)

174. Accordingly, Backhaus discloses this limitation.

- ii) **[10.b] “J) storing, by the server in the database, information that associates the second bridge telephone number with the primary telephone number, the secondary telephone number, and the first contact telephone number.”**

175. Backhaus discloses this limitation. For example, as discussed in limitation [10.a], Backhaus discloses that SLS platform 115 creates a relationship in central SLS database 116 (Subscriber Relationship ID Table 310) that associates the combination of a subscriber’s primary number and relationship number (“second bridge telephone number”) with the combination of a subscriber’s SLS number (“secondary telephone number”) and third party number (“the [second] contact telephone number”). (Section IX.B.8(ii) (limitation [10.a]); *see also* Ex. 1005, [0053], FIG. 3A.) Accordingly, Backhaus discloses this limitation.

9. Claim 11

- i) **[11.a] “The method of claim 10, wherein the telephone handset includes an address file comprising a plurality of contact telephone numbers including at least the first contact telephone number, and wherein:”**

176. Backhaus discloses this limitation. For example, Backhaus discloses that multiple third party numbers as shown in Table 315 in Figure 3B (reproduced below and annotated) may be saved in local SLS database 106 of subscriber TD 110.

(Ex. 1005, [0041] (“the subscriber TD 110 may include a processor 208 and a memory 207 coupled to the processor 208,” where “the memory 207 may also include an SLS module 105 and a local SLS database 106.”), [0042] (“the exemplary Subscriber Relationship ID Table 315 of FIG. 3B may be stored in a local SLS database 106.”), FIG. 3.)

315 Subscriber Relationship ID Table		
Subscriber Contact	Relationship Number	3 rd Party Number
1	+1.678.222.0001	+1.305.229.9999
2	+1.678.222.0002	+1.212.777.8888
3	+1.678.222.0003	+1.408.333.2222
4	+1.678.222.0004	
5	+1.678.222.0005	
...	...	
9,999	+1.678.222.9999	

Local SLS Database 106

FIG. 3B

(Ex. 1005, FIG. 3B (annotated).)

177. Furthermore, as discussed in limitation [8.b], the association of the disclosed “first bridge telephone number” and the disclosed “first contact telephone number” is stored in SLS database 116 of SLS platform 115, as shown in Table 310 of Figure 3A (reproduced below and annotated). (Section IX.B.6(ii) (limitation [8.b]); Ex. 1005, [0064].)

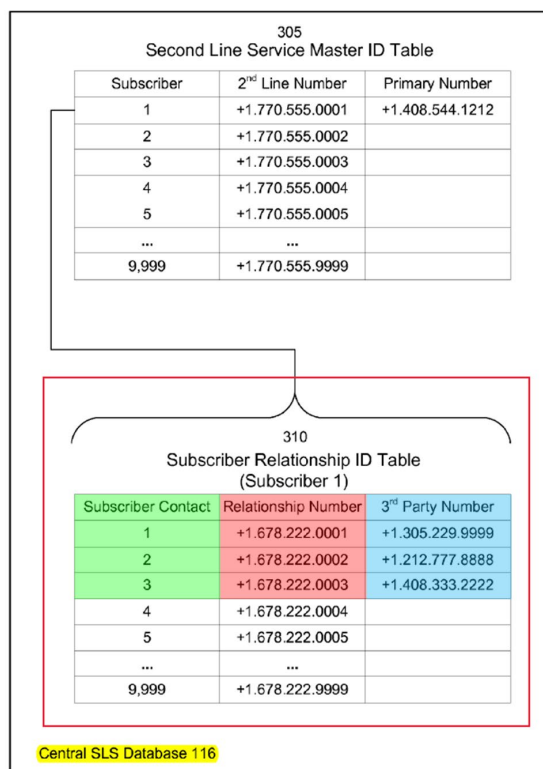


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) Consistent with as shown in Table 310 (FIG. 3A) and Table 315 (FIG. 3B), Backhaus discloses that tables 310 and 315 have the same record. (Ex. 1005, [0057] (disclosing that “the combination of the relationship number...and the third party actual calling number...is now stored in the central SLS database 116 at SLS platform 115 and also in the local SLS database 106 in subscriber TD 110.”).) Thus, local SLS database 106 (as shown in Table 315 of Figure 3B) of subscriber TD 110 (“telephone handset”) “includes an address file

comprising a plurality of contact telephone numbers including at least the first contact telephone number.”

- ii) **[11.b] “in J), the information stored in the database maps a unique combination of the secondary telephone number and one contact telephone number of the plurality of contact telephone numbers to a corresponding combination of the primary telephone number and a unique bridge telephone number for each contact telephone number of the plurality of contact telephone numbers.”**

178. Backhaus discloses this limitation. Consistent with as discussed in limitation [10.a], SLS platform 115 creates a relationship in central SLS database 116 (as shown in Subscriber Relationship ID Table 310) that uniquely associates the combination of a subscriber’s SLS number (“secondary telephone number”) and third party number (“one contact telephone number of the plurality of contact telephone numbers”) with a corresponding combination of a subscriber’s primary number (“primary telephone number”) and a relationship number (“a unique bridge telephone number”) for each third party number of the plurality of third party numbers. (Section IX.B.8(i) (limitation [10.a]).) Indeed, as shown in Table 310 of Figure 3A, a unique relationship number is associated with each of the plurality of third party numbers. (Ex. 1005, FIG. 3A.)

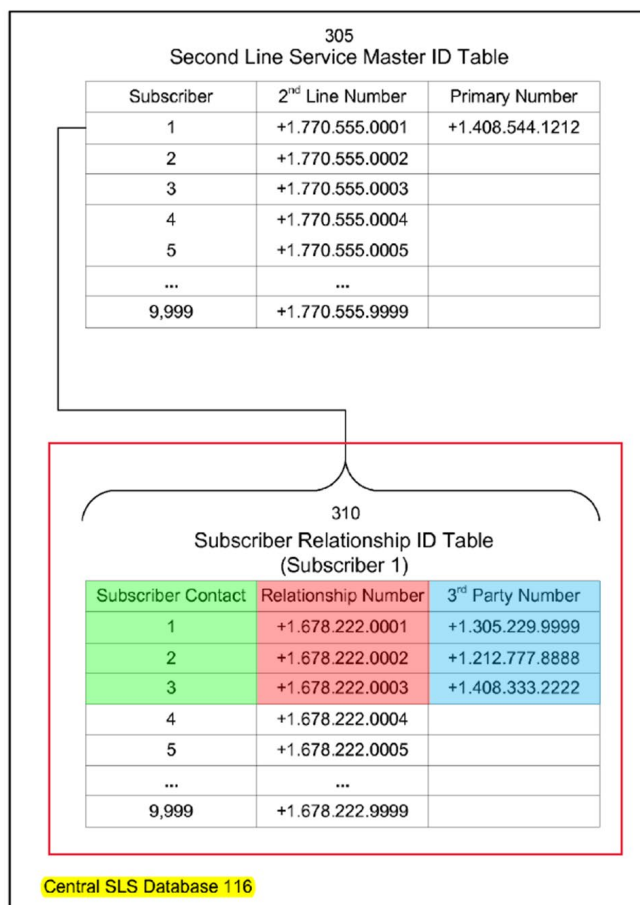


FIG. 3A

(Ex. 1005, FIG. 3A (annotated).) Accordingly, Backhaus discloses this limitation.

C. Backhaus in View of Winbladh and Logan Discloses and/or Suggests the Limitations of Claim 5

1. Claim 5

- i) **[5.a] “The method of claim 2, further comprising: C) receiving, at the server from the telephone handset via the at least one data channel, user input information indicative of a user input to the telephone handset regarding call handling choices for the incoming call; and”**

179. The Backhaus-Winbladh combination in view of Logan discloses and/or suggests this limitation. As discussed in claim 2, a person of ordinary skill in the art would have been motivated to implement Winbladh’s teachings in Backhaus for features associated with accepting an incoming call by making a bridge call using a bridge telephone number to connect the incoming call to the telephone handset. (Section IX.B.1(iii) (limitation [2.b]).)

180. Moreover, for reasons discussed in limitation [1.h], a person of ordinary skill in the art would have been motivated to implement Logan’s teachings associated with user-specified call processing rules in the Backhaus-Winbladh combination. As discussed in limitation [1.h], the Backhaus system, modified in view of Logan, discloses and/or suggests receiving, at the server from user’s handset via the data channel, a user’s input to the handset regarding selection of a call processing rule. (Section IX.A.1(ix) (limitation [1.h]); *see also* Ex. 1015, [0029]

(Logan disclosing that “a user, via his [MNC] 140 can enter a set of preferences that are transmitted to the system server 130 via datastream 134” using an internet-based application to “notify the system server of which calls a user desires to receive” based on preferences such as the location of the user, time of the day, and/or the identity of the caller.); *see also id.*, [0011], [0046], [0055], claim 2.) Accordingly, The Backhaus-Winbladh combination in view of Logan discloses and/or suggests this limitation.

- ii) **[5.b] “D) processing, by the server, the user input information, wherein D) comprises at least one of: delivering a responsive text message; dropping the incoming call; and responding to the incoming call with a custom voice message.”**

181. The Backhaus-Winbladh combination in view of Logan discloses and/or suggests this limitation. For example, as explained in limitation [1.b], Logan discloses that server 130 forwards incoming calls to a user’s handset—“but only when that user is in the appropriate location, or meets other user-specified preferences”—otherwise, the calls may be forwarded to a voicemail database. (Section IX.B.1(iii) (limitation [1.b]; Ex. 1015, [0026], [0027] (“In an illustrative embodiment...[i]f the user is not at the appropriate location, then the call is not forwarded and goes into the voicemail database.”), FIG. 1.) Moreover, Logan discloses that the voicemail may be customized. (Ex. 1015, [0030] (“This allows

users to maintain a plurality of voicemail greetings, each distinct and custom to the virtual number that was dialed.”) Accordingly, The Backhaus-Winbladh combination in view of Logan discloses and/or suggests this limitation.

D. Each of the Above Prior Art Combinations in view of Taylor Discloses and/or Suggests the Challenged Claims

182. As I discussed above, Sections IX.A-IX.C demonstrate how combinations of prior art stemming from Backhaus discloses and/or suggests claims 1-11. (Sections IX.A-IX.C.) I have been asked to consider a scenario where the claimed “switch” is interpreted as requiring it being a device separate from the PSTN. Under that scenario, a person of ordinary skill in the art would have been motivated to implement the claimed “switch” in light of Taylor.

183. Like Backhaus, Logan, and Winbladh, Taylor is directed to providing telephone services through communication networks. (Ex. 1007, [0004].) For example, Taylor discloses a computer telephony (CT) server 50 that provides “added features to an end user’s phone” and may be implemented with the PSTN and/or an IP telephony network system as shown in FIG. 1A below. (*Id.*, [0008], FIG. 1A; *see also id.*, [0004] (“FIG. 1A illustrates a typical configuration of a conventional computer telephony server operating with a Public Switched Telephone Network (PSTN) and/or the Internet.”).) Thus, Taylor is similar to Backhaus, which discloses

routing calls through both the PSTN and a service provider platform/network, such that the service provider platform/network may provide services to which the subscriber subscribes. (*Supra* IX.A.1 (claim 1); IX.B.1 (claim 2).) As such, a person of ordinary skill in the art would have been motivated to consider the teachings of Taylor.

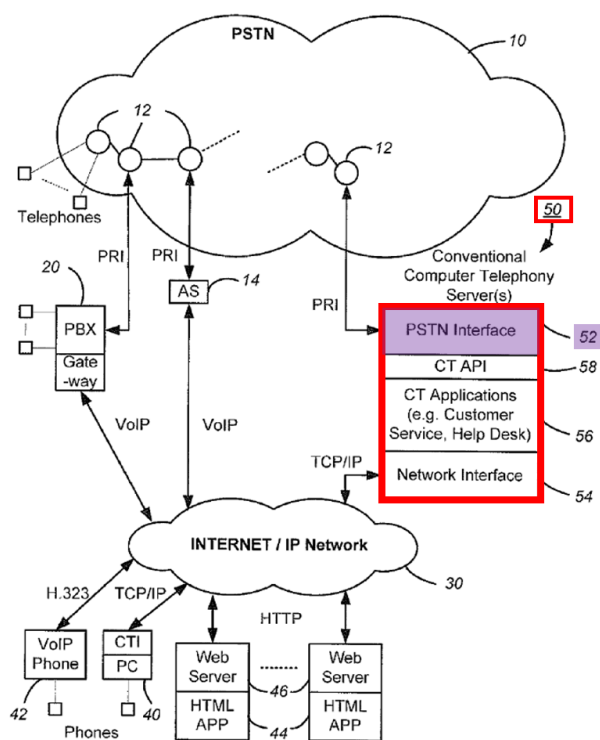


FIG. 1A (Prior Art)

(Ex. 1007, FIG. 1A (annotated).)

184. Taylor additionally discloses that when CT server 50 connects to other networks, e.g., the PSTN or the Internet, an interface is used in order to

receive/process calls. For example, as shown in Figure 1A, “CT server 50 can be configured to interface via a PSTN interface 52 with an exchange 12 to receive and process calls pertaining to a predefined set of telephone numbers on the PSTN.” (Ex. 1007, [0008] (also disclosing that CT server 50 “can also be configured to interface via an IP network interface 54 with the Internet to receive and process calls pertaining to a predefined set of telephone numbers or IP addresses.”).) A person of ordinary skill in the art would have understood that PSTN interface 52 disclosed in Taylor is similar to the switch described in the ’105 patent’s examples that likewise receives calls and processes calls associated with a specific number, e.g., a bridge number. (Ex. 1001, 2:8-10 (“connecting the handset to the incoming call at the switch”), 5:58-60 (“the incoming call may be routed over the PSTN 310 to the switch 110 [r]esponsive to receipt of the incoming call at the switch 110”), 6:2-4 (“The bridge telephone number may be associated with the switch 110, and calls to the bridge telephone number may be automatically routed to this switch.”).)

185. A person of ordinary skill in the art would have been motivated to include a PSTN interface similar to that discussed in Taylor when implementing Backhaus’s telephony service system. For example, Backhaus discloses that there are several different telecommunication networks that may be used for connecting

the calls through network 125, e.g., cellular networks, PSTNs, cable networks and the Internet. (Ex. 1005, [0032] (“communications network 125 envisions any and all networks for transmitting and terminating communications between telecommunications devices such as, but not limited to, cellular networks, PSTNs, cable networks and the Internet.”).) A person of ordinary skill in the art would have understood that the PSTN is well known for providing reliable communications to a large number of landline and wireless devices/users as well as providing sophisticated phone and data services. (Ex. 1011, 81 (“Today, the PSTN is a network of computers and other electronic equipment that converts speech into digital data and provides a multitude of sophisticated phone features, data services, and mobile wireless access.... The PSTN is well known for providing reliable communications to its subscribers.”).) Thus, a person of ordinary skill in the art would have been motivated to connect SLS platform 115 with the PSTN and to also include a PSTN interface in order to facilitate such a connection when implementing Backhaus’s system and processes—such that SLS platform 115 could provide the disclosed second line services to many device users connected to the PSTN that is known to provide reliable communications.

186. A person of ordinary skill in the art would have had the skill to implement, and expectation of success in achieving, the use of a PSTN interface, since it would have involved applications of known technologies (e.g., known PSTN and PSTN interface) according to known methods (e.g., known techniques for facilitating communication between a server and the PSTN) to yield the predictable result of a telephony service system/process that provided telecommunication services.

187. Accordingly, for the reasons above, in the scenario where Backhaus is read not to disclose the claimed “switch,” a person of ordinary skill in the art would have been motivated to modify Backhaus (including modifications with the additional features based on the prior art associated with claim 1 in Section IX.A (Logan), the claims in Section IX.B (Winbladh), and claim 5 in Section IX.C (Logan and Winbladh) given that modifications discussed in Section IX.A relating to “call processing rules,” modifications discussed in Section IX.B regarding the call-back feature, and modifications discussed in Section IX.C relating to both aforementioned features do not materially affect the claimed “switch” in the context of the claimed features) to implement a PSTN interface in light of Taylor and a person of ordinary skill in the art’s contemporaneous knowledge. Thus, the positions above

demonstrate how the asserted prior art combinations in further view of Taylor disclose and/or suggest claims 1-11. (*See* Sections IX.A-IX.C.)

188. In my opinion, a person of ordinary skill in the art would have had the same motivations, capabilities, and expectations discussed above in Sections IX.A-C and knowledge of those discussed above regarding Taylor to modify each asserted combination to implement a PSTN switch (explained above.) Therefore, for the same reasons discussed above and in the respective sections for Sections IX.A-C, the prior art combination discloses and/or suggests claims 1-11 (Sections IV, V, IX.A-IX.C.)

X. CONCLUSION

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

Declaration of Dr. Bill Lin
U.S. Patent No. 10,051,105



Dated: January 9, 2023

By: _____

Bill Lin