IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

VOIP-PAL.COM, INC. Plaintiff, v. VERIZON COMMUNICATIONS, INC.; CELLCO PARTNERSHIP dba VERIZON WIRELESS; VERIZON SERVICES, CORP.; and VERIZON BUSINESS NETWORK SERVICES, INC.; Defendant.	CIVIL ACTION NO. 6:24-cv-299 JURY TRIAL DEMANDED

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff VoIP-Pal.com, Inc. ("VoIP-Pal"), for its Complaint against Defendants Verizon Communications, Inc; Cellco Partnership dba Verizon Wireless; Verizon Services, Inc.; and Verizon Business Network Services, Inc. (collectively, "Verizon" or the "Verizon Defendants") alleges as follows:

THE PARTIES

1. Plaintiff VoIP-Pal is a Nevada corporation with its principal place of business located at 7215 Bosque Boulevard, Waco, Texas 76710. VoIP-Pal is registered to do business in the State of Texas.

2. On information and belief, Defendant Verizon Communications, Inc. is a Delaware corporation with a principal place of business at 140 West Street, New York, New York 10013. Verizon Communications, Inc. may be served with process through its registered agent, the

Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801.

3. On information and belief, Defendant Cellco Partnership dba Verizon Wireless is a Delaware general partnership with a principal place of business at One Verizon Way Basking Ridge, New Jersey 07920. Cellco Partnership dba Verizon Wireless may be served with process through its registered agent, the Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington Delaware 19801. On information and belief, Cellco Partnership dba Verizon Wireless is a wholly owned subsidiary of Verizon Communications, Inc.

4. On information and belief, Defendant Verizon Services Corp. is a Delaware corporation with a principal place of business at 1717 Arch Street, 21st Floor Philadelphia, Pennsylvania 19103. Verizon Services, Corp. may be served with process through its registered agent, the CT Corporation System, at 1999 Bryan St., Ste. 900 Dallas, Texas 75201-3136. Verizon Services, Corp. is registered to do business in the State of Texas and has been since at least November 16, 2001. On information and belief, Verizon Services Corp. is a wholly owned subsidiary of Verizon Communications, Inc.

5. On information and belief, Defendant Verizon Business Network Services Inc. is a Delaware corporation with a principal place of business at 22001 Loudin County Parkway Ashburn, Virginia 20147. Verizon Business Network Services, Inc. may be served with process through its registered agent, the CT Corporation System, at 1999 Bryan St., Ste. 900 Dallas, Texas 75201-3136. Verizon Services, Corp. is registered to do business in the State of Texas and has been since at least March 12, 1973. On information and belief, Verizon Business Network Services, Inc. is a wholly owned subsidiary of Verizon Communications, Inc.

6. On information and belief, Verizon regularly conducts and transacts business in the State of Texas, throughout the United States, and within this District, and as set forth below, has committed and continues to commit, tortious acts of infringement within and outside the State of Texas and within this District.

JURISDICTION AND VENUE

7. This action is a civil action for patent infringement arising under the patent laws of the United States, Title 35, United States Code ("U.S.C.") § 1 et seq., including 35 U.S.C. §§ 271 and 281-285. This Court has exclusive subject matter jurisdiction over this case for patent infringement under 28 U.S.C. §§ 1331 and 1338.

8. This Court has personal jurisdiction over Verizon by virtue of its systematic and continuous contacts with this jurisdiction, as alleged herein, as well as because the injury to VoIP-Pal occurred in the State of Texas and the claim for relief possessed by VoIP-Pal against Verizon for that injury arose in the State of Texas. On information and belief, Verizon has purposely availed itself of the privileges of conducting business within the State of Texas, such business including but not limited to: (i) at least a portion of the infringements alleged in this Complaint; (ii) purposefully and voluntarily placing one or more infringing products or services into the stream of commerce with the expectation that they will be purchased and used by consumers in this forum; or (iii) regularly transacting or soliciting business, engaging in other persistent courses of conduct, or deriving or attempting to derive substantial revenue and financial benefits from goods and services provided to individuals residing in the State of Texas and in this District. Thus, Verizon is subject to this Court's specific and general personal jurisdiction under due process and the Texas Long Arm Statute.

9. Personal jurisdiction also exists specifically over Verizon because Verizon, directly or through subsidiaries or intermediaries (including customers, distributors, retailers, and others), subsidiaries, alter egos, and/or agents – ships, distributes, offers for sale, sells, imports, advertises, or markets in the State of Texas and in this District, one or more products or services that infringe the Patents-in-Suit, as described particularly below. Verizon has purposefully and voluntarily placed one or more of its infringing products or services, as described below, into the stream of commerce with the awareness and/or intent that these products or services will be purchased or used by consumers in this District. Verizon has knowingly and purposefully shipped or made available infringing products and services into and within this District through an established distribution channel. These infringing products or services have been and continue to be purchased or used by consumers in this District.

10. VoIP-Pal's claim for relief for patent infringement arises directly from the activities of Verizon in this District.

11. On information and belief, Verizon, directly and/or through its customers has transacted business in this District and has committed acts of patent infringement in this District. By virtue of its offices, facilities, and/or stores in this District, Verizon has a regular and established place of business in this District. Thus, venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b).

12. Verizon also has submitted to jurisdiction in this District by asserting counterclaims against VoIP-Pal in Civil Action No. 6:21-cv-674-ADA, which is pending in this District.

BACKGROUND OF THE TECHNOLOGY

13. United States Patent No. 8,542,815 ("the '815 patent") entitled "Producing Routing Messages for Voice Over IP Communications" was duly and legally issued by the United States

Patent and Trademark Office on September 24, 2013, after full and fair examination. A copy of the '815 patent is attached to this Complaint as Exhibit 1.

14. United States Patent No. 9,179,005 ("the '005 patent") entitled "Producing Routing Messages for Voice Over IP Communications" was duly and legally issued by the United States Patent and Trademark Office on November 3, 2015, after full and fair examination. A copy of the '005 patent is attached to this Complaint as Exhibit 2.

15. The '815 and '005 patents are referred to in this Complaint as the "Patents-in-Suit".

16. VoIP-Pal is the sole owner and assignee of the entire right title and interest in the Patents-in-Suit and has the right to sue and recover damages for any current or past infringement of the Patents-in-Suit.

17. The inventions of the Patents-in-Suit originated from breakthrough work and development in the field of internet protocol communications.

18. VoIP-Pal has provided significant improvements to communications technology by the invention of novel methods, processes and apparatuses that facilitate communications across and between internet protocol based communication systems and networks, such as internally controlled systems and external networks (e.g., across private networks and between private networks and public networks), including the classification and routing of such communications. Some of these improvements are represented in the asserted claims as explained further herein.

19. The earliest telephone systems to receive public use within the United States involved a telephone directly connected to a human operator. A portion of the phone rested on a mechanical hook such that the operator was signaled when the portion was lifted from the hook. A caller would then say the name of the person they wished to call to the operator. If the callee was connected to the same telephone switchboard, the operator would physically pull out a cable

associated with the caller's phone and plug the cable into a socket associated with the callee's telephone. If the callee was associated with a different switchboard, and thus out of reach of the operator, the operator could connect the caller to an appropriate switchboard with a different human operator. While this arrangement provided basic telephone service, it proved error-prone (operators would sometimes connect the wrong party) and limited the number of telephone connections because of the physical limits of switchboards and cable to be pulled. This basic system corresponds to the introduction of a Plain Old Telephone Service ("POTS") analog connection to the operator. In these configurations, there was a dedicated, point-to-point electrical connection established between the caller and the callee during a call.

20. Rotary dialing eventually was introduced, beginning at around the turn of the 20th century, where a rotary disk was marked with numbers from zero to nine. A caller would spin the wheel and a mechanical device in the telephone would cause a sequence of electrical pulses to be sent to the network corresponding to the digit dialed, for example, four pulses would be sent for the number four. Rather than speaking to a human operator, an electric device would count the pulses and begin to route a call once an appropriate and valid sequence of digits was dialed by the caller. This advancement improved the reliability of call routing and reduced the time required to initiate a call. But, even so, there was a dedicated, point-to-point analog electrical connection between the caller and the callee. As multiple companies entered the market of telephone service and the number of customers increased, an issue emerged where a caller would be a customer of one telephone company and the callee would be a customer of another. The solution to this problem was to introduce trunk lines connecting one company to another.

21. Eventually, as the number of companies continued to increase and telephone services spread over much larger geographic areas, the notion of a Public Switched Telephone

Network ("PSTN") emerged. The term derives from the notion, at least in part, that the dedicated wires used to connect the caller and callee were "circuit-switched" to connect the two parties during a call. The PSTN developed gradually into the middle of the 20th century, still built around the notion of rotary dialing and POTS connections to the individual telephones. These calls involved analog communications over a circuit-switched network of electrical connections which assigned dedicated resources, such as switch settings and specific wires, to establish a link from the caller to the callee. While a circuit-switched network call is ongoing, these dedicated resources cannot be used for any other communications.

22. The next important advancement for consumer telephone service, introduced broadly during the second half of the 20th century, was the introduction of push-button telephones. The rotary dial of telephones was replaced by a matrix of buttons, each labeled with a digit from zero through nine along with the additions of '*' and '#'. The underlying signaling technology was called dual-tone multiple-frequency ("DTMF") and involves two different audible tones being sent simultaneously by the telephone into the telephone network. A receiver within the network decoded these tones, for example, to form a sequence of digits indicating a callee's number.

23. Around this same time a scheme for international telephone addressing was introduced, with a numeric protocol for identifying one country from another and providing country-specific routing within the destination country. The E.164 standard now documents how a caller anywhere in the world can identify a telephone number at any other location. While many advances, such as DTMF dialing and automated international routing, may have been originally introduced via *ad hoc* methods, eventually they required multiple parties (companies and governments) to agree on protocols to enable widespread reliable use and inter-operability among different telephone communications networks. Even with all these advances, the systems still

relied on circuit-switched technology that dedicated resources between the caller and the callee for the duration of a call. The move to take human operators out of the loop, with the introduction of rotary dialing, combined with the fast increase in demand for telephone services throughout the 20th century, resulted in the development of automated telephone switches. These devices comprised a set of input ports, each dedicated to and associated with a specific caller, and output ports, each capable of being associated with a callee. A small local telephone system may have had a single switch while a larger service would use a large number of switches that were connected to each other. A switch from a local service provider would be connected to a trunk line which then connected to an input switch of another service provider. These switches originally supported analog voice calls initiated via rotary dialing and dedicated input and output ports as well as physical wires for each circuit-switched call.

24. Eventually, analog voice services were replaced within the network with digital voice. Digital voice is communicated using a sequence of chunks (or packets) of data. This advancement allowed physical resources to be shared among multiple calls over short bursts of time. For example, a physical wire can move a packet for one call at a specific instance in time and then move a packet for a totally different call subsequently, only to later return to transfer a new packet for the original call. This advance is called packet-switched communications and provided an important increase in network reliability and efficiency while driving down the cost. However, in most situations throughout the 20th century (and often still today), the connection to the end user's physical telephone is analog. While network switches operate via digital circuitry, and often comprise programmable processors executing software, they tend to be dedicated special-purpose devices. The conversion between analog signals and digital encoding is typically done at the point where the PSTN network switch connects to the POTS handset, for example, at

a device called a Class-5 telephone switch, which connects the customer POTS handset to the PSTN network at a service provider's central office.

25. The Internet became important to consumers, via broad deployment, during the late 1980's and early 1990's. Eventually, available bandwidth and reliability increased to the point where pioneers began to experiment with techniques to carry voice communications over the Internet. These early efforts began to focus on techniques called Voice Over Internet Protocol (VoIP) and session initiation protocol (SIP). VoIP provided a consistent set of protocols and mechanisms for moving digital voice packets between two callers using digital networks such as the Internet rather than existing PSTN networks. SIP provided a mechanism for establishing and terminating communication sessions, such as calls between users of a VoIP service. For example, a callee could register with a VoIP service so that an identifier (such as their name, email address or a nickname) could be associated with the computer to which they were logged in. Eventually VoIP services began to provide interoperability with the existing PSTN services. For example, the company Skype allowed a user to call a PSTN number using a feature marketed as "Skype out". However, the user was required to explicitly classify the call as a PSTN call by specifying a real physical telephone number. In this case, the VoIP system includes a gateway to bridge from the VoIP network to the PSTN network in order to route to the physical telephone. Calls that used a proprietary non-PSTN user identifier such as an email or nickname remained within the VoIP network and were not routed to the PSTN network and did not connect to a POTS telephone.

26. The advent of VoIP technology allowed customers to physically move their telephones from one location to another, even from one continent to another, with no fundamental change in its operation from the point of view of a caller once a connection to the Internet was established. However, the integration of network gateways to route between different types of

networks using VoIP, for example from a VoIP caller in Europe to a PSTN callee in the United States, introduced a number of new complications. The VoIP service needed to be able to distinguish between callees that were within the VoIP network and those that were outside of it and thus required different methods for identifying callees and routing to them depending on whether the callees were within or outside the VoIP network. One way to identify callees on the VoIP network was to use a predefined proprietary user identifier such as an email or nickname. The VoIP service provider also needed to interpret dialed PSTN numbers in order to correctly route calls to a PSTN callee. A VoIP caller had to use different types of callee identifier depending on whether or not the destination (callee) they were calling was within the VoIP network or not. The caller's choice of the type of callee identifier thus specified the network of the destination to be called. However, the Patents-in-Suit disclose and claim a distinct manner of call routing.

27. Digifonica, a wholly owned subsidiary of patent owner VoIP-Pal, starting in 2004, eventually came to employ over a dozen top professionals (e.g., software developers, system administrators, QA/test analysts) including three Ph.D.'s with engineering backgrounds, to develop innovative software solutions for communications. Digifonica spent over $15,000,000 researching, developing, and testing a communication solution capable of seamlessly integrating a private voice-over-IP ("VoIP") communication network with an external network (e.g., the "public switched telephone network" or "PSTN"), by bridging the disparate protocols, destination identifiers and addressing schemes used in the two networks. By the mid-2000's, Digifonica had successfully tested intra- and inter-network communications (*i.e.,* communications within the private, multi-node Digifonica system and between the Digifonica system and the PSTN) by implementing high-capacity communication nodes across three geographic regions, including

actual working communication nodes in Vancouver (Canada) and London (UK). Digifonica's R&D efforts led to a number of patent grants, including the Patents-in-Suit.

28. Prior to the '815 patent, private branch exchange (PBX) systems typically enabled users to call destinations internal to the PBX by dialing a short extension (*i.e.,* "private number") and destinations external to the PBX on the public switched telephone network (PSTN) by dialing a "public number." Such PBX systems relied on a user-specified classification of the dialed number to interpret the number and route the call. For example, it was a well-known practice to require that a user placing a call to the public network dial a predefined prefix, such as "9", to indicate that subsequent digits were to be interpreted as a public PSTN number. If no prefix was dialed, the dialed digits were to be interpreted as a private PBX extension. The number alone, as dialed, dictated how the call was routed. Thus, the user made an affirmative decision when placing a call as to whether the call would be routed over a public or private network. Some PBX systems had Direct Inward Dialing (DID) features to allow incoming calls from the PSTN to be routed directly to a specific extension or phone within the organization's Private Branch Exchange (PBX) system. Typically, an organization that operated its own PBX would buy a block of PSTN numbers from a PSTN service provider (e.g., AT&T) such that if any of those numbers were dialed, they were forwarded by AT&T to the PBX, which in turn, would distribute the call to the appropriate extension based on the PBX configuration. This enabled the direct inward dialing of calls from the PSTN to PBX users, with the PBX administrator assigning specific PSTN phone numbers to particular local (PBX) extensions, whereas other PBX extensions did not necessarily have dedicated PSTN numbers. Conventionally, however, outgoing calls from PBX users to PSTN numbers were signaled by the PBX users dialing a certain prefix (e.g., "9"), thus PBX users specified routing over the PSTN by dialing this prefix.

29. Digifonica's system employed an approach that was fundamentally different from traditional PBX's: it did not rely on a caller-specified classification (e.g., a prefix) to distinguish private network calls from PSTN calls. Rather, Digifonica provided flexible, user-specific dialing features and could decouple the type of number being called from the manner in which the call would be handled. For example, even if a subscriber dialed a public PSTN number, Digifonica's system could determine that the call should be routed to an internal destination on its private network, thus allowing the advantages of private network calling even if callers were unaware that the call recipient ("callee") was a Digifonica system subscriber. If, on the other hand, the PSTN number represented a destination on an external network (e.g., the public network), the Digifonica system facilitated the routing of the call to the destination through a gateway. Incoming calls from the PSTN were also automatically routed to private network subscribers assigned a PSTN number.

30. VoIP-Pal's/Digifonica's technology and patents represent fundamental advancements to Internet Protocol ("IP") based communication, including improved functioning, classification, routing and reliability of Voice-over-IP (VoIP) and IP-based transmission of audio, video, photographs, messages and mixed media, as well as improved interoperability of IP-based private communication networks with external networks, such as the public switched telephone network (PSTN), interconnected with a private communication network via one or more gateways. The technology also provided novel methods of routing calls within the private network itself.

31. The Patents-in-Suit provide, *inter alia*, improvements in routing controllers, processes, networks and systems. Several illustrative examples of such improvements are briefly described below, though the patented invention is not limited to these improvements or examples.

32. The public switched telephone network (PSTN) connected callers through nodes such as central offices or exchanges. Because these nodes were limited to providing services only

to subscribers in a "local calling service area," they required callers to place calls in a specific manner, e.g., by requiring the use of certain dialing patterns and conventions associated with that local area. See, e.g., the '815 patent at 1:29-39. For example, it was known to a person of skill in the art (POSITA) in the field of the invention that PSTN nodes conventionally required PSTN callers to dial in a manner compatible with a local numbering plan (e.g., in the U.S., a plan consistent with the "North American Numbering Plan" or "National Numbering Plan," in use by AT&T as early as about the 1940's and further developed in later years) as well as to dial in a manner compatible with international standards such as those of the International Telecommunications Union (ITU) Telecommunications Standardization Sector (ITU-T). *See* '815 patent at 18:23-31. For example, it is known in the field of telephony that early numbering plans assigned an "area code" of 312 for calling Illinois, which remains in use even today as an area code for Chicago. To take another example, the ITU designates "44" as a "country code" for calling the United Kingdom. *Id.* at Fig. 12 ("County Code" attribute for London user is "44").

33. Large organizations were able to avoid PSTN dialing constraints for internal calls by using private branch exchanges (PBXs) and private numbering plans for their internal private telephone networks. However, these PBXs also needed to provide caller access to the PSTN. *See* '815 patent at 1:22-28. As Andy Valdar has explained in his textbook, "Businesses which have more than a few telephones use a private branch exchange system, known as a PBX, to provide call connections between each telephone (which become 'extensions') and links into the PSTN... The PBX is really a small version of the PSTN exchanges, typically ranging in sizes from 10 up to 5,000 extensions. A private numbering scheme is required to enable extension to extension dialing, also ***special codes (e.g. 'dial 9')*** are required to enable calls to be made to the PSTN. [...] In the case where a company extends over two or more sites (e.g. office or factory buildings) the

PBXs on each site can be linked by private circuits, thus enabling calling between all the extensions. This is known as a 'private corporate network' (or just 'private network'). In this case the private numbering scheme extends across all the PBXs and usually each PBX is linked to the PSTN." (*See* Valdar, Andy, Understanding Telecommunications Networks, The Institution of Engineering and Technology, London, UK, 2006, p. 38 (emphasis added)).

34. It was well-understood, routine and conventional for PBXs to require users to dial a special code (e.g., a prefix digit of "9") if they wanted to place a call on the PSTN, as noted by Valdar and numerous other sources. For example, one telecom dictionary distinguishes between dialing an "internal PBX station number" and an "external number," wherein in the latter case, "the user must dial an access code in order to gain access to an external trunk connected to the public switched telephone network (PSTN)... The *conventional* access code is nine (9) in the United States and Canada, and zero (0) in most other countries". (*See* Ray Horak, Webster's New World Telecom Dictionary, Wiley Publishing, Inc., Indianapolis, Indiana, 2008, p.133 [emphasis added]). To take another example, U.S. Patent No. 3,725,596 to Maxon et al. ("Maxon"), filed in 1971, discloses an discloses an early private branch exchange (PBX) having equipment for automatically generating and transmitting calling station and trunk number information to a central office on outgoing calls. Maxon indicates that "a calling party at station ST10... dials a prefix digit, such as the *conventional* prefix digit 9, to initiate an outgoing call to the central office. The digit 9 is... detected by the dial 9 detector 152. Upon the detection of this digit, the register control circuit 153 advises common control that the digit 9 has been dialed for a central office call." [emphasis added]. Maxon at 9:66-10:6; *see* also Fig. 1B (152), 8:58-68, 9:21, 9:38-40, 13:3-6, 14:6-7 and at 14:59. Webster's New World Telecom dictionary and Maxon both confirm that it was considered "*conventional*" to use a prefix digit such as "9" to place a PSTN call from a

PBX. The Patents-in-Suit eschewed such well-understood, routine and conventional approaches to integrating private and public networks.

35. A POSITA, upon review of the Patents-in-Suit, would have understood that the claimed inventions are inherently computer-based and do not merely implement or automate long-standing human processes such as the operation of historical switchboard operators. The POSITA would further appreciate that the asserted claims of the Patents-in-Suit are necessarily rooted in computer technology for the operation of communication networks, and provide technical improvements to overcome certain technical limitations of prior art routing controllers, processes, systems and networks. Below are examples of improvements and inventive concepts disclosed and/or claimed by the Patents-in-Suit are discussed. A POSITA would appreciate that not every asserted claim necessarily embodies every improvement or inventive aspect discussed. Also, these examples are not exhaustive and do not necessarily capture every feature or benefit disclosed or claimed. *See also* Exhibit 3 (Declaration of Dr. Danijela Cabric) ("Cabric Declaration"), incorporated by reference.

36. Prior art communication systems required users to place a call by using a specific callee identifier format or by following certain dialing conventions with no opportunity for defining a user-specific manner of placing calls. For example, as discussed above, PSTN nodes were typically limited to supporting only the dialing conventions of their local calling service area, processed calls locally (*see* '815 patent at 1:29-39), and did not support user-specific calling. The technology disclosed in the Patents-in-Suit overcomes such technical limitations and supports user-specific calling, e.g., calling styles from any continent or country based on the application of user-specific attributes and network classification criteria to callee identifiers to route a call. It is unnecessary for the user to do anything special to "trigger" such user-specific call processing. *See,*

e.g., '815 patent at 18:5-67 (disclosing storing a user-specific profile in association with each subscriber/user capable of supporting numerous global styles of dialing), and Figs. 8A-8D (disclosing steps for processing a routing request based in part on a user-specific profile). By evaluating a called party identifier based on profile settings or "attributes" associated with the calling party, the technology provides an individually customizable manner of initiating a communication to a destination party. To be clear, it is not merely a calling party's identifier (*i.e.,* "caller ID" or "caller identifier") that is used to evaluate the called party's identifier (e.g., "callee identifier"); rather, a caller-specific *profile*, identifying caller-specific parameters/attributes, is used to evaluate the called party's identifier, to determine the routing destination and to identify the appropriate network infrastructure for effecting the communication. A POSITA would recognize, in light of the patent specification, that this approach is capable of fulfilling various individual service preferences among users for initiating communications (e.g., any desired PSTN dialing style, unconventional dialing styles, and even use of special callee identifiers such as usernames). *See id*. at 18:55-67; 19:50-20:8; 21:17-22:33. To give just one illustrative example, the profiles of two different users may specify different ways of dialing an international call (e.g., an "IDD" attribute in two different user's profiles may differ: *see id*., "IDD" attributes in the user profiles shown in Figs. 11 and 12 are set to "011" and "00", respectively; *compare* blocks 257-259 in Fig. 8B). Moreover, system-stored settings associated with each user (e.g., profile attributes) could be set differently than in the above example or further reconfigured by changing any individual user profile to provide other ways of calling. This is an example of how systems, apparatuses and methods may utilize user-specific attributes to facilitate user-specific handling of communications as disclosed and claimed in the Patents-in-Suit. Enabling a communication system, node, or routing controller to provide customized, user-specific methods of

communication is an improvement over conventional prior communication systems, nodes, and devices, which simply imposed "one-size-fits-all" methods of communication on all users.

37. Some prior art communication systems required a user to explicitly signal how a call should be processed, *i.e.*, to manually "trigger" special call handling. For example, as discussed above, it was well-understood, routine and conventional for PBX systems in large organizations to rely, at the time of dialing, on a user-specified classification of the dialed number to interpret the number and route the call—*e.g.*, a user placing a call to the PSTN would dial a predefined prefix such as "9" to indicate that subsequent digits were to be interpreted as a PSTN number. If no prefix was dialed, the dialed digits were interpreted as a private PBX extension. Thus, the digits entered by the user at the time of dialing dictated how the call was routed, and thus the user made an affirmative decision when placing a call as to how the call's routing would take place. Furthermore, when a PSTN number was dialed, the PSTN number itself identified which PSTN node within the public switched telephone network was connected to the called party. In the foregoing example, the PBX failed not only to provide user-specific call handling, but it also lacked transparent routing. In contrast, the Patents-in-Suit disclose using a caller's attributes to evaluate a callee identifier against network classification criteria to cause a call to automatically be routed over a particular system network/node, or over another network (e.g., such as the PSTN) interconnected to the system network through a gateway, *transparently* to the user. Thus, routing is determined without the user manually specifying, or even knowing, which network or node to use by the manner of placing the call (e.g., by dialing a prefix of "9" to make a PSTN call) and without requiring that a particular callee identifier inherently define a route to a destination on a particular network or node. Instead, in the provided solution, the system itself identifies which network and/or node to use for routing. A POSITA would appreciate that this is an improvement

over conventional prior approaches because the caller need not know or specify the location of a destination (e.g., the network or node of the called party); moreover, a particular callee identifier can be flexibly assigned (or reassigned) to different networks or nodes. Still further, the assignment of PSTN telephone numbers need not follow PSTN conventions, for example, a subscriber's communication device can be assigned a PSTN number corresponding to a different geographical location on the PSTN (e.g., a Calgary user can be assigned a phone number ("1-604-867-5309") with a non-Calgary area code ("604") and exchange code ("867"): *see id*. at Figs. 11 and 14)—and the system will transparently route calls to the Calgary user's device without the caller even recognizing that the destination device is not located within the geographic area associated with the "604" area code or the "867" PSTN exchange/node.

38. To further illustrate these benefits with one embodiment disclosed in the '815 patent, if a Vancouver user (caller profile in Fig. 10) dialed a PSTN phone number associated with the London user (callee profile in Fig. 12), the system would evaluate the dialed digits based on the caller's system-stored settings (attributes), determine that the London user is a subscriber to the system, and classify the call as a system network call, identifying a subscriber username such as "44011062444" (*See* '815 patent at Fig. 8B (items 269, 279, etc.), Fig. 12 (username of London subscriber), 20:9-25). This determination that the callee is a subscriber to the system is based on consulting a database (e.g., a DID bank table) that contains records associated with system subscribers. *Id.* A routing controller (*id*. at 16 in Figs. 1 and 7) then determines that the London subscriber is associated with a different system communication node than the Vancouver subscriber, and produces a routing message identifying that node (*id*. at Fig. 16; *see also id*. at 20:27-48; Fig. 8A at 280, 302, 350, 381) for receipt by a call controller (*id*. at 14 in Fig. 1), thereby causing the call controller to establish the call (*id*. at 26:46-49). The caller in this illustrative

embodiment need not be aware that the London user is a subscriber and need not know whether or not the call is being placed over the PSTN or the private network, nor does the caller need to know which system node the called party is associated with in cases where the call is not being placed over the PSTN. Thus, the identification of the destination network and node is transparent to the user: the same manner of initiating a communication can reach destinations associated with any node of the system and on any network. Even in cases where a call needed to be routed using a plurality of system nodes, these nodes were integrated into one network; it was not required for each node to comprise a different network that might require its own manner of access, nor did communications that were PSTN-bound require any different manner of calling. For example, the caller could also call a PSTN number in London, UK representing a *non*-subscriber phone in London in the same manner, and the system would determine in that case that the call should be established via the PSTN, in which case the routing message would identify at least one appropriate gateway for routing the call (*id*. at 23:9-24:67 and Fig. 25 (gateway call example)).

39. In some embodiments, a node or gateway associated with the callee identifier is identified and the communication is automatically forwarded to that node or gateway for further handling. This, too, is transparent to the originator of the communication, who does not have to take any special action to "trigger" the identification of, or routing to, a node or gateway with which the callee is associated. Thus, as further explained below, the system may be operable to establish calls to large numbers of subscribers distributed over large geographic areas, with different sets of subscribers serviced by different nodes or network elements, without imposing any requirement on users themselves to know how to route calls to callees available via particular nodes or gateways. If the system operator should reassign subscribers or adds nodes or gateways to the system, as needed, for better performance or to maintain quality of service, the caller need

not know this—the node or gateway can be identified dynamically. In contrast, in the conventional PSTN, when a new "area code" was overlaid to handle larger number of customers, callers were inconvenienced by having to learn new phone numbers or styles of dialing (e.g., 10-digit dialing replaced 7-digit dialing). Similarly, it was known that conventional PSTN exchanges (nodes) required that a particular exchange code be used as part of any PSTN telephone numbers assigned to that exchange. Unlike conventional PSTN equipment, Digifonica's routing system removed the requirement to assign particular callee identifiers to nodes located in a particular geographic area. Digifonica's system architecture and operation not only provided improved transparency and flexibility in routing via nodes of the system (and via gateways), it also gave rise to improved system resiliency due to the programmability and expandability of the system (*id*., 1:29-46).

40. As a further example, Digifonica's network in some embodiments could support multiple resellers of its communication services: *See, e.g.,* '815 patent at 18:41-43, 30:43-32:54; and Figs. 9-12 (field 273), 41, 43, 45, 47-50, disclosing support for different resellers (*e.g.*, phone companies retailing communication services based on Digifonica's network under their own brand). Using the aforesaid technology, calls by callers to callees who were affiliated with a different reseller of communication services based on Digifonica's network, would automatically and transparently be routed over Digifonica's IP-based network even without the caller or callee knowing that both parties were subscribers to services provided over Digifonica's network. Such network selection was especially helpful to overcome the costs and limitations of public networks when the calls were international, *e.g.*, from callers using Digifonica's node in North America (*e.g.*, Vancouver) to callees associated with a node in Europe (*e.g.*, London). *Id*. at Fig. 1.

41. Another benefit was network selection and routing based on determination of a callee's registration status. Because the system supported the use of PSTN numbers both for

subscribers on its own private network as well as for non-subscribers on a public network (e.g., the PSTN), a caller might know the PSTN number of a destination without knowing whether the destination was reachable via Digifonica's IP-based network. Digifonica's technology automatically determined whether the destination was a subscriber and, if so, routed over Digifonica's network notwithstanding that a PSTN number had been dialed. For example, DID configuration information (e.g., a DID bank table) could be used to associate PSTN numbers with system subscribers and to determine from a PSTN number whether or not the callee was a subscriber. *See, e.g.* '815 Patent at Fig. 13, 14; 19:4-22; 20:9-25; 22:62-23:8. This enabled callers to receive the advantages of IP-based private network calling even when callers were unaware that the callee was a Digifonica system subscriber; such calls could be transparently placed over Digifonica's IP-based network at lower cost, with better quality and/or higher reliability than if the call had been sent over the PSTN network. In comparison to the prior art examples described above, Digifonica's approach was unconventional in that it decoupled the type of number being dialed from the classification and routing of the call. Further, such use of DID configuration information (*e.g.*, implemented as a DID bank table) facilitated compatibility with existing PSTN numbers and conventions; moreover, the DID information could be reconfigured to adapt to new numbers and conventions. The DID configuration information stored in the system could include information for determining which node or network element of the system was responsible for handling incoming communications for a subscriber, to cause a communication to be routed to the appropriate network infrastructure (node/element) without the caller needing to know or specify this information. Such seamless interoperability of the communication system (private network) and the PSTN (public network) with customized call initiation and a system-controlled communication routing without regard to the callee's network location was the result of

Digifonica's improved routing controller and resulted in an improved communication system overall. A POSITA would appreciate that DID configuration information could be stored in the system in a variety of ways (other than as a database of records) to achieve equivalent advantages.

42. Claims 14 and 41 of the '815 Patent embody many of the above-cited improvements. Claims 14 and 41 also include the unconventional inventive concept of using a DID database to configurably remap public callee identifiers from both private and public network sources, to route calls to a private network node or PSTN gateway. This inventive concept will be explained further below with reference to Claim 14. *See* Cabric Declaration at ¶23. Claims 57 and 90 of the '005 Patent also relate to similar improvements and inventive concepts, *mutatis mutandis*, however, these claims are distinct from each other and from the asserted claims in the '815 Patent. *See* Cabric Declaration at ¶¶30, 36, 42.

43. Claim 14 recites causing a database of records to be searched to locate a Direct-Inward-Dial (DID) bank table record associating a public telephone number with a type of callee identifier, and how to classify the call based on the search results. Claim 14, in turn, depends from Claim 7, which recites formatting the callee identifier, and Claim 1, which recites a process for how to operate a routing controller to facilitate establishing the communication. As a POSITA would recognize, Claim 7 recites how a callee identifier can be transformed to a callee identifier in a format recognizable by the system for DID searching in Claim 14 and subsequent use in routing in Claim 1. Claim 1 further recites producing a routing message, based on the results of how the call was classified, that identifies an address, on the private network, associated with the callee, or producing a public network routing message identifying a gateway to the public network (e.g., a PSTN gateway). As a POSITA would recognize in light of the specification, the DID database information would associate a subscriber on the (private) communication system with a

public telephone number on the PSTN network, and thus would facilitate *inward* calls to that number from the PSTN, similar to how PBXs used DID numbers to receive and map direct *inward* dialed calls to extensions. *See supra* (description of how DIDs were used in PBXs); '815 Patent at 19:4-22; Cabric Declaration at ¶¶19, 22-23. Notably, however, the asserted claims recite how to perform classification of *outward* calls from within the private network based on the DID database information. Claim 14, in particular, recites a DID database based mechanism for associating public (PSTN) numbers with system subscriber devices and *integrating* the routing of communications to a specific subscriber (who has a DID database entry) both from *other subscribers* of the system and from *non-subscribers* who are calling from the PSTN. *Id*. Locating DID information for the called subscriber in the DID database is how calls are classified as private network calls, which leads to "producing a private network routing message for receipt by a call controller" to effect the routing of the communication to "an address, on the private network, associated with the callee" (Claim 1). Thus, DID-based calls from both private network subscribers and non-subscribers are routed to the called subscriber over the private network.

44. The process in Claim 14 was not well-understood, routine or conventional. As discussed, DIDs were conventionally used for direct inward dialing in PBXs. In Claim 14, the application of DID information effectively integrates the aforesaid routing of communications from public network sources (*i.e.*, direct inward dialed calls from the PSTN) with those from private network sources (*i.e.*, DID-based calls from other subscribers of the private network) to route to the *called* subscriber, but for *calling* subscribers, searching the same DID database is how the call is *classified* and subsequently routed to the appropriate network destination. In cases where a search of the DID database locates DID information associated with the callee identifier received from a caller's device, the presence of that information is how the call is classified as a

"private network call" to produce a "private network routing message." The absence of related DID information in the DID database is how it is determined that the call should not be placed on the private network, *i.e.*, it is how the call is classified as a "public network call" to produce a "public network routing message," to effect the appropriate routing with a call controller. In both cases, the calling subscriber does not specify which network (public or private) to use for routing the call, and indeed, does not need to know this because of the use of DID information; the system effectively integrates the routing of incoming DID-based non-subscriber calls from the PSTN with outgoing DID-based calls from subscribers on the private network. Updating the stored system DID information for a subscriber conveniently updates the routing information *both* for incoming (non-subscriber) calls and for subscriber-placed outgoing private network calls. In contrast, conventional PBXs used DIDs for incoming PSTN calls but outgoing calls from the PBX were made without using a DID, by the caller explicitly selecting which network to use (the PBX's private network or the PSTN) by the manner of placing the call. If the caller dialed a special prefix (e.g., "9"), subsequent digits were interpreted as PSTN numbers and sent to the PSTN; whereas calls within the PBX network were placed by dialing extension numbers (different than the PSTN numbers represented by DIDs). The DID number of the called subscriber was not used for classifying or routing the call. Indeed, the DID number would not normally be dialed by the caller unless the caller was calling from outside the PBX (e.g., from a mobile phone or home phone). Indeed, in PBX systems, dialing PSTN-compatible numbers directly was undesirable as it could potentially conflict with private extension numbers defined by the PBX administrator. Thus, dialing DID numbers on a PBX system would not work reliably or was impractical. A POSITA would recognize that DID numbers in traditional PBXs were really for the use of callers outside the PBX, whereas in the '815 and '005 Patents, DID-based numbers that are associated with

subscribers can be dialed by both by private network subscribers and by third parties outside the system (e.g., PSTN callers calling in through a gateway). *See* Cabric Declaration at ¶¶24-26.

45. Another aspect of the inventive concept of the process recited in Claim 14 is configurably remapping initiated calls to subscriber DIDs and also to the associated communication infrastructure for routing. A POSITA would understand how this configurable remapping works in the claims in light of the patent specification: (1) the manner of call initiation was itself configurable, such that a PSTN-compatible number could be dialed in a variety of user-specific ways depending on configuration settings in a subscriber profile (e.g., the steps of determining when at least one "calling attribute" from a "caller dialing profile" matched the "callee identifier" in Claim 1; *see also* 19:45-20:25, 2:8-19, Figs. 8A-8D (routing process), Figs. 9-12 (configurable profile attributes)); and (2) there is a configurable association between entries in the "Direct-Inward Dial (DID)" database of records and specific "address[es], on the private network, associated with the callee[s]" (*see* Claims 1, 14; *see also* 20:9-25, 5:61-6:9, Figs. 13-14 (configurable DID-to-node mappings)). Searching a DID database associating PSTN-compatible DID identifiers with private network subscribers enables mapping both (1) incoming calls to a DID number from a public network and (2) outgoing calls from a calling subscriber that are placed in a customized manner (based on the subscriber's profile attributes) to the same DID number, to be routed to a node element that is responsible for handling the DID identifier of the called subscriber—without the caller specifying (or even knowing) which network or node element to use for routing. For example, the London subscriber's DID number (*see* "London" phone on the left-hand side of Fig. 1) could be called (inwardly) from the PSTN through a PSTN gateway because the London subscriber's phone is associated with the DID number on the PSTN; but the Vancouver subscriber (*see* phone 12 in Fig. 1) could call (outwardly) the same phone number and

have the call traverse only the private network (e.g., 17 in Fig. 1), which bypasses the use of the PSTN, obviating the need to use a PSTN gateway (e.g., 20 in Fig. 1). Advantageously, the Vancouver subscriber could call the London subscriber based on the Vancouver subscriber's own dialing preferences, as stored in configurable system settings (e.g., the Vancouver subscriber profile attributes in Fig. 10), whereas another system subscriber might call the same London number by a different dialing method, based on their own custom system profile settings; yet regardless of each dialed callee identifier's format, both callee identifiers would get remapped and routed to the correct destination based on the DID database. *See* Cabric Declaration at ¶¶27, 31.

46. A POSITA would recognize that the application of these inventive concepts could provide various potential benefits or combinations thereof.

47. First, configurable remapping of callee identifiers with DID-based call classification and routing provides *seamless integration* and backwards compatibility with the public network for PSTN calls, while *enhancing intra-system communications* (e.g., providing lower cost, better quality of service and enabling the sending of unconventional media, such as video, to DID's over the private network for subscriber-to-subscriber calls). *See* Cabric Declaration, ¶¶32, 35. In light of the patent specification and a POSITA's understanding of the concept of "DID" numbers, a POSITA would have understood that use of DID information taken from a DID database, as claimed in Claim 14, serves a dual purpose: it serves to direct inwardly route non-subscriber calls from the PSTN to the DID number owner, and also (unconventionally) is used to determine how best to route an outgoing call of a subscriber. *See* Cabric Declaration at ¶34. It will be appreciated that the methods of interpreting and storing PSTN-compatible "DID" numbers in the system are flexible, especially given that there is a method of translating callee identifiers received from a calling subscriber into a format that is compatible with the DID

database. *See* Claims 14, 7 and 1; *see also* Cabric Declaration at ¶¶22, 31, 37. Moreover, the use of the DID database for outgoing calls facilitates interoperability with PSTN service providers' gateways. *See* Cabric Declaration at ¶40. Meanwhile, end-to-end control of communications within the private network enables upgraded capabilities for endpoints within the network. *See id*. at ¶¶35, 41. On information and belief, this combination of features was not well-understood, routine or conventional. *See id*. at ¶44.

48. Second, it can provide *geographical independence* of callee identifiers from the geographical indications (e.g., country code, area code) of a PSTN-compatible identifier ("DID") assigned to a subscriber. In light of the patent specification, a POSITA would recognize that the content of the PSTN-compatible telephone number that is represented in the DID database need not bear any relation to the location of either the subscriber or the infrastructure (e.g., node elements) responsible for providing their communication services. For example, the Calgary subscriber can have a PSTN-compatible DID assigned of "1-604-867-5309," notwithstanding the fact that "604" is an area code that is unrelated to Calgary, which would be an impermissible assignment on the PSTN. *See* Fig. 14 in '815 and '005 Patents; *see also* Cabric Declaration at ¶¶28, 38. By the same token, the node element responsible for handling the Calgary's calls is also configurable, and may be unrelated to the DID assigned, which provides greater flexibility. *Id*. This flexibility in assignment of PSTN-compatible phone numbers without regard to geographical location of the subscriber and the infrastructure associated therewith was unconventional. *Id*.

49. Third, it can support *global scalability*. As a POSITA would recognize from the patent specification, the system was designed and implemented to have wide geographic reach, potentially globally, which meant that scaling the system to adapt to large numbers of geographically-dispersed subscribers was important and could be implemented by configurably

assigning new subscriber DIDs to new system nodes, as needed. The patent describes a system with nodes in Canada and Britain. If the system needed to expand to another area of the world (e.g., Hong Kong), a new node could be implemented there, with some DIDs assigned to it. However, it would be possible to assign both existing and new DIDs to new nodes without regard to their geographical meanings on the PSTN. For example, the Canadian DID number assigned to the Calgary user (mentioned above) with an area code of "604" and a country code of "1" (*see id*. at Fig. 14) could be reassigned to the Hong Kong node, where not only the area code but even the country code would be out of step with PSTN conventions. A POSITA who reviewed Claim 14 would recognize that the system's configurable node architecture (*e.g.*, "a system comprising a plurality of nodes with which callers and callees are associated" in Claim 1) could be scaled up and expanded with new nodes to cover particular geographical areas or to assist with load sharing in a particular area (*id*., 12:50-13:9) by remapping of DIDs to node addresses in the same way, thus scaling the system would not fundamentally change the basic routing process in Claim 14. The basic process of Claim 14 could be replicated at multiple new "routing controllers" in various nodes. This facilitates scaling the system to maintain overall system performance. As a POSITA would understand, and as the specification explains, the distribution of infrastructure (e.g., gateways, nodes) could be tailored by capacity and load relative to the number of subscribers located in a particular geographical area. *See* Cabric Declaration, ¶36.

50. Fourth, use of the inventive concept facilitates *global accessibility* through the user-specific use of DIDs and PSTN compatible numbers. In particular, DIDs can be dialed in a subscriber-specific manner, and the dialed numbers can be translated and remapped by relying on a subscriber's profile "attributes" to an appropriate network address. A POSITA would recognize that user-specific calling is described in association with DIDs dialed by subscribers, with the

same DIDs also being compatible with incoming calls from the PSTN. *See* Cabric Declaration at ¶33. This use of DIDs is unconventional, including compared to the dialing of phone numbers on the PSTN, because the typical PBX or PSTN user had no control over the manner in which they dialed PSTN numbers—their dialing plan was dictated by their PSTN service provider. *Id.*

51. Other asserted claims make their own distinct contributions. The '005 Patent provides additional improvements and inventive concepts in Claims 57 and 90. In contrast to Claim 14 of the '815 Patent, Claim 57 of the '005 Patent is a means-plus-function claim, which, under pre-*AIA* 35 U.S.C. § 112, subparagraph 6, is interpreted to read upon the structures and steps disclosed in the patent specification and equivalents thereof. For example, the means for accessing a database of direct inward dial records can support not only directing inward DID-based calls from the public network to subscribers on the private network (i.e., reflecting the E.164 number associated with the user on the PSTN network), but also be used to access DID records to apply network classification criteria for producing an appropriate routing message depending of whether a called party is a subscriber (e.g., on the private network) or non-subscriber (e.g., on the public network). *See* Cabric Declaration at ¶30. Claim 90 of the '005 Patent is also distinct from Claim 14 of the '815 Patent in multiple ways, including how it uses a DID database: (1) in a "packet switched network"; (2) to route to "first" and "second portion[s]" of the "packet switched network," which are (or are not) controlled by an entity, respectively, without necessarily requiring a "gateway" to a public network; (3) to store a DID record associated with the first *and/or* second participant and uses the absence of a DID record associated with the second participant identifier as a criterion for routing; and (4) without necessarily formatting the callee identifier (among other differences). *See* Cabric Declaration at ¶¶42-43. Claim 90 provides an unconventional inventive concept of using a DID database to support PSTN-compatible, DID-

based calls across a single network that is controlled by multiple entities and using the DID information also for routing outgoing calls to the correct portion of the network. *Id.* Using DID records in this way may: (1) streamline database management by leveraging a single DID database for multiple purposes; (2) quickly determine if a callee is part of the private network, allowing for more efficient routing; (3) enhance call quality, security and features by ensuring private network calls are kept within the internal network; and (4) improve the management of internal network resources or, in some cases, even offload the management of some portions of the network onto another service provider. *See* Cabric Declaration at ¶¶42-43.

52. In view of the foregoing, a POSITA would recognize that Claims 14 and 41 of the '815 Patent and Claims 57 and 90 of the '005 Patent each reflect improvements to systems and apparatuses and inventive concepts that were not well understood, routine or conventional in the field of communication. *See* Cabric Declaration, ¶¶ 23-28, 33-34, 38, 43-45. On information and belief, these claims do not implement or automate any longstanding practice by switchboard operators or any other well understood processes in a brick-and-mortar context. *See* Cabric Declaration, ¶¶11, 19, 38, 41-44. For example, the concept and operation of DIDs was invented long after historical switchboard operators plied their trade, nor was it possible to dynamically reconfigure a private network based on stored system settings, therefore to attribute to historical operators the use of DIDs or the use of configurable, stored system settings information to enable routing a call—would be inaccurate and anachronistic. *Id*. Also, there exists no known valid historical analogy to the manner in which DID databases and configuration information are used in the Patents-in-Suit both for inward calls and for classifying/routing outward-bound subscriber calls. *Id.*; *see also* ¶¶21-24, 34.

53. On information and belief, the asserted claims of the Patents-in-Suit are inventive over the art cited against the Patents-in-Suit, as confirmed by post-grant proceedings.

54. The '815 and '005 patents survived eight *inter partes* reviews ("IPR's") by the U.S. Patent Office ("USPTO") based on prior art disclosing making routing decisions. *See* IPR2016-01201 and IPR2016-01198, filed by Apple (final written decisions upholding the validity of all challenged claims), with the remaining IPR's all denied institution: IPR2017-01398 and IPR2017-01399 filed by Apple; IPR2017-01383, IPR2017-01384 and IPR2017-01385, filed by AT&T; and IPR2016-01082, filed by Unified Patents. The USPTO rejected all of the cited communication routing art as not rendering the '815 patent and the '005 patent invalid. Apple later filed four *inter partes* review petitions against four continuation patents, namely, IPR2019-01003, IPR2019-01006, IPR2019-01008 and IPR2019-01009, filed against U.S. Patent Nos. 9,537,762 ("the '762 IPR"), 9,813,330 ("the '330 IPR"), 9,826,002 ("the '002 IPR") and 9,948,549 ("the '549 IPR"), respectively. *See Apple, Inc. v. VoIP-Pal.com, Inc.*, IPR2019-01003, -01006, -01008, -01009, Paper 2 (P.T.A.B., May 13, 2019). All of these petitions were denied by the PTAB.

55. VoIP-Pal incorporates the Declaration of Dr. Danijela Cabric, which is attached to this Complaint as Exhibit 3, to demonstrate, among other things, a POSITA's understanding of improvements disclosed in the Patents-in-Suit and recited in their claims, and the application of inventive concepts that were not well-understood, routine, conventional in the asserted claims. Dr. Cabric also explains that the asserted claims are not analogous to long-standing, historical practices such as those of switchboard operators and differ from conventional technologies.

OVERVIEW OF THE ACCUSED INSTRUMENTALITIES

56. Each of the instrumentalities described in this Complaint made, used, sold, offered for sale, and/or imported by Verizon comprises systems, devices and/or computer-executable

program code relating to and supporting communications using devices, computers, servers, systems and methods used by, operated by and performed by Verizon.

57. Verizon manufactures, operates, and supports a messaging and communication platform (hereinafter, the "Verizon Network"). Verizon enables various devices, such cellphones, smartphones, and computers, to communicate via the Verizon Network using text messages, voice messages, voice and video calls, shared images, documents, user locations, and other content, as well as to access the Internet via the Verizon Network. Various hardware and/or software included in the Verizon Network allows these devices (when configured by Verizon to access the Verizon Network) to initiate communications between subscribers to Verizon as well as between subscribers and non-subscribers.

58. The Verizon Network includes products and/or services operated by Verizon that incorporate the inventive processes as described in the Patents-in-Suit and defined in the asserted claims literally and/or under the doctrine of equivalents ("Verizon Telecom Infrastructure").

59. Verizon Telecom Infrastructure includes hardware and/or software in the Verizon Network providing IP-based messaging and calling (e.g., Voice over LTE (VoLTE) and Voice over WiFi (VoWiFi)) capabilities and associated with products and/or services operated by Verizon and configured for use with devices marketed as having IP-based messaging and calling capabilities. See, for example, https://www.verizon.com/support/wi-fi-calling/ https://www.verizon.com/support/troubleshooting-wifi-calling-android-video/ [video tutorial] https://www.verizon.com/solutions-and-services/hd-voice/ [VoLTE calling features] and https://www.verizon.com/support/wifi-calling-faqs/ [frequently asked questions page].

60. Verizon Telecom Infrastructure includes servers, services, and/or other networking/computing/storage resources in the Verizon Network as well as any communication

networks involved in Verizon subscribers sending and receiving messages and making and receiving VoLTE, VoWiFi and/or Internet-based calls and messages. The Verizon Telecom Infrastructure specifically includes Verizon server software applications developed and/or operated by Verizon and executed by the particular servers, services, and/or other networking/computing/storage resources in the Verizon Network to implement setup, routing, and delivery of non-real time (e.g., messages) and real time (e.g., voice and video calls) communication to and from supported devices required by Verizon to connect to the Verizon telecom infrastructure (e.g., via cell towers or via the Internet) using particular Verizon hardware, firmware, configuration data, and/or VoWiFi software applications to send/receive messages and make/receive VoWiFi and/or Internet-based calls. The following claim charts demonstrate that these particular hardware and/or software elements of the Verizon Network to send/receive messages and make/receive VoWiFi calls incorporate methods of call classification and determining routing of calls between callers and callees features as described in the Patents-in-Suit and defined in the asserted claims literally and/or under the doctrine of equivalents.

61. Verizon Telecom Infrastructure is referred to in this Complaint as the Accused Instrumentalities.

COUNT 1
INFRINGEMENT OF U. S. PATENT NO. 8,542,815

62. Paragraphs 1 through 61 are incorporated by reference as if fully stated in this Count.

63. Verizon, either alone or in conjunction with others, has infringed and continues to infringe, both directly and indirectly, one or more claims of the ’815 patent, including at least exemplary claims 14 and 41 under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States at

least certain methods, apparatuses, products and services used for communication, including, without limitation, the Accused Instrumentalities.

64. For example, Verizon infringes exemplary claims 14 and 41 of the ’815 patent by making, using, offering to sell, selling, and/or importing into the United States at least the Accused Instrumentalities as detailed in Exhibit 4 to this Complaint.

65. On information and belief, Verizon has had knowledge of the ’815 patent since at least September 24, 2013, when the ’815 patent issued.

66. Alternatively, Verizon has had knowledge of the ’815 patent since at least December 18, 2015 based on a letter that VoIP-Pal sent to Verizon notifying the Verizon of the ’815 patent. After acquiring that knowledge, Verizon infringed the ’815 patent and in doing so, it knew, or should have known, that its conduct amounted to infringement of the ’815 patent. Verizon reviewed VoIP-Pal’s letter and claimed that Verizon did not have sufficient information to evaluate the statements in VoIP-Pal’s letter. Verizon, however, failed to provide VoIP-Pal any legitimate basis as to why it does not need a license despite being subjectively aware of the risk that its conduct constituted infringement. Verizon’s continued infringement of the ’815 patent, unabated by VoIP-Pal’s notice of the ’815 patent, constitutes willful and deliberate infringement.

67. Alternatively, Verizon has had knowledge of the ’815 patent and of its infringement of the ’815 patent based at least on the filing of *VoIP-Pal.com, Inc. v. Verizon Wireless Services, LLC et al.* 2-16-cv-00271 (D. NV.) on February 10, 2016.

68. Despite its knowledge and notice of the ’815 patent as of at least February 10, 2016, Verizon has continued to make, use, sell, offer to sell, and/or import the Accused Instrumentalities in the United States in a manner that infringes the ’815 patent. Verizon knew or should have known that its actions constituted infringement of the ’815 patent. Upon information and belief,

Verizon has failed to take adequate steps to avoid infringing the '815 patent, despite having been on notice of and lacking permission to practice the '815 patent. Upon information and belief, Verizon will continue to reap significant revenues and savings based on its infringement of the '815 patent. Accordingly, Verizon's infringement has been and continues to be willful.

69. Verizon has induced infringement, and continues to induce infringement, of one or more claims of the '815 patent under 35 U.S.C. § 271(b). Verizon actively, knowingly, and intentionally induced, and continues to actively, knowingly and intentionally induce infringement of the '815 patent by: making, using, selling, offering to sell, importing and/or otherwise making available and/or supplying the Accused Instrumentalities; with the knowledge and specific intent that third parties will use the Accused Instrumentalities supplied by Verizon to infringe the '815 patent; and with the knowledge and specific intent to encourage and facilitate third party infringement through the dissemination of the Accused Instrumentalities and/or the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information related to the Accused Instrumentalities.

70. Verizon specifically intended and was aware that the ordinary and customary use of the Accused Instrumentalities would infringe the '815 patent. For example, Verizon makes, offers to sell, sells, uses, imports, and/or makes available and provides the Accused Instrumentalities, which, when used in their ordinary and customary manner as intended by Verizon, infringes one or more claims of the '815 patent, including at least exemplary claims 14 and 41. Upon information and belief, Verizon further provides instructions, product manuals and other technical information that cause Verizon's customers and other third parties to use and to operate the Accused Instrumentalities for their ordinary and customary use. Verizon's customers and other third parties have directly infringed the '815 patent, including at least exemplary claims

14 and 41, through the normal and customary use of the Accused Instrumentalities. By providing network infrastructure, network services and device configurations for enabling the Accused Instrumentalities, and instruction and training to customers and other third parties on how to use the Accused Instrumentalities in an infringing manner, Verizon specifically intended to induce infringement of the '815 patent, including at least exemplary claims 14 and 41. Verizon accordingly has induced and continues to induce Verizon's customers and other users of the Accused Instrumentalities in their ordinary and customary way to infringe the '815 patent, knowing, or at least being willfully blind to the fact, that such use constitutes infringement of the '815 patent.

71. Verizon has contributed and continues to contribute to the infringement by others, including its customers, of the '815 patent under 35 U.S.C. § 271(c) by, among other things, making, selling, offering for sale within the United States and/or importing into the United States the Accused Instrumentalities for use in practicing the patented inventions of the '815 patent, knowing that the Accused Instrumentalities and components are especially made or adapted for use in infringement of the '815 patent, embody a material part of the inventions claimed in the '815 patent, and are not staple articles of commerce suitable for substantial non-infringing use. Verizon's customers directly infringe the '815 patent by using the Accused Instrumentalities.

72. VoIP-Pal has been and continues to be damaged by Verizon's infringement of the '815 patent.

73. Verizon's conduct in infringing the '815 patent renders this case exceptional within the meaning of 35 U.S.C. § 285.

COUNT 2
INFRINGEMENT OF U. S. PATENT NO. 9,179,005

74. Paragraphs 1 through 73 are incorporated by reference as if fully stated in this Count.

75. Verizon, either alone or in conjunction with others, has infringed and continues to infringe, both directly and indirectly, one or more claims of the ’005 patent, including at least exemplary claims 57 and 90, under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States at least certain methods, apparatuses, products and services used for communication, including, without limitation, the Accused Instrumentalities.

76. For example, Verizon infringes exemplary claims 57 and 90 of the ’005 patent by making, using, offering to sell, selling, and/or importing into the United States at least the Accused Instrumentalities as detailed in Exhibit 5 to this Complaint.

77. On information and belief, Verizon has had knowledge of the ’005 patent since at least December 18, 2015 based on a letter that VoIP-Pal sent to Verizon notifying Verizon of the ’005 patent. After acquiring that knowledge, Verizon infringed the ’005 patent and in doing so, it knew, or should have known, that its conduct amounted to infringement of the ’005 patent. Verizon reviewed VoIP-Pal’s letter and claimed that Verizon did not have sufficient information to evaluate the statements in VoIP-Pal’s letter. Verizon, however, failed to provide VoIP-Pal any legitimate basis as to why it does not need a license despite being subjectively aware of the risk that its conduct constituted infringement. Verizon’s continued infringement of the ’005 patent, unabated by VoIP-Pal’s notice of the ’005 patent, constitutes willful and deliberate infringement.

78. On information and belief, Verizon has had knowledge of the ’005 patent since at least November 3, 2015, when the ’005 patent issued.

79. Alternatively, Verizon has had knowledge of the '005 patent and of its infringement of the '005 patent based at least on the filing of *VoIP-Pal.com, Inc. v. Verizon Wireless Services, LLC et al.* 2-16-cv-00271 (D. NV.) on February 10, 2016.

80. Despite its knowledge and notice of the '005 patent as of at least the filing of this Complaint, Verizon continued to make, use, sell, offer to sell, and/or import the Accused Instrumentalities in the United States in a manner that infringes the '005 patent. Verizon knew or should have known that its actions constituted infringement of the '005 patent. Upon information and belief, Verizon failed to take adequate steps to avoid infringing the '005 patent, despite having been on notice of and lacking permission to practice the '005 patent. Upon information and belief, Verizon will continue to reap significant revenues and savings based on its infringement of the '005 patent. Accordingly, Verizon's infringement has been and continues to be willful.

81. Verizon has induced infringement, and continues to induce infringement, of one or more claims of the '005 patent under 35 U.S.C. § 271(b). Verizon actively, knowingly, and intentionally induced, and continues to actively, knowingly and intentionally induce infringement of the '005 patent by: making, using, offering to sell, selling, importing, and/or otherwise making available and/or supplying the Accused Instrumentalities; with the knowledge and specific intent that third parties will use the Accused Instrumentalities supplied by Verizon to infringe the '005 patent; and with the knowledge and specific intent to encourage and facilitate third party infringement through the dissemination of the Accused Instrumentalities and/or the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information related to the Accused Instrumentalities.

82. Verizon specifically intended and was aware that the ordinary and customary use of the Accused Instrumentalities would infringe the '005 patent. For example, Verizon makes,

offers to sell, sells, uses, imports, and/or makes available and provides the Accused Instrumentalities, which, when used in their ordinary and customary manner as intended by Verizon, infringe one or more claims of the '005 patent, including at least exemplary claims 57 and 90. Upon information and belief, Verizon further provides instructions, product manuals and other technical information that cause Verizon's customers and other third parties to use and to operate the Accused Instrumentalities for their ordinary and customary use. Verizon's customers and other third parties have directly infringed the '005 patent, including at least exemplary claims 57 and 90, through the normal and customary use of the Accused Instrumentalities. By providing network infrastructure, network services and device configurations for enabling the Accused Instrumentalities, and instruction and training to customers and other third parties on how to use the Accused Instrumentalities in an infringing manner, Verizon specifically intended to induce infringement of the '005 patent, including at least exemplary claims 57 and 90. Verizon accordingly has induced and continues to induce Verizon's customers and other users of the Accused Instrumentalities in their ordinary and customary way to infringe the '005 patent, knowing, or at least being willfully blind to the fact, that such use constitutes infringement of the '005 patent.

83. Verizon has contributed and continues to contribute to the infringement by others, including its customers, of the '005 patent under 35 U.S.C. § 271(c) by, among other things, making, selling, offering for sale within the United States, and/or importing into the United States the Accused Instrumentalities for use in practicing the patented inventions of the '005 patent, knowing that the Accused Instrumentalities and components are especially made or adapted for use in infringement of the '005 patent, embody a material part of the inventions claimed in the

'005 patent, and are not staple articles of commerce suitable for substantial non-infringing use. Verizon's customers directly infringe the '005 patent by using the Accused Instrumentalities.

84. VoIP-Pal has been and continues to be damaged by Verizon's infringement of the '005 patent.

85. Verizon's conduct in infringing the '005 patent renders this case exceptional within the meaning of 35 U.S.C. § 285.

DEMAND FOR JURY TRIAL

Under Rule 38 of the Federal Rules of Civil Procedure and Local Rule 38(a), VoIP-Pal demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, VoIP-Pal prays for the following relief:

a) A judgment and order that Verizon has directly infringed (either literally or under the doctrine of equivalents) and/or induced the infringement of the Patents-in-Suit;

b) A judgment and order permanently enjoining Verizon, its respective officers, directors, agents, servants, employees, attorneys, licensees, successors, and assigns and any other person(s) in active concert or participation with Verizon from directly infringing the patents-in-suit for the full term of the Patents-in-Suit;

c) A judgment that the infringement of the Patents-in-Suit by Verizon has been willful;

d) A judgment and order requiring Verizon to pay VoIP-Pal an award of damages under 35 U.S.C. § 284, adequate to compensate VoIP-Pal for Verizon's past infringement, but in no event less than a reasonable royalty, including enhanced damages as provided by 35 U.S.C. § 284, and supplemental damages for any continuing post-verdict infringement up until entry of the

final judgment with an accounting, as needed, as well as damages for any continuing or future infringement up to and including the date that Verizon is finally and permanently enjoined from further infringement;

e) A judgment and order requiring that in the event a permanent injunction preventing future acts of infringement is not granted, that VoIP-Pal be awarded a compulsory ongoing licensing fee;

f) A judgment and order that this action be found an exceptional case pursuant to 35 U.S.C. § 285, entitling VoIP-Pal to an award of all costs of this action, including attorneys' fees and interest;

g) A judgment and order requiring Verizon to pay VoIP-Pal the costs of this action;

h) A judgment and order requiring Verizon to pay VoIP-Pal pre-judgment and post-judgment interest on the damages award; and

i) Such other and further relief as the Court deems just and equitable.

Dated: May 29, 2024

Respectfully submitted,

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