

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AFFINITY NETWORK, INC.
Petitioner,

v.

TELIAX TECHNOLOGY LLC,
Patent Owner.

U.S. Patent No. 9,807,249 B2
Case No. TBD

**PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,807,249
UNDER 35 U.S.C. §312 AND 37 C.F.R. §42.104**

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 9,807,249
1002	File History for U.S. Patent No. 9,807,249
1003	Declaration of Mr. Benedict Occhiogrosso
1004	Curriculum Vitae of Mr. Benedict Occhiogrosso
1005	U.S. Patent No. 8,064,354 (“Barghouthi”)
1006	U.S. Patent No. 6,222,912 (“Breuer”)
1007	U.S. Patent No. 7,515,697 (“Eng”)
1008	U.S. Patent No. 8,130,662 (“Goode”)
1009	U.S. Patent No. 6,131,087 (“Luke”)

I. INTRODUCTION

In accordance with 35 U.S.C. §§311-319 and 37 C.F.R. §42, Petitioner Affinity Network, Inc. (“Petitioner”) respectfully requests *Inter Partes* Review (“IPR”) of Claims 1-20 (the “Challenged Claims”) of U.S. Patent No. 9,807,249 (“the ’249 Patent”), assigned to Patent Owner Teliix Technology LLC (“Patent Owner”).

The Challenged Claims address a technique for routing toll-free telephone calls using a toll-free exchange. The technique consists of the toll-free exchange receiving a toll-free call, querying a database to determine the identification of the organization responsible for routing calls made to the called subscriber, and routing the toll-free call to that responsible organization based on the identification. The patent’s purported purpose for using this technique is to help minimize the number of hand-offs and reduce the ultimate cost of the toll-free call, which is achieved by routing the call over a Voice-over-IP (“VoIP”) network directly to the called subscriber and without having to go through the old telephony system of switches and service providers. But the patented technique was well-known in the prior art. This includes art that, when combined, disclosed using the responsible organization’s identification to route the call to the toll-free subscriber or called party. And, the art specifically disclosed the use of this claimed

technique in VoIP networks. The Challenged Claims should therefore be cancelled.

II. MANDATORY NOTICES

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

Petitioner, Affinity Network, Inc., is the real party-in-interest.

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

Patent Owner, Teliix Technology LLC, asserted the '249 Patent against Petitioner in *Teliix Technology LLC, et al. v. Affinity Network, Inc.*, Case No. 2:22-cv-00362-CDS-DJA (D. Nev. 2022) (the "Litigation"). On October 19, 2022, the Court in the Litigation granted Petitioner's motion to dismiss the case ruling that all the claims of the '249 Patent are invalid under 35 U.S.C. §101 as directed to patent-ineligible subject matter. On November 17, 2022, Patent Owner filed a Notice of Appeal to appeal the District Court's decision to the United States Court of Appeals for the Federal Circuit and that appeal is currently pending as Appeal No. 2023-1197 ("Appeal"). The Litigation and Appeal may affect or be affected by a decision in this proceeding.

To Petitioner's knowledge, there are no other judicial or administrative matters that would affect or be affected by a decision in this proceeding.

C. 37 C.F.R. §42.8(b)(3) and (4): Counsel and Service Information

Petitioner identifies its Lead and Back-up Counsel as follows:

Lead Counsel	Back-Up Counsel
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Petitioner also plans to file a motion for *pro hac vice* admission for Michael J. Zinna.

Petitioner concurrently submits a Power of Attorney under 37 C.F.R. §42.10(b), and consents to electronic service by email to njpatentgroup@kelleydrye.com and vferraro@kelleydrye.com. Further, please address all correspondence to lead and backup counsel at KELLEY DRYE & WARREN LLP, One Jefferson Road, 2nd Floor, Parsippany, NJ 07054, (973) 503-5900 (telephone), (973) 503-5950 (facsimile), vferraro@kelleydrye.com and dlindenbaum@kelleydrye.com, with courtesy copies to njpatentgroup@kelleydrye.com.

III. FEES AUTHORIZATION

Pursuant to 37 C.F.R. §42.103, the Office is authorized to charge the fee set forth in 37 C.F.R. §42.15(a), as well as any other fees that may be due in connection with this Petition, to Deposit Account No. 502968.

IV. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies under 37 C.F.R. §§42.102(a)(1) and 42.104(a) that the '249 Patent is eligible for IPR, this Petition is timely filed, and Petitioner is not barred or estopped from requesting IPR of the Challenged Claims on the grounds in this Petition. Specifically, Petitioner certifies: (1) Petitioner does not own the '249 Patent; (2) Petitioner (or any real party-in-interest) has not filed a civil action challenging the validity of any of the claims of the '249 Patent; (3) Petitioner files this Petition within one year of the date it was served with a complaint asserting infringement of the '249 Patent; (4) estoppel provisions of 35 U.S.C. §315(e)(1) do not prohibit this IPR; and (5) this Petition is filed more than nine months after the '249 Patent was granted.

V. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

A. Prior Art References

1. U.S. Patent No. 8,064,354 to Barghouthi (“Barghouthi”)
(EX1005): Barghouthi was filed on July 21, 2010 and issued on November 22, 2011, and therefore is prior art under at least AIA 35 U.S.C. §102(a)(1).

2. U.S. Patent No. 6,222,912 to Breuer (“Breuer”) (EX1006):
Breuer was filed on February 18, 1999 and issued on April 24, 2001, and therefore is prior art under at least AIA 35 U.S.C. §102(a)(1).

3. U.S. Patent No. 7,515,697 to Eng, et al. (“Eng”) (EX1007):

Eng was filed on April 1, 2004 and issued on April 7, 2009, and therefore is prior art under at least AIA 35 U.S.C. §102(a)(1).

4. U.S. Patent No. 8,130,662 to Goode, et al. (“Goode”)

(EX1008): Goode was filed on December 31, 2006 and issued on March 6, 2012, and therefore is prior art under at least AIA 35 U.S.C. §102(a)(1).

B. Relief Requested

Petitioner respectfully requests cancellation of the Challenged Claims as follows:

Ground No.	Claims	Proposed Statutory Grounds
1	1-4, 6-8 and 10-12	Obvious under §103 over Barghouthi in view of Breuer
2	5 and 13	Obvious under §103 over Barghouthi in view of Breuer and Eng
3	9 and 14-19	Obvious under §103 over Barghouthi in view of Breuer and Goode
4	20	Obvious under §103 over Barghouthi in view of Breuer, Goode, and Eng

VI. NO DISCRETIONARY DENIAL

In addition to the compelling evidence of unpatentability presented herein, Petitioner also hereby provides a *Sotera*-type stipulation and stipulates that if the PTAB institutes this petition for IPR, the Petitioner will not pursue in the Litigation (should it ever re-commence) any ground raised or that could have been reasonably raised in the instituted IPR. This stipulation precludes discretionary denial under §314(a). *See* Director Vidal Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, 3-5, 7-8 (June 21, 2022).

Regarding §325(d), the '249 Patent has not previously been challenged at the PTAB. Nor was any reference relied upon herein as part of any ground cited during prosecution or considered by the Examiner. Accordingly, discretionary denial under §325(d) and *General Plastic* is not warranted.

VII. THE '249 PATENT AND ITS FILE HISTORY

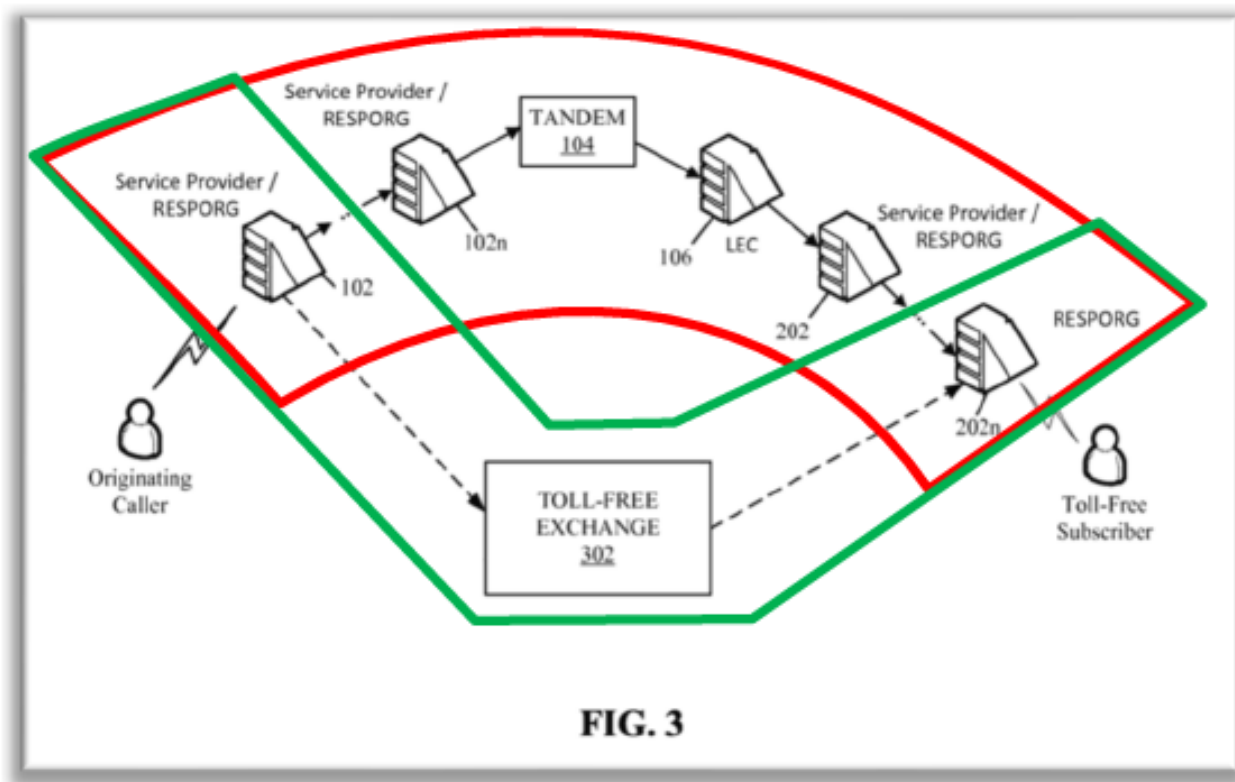
A. Overview of the '249 Patent

The '249 Patent issued on October 31, 2017, and is entitled "Routing Of Toll-Free Numbers Using A Toll-Free Exchange." EX1001, cover page. The application that led to the '249 patent was filed on August 26, 2015 and does not claim priority to any earlier filed application. As such, the earliest effective filing date of the '249 Patent is August 26, 2015.

The '249 Patent generally describes a system and method for routing toll-free telephone calls using a toll-free exchange. EX1001, Abstract. The purported objective of the '249 Patent was to simplify the traditional routing of toll-free calls in the conventional public switched telephone network ("PSTN") into a single exchange in order to reduce complexity and cost, increase scalability and efficiencies, and provide features only possible in an IP-enabled network, such as routing calls containing high definition voice and video data. *Id.*, 1:42-49, 2:63-3:6, 10:54-57. The '249 Patent teaches that these alleged benefits may be achieved via the use of a single toll-free exchange. *Id.* Notably, the alleged problem the '249 Patent was attempting to solve was to improve the efficiency and reduce the high cost of routing toll-free calls through the old PSTN, which required calls to go through potentially several different networks, tandem switches, Local Exchange Carriers ("LECs"), and service providers to reach its destination. *Id.*, 1:26-37, 3:7-30, 3:56-61, 4:12-20, 4:24-33.

At its core, the call routing system of the '249 Patent comprises: (1) service providers or Responsible Organizations ("RESPORGs") for handling incoming and outgoing toll-free calls (EX1001, Figure 3, 5:55-65, 7:12-15), (2) a toll-free exchange for routing toll-free calls to the RESPORGs responsible for the dialed toll-free calls (*id.*, Figure 3, 7:15-18), and (3) a database for storing routing information of the RESPORGs (*id.*, Fig. 3, 5:34-36, 7:51-59).

In operation, the toll-free exchange routes toll-free calls based on the Responsible Organization identification (“RESPORG ID”) of the RESPORG associated with the called toll-free subscriber (i.e., the “terminating RESPORG”). EX1001, 4:24-26. Specifically, the ’249 Patent’s toll-free call routing process begins when a caller places a toll-free call by dialing a toll-free number (e.g., a 1-800 number). *Id.*, 5:55-56, 1:11-13. The toll-free exchange receives the call from the calling party’s service provider (i.e., the “originating RESPORG”). *Id.*, 5:66-6:1. Upon receipt of the call, the toll-free exchange queries the database to determine the RESPORG ID of the terminating RESPORG (i.e., the service provider that is responsible for routing calls to the called toll-free subscriber). *Id.*, 7:12-18. The toll-free exchange then routes the call, based on the RESPORG ID, to the terminating RESPORG, which connects the call to the called toll-free subscriber. *Id.*, 8:57-9:3. Put in simpler terms, the ’249 Patent describes a method for routing toll-free calls whereby the toll-free exchange receives a toll-free call, looks up the RESPORG ID of the terminating RESPORG using the dialed toll-free number, and routes the call using that RESPORG ID. This call routing process is depicted in Figure 3 of the ’249 Patent, set forth below. The **green** annotation depicts the call routing path of the claimed invention, as just described; and the **red** annotation depicts the call routing path of a legacy system.



The '249 Patent further describes utilizing a VoIP network to carry out the aforementioned call routing process, which allows for routing calls containing voice and video data. EX1001, 8:31-33, 10:54-57.

B. The '249 Patent's Prosecution History

The '249 Patent issued from U.S. Patent Application Serial No. 14/836,396 (the "'396 Application"), filed on August 26, 2015. The '396 Application does not claim priority to any earlier filed application.

The '396 Application was filed with 20 claims – three independent claims and 17 dependent claims. EX1002, 0033-0038.

On September 12, 2016, the Examiner issued a Non-Final Office Action rejecting Claims 1-20 under 35 U.S.C. §102(a)(2) as anticipated by U.S. Patent Publication No. 2010/0014651 (“Bajpay”). EX1002, 0135-0146. Patent Owner submitted a Response to the Non-Final Office Action on December 7, 2016 in which Patent Owner amended independent Claims 1 and 10 to require the database to be “associated with the toll-free exchange” and to “store[] the RESPORG identification associated with the terminating RESPORG.” *Id.*, 0161-0173.

The Examiner issued a Final Office Action on March 2, 2017 rejecting Claims 17-20 under 35 U.S.C. §102(a)(2) as anticipated by Bajpay and rejecting Claims 1-16 under 35 U.S.C. §103 as obvious over Bajpay and further in view of U.S. Patent No. 6,343,123 (“Lehmacher”). EX1002, 0175-0190. Patent Owner submitted a Response to the Final Office Action on July 11, 2017 in which Patent Owner distinguished the claimed invention over the cited prior art by arguing that none of the cited references teach or suggest the recited limitation of “routing ... the toll-free call based in part on the RESPORG identification [of the terminating RESPORG].” *Id.*, 0214-215. Specifically, Patent Owner argued that “until the Applicant’s innovation described in the present Application, RESPORG identifications have never before been used for call routing purposes, much less as a way to route calls directly to the termination RESPORG by skipping the traditional telephone system.” *Id.* Patent Owner has, therefore, made it clear that

the alleged novel feature of the claimed invention of the '249 Patent is simply the use of RESPORG IDs to directly route calls to the terminating RESPORG. *Id.*

A Notice of Allowance was subsequently mailed on September 13, 2017 allowing Claims 1-20. EX1002, 0236-0244. The '249 Patent issued on October 31, 2017 with three independent claims (Claims 1, 10, and 17) and 20 total claims.

VIII. PERSON OF ORDINARY SKILL IN THE ART

Based on the '249 Patent disclosures, at or around the time of the earliest effective filing date of the '249 Patent (i.e., August 26, 2015), a POSITA would have had at least a Bachelor's degree in Electrical Engineering, or an equivalent or related field, and at least two years of industry experience with telecommunication systems and network services, including VoIP switching technology. Additional industry experience or technical training may offset less formal education, and vice versa. EX1003, ¶¶63-64.

IX. CLAIM CONSTRUCTION PURSUANT TO 37 C.F.R. §42.104(b)(3)

No term requires explicit construction to resolve the particular grounds presented in this Petition and, therefore, each term should be given its plain and ordinary meaning as understood by a POSITA at the time of the claimed invention. EX1003, ¶65. This should not be viewed as a concession by Petitioner as to the proper scope of any claim term in any litigation. Moreover, this is not a waiver of any argument in any litigation that claim terms in the '249 Patent are indefinite, not

enabled or lack written description support, or that the claims of the '249 Patent are otherwise invalid.

X. OVERVIEW OF THE PRIOR ART

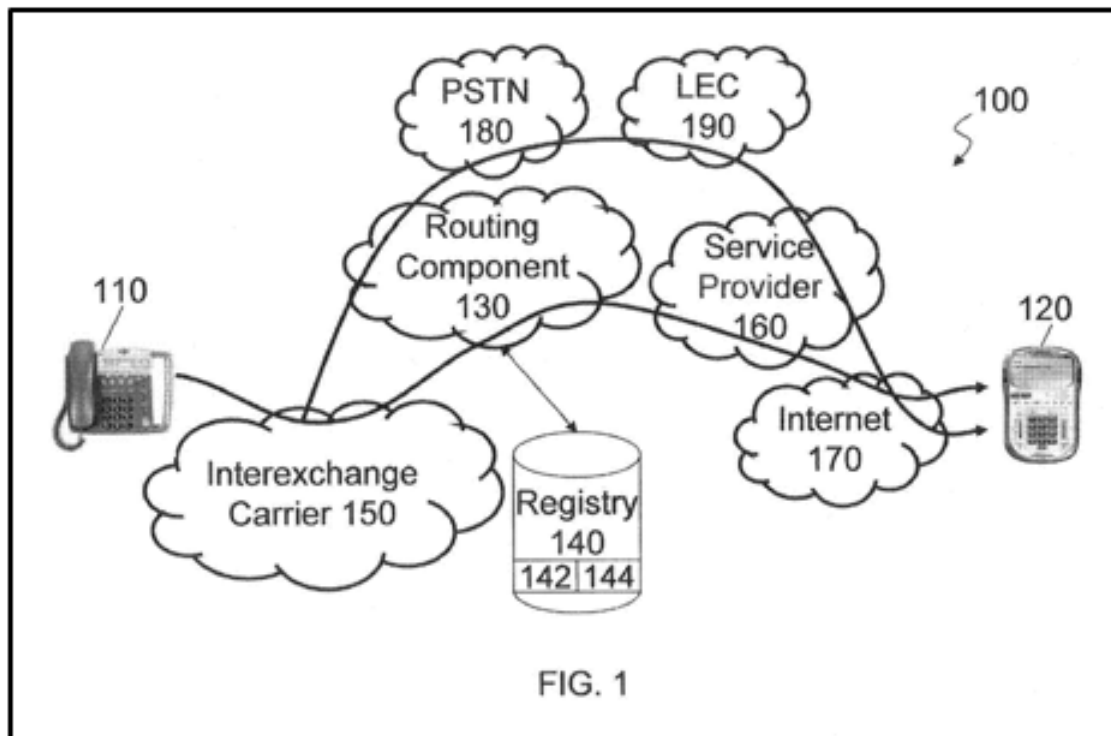
A. Barghouthi

Barghouthi discloses a system and method for routing calls from a calling party to a called party based on an identifier associated with the called party's communication device. EX1005, 1:58-2:21. Barghouthi's method for routing calls includes the following steps: (1) receiving the call, (2) looking up the identifier associated with the communication device of the called party, and (3) routing the call directly to the called party based on the identifier. *Id.*

Barghouthi seeks to solve the same purported problem as the '249 Patent. That is, like the '249 Patent, Barghouthi seeks to improve efficiencies and reduce costs in the call routing process by eliminating the need to route calls through multiple switching components (e.g., PSTNs, LECs, service providers, etc.) as was done in prior art call routing systems. EX1005, 1:14-31, 1:44-48, 1:53-54. And, like the '249 Patent, Barghouthi solves this problem by routing calls directly to the called party using an identifier associated with the called party. *Id.*, 1:58-2:3.

Barghouthi's Figure 1 depicts the network 100 and the components involved for routing calls, including: communication devices (e.g., ingress point 110 and egress point 120); interexchange carrier 150; routing component 130; service

provider 160; circuit-switched networks (e.g., PSTN 180 and Local Exchange Carrier 190); and packet-switched networks (e.g., Internet 170). EX1005, Figure 1, 2:65-3:7, 3:53-57, 5:1-4.



Barghouthi teaches a method for routing a call from a calling party to a called party based on an identifier of the called party's communication device. EX1005, 1:58-2:3. The call is initiated at the calling party's communication device (e.g., ingress point 110) by entering a number or identifier associated with the called party's communication device (e.g., egress point 120). *Id.*, 4:8-12. The identifier associated with the called egress point 120 may contain any length of digits, including a standard 10-digit telephone number. *Id.*, 4:22-38. The call is then received at the routing component 130. *Id.*, 4:18-21. Upon receipt of the call,

the routing component 130 queries its associated database (e.g., registry 140) to determine if it contains an entry that includes the identifier associated with the egress point 120 being called. *Id.*, 4:39-51, 7:1-5. In one embodiment, the routing component 130 may initially query the direct routing portion 142 of the registry 140 to determine if the identifier being called is stored in the direct routing portion 142. *Id.*, 4:43-47. The database 140 contains entries for each device registered with the system, whereby each entry may include: information related to the user's communication device, the phone number or other identifier associated with the user's communication device (i.e., the device identifier), and the IP address associated with the user's communication device. *Id.*, 3:8-15. If an entry exists for the identifier associated with the called egress point 120 in the direct routing portion 142 of the registry 140, the routing component 130 may route the call directly to either the called egress point 120, or to the service provider 160 of the egress point 120 and then to the egress point 120, via the IP address stored in the entry. *Id.*, 4:52-67.

B. Breuer

Breuer is generally directed to a system and method for accurately billing toll-free calls to the RESPORGs responsible for managing the called toll-free subscribers, and maintaining call records regarding the same. EX1006, 3:30-33, Abstract. This is achieved by utilizing RESPORG IDs to identify the RESPORG

responsible for the called toll-free subscriber so that the correct RESPORG is billed for the call. *Id.*, Abstract. Specifically, as shown in Figure 2, identifying the RESPORG responsible for the called toll-free subscriber includes the steps of: (1) querying the database for the RESPORG ID of the RESPORG associated with the dialed toll-free number, and (2) retrieving the RESPORG ID in response to the database query. *Id.*, Figure 2, 5:30-48, 6:17-41. The retrieved RESPORG ID is then stored in a call detail record, which may later be used to bill the corresponding RESPORG responsible for handling the called toll-free number. *Id.* Breuer further contemplates including the aforementioned RESPORG ID query in the same query seeking the call routing data (i.e., the information needed to route the call to the correct destination). *Id.*, 5:34-46.

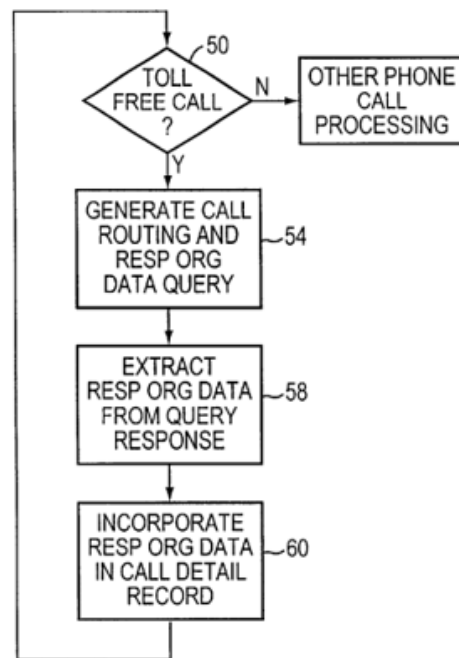
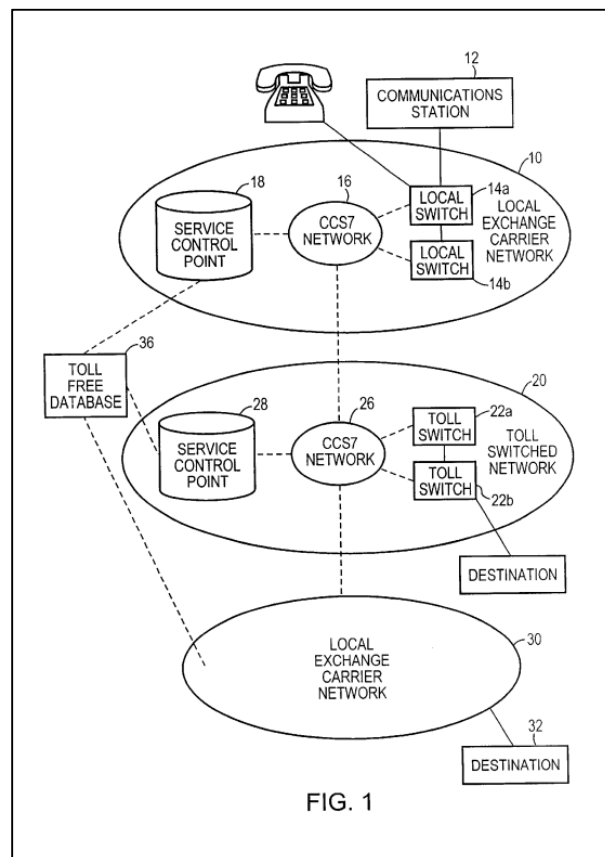


FIG. 2

Breuer's system and method identifies the RESPORG at the time a toll-free call is received by extracting its RESPORG ID in order to ensure the correct RESPORG is billed for the call. *Id.*, Abstract.

Breuer's method and system is implemented using a standard telecommunications system. The components of the telecommunications system include communication devices (e.g., communication stations or telephones 12); an originating Local Exchange Carrier network 10; a toll switch network, such as a long distance carrier 20; and a destination local exchange area network 30. EX1006, Figure 1, 4:46-5:6. A call placed in Breuer's system is routed via "typical toll-free call processing." *Id.*, 6:26-28.



C. Eng

Eng discloses an “online telecommunications trading exchange that is capable of automatically settling trading accounts for buyers and sellers of telecommunications services.” EX1007, 1:29-33. Specifically, Eng teaches a telecommunications system whereby some service providers submit offers to sell telecommunications services (i.e., sellers), and some service providers submit requests to purchase telecommunications services (i.e., buyers). *Id.*, 2:44-47. Each of the service offers and service requests includes price or rate information and the level of quality associated with a telecommunications route defined by an origination location and a destination location. *Id.*, 2:47-50. A server node then matches a service request to the service offer, based on (among other things) the price each service provider submitted, and generates routing instructions to initiate communications between the service providers. *Id.*, 2:54. Upon receiving the routing instructions, a network switch connected to the networks of the service providers routes communications (e.g., voice, fax, data packets) from a requesting service provider (i.e., buyer) to the corresponding matched offering service provider (i.e., seller). *Id.*, 2:57-61.

D. Goode

Goode teaches a method and apparatus for providing centralized or regionalized transcoding functions in a communications network, e.g., a packet

network such as a VoIP network. EX1008, Abstract, 1:4-8. The purpose of Goode is to provide a transcoding function after a codec or media format mismatch error is received. *Id.* For example, Goode's method is designed to detect a media format mismatch during a call setup between a calling party's device and a called party's device. *Id.*, 1:38-48. The method then invokes a transcoding function directly by at least one border element to handle the detected mismatch and allow for the desired media to be successfully transferred from the calling party to the called party. *Id.*

Goode specifically teaches the use of a centralized or regionalized transcoding server and media resource, whereby the media resource performs the actual transcoding between two different codecs. *Id.*, 5:14-20. The transcoding performed by the media resource can be applied to audio, video, or multimedia codec mismatches. *Id.*, 5:20-22.

XI. GROUNDS FOR UNPATENTABILITY AND PRECISE RELIEF REQUESTED PURSUANT TO 37 C.F.R. §42.104(B)

Petitioner requests that the Challenged Claims be found unpatentable on each ground enumerated herein, based on the detailed explanation provided herein, including Petitioner's identification of where each claim element is found in the prior art. The reference(s) in each ground disclose all elements of the Challenged Claims enumerated in that ground, arranged in the prior art as in the claims.

This Petition contains non-limiting examples of how the prior art enumerated below teaches each claim element against which it is being cited. Additional examples are set forth elsewhere in the prior art.

A. Ground 1: Claims 1-4, 6-8 and 10-12 are Obvious over Barghouthi in view of Breuer

1. Motivation to Combine Barghouthi and Breuer

A POSITA at the time of the claimed invention of the '249 Patent would have been motivated to modify Barghouthi with Breuer because both references are in the same field of endeavor as the '249 Patent – telecommunications and call routing. *Compare* EX1005 (Barghouthi), Abstract (“[a] process for routing a call between an ingress point and an egress point is based on an identifier, such as a number, assigned to the egress point and a registry in which identifiers are stored”), *with* EX1006 (Breuer), 6:17-28 (“When an SS7 enabled switch (SSP) detects a toll-free number has been dialed[,] ... [t]he SCP retrieves the call routing data [and] the SSP [] uses the routing information to conduct typical toll-free call processing”). Further, as described in the overview section above, while Barghouthi teaches the use of a more modern call processing architecture (e.g., the use of the packet-switching networks such as the Internet 170), both Barghouthi and Breuer rely on a similar network architecture, employing network components with similar functionality throughout. *Compare* EX1005 (Barghouthi), Figure 1 (elements 180, 190 and 160), *with* EX1006 (Breuer), Figure 1 (elements 10, 30).

Moreover, both Barghouthi and Breuer teach the use of the traditional Signaling System No. 7 (SS7) for routing calls between the calling party and the called party. EX1005, 5:1-7; EX1006, 6:17-23; EX1003, ¶77.

A POSITA also would have been motivated to combine the references to use Breuer's teachings to improve Barghouthi in order to help achieve Barghouthi's expressly desired advantages in a toll-free environment. As background, Barghouthi describes an improved call routing process that routes calls directly from the calling party to the called party without having to go through the several exchanges and switches of old telephony networks, such as PSTN – thereby improving system efficiency and reducing cost. EX1005, Abstract. Barghouthi accomplishes this by querying a database in order to locate the identifier and IP address of the called party's device. *Id.*, 4:39-67, 7:1-5. In the same field of endeavor, Breuer teaches identifying a RESPORG responsible for handling a toll-free telephone call at the time the call is placed. EX1006, Abstract. And, similar to Barghouthi, Breuer accomplishes this by querying a database to locate the RESPORG ID of the RESPORG associated with the dialed toll-free number. *Id.*, Figure 2, 5:30-48, 6:17-41. A POSITA thus would have been motivated to combine Breuer with Barghouthi to help Barghouthi achieve its process for directly routing calls from a calling party to the called party in a toll-free environment. EX1003, ¶78.

Specifically, at the time of the filing date of the '249 Patent, a POSITA would have been motivated to modify Barghouthi's direct call routing system for use in a toll-free environment by querying Breuer's database in order to identify the RESPORG ID of the RESPORG responsible for handling the toll-free call because the RESPORG ID, instead of the device identifier of Barghouthi, would be needed to achieve Barghouthi's goal of routing toll-free calls directly to the toll-free subscriber. EX1003, ¶79. Thus, basic market forces for enhanced reach and operability to direct call routing in toll-free environments would have prompted improving Barghouthi's design in accordance with Breuer's teachings. *Id.*

A POSITA would have had a reasonable expectation of success in combining Barghouthi with Breuer. EX1003, ¶80. Barghouthi implements circuit-switching (PSTN and LEC technology) in the context of call routing, which Breuer also employs. *Compare* EX1005 (Barghouthi), Figure 1 (elements 180 and 190), *with* EX1006 (Breuer), Figure 1 (elements 10 and 30).

Further, Barghouthi expressly discloses that it can perform database queries to identify the called party using the E.164 numbering format. EX1005, 4:22-28 ("An identifier or number associated with the egress point 120 may contain any desired length of digits. As just one example, the identifier may comprise an E.164 number, which is an international standardized numbering plan used in voice and data networks that defines the numbering format, which typically varies by

geographic region. For example, in the United States, an E.164 number is a 10-digit number.”). Toll-free numbers – i.e., numbers in the form of 1-8xx-xxx-xxxx – adhere to E.164 numbering format. EX1003, ¶81. Breuer’s database querying, which includes querying a database using the dialed toll-free number (e.g., a number in the form of 1-8xx-xxx-xxxx) to locate the RESPORG ID of the RESPORG responsible for managing the dialed number, may thus be readily incorporated into Barghouthi’s call routing system, which is by its nature sufficiently flexible to accommodate the adoption of features such as Breuer’s. *Id.*

Further, because Barghouthi and Breuer both involve routing calls using standard telecommunications networks and components, this combination represents no more than the combination of familiar elements that would yield a predictable result. EX1003, ¶82. Lastly, this combination represents nothing more than an arrangement of old elements with each performing the same function disclosed in their respective prior art references (Barghouthi directly routing a call between a calling party and called party, and Breuer identifying the RESPORG responsible for handling a toll-free call). *Id.* This combination would yield no more than a POSITA would expect from such an arrangement. *Id.*

2. Claim 1¹

a. Element 1[preamble]

Barghouthi in combination with Breuer discloses a method for routing calls through a toll-free exchange, whereby the method is performed by a policy router of the toll-free exchange.

Specifically, Barghouthi teaches a “routing component 130” for routing calls:

A process for routing a call between an ingress point and an egress point is based on an identifier, such as a number, assigned to the egress point and a registry in which identifiers are stored. A ***routing component*** receives the call from the ingress point and consults the registry to determine if an entry with the identifier of the egress point being called is stored therein. If a corresponding entry exists, a delivery route for routing the call to the egress point is determined. The delivery route may be a first path to the egress point if available. If the first path is not available, one or more secondary paths are determined, where one is utilized for sending the call to the egress point. The utilized secondary path may be the most optimal path for the call based upon established preferences and call features.

¹ The complete text of the claims is available in the claim listing attached hereto as Appendix A.

EX1005, Abstract (emphasis added). Notably, Barghouthi expressly teaches “utiliz[ing] the routing component 130 for direct routing of calls” between the ingress point (calling party’s communication device, 110) and egress point (called party’s communication device, 120). *Id.*, 3:24-28, 4:8-67 (“The call is initiated at the ingress point 110”; “[t]he call may be received at the routing component 130 directly from the ingress point 110”; “[t]he routing component 130 may then determine a delivery route for the call, which may, according to an embodiment, be ... a path from the routing component 130 directly to the egress point 120”).

The ’249 Patent teaches that the claimed toll-free exchange is nothing more than a “computing device” “used to route calls.” EX1001, 4:24-26, 10:64-11:15. The ’249 Patent further teaches that the claimed “policy router” includes nothing more than “the routing logic and decision-making of the toll-free exchange.” *Id.*, 5:31-34. Similarly, Barghouthi describes its “routing component 130” as a “processing element embodied as a processor, a co-processor, a controller, or various other processing means or devices including circuits,” which includes “a memory element” “for storing information, instructions, or the like to enable the routing component 130 to perform various functions,” including call routing. EX1005, 3:58-4:67. As such, Barghouthi’s “routing component” discloses the ’249 Patent’s claimed “toll-free exchange” and corresponding “policy router” for routing calls. EX1003, ¶¶84-85.

Barghouthi further contemplates the ability to route toll-free calls using the routing component 130, explaining that the dialed number may be in E.164 format. EX1005, 4:22-28 (“An identifier or number associated with the egress point 120 ... may comprise an E.164 number, which ... in the United States ... is a 10-digit number.”). Toll-free numbers – i.e., numbers in the form of 1-8xx-xxx-xxxx – adhere to 10-digit E.164 numbering format. EX1003, ¶86. Thus, Barghouthi contemplates and is capable of routing toll-free calls. *Id.*

To the extent Barghouthi does not expressly disclose routing toll-free calls, Breuer does. EX1006, 6:17-28 (“[R]etrieved data [is] routed back to the SSP which uses the routing information to conduct typical toll-free call processing”), 4:46-57, 4:65-5:6. It would have been obvious to a POSITA at the time of the claimed invention of the ’249 Patent to modify Barghouthi, to the extent it even needed to be modified, according to Breuer to route toll-free calls using Barghouthi’s call routing system, which in the modified Barghouthi/Breuer system would include a toll-free routing component 130 (i.e., a toll-free exchange). EX1003, ¶87.

Thus, to the extent the preamble is limiting, Barghouthi in view of Breuer discloses the preamble of Claim 1. EX1003, ¶¶83-88.

b. Element 1[a]

Barghouthi in combination with Breuer discloses receiving, from an originating responsible organization (RESPORG), a toll-free call, wherein the toll-free call is directed to a toll-free subscriber that is served by a terminating RESPORG.

The '249 Patent discloses that an originating RESPORG is merely “the entity responsible for handling each of the incoming and outgoing calls of the originating caller” (i.e., the calling party), and specifically identifies Verizon Wireless as one such originating RESPORG. EX1001, 5:55-65.

Barghouthi teaches a method for routing a call from a calling party to a called party based on an identifier of the called party's communication device. EX1005, 1:58-2:3. The call is initiated at the calling party's communication device (e.g., ingress point 110) by entering an identifier associated with the called party's communication device (e.g., egress point 120). *Id.*, 4:8-12. The identifier associated with the called egress point 120 may contain any length of digits, and may be a standard 10-digit telephone number. *Id.*, 4:22-38.

Barghouthi discloses that after a call is placed on the calling party's device (e.g., ingress point 110), the call is then “received at the routing component 130 directly from the ingress point 110 or from the interexchange carrier 150 associated with the ingress point 110.” EX1005, 4:8-21, 3:46-49 (“The routing

component 130 may connect directly to the ingress point 110 and the egress point 120, or the connection may be through an interexchange carrier 150, a service provider 160, and/or a network such as the Internet 170.”). A POSITA would understand that an incoming call received by the routing component 130 must come from the calling party’s (i.e., originating caller’s) service provider (e.g., either the interexchange carrier (150) or service provider (160)), which may be for example, Verizon Wireless, AT&T, T-Mobile, etc. EX1003, ¶¶91-92.

Barghouthi further discloses that the placed call is directed to a called party (e.g., egress point 120) that is served by a terminating RESPORG (e.g., service provider 160), which is responsible for handling each of the incoming and outgoing calls of the called party. EX1005, 4:52-67 (“The direct path [for routing the call to egress point 120] may be a path from the routing component 130 directly to the egress point 120, or may be a path to the service provider 160 of the egress point 120 via the Internet 170 to the egress point 120.”).

As explained above, Barghouthi contemplates routing toll-free calls, which would include routing toll-free calls to a toll-free subscriber. Section XI.A.2.a; EX1003, ¶94. To the extent Barghouthi does not expressly disclose routing toll-free calls, Breuer does. EX1006, 6:17-28, 4:46-57, 4:65-5:6. To that end, Breuer expressly discloses receiving, from an originating RESPORG (i.e., originating LEC network 10), a toll-free call, wherein the toll-free call is directed to a toll-free

subscriber that is served by a terminating RESPORG (i.e., destination LEC network 30):

For toll-free calls originating within LEC network 10, local switch 14a generates a call routing data query that is provided by CCS7 network 16 to SCP 18. SCP 18 responds with call routing data that identifies the carrier to which the call is to be routed. ... When the call requires handling by another carrier, local switch 14a uses the carrier data from SCP 18 to route the call to toll switch 22a [of toll switch network 20]. ... In response to receiving a toll-free call from LEC network 10, toll switch 22a generates a call routing data query which is provided by CCS7 network 26 to SCP 28 for call routing information. This information may identify LEC network 10, LEC network 30 or another toll network for further routing. Eventually, the call is transported to a destination LEC network 30 which routes the call to destination number 32.

EX1006, 5:7-30. Breuer further expressly discloses that LECs are RESPORGs (*id.*, 5:13-17) and that RESPORGs may be companies such as AT&T (*id.*, 7:10-19).

It would have been obvious to a POSITA at the time of the claimed invention of the '249 Patent to modify Barghouthi, to the extent it even needed to be modified, according to Breuer such that Barghouthi's routing component 130 is modified to receive a toll-free call from Breuer's originating RESPORG and further wherein the toll-free call is directed to a toll-free subscriber that is served

by one of Breuer's terminating RESPORGs, in order to route toll-free calls using Barghouthi's call routing system. EX1003, ¶95.

Therefore, Barghouthi in view of Breuer discloses Element 1[a]. EX1003, ¶¶89-96.

c. Element 1[b]

Barghouthi in combination with Breuer discloses querying a database to determine a RESPORG identification associated with the terminating RESPORG, wherein the database is associated with the toll-free exchange and stores the RESPORG identification associated with the terminating RESPORG.

As an initial matter, a POSITA at the time of the claimed invention of the '249 Patent would understand that a "RESPORG identification" is simply data, which may be in the form of a string of characters, that identifies a RESPORG. EX1003, ¶98; EX1006, 6:30-33 ("The switch of the present invention also extracts the Resp Org identifying data from the query response (Block 58) and stores the data for later access.").

Barghouthi discloses that after a call is placed by the calling party at ingress point 110 and received by the routing component 130, the routing component 130 queries its associated database 140 to determine the identification associated with the called party's device (e.g., egress point 120). For example, as disclosed by Barghouthi: "Upon receipt of the call, the routing component 130 consults the

registry 140 to determine if the identifier being called is stored therein. Consulting the registry 140 may include *querying the registry 140 to determine if a registry entry exists for the identifier being called.*” EX1005, 4:39-51, 7:1-5 (“when a call is being placed via the routing component 130, the registry is searched or otherwise accessed to determine if a stored registry entry includes the identifier and/or IP address associated with an egress point attempting to be called.”). A POSITA would have readily understood and appreciated, at the time of the claimed invention, that it likewise would have been obvious to query the registry 140 to determine if a stored registry entry includes the identifier of the service provider 160 that serves the called egress point 120, as that would require nothing more than merely looking up the identifier of the service provider 160 instead of the called party 120. EX1003, ¶99.

A POSITA would also readily understand that querying a registry (e.g., a database) to determine if an entry exists in the database that includes the identifier associated with equipment being called satisfies the claimed querying step because to query a database is to determine or identify whether certain information of interest (in this case, the identification of the called party) is contained in the database. EX1003, ¶100. In other words, to query a database is to do nothing more than determine whether a piece of data of interest is stored in the database. *Id.*

Barghouthi also discloses that the registry (e.g., database) (EX1005, 3:3-4 (“registry [140] may be a database”)) is associated with the routing component 130 (e.g., toll-free exchange) and stores the identifier associated with the called party’s device (e.g., RESPORG identification associated with the terminating RESPORG). For example, Barghouthi discloses that “the registry [140] may be integral with the routing component [130]” (EX1005, 2:66-67), and that “registry [140] may include registry entries, [] with each entry including one or more of: information related to the user, information related to the user’s device, the phone number or other identifier associated with the user’s device (i.e., the device identifier), an Internet Protocol (IP) number associated with the user’s device ...” (*id.*, 3:8-12).

In light of the above, Barghouthi discloses this limitation. Further, and as explained above, Barghouthi contemplates routing toll-free calls, which would include routing toll-free calls to a toll-free subscriber. Section XI.A.2.a; EX1003, ¶102. To the extent Barghouthi does not expressly disclose routing toll-free calls or the precise requirements of this limitation, Breuer does. EX1006, 5:30:43, 6:17-34. Specifically, Breuer expressly discloses querying a database to determine a RESPORG identification associated with the terminating RESPORG, wherein the database is associated with the toll-free exchange and stores the RESPORG identification associated with the terminating RESPORG:

In the system and method of the present invention, local switches 14a and 14b are provided with computer software that ***generates a database query for Resp Org data***. Preferably, this Resp Org query is included in the query for call routing data although it may be generated as a separate query. The Resp Org query is received by CCS7 network 16 and delivered to SCP 18. Because the database downloads from SMS/800 database 36 contain Resp Org data, ***SCP [18] provides the Resp Org data in a response to one of the local switches***. The software in local switch 14 a ***extracts the identity of the Resp Org from the response to the Resp Org query*** and generates a call detail record for the toll-free call that includes data identifying the Resp Org.

EX1006, 5:30-43 (emphasis added), 6:17-33. Breuer's SCP 18 is the database that is queried to determine the RESPORG identification associated with the terminating RESPORG as it "contains call routing data and Resp Org data for toll-free telephone number that SCP 18 periodically receives from toll-free number database 36." *Id.*, 4:62-64. SCP 18 is also associated with LEC network 10 (e.g., a toll-free exchange). *Id.*, Figure 1 (showing SCP 18 contained within LEC network 10), 5:13-17 ("For toll-free telephone calls that originate and terminate at numbers serviced by LEC network 10, and for which that LEC is the Resp Org, local switch 14a may route a call from the originating number to the destination number, after the routing query is sent to the SCP."). Breuer's "Resp Org data" is "Resp Org identification data" (*id.*, 3:42-45, i.e., RESPORG identification) associated with the

“Resp Org responsible for [the called] toll-free number” (*id.*, 3:21-22, i.e., terminating RESPORG).

A POSITA would understand, at the time of the claimed invention, that Breuer’s aforementioned process for querying a database to determine a RESPORG identification associated with the terminating RESPORG could be implemented into Barghouthi’s call routing system such that Barghouthi’s routing component 130 could be programmed to query the registry 140 to determine the RESPORG identification of service provider 160 associated with egress point 120. EX1003, ¶103. Further, modifying Barghouthi in this way would result in a process that is nearly identical as the process Barghouthi currently uses to query its database, except that instead of querying the database for the identification of the called party’s device, Barghouthi’s routing component 130 would be programmed to query the database for the identification of the terminating RESPORG. *Id.* Moreover, a POSITA would understand that Barghouthi’s registry 140 could be modified as described in Breuer to store the RESPORG identification associated with Barghouthi’s service provider 160. *Id.* This is supported by the fact that Barghouthi expressly states that various “[o]ther types of information may be included in the registry entries” stored within registry 140. EX1005, 3:15-17.

A POSITA would have been motivated to make these simple modifications to Barghouthi in order to allow Barghouthi’s system to route toll-free calls directly

from the calling party to the called toll-free subscriber using a modified version of Barghouthi's direct call routing system. EX1003, ¶104. A POSITA would have had a reasonable expectation of success when combining Barghouthi and Breuer in this way because this combination represents no more than the combination of familiar elements that would yield a predictable result. *Id.* Likewise, this combination represents nothing more than arrangement of old elements with each performing the same function disclosed in their respective prior art references and therefore this combination would yield no more than a POSITA would expect from such an arrangement. *Id.*

Therefore, Barghouthi in view of Breuer discloses Element 1[b]. EX1003, ¶¶97-105.

d. Element 1[c]

Barghouthi in combination with Breuer discloses routing, to the terminating RESPORG, the toll-free call based in part on the RESPORG identification.

Barghouthi's routing component 130 routes the call directly to the service provider 160 associated with the called party's device 120 (i.e., the terminating RESPORG) based on the identifier of the called party's device (i.e., egress point 120). For example, "if the identifier or number [associated with the called egress point 120] is stored in the direct routing portion 142 of the registry 140," routing component 130 retrieves the IP address of the called egress point, which is

contained in the stored registry entry, and routes the call directly “to the service provider 160 of the egress point 120 via the Internet 170 [which then gets routed] to the egress point 120.” EX1005, 4:56-67, 7:1-9, 3:8-13 (explaining that registry entries for called egress points 120 include, among other things, the IP number associated with the user’s device).

As explained in the preceding Section, Breuer discloses querying a database to determine a RESPORG identification associated with the terminating RESPORG.

It would have been obvious to a POSITA to combine Barghouthi’s method for direct call routing with Breuer’s process for determining the RESPORG identification associated with the terminating RESPORG to yield this claim limitation. EX1003, ¶109. To explain, a POSITA could easily implement Breuer’s process for determining the RESPORG identification associated with the terminating RESPORG into Barghouthi’s system such that once the RESPORG identification is obtained, Barghouthi’s routing component 130 would then route the call directly to the terminating RESPORG (i.e., service provider 160) using the RESPORG identification instead of the identifier of the called egress point 120. *Id.* This process would be nearly identical as the process Barghouthi currently uses to route calls directly to the service provider 160 of egress point 120 except that it

would merely base the routing of the call on the identification of the service provider 160 instead of the egress point 120. *Id.*

A POSITA would have been motivated to make these simple modifications to Barghouthi in order to allow Barghouthi's system to route toll-free calls directly from the calling party to the called party, and a POSITA would have had a reasonable expectation of success when combining Barghouthi and Breuer in this way because this combination represents no more than the combination of familiar elements that would yield a predictable result. EX1003, ¶110. Likewise, this combination represents nothing more than arrangement of old elements with each performing the same function disclosed in their respective prior art references and therefore this combination would yield no more than a POSITA would expect from such an arrangement. *Id.*

Therefore, Barghouthi in view of Breuer discloses Element 1[c]. EX1003, ¶¶106-111.

3. Claim 2

Barghouthi in combination with Breuer discloses that the originating RESPORG and the terminating RESPORG are enrolled in the toll-free exchange.

Barghouthi discloses the general idea that every user device (e.g., ingress point 110 and egress point 120) is enrolled or stored in the system's registry 140,

which is integrated with routing component 130. For example, Barghouthi teaches:

The registry 140 may include registry entries, and with each entry including one or more of: information related to the user, information related to the user's device, the phone number or other identifier associated with the user's device (i.e., the device identifier), an Internet Protocol (IP) number associated with the user's device, settings and/or preferences established by the user and/or service provider, or a subset thereof.

EX1005, 3:8-15.

Barghouthi further explains that all the devices in its system may be enrolled or stored in the system's registry:

The registry entries stored in the other routing portions 144 may include publicly-available information related to phone numbers, identifiers, and call routes for various devices. For example, such information may include routing information for the devices over the public switched telephone network (PSTN) and various local area exchanges (LECs).

EX1005, 3:28-34. It is thus expressly contemplated by Barghouthi that the originating and terminating service providers (i.e., the originating and terminating RESPORGs) would be enrolled or stored with the registry of the routing component (i.e., toll-free exchange).

Breuer also discloses this limitation. For example, Breuer discloses a system where each RESPORG is enrolled in the system: “Each Resp Org provides the call routing and other network information for each toll-free number it manages to the SMS/800 toll-free database as is known. ... The alternative method of the present invention uses the SMS/800 SCP updates to maintain a Resp Org/toll-free database.” EX1006, Figure 3, 6:42-7:46.

Therefore, Barghouthi in view of Breuer discloses Claim 2. EX1003, ¶¶112-116.

4. Claim 3

Barghouthi in combination with Breuer discloses that the RESPORG identification is obtained by a service control point.

Breuer’s service control point 18 obtains the RESPORG identification of the terminating RESPORG. Specifically, Breuer discloses: “The Resp Org query is received by CCS7 network 16 and delivered to SCP 18. SCP 18 provides the Resp Org data in response ...” EX1006, 5:35-40.

As explained above in Section XI.A.2.c, it would have been obvious to a POSITA to implement Breuer’s process for determining the RESPORG identification of the terminating RESPORG into Barghouthi’s call processing system, which would include having Breuer’s service control point obtain the RESPORG identification. And, a POSITA would be motivated to make this

simple modification to Barghouthi in order to allow Barghouthi's system to route toll-free calls directly from the calling party to the called party. EX1003, ¶119.

Therefore, Barghouthi in view of Breuer discloses Claim 3. EX1003, ¶¶117-120.

5. Claim 4

Barghouthi in combination with Breuer discloses the limitations of Claim 4.

Specifically, Breuer discloses monitoring a toll-free call to generate a call detail record, wherein the call detail record includes an identification of the originating RESPORG and the terminating RESPORG. For example, Breuer discloses that “the [Service Switching Point] in the LEC service area in which the call originated, stores the dialed number and the initial carrier [i.e., the identification of the originating RESPORG] as part of a call detail record” (EX1006, 2:34-37), and also that “the call detail record for the toll-free call [] includes data identifying the Resp Org [i.e., the identification of the terminating RESPORG] (*id.*, 5:36-48).

As explained above in Section XI.A.2.c, it would have been obvious to a POSITA to implement Breuer's process for determining the RESPORG identification of the terminating RESPORG into Barghouthi's call processing system, which would include implementing Breuer's monitoring a toll-free call to generate a call detail record that includes the aforementioned information. And, a

POSITA would be motivated to make this simple modification to Barghouthi in order to allow Barghouthi's system to maintain accurate call detail records.

EX1003, ¶123.

Therefore, Barghouthi in view of Breuer discloses Claim 4. EX1003, ¶¶121-124.

6. Claim 6

a. Element 6[a]

Barghouthi in combination with Breuer discloses determining whether the terminating RESPORG is enrolled with the exchange.

Specifically, Barghouthi discloses determining whether the called egress point 120 is enrolled with the exchange: "At [step] 204, a determination is made to establish if the identifier [of called egress point 120] is stored in a registry, such as the registry 140. EX1005, Figure 2, 5:39-40. As explained above in Section XI.A.2.c, the registry 140 is integral with the routing component 130 (i.e., the exchange).

As also explained above in Section XI.A.2.c, a POSITA would have readily understood and appreciated that it likewise would have been obvious to determine if the identifier of the service provider 160 (i.e., the terminating RESPORG) that serves the called egress point 120 is enrolled with the routing component 130.

EX1003, ¶127.

Barghouthi therefore renders this limitation obvious. Further, and as explained above, Barghouthi contemplates routing toll-free calls, which would include routing toll-free calls to a toll-free subscriber. Section XI.A.2.a; EX1003, ¶128. To the extent Barghouthi does not expressly disclose this limitation, it would have been obvious to a POSITA, by combining Barghouthi's system with Breuer's toll-free system as described above in Sections XI.A.1-XI.A.2.d, to use Barghouthi's call routing system to route toll-free calls as well as to implement the minor change of determining whether the service provider 160 is enrolled with the routing component 130 instead of whether the egress point 120 is. EX1003, ¶128.

Therefore, Barghouthi in view of Breuer discloses Element 6[a]. EX1003, ¶¶125-129.

b. Element 6[b]

Barghouthi in combination with Breuer discloses rejecting the toll-free call based on a determination that the terminating RESPORG is not enrolled with the exchange.

Specifically, Barghouthi discloses that “[i]f the identifier [of the called egress point 120] is not stored in the registry 140, then the process ends” (EX1005, Figure 2, 5:42-43), and the call may be routed through another call routing procedure such as through the PSTN (*id.*, 5:45-56).

For similar reasons explained in Section XI.A.2.c, a POSITA would have readily understood and appreciated that it likewise would have been obvious to reject the call if the identifier of the service provider 160 (i.e., the terminating RESPORG) that serves the called egress point 120 is not enrolled with the routing component 130. EX1003, ¶132.

Barghouthi therefore renders this limitation obvious. To the extent Barghouthi does not expressly disclose this limitation, it would have been obvious to a POSITA, by combining Barghouthi's system with Breuer's toll-free system as described above in Sections XI.A.1-XI.A.2.d, to use Barghouthi's call routing system to route toll-free calls as well as to implement the minor change of rejecting the call based on the determination that the service provider 160 is not enrolled with the routing component 130 instead of the determination that the egress point 120 is not enrolled with the routing component 130. *Id.*, ¶133.

To the extent that Barghouthi's alternate routing procedure is not considered "rejecting the toll-free call," a POSITA could easily have modified Barghouthi's alternate routing procedure to completely reject the call with no possibility of alternate routing if the identifier is not part of the registry. EX1003, ¶134. This would have been one of several common sense and viable procedures, and would have been considered "another call routing procedure" (EX1005, 5:45-46), as contemplated by Barghouthi. *Id.*

Therefore, Barghouthi in view of Breuer discloses Element 6[b]. EX1003, ¶¶130-135.

c. Element 6[c]

Barghouthi in combination with Breuer discloses connecting the toll-free call to the terminating RESPORG based on a determination that the terminating RESPORG is enrolled with the exchange.

Barghouthi specifically discloses that “if the identifier [of the called egress point 120] is stored in the direct routing portion 142 [of the registry 140] and the first path is available, then the call is transmitted to the egress point 120 via the first path.” EX1005, Figure 2, 5:59-60.

As explained above in Section XI.A.2.c, a POSITA would have readily understood and appreciated that it likewise would have been obvious to connect the call if the identifier of the service provider 160 (i.e., the terminating RESPORG) that serves the called egress point 120 is enrolled with the routing component 130. EX1003, ¶138.

In light of the above, Barghouthi renders this limitation obvious. To the extent Barghouthi does not expressly disclose this limitation, it would have been obvious to a POSITA, by combining Barghouthi’s system with Breuer’s toll-free system as described above in Sections XI.A.1-XI.A.2.d, to use Barghouthi’s call routing system to route toll-free calls as well as to implement the minor change of

connecting the call based on the determination that the service provider 160 is enrolled with the routing component 130 instead of the determination that the egress point 120 is enrolled with the routing component 130. *Id.*

Therefore, Barghouthi in view of Breuer discloses Element 6[c]. EX1003, ¶¶136-140.

7. Claim 7

Barghouthi in combination with Breuer discloses determining whether the originating RESPORG requested to connect the toll-free call to a public switched telephone network based on a determination that the terminating RESPORG is not enrolled with the exchange.

Specifically, Barghouthi discloses that “[i]f the identifier [of the called egress point 120] is not stored in the registry 140, then ... [a]t this point, the call may be rerouted to a PSTN, other peering grid, or a component to be routed according to another call routing procedure.” EX1005, Figure 2, 5:42-43.

As explained in Section XI.A.2.c, a POSITA would have readily understood and appreciated that it likewise would have been obvious to reroute the call if the identifier of the service provider 160 (i.e., the terminating RESPORG) that serves the called egress point 120 is not enrolled with the routing component 130. EX1003, ¶143.

In light of the above, Barghouthi renders this limitation obvious. To the extent Barghouthi does not expressly disclose this limitation, it would have been obvious to a POSITA, by combining Barghouthi's system with Breuer's toll-free system as described above in Sections XI.A.1-XI.A.2.d, to use Barghouthi's call routing system to route toll-free calls as well as to implement the minor change of rerouting the call through a PSTN based on the determination that the service provider 160 is not enrolled with the routing component 130 instead of the determination that the egress point 120 is not enrolled with the routing component 130. EX1003, ¶144.

Moreover, while Barghouthi does not expressly disclose "determining whether the originating RESPORG requested to connect the toll-free call to a public switched telephone network," a POSITA would have understood this limitation to be obvious in light of the fact that Barghouthi does expressly disclose rerouting the call through a PSTN based on a determination that the terminating RESPORG is not enrolled with the exchange. EX1003, ¶145. In other words, it would have been obvious to a POSITA to make the minor modification to Barghouthi/Breuer's originating RESPORG to allow the originating RESPORG to request that calls be routed through the standard PSTN when the terminating RESPORG is not enrolled with the system, since Barghouthi already provides this functionality. *Id.*, ¶145.

Therefore, Barghouthi in view of Breuer discloses Claim 7. EX1003, ¶¶141-146.

8. Claim 8

Barghouthi in combination with Breuer discloses a method for routing calls where the carrier identification code (CIC) of the terminating RESPORG is not used by the method.

As explained above with respect to Elements 1[b] and 1[c], the call routing system of Barghouthi as modified by Breuer routes toll-free calls using the RESPORG identification of the terminating RESPORG. Sections XI.A.2.c-d. In addition, Barghouthi discloses that the routing component (130) receives the call originated by the ingress point from the an interchange carrier *associated* with the ingress point. EX1005, Claim 9. Such *a priori* associations would preclude the need for a CIC. EX1003, ¶148. As such, this modified Barghouthi/Breuer system for routing toll-free calls does not use the carrier identification code (CIC) of the terminating RESPORG. *Id.*

Therefore, Barghouthi in view of Breuer discloses Claim 8. EX1003, ¶¶147-149.

9. Claim 10

a. Element 10[preamble]

To the extent the preamble of Claim 10 is limiting, it is disclosed in the prior art as discussed above for the preamble of Claim 1 and Claim 8.

b. Element 10[a]

Element 10[a] is disclosed in the prior art for the same reasons discussed above for Element 1[a].

c. Element 10[b]

Element 10[b] is disclosed in the prior art for the same reasons discussed above for Element 1[b].

d. Element 10[c]

Element 10[c] is similar in scope to Element 1[c], and is therefore disclosed in the prior art for the same reasons discussed above for Element 1[c].

Element 10[c] contains the added limitation that the toll-free call is routed through a “protected network.”

As an initial matter, the '249 Patent is silent as to what is meant by a “protected network,” and therefore this limitation is likely not enabled, lacking written disclosure support, and/or indefinite under 35 U.S.C. §112(a)-(b). Indeed, the term is ambiguous without further clarification, and there is no clarification in the specification of the '249 Patent. However, the plain and ordinary meaning of “protected network,” to a POSITA, and in the context of the '249 Patent, is a network protected against the unauthorized acceptance of toll-free calls by RESPORGs that are not enrolled with the toll-free exchange. EX1003, ¶160. Support for this can be derived from dependent Claim 11, and specifically Element 11[b], which indicates that if the terminating RESPORG is not enrolled with the

exchange, the toll-free call is rejected. EX1001, Claim 11; EX1003, ¶160. This is further supported by the '249 Patent's use of access control lists and authentication processes to permit or reject toll-free calls (9:31-10:30). EX1003, ¶160.

Barghouthi in view of Breuer discloses a “protected network.” Specifically, Barghouthi discloses at Steps 202 and 204 of Figure 2 (discussed at 5:35-46) the routing component 130 (e.g., the claimed toll-free exchange) receives a call from the ingress point 110 that is initiated through entry of an identifier, such as a telephone number, associated with the desired egress point 120 (the called party). At step 204, a determination is made to see if that identifier (associated with the egress point 120) is stored in the registry (e.g., database). If it is not, the direct routing “process ends” (EX1005, 5:42-43), and an alternate routing procedure through the PSTN or “another call routing procedure” (*id.*, 5:45-46) can be executed. EX1003, ¶161. Barghouthi thus expressly teaches a network that is protected against the unauthorized acceptance of calls by a called party that is not enrolled with the routing component. And, as previously explained in Sections X.A.1 and X.A.2.d, the Barghouthi/Breuer toll-free call routing system would use the RESPORG ID of the terminating RESPORG (instead of the identifier of the called device of Barghouthi) to route toll-free calls through the protected network. EX1003, ¶161.

Accordingly, this claim limitation is obvious over Barghouthi in view of Breuer. *Id.*, ¶¶157-163.

10. Claim 11[preamble]

a. Element 11[a]

Element 11[a] is disclosed in the prior art for the same reasons discussed above for Element 6[a].

b. Element 11[b]

Element 11[b] is disclosed in the prior art for the same reasons discussed above for Element 6[b].

c. Element 11[c]

Element 11[c] is disclosed in the prior art for the same reasons discussed above for Element 6[c].

11. Claim 12

Claim 12 is disclosed in the prior art for the same reasons discussed above for Claim 4.

B. Ground 2: Claims 5 and 13 are Obvious over Barghouthi in view of Breuer and Eng

1. Motivation to Combine Barghouthi, Breuer and Eng

A POSITA at the time of the claimed invention of the '249 Patent would have been motivated to combine Barghouthi, Breuer and Eng because they are all generally in the same field of endeavor as the '249 Patent – telecommunications and cost-effective call routing. *See* Section XI.A.1; *compare with* EX1007 (Eng),

1:29-33 (“the present invention relates to online trading exchange systems and, more particularly, to an online telecommunications trading exchange that is capable of automatically settling trading accounts for buyers and sellers of telecommunications services.”). Specifically, Barghouthi and Eng are both directed to cost-effective call routing. *Compare* EX1005 (Barghouthi), 5:10-24 (“The routing component 130 may utilize the most optimal route of the various possible secondary paths. For example, the most optimal route may be ... the path that is the least expensive route.”) *with* EX1007 (Eng), 3:13-16 (“The server node may be programmed to substantially optimize the routing plan or rate table with respect to one or more parameters such as price ...”). Further, Barghouthi, Breuer and Eng all rely on a similar network architecture, employing network components with similar functionality throughout. EX1005 (Barghouthi), Figure 1 (elements 180, 190 and 160), EX1006 (Breuer), Figure 1 (elements 10, 30), EX1007 (Eng), Figure 1 (element 6).

A POSITA also would have been motivated to combine the references to use Eng’s teachings to improve the Barghouthi/Breuer toll-free call routing system in order achieve Barghouthi’s expressly desired advantages. EX1003, ¶173.

While Barghouthi and Breuer disclose routing calls in a telecommunications system, they do not explicitly describe a way for service providers to determine whether it is cost beneficial for them to connect calls. Eng does disclose this

feature. Specifically, Eng describes a telecommunications system that routes communications between a requesting telecommunications service provider and an offering telecommunications service provider when the offering telecommunications service provider's offer to provide its telecommunications services matches the requesting telecommunication service provider's request to buy telecommunication services. EX1007, 2:44-61. And, Eng provides a detailed explanation of how to do so. *Id.*, Figure 5, 11:43-14:27.

At the time of the claimed invention of the '249 Patent, a POSITA would have been motivated to combine Eng's simple price matching feature with the Barghouthi/Breuer toll-free call routing system discussed above to achieve the benefits of allowing service providers to select optimal routes based on the cost of routing the call as well to set the rates at which they are willing to accept to provide telecommunications services, and rates at which they are willing to pay to receive telecommunications services; and to only provide telecommunications where it is cost beneficial to the telecommunications service providers. EX1003, ¶175.

Implementing the price matching feature of Eng to the Barghouthi/Breuer system would have been easily within the skill of a POSITA. EX1003, ¶176. In this combination the systems of Barghouthi, Breuer and Eng would be performing the same functions they were known to perform, and the resulting combined

system would provide the predictable result of price matching between service providers in a toll-free communications system. *Id.*

2. Claim 5

Barghouthi in combination with Breuer and further in combination with Eng discloses determining whether that the floor rate of the origination RESPORG is less than the buy rate of the terminating RESPORG.

The '249 Patent explains that the floor rate of the originating RESPORG is the “minimum rate [the originating RESPORG] will accept in order to route the call through the toll-free exchange 302 and to the terminating RESPORG.”

EX1001, 4:53-57. The '249 Patent further explains that the buy rate of the terminating RESPORG is the “rate at which [the terminating RESPORG] may pay an originating RESPORG or service provider for connecting a call.” *Id.*, 4:47-50.

Thus, as explained by the '249 Patent, routing a call based on whether the fee charged to a route call is less than the amount the buyer is willing to pay is nothing more than simply determining “whether it is cost beneficial for the originating RESPORG 102 to connect the call to the terminating RESPORG 202.” *Id.*, 10:38-40. Claim 5, therefore, is directed to nothing more than a longstanding economic principle (i.e., completing a transaction when what a buyer is willing to pay for an item is less than what a seller is willing to accept for the item) to toll-free calling. EX1009 (U.S. Patent No. 6,131,087), Abstract; EX1003, ¶179.

Further, Eng expressly discloses routing communications between a requesting telecommunications service provider (i.e., terminating RESPORG) and an offering telecommunications service provider (i.e., originating RESPORG) when the offering telecommunications service provider's offer to provide its telecommunications services (i.e., its floor rate) matches (i.e., is less than or equal to) the requesting telecommunication service provider's request to buy telecommunication services (i.e., buy rate). EX1007, 2:44-61.

A POSITA would have been motivated to combine Eng's simple price matching feature with the system of Barghouthi/Breuer discussed above to achieve the benefits of allowing service providers to set the rates at which they are willing to accept to provide telecommunications services, and rates at which they are willing to pay to receive telecommunications services; and to only provide telecommunications where it is cost beneficial to the telecommunications service providers. EX1003, ¶181. Such a modification would have been well within a POSITA's capabilities at the time of the claimed invention and would have yielded nothing more than predictable results. *Id.* Thus, a POSITA would have found it obvious to apply Eng's price matching feature to the Barghouthi/Breuer system. *Id.*

Therefore, Claim 5 is obvious over Barghouthi in view of Breuer and Eng. EX1003, ¶¶178-182.

3. Claim 13

Claim 13 is disclosed in the prior art for the same reasons discussed for Claim 5.

C. **Ground 3: Claims 9 and 14-19 are Obvious over Barghouthi in view of Breuer and Goode**

1. **Motivation to Combine Barghouthi, Breuer and Goode**

A POSITA at the time of the claimed invention would have been motivated to combine Barghouthi, Breuer and Goode because they are all in the same field of endeavor as the '249 Patent – telecommunications and call routing. *See* Section XI.A.1, *compare with* EX1008 (Goode), Figures 1 and 2, 3:22-4:4 (describing the call routing process in a VoIP network in detail). Specifically, each of these references discloses and/or claims systems and methods that are intended to improve telecommunications and call routing. Further, Barghouthi, Breuer and Goode all rely on a similar network architecture, employing network components with similar functionality throughout. EX1005 (Barghouthi), Figure 1 (elements 180, 190 and 160), EX1006 (Breuer), Figure 1 (elements 10, 30), EX1008 (Goode), Figure 1 (elements 120, 130, 140).

A POSITA also would have been motivated to combine the references to use Goode's teachings to improve the Barghouthi/Breuer toll-free call routing system. EX1003, ¶186.

Coincident with the introduction of VoIP transport into telecommunications networks in the late 1990s and based on economies in digital signal processing, several sophisticated voice digitization techniques (used in codecs) became commercially available, which significantly reduced the data rates required to provide toll-quality voice signals. EX1003, ¶187. Hence, as readily understood by a POSITA at the time of the claimed invention, in order for a VoIP network to provide interoperability among many different voice networks and applications potentially employing many different data formats, voice transcoding was required. *Id.*, ¶188. Voice transcoding bridges the differences between format mismatches created by the various devices within telecommunications networks and allows seamless communication between the calling and called parties who may be using different codecs to digitize the analog voice signal. *Id.*, ¶¶188-189. Barghouthi expressly acknowledges this need for transcoding for routing the media stream of VoIP calls. EX1005, 6:18-22.

While Barghouthi and Breuer disclose routing calls in a telecommunications system and Barghouthi acknowledges the need for resolving format mismatches, neither reference explicitly describes methods for addressing this problem, which is a necessary capability intrinsic to VoIP networks due to the use of different codecs from the calling party to the called party. EX1003, ¶190. Goode, however, does disclose this feature. Specifically, Goode describes a telecommunications

system that detects a format or codec mismatch between the parties' devices and corrects the mismatch by transcoding the media format into one that is compatible with the called party's device. EX1008, 4:64-5:58. And, Goode provides a detailed explanation of how to do so. *Id.*, Figures 2-4, 4:64-5:58.

Notably, and while not providing a specific solution to the problem, Barghouthi expressly states that there is a need to “transcode[] or convert[] the call to a format that is compatible with the destination device (i.e., the egress point 120).” EX1006, 6:19-22. Thus, a POSITA would have been motivated to combine Goode's codec mismatch correction feature with the system of Barghouthi/Breuer discussed above to achieve the benefits of efficiently transcoding the mismatched media in a telecommunications network, so as to provide seamless and efficient call routing. EX1003, ¶191. This is further support that a POSITA would have been motivated to combine Goode's codec mismatch correction feature with the Barghouthi/Breuer toll-free call routing system. *Id.*

Implementing Goode's transcoding feature to the Barghouthi/Breuer system would have been easily within the skill of a POSITA at the time of the claimed invention. EX1003, ¶192. In this combination, the systems of Barghouthi, Breuer and Goode would be performing the same functions they were known to perform, and the resulting system would provide the predictable result of correcting codec or format mismatches. *Id.*

2. Claim 9

Barghouthi in combination with Breuer and Goode discloses routing a media portion of the toll-free call through a media server farm, wherein the media server farm configures the media portion of the toll-free call for routing.

Often times in telecommunications systems, the media being routed needs to be configured in a certain format so that it may be carried over the network to the called party. EX1001, 8:26-36. The '249 Patent explains that a media server farm, which may include one or more servers, “processes the media portion of the call, such as voice or video data of the call.” *Id.*, 8:26-28. Processing media may include “compressing and configuring the media to be carried over a network to the terminating RESPORG.” *Id.*, 8:28-31.

While Barghouthi describes the need to “transcode[] or convert[] the call to a format that is compatible with the destination device (i.e., the egress point 120),” it does not identify or describe the method(s) or component(s) for doing so. EX1005, 6:19-22. Goode, however, does. Specifically, Goode describes routing a media portion of a call (audio, video, or multimedia) through a transcoding function server 430 of Border Element 433 (i.e., the media server farm). The transcoding function server 430 includes a transcoding server 431 and a media resource 432. EX1008, Figure 3-4, 5:10-22, 5:53-58. Specifically, the “transcoding server provides the control function of the transcoding service while

the media resource performs the actual transcoding between two different codecs.” *Id.*, 5:17-20. In other words, the transcoding server converts the media to be routed into a format that is compatible with the called party – i.e., configures the media portion of the call for routing. EX1003, ¶196.

A POSITA at the time of the claimed invention would have found it obvious to combine Goode’s method for transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing system in order to overcome the common issue of mismatched media in VoIP networks. EX1003, ¶197. Thus, a POSITA would have found it obvious to apply the transcoding feature of Goode to the Barghouthi/Breuer system. *Id.*

Therefore, Claim 9 is obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶194-198.

3. Claim 14

Claim 14 is disclosed in the prior art for the same reasons discussed above for Claim 9.

4. Claim 15[preamble]

a. Element 15[a]

Barghouthi in combination with Breuer and Goode discloses receiving, at a session border controller, a data portion of the toll-free call.

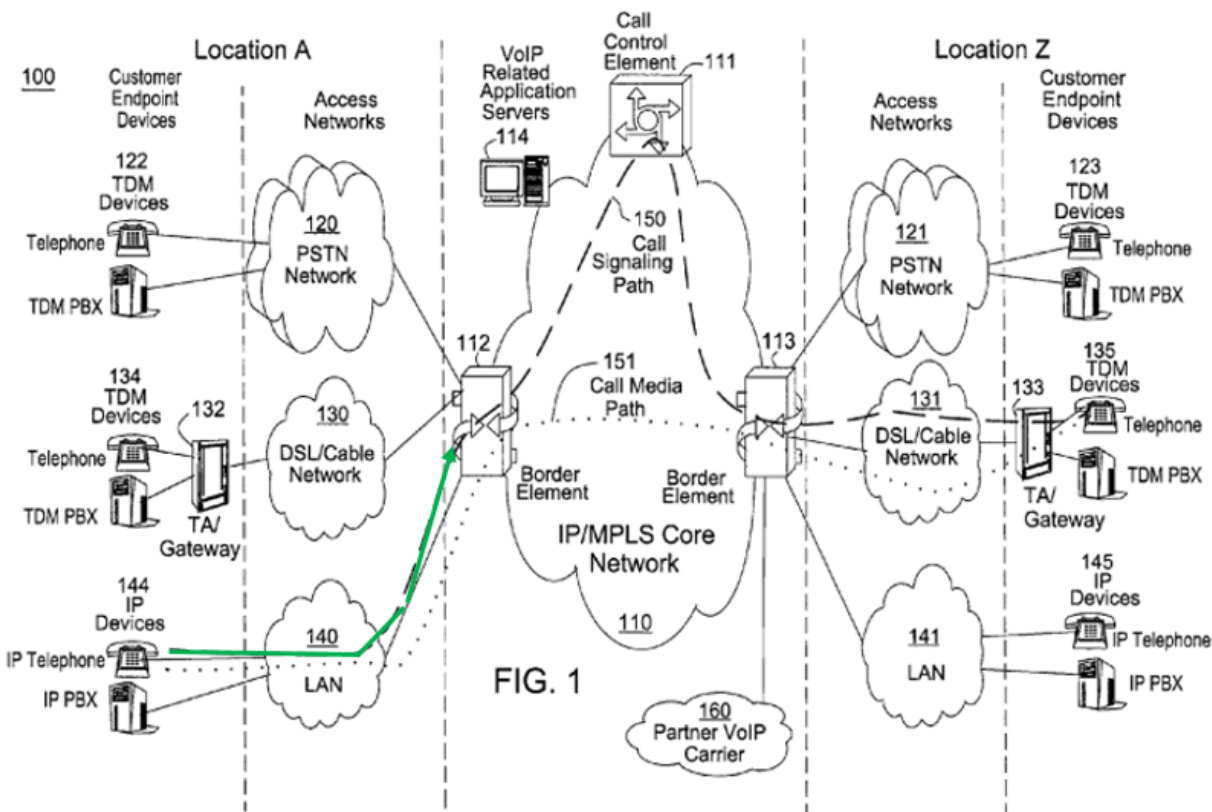
The ’249 Patent describes a session border controller as a switch that routes the data portion of a call (i.e., the information indicating where the call needs to be

routed, such as the IP address associated with the called party or the RESPORG of the called party). EX1001, 5:66-6:14; 8:62-65.

Goode discloses this exact component. Specifically, Goode discloses a Border Element (BE) 112, which “is typically implemented as a Media Gateway or a Session Border Controller and performs signaling, media control, security, and call admission control and related functions.” EX1008, 2:65-3:1. As shown in Figure 1 and explained by Goode, the BE 112 receives called party information (i.e., the data portion of the call) from the LAN 140:

A customer using IP device 144 at location A places a call to another customer at location Z using TDM device 135. During the call setup, *a setup signaling message [which contains the called party information] is sent* from IP device 144, through the LAN 140, the Router 142, and the associated packet based access network, *to BE 112*. BE 112 will then send a setup signaling message [which contains the called party information], such as a SIP-INVITE message if SIP is used, to CCE 111. CCE 111 looks at the called party information and queries the necessary VoIP service related application server 114 to obtain the information to complete this call.

EX1008, Figure 1, 3:25-34. Figure 1 further shows the BE 112 receives the called party information (i.e., data portion of the call) from the LAN 140 (i.e., originating RESPORG) via the “Call Signaling Path 150”:



Id., Figure 1 (showing in green “Call Signaling Path 150,” which contains the data portion of the call, flowing from IP Device 144 to LAN 140 and to BE 112).

As explained above in Section XI.C.1, a POSITA would have been motivated to combine, at the time of the claimed invention, Goode’s method for transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing system in order to overcome the common issue of mismatched media in VoIP networks. EX1003, ¶204.

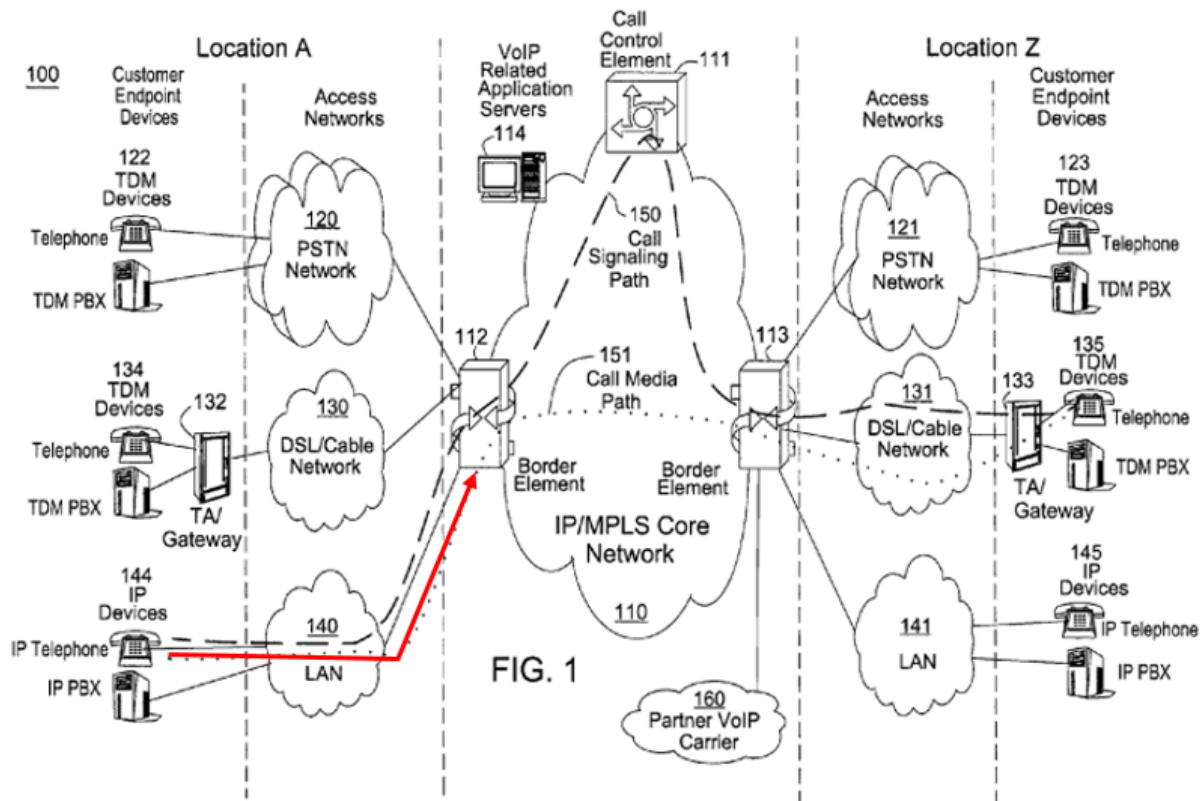
Therefore, Element 15[a] is obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶201-205.

b. Claim 15[b]

Barghouthi in combination with Breuer and Goode discloses receiving, at a media gateway server farm, a media portion of the toll-free call.

The '249 Patent explains that a media server farm, which may include one or more servers, “processes the media portion of the call, such as voice or video data of the call.” EX1001, 8:26-28. Processing media may include “compressing and configuring the media to be carried over a network to the terminating RESPORG.” *Id.*, 8:28-31.

Goode discloses this exact component. Specifically, Goode discloses a Border Element 112, which is “typically implemented as a Media Gateway” (EX1008, 2:66-3:1) and is “responsible for the necessary signaling protocol translation, e.g., SS7 to and from SIP, and *media format conversion*, such as TDM voice format to and from IP based packet voice format” (*id.*, 3:66-4:2, emphasis added). As shown in Figure 1, the BE 112 receives the media portion of the call from the LAN 140 (i.e., originating RESPORG) via the “Call Media Path 151”:



Id., Figure 1 (showing in red “Call Media Path 151” which contains the media portion of the call, flowing from IP Device 144 to LAN 140 to BE 112), 4:16-17 (“BEs are always in the call signaling and the call media path”).

As explained above in Section XI.C.1, a POSITA would have been motivated to combine, at the time of the claimed invention, Goode’s method for transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing. EX1003, ¶209.

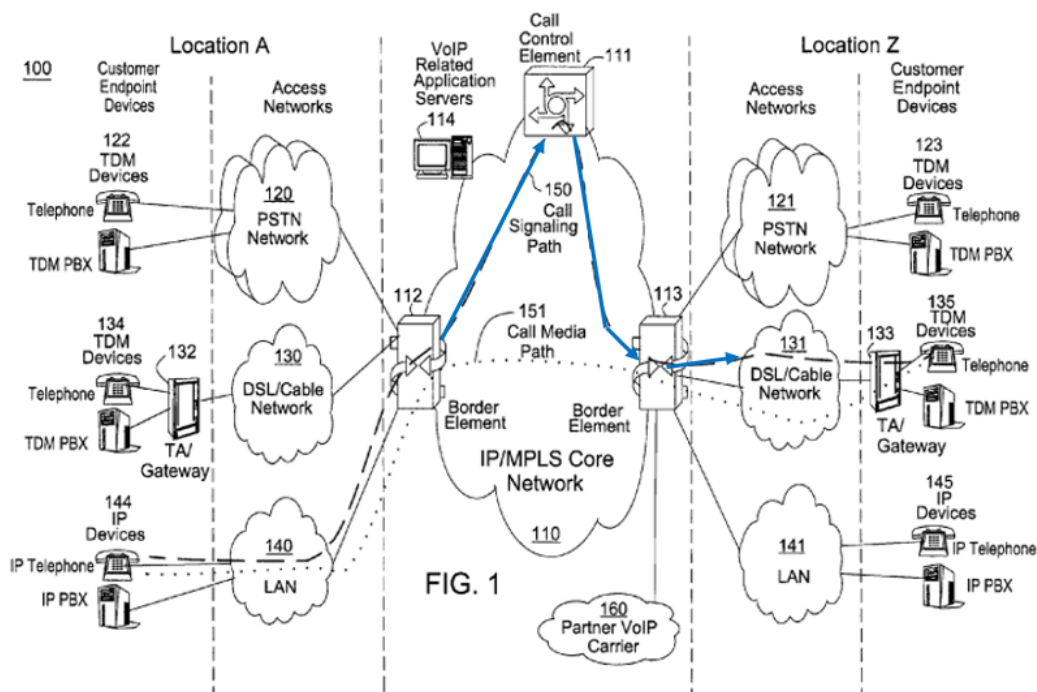
Therefore, Element 15[b] is obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶206-210.

5. Claim 16[preamble]

a. Claim 16[a]

Barghouthi in combination with Breuer and Goode discloses routing, from a second session border controller to the terminating RESPORG, the data portion of the toll-free call.

Goode discloses this exact component. Specifically, Goode discloses a Border Element (BE) 113, which “is typically implemented as a Media Gateway or a *Session Border Controller* and performs signaling, media control, security, and call admission control and related functions.” EX1008, 2:65-3:1 (emphasis added). As shown in Goode’s Figure 1, BE 113 (i.e., the second session border controller) routes the called party information (i.e., data portion of the call) to DSL/Cable Network 131 (i.e., the terminating RESPORG) via the “Call Signaling Path 150”:



Id., Figure 1 (showing in blue “Call Signaling Path 150,” which contains the data portion of the call, flowing from BE 112 to CCE 111 to BE 113 and to DSL/Cable Network 131).

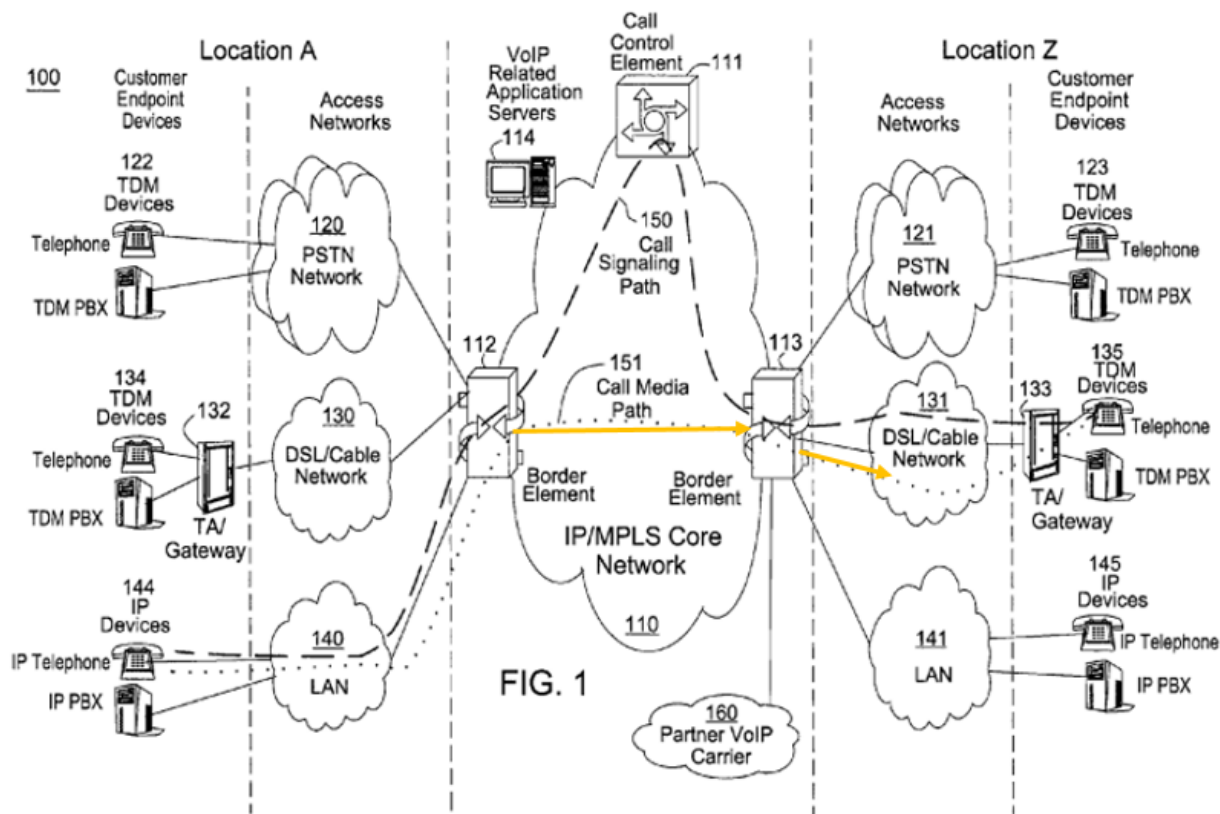
As explained above in Section XI.C.1, a POSITA would have been motivated to combine, at the time of the claimed invention, Goode’s method for transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing. EX1003, ¶213.

Therefore, Element 16[a] is obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶211-214.

b. Claim 16[b]

Barghouthi in combination with Breuer and Goode discloses routing, from the media gateway server farm to the terminating RESPORG, the media portion of the toll-free call.

As shown in Goode’s Figure 1, BE 112 and BE 113 together (i.e., the media gateway server farm) route the media portion of the call to DSL/Cable Network 131 (i.e., the terminating RESPORG) via the “Call Media Path 151”:



Id., Figure 1 (showing in orange “Call Media Path 151,” which contains the media portion of the call, flowing from BE 112 to BE 113 and to DSL/Cable Network 131).

It would have been obvious to a POSITA to implement just one BE instead of the two BEs (112 and 113) implemented in the telecommunications system depicted in Goode’s Figure 1, as using a particular number of BEs to implement a telecommunications system is a matter of design choice. EX1003, ¶217.

As explained above in Section XI.C.1, a POSITA would have been motivated to combine, at the time of the claimed invention, Goode’s method for

transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing system. EX1003, ¶218.

Therefore, Element 16[b] is obvious over Barghouthi in view of Breuer, and further in view Goode. EX1003, ¶¶215-219.

6. Claim 17

a. Element 17[preamble]

The only substantive difference between this preamble and the preamble of Claim 1 is that Claim 17 is for a system rather than a method. Barghouthi states that its invention is both a method and a system. EX1005, 1:58-59, 2:4-5 (“A system [is provided] for routing a call between an ingress and an egress point”).

The preamble of Claim 17 is therefore disclosed in the prior art for the same reasons discussed above for the preamble of Claim 1.

b. Element 17[a]

Element 17[a] is disclosed by the prior art for the same reasons as Element 1[a], Element 15[a], and Element 16[a].

c. Element 17[b]

Element 17[b] is disclosed by the prior art for the same reasons as the preamble of Claim 1 and Element 1[b].

It would have been obvious to a POSITA, at the time of the claimed invention, to use the data within the data portion of the call described in Goode (i.e., the called party information, which may be the dialed telephone number) to

lookup the RESPORG ID of the terminating RESPORG as disclosed in the Barghouthi/Breuer system. EX1003, ¶227

As explained above in Section XI.C.1, a POSITA would have been motivated to combine, at the time of the claimed invention, Goode's method for transcoding mismatched media formats with the Barghouthi/Breuer toll-free call routing system. EX1003, ¶228.

Therefore, Element 17[b] is obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶225-229.

d. Element 17[c]

Barghouthi in combination with Breuer and Goode discloses a service control point for storing the RESPORG ID of the terminating RESPORG.

Breuer discloses a service control point (i.e., SCP 18) that stores the RESPORG IDs of all the RESPORGs, and therefore Breuer's SCP 18 stores the RESPORG ID of the terminating RESPORG. EX1006, 4:62-64 ("SCP 18 contains call routing data and Resp Org data for toll-free telephone numbers that SCP 18 periodically receives from toll-free number database 36.").

A POSITA would have been motivated to combine Breuer's SCP for storing RESPORG IDs of the terminating RESPORG with the call routing system of Barghouthi for the same reasons discussed above with respect to Element 1[b]. EX1003, ¶¶232.

Element 17[c] is therefore obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶230-233.

e. Element 17[d]

Element 17[d] is disclosed by the prior art for the same reasons as Element 1[b] and Claim 2.

f. Element 17[e]

Element 17[e] is disclosed by the prior art for the same reasons as Element 1[c], Element 15[b], and Element 16[b].

7. Claim 18

Barghouthi in combination with Breuer and Goode discloses a thrasher component for storing a call data record of the toll-free call.

The '249 Patent describes a “thrasher” as merely an unspecified, generic computing device that is “used to collect call detail records (CDRs).” EX1001, 5:43-46. The '249 Patent further explains that the “thrasher saves the call records in a database 418.” *Id.*, 9:14-16.

Breuer discloses that a Service Switching Point (SSP), which “is a telecommunications switch that is enabled by software” (EX1006, 1:59-62), “in the LEC service area in which the call originated, stores the dialed number and the initial carrier as part of the *call detail record [CDR]*” (*id.*, 2:34-36) (emphasis added). Breuer further explains that the “Resp Org identifying data is stored in the CDR for the call,” which “may then be provided to PSPs to bill and/or audit the

Resp Orgs responsible for managing a toll-free number.” *Id.*, 5:43-48. A POSITA would understand that Breuer’s SSP includes the claimed thrasher component that stores a call data record of the toll-free call. EX1003, ¶¶240-241.

It would have been obvious to a POSITA to modify Barghouthi to include Breuer’s SSP so that the Barghouthi/Breuer system is able to store call detail records. EX1003, ¶242.

Claim 18 is therefore obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶238-243.

8. Claim 19[preamble]

a. Claim 19[a]

Element 19[a] is disclosed by the prior art for the same reasons as Element 15[a].

Further, a POSITA, at the time of the claimed invention, would have understood that Goode’s BE 112 is capable (and does) read data from a header of the data portion of the call as well as writes data to the header of the data portion of the call, as these were well-known functions, at the time of the claimed invention, for components that are responsible for handling the call control related functions of a received call. EX1003, ¶246.

Element 19[a] is therefore obvious over Barghouthi in view of Breuer and Goode. EX1003, ¶¶244-247.

b. Claim 19[b]

Element 19[b] is disclosed by the prior art for the same reasons as Element 1[c], Element 16[a] and 19[a].

D. Ground 4: Claim 20 is Obvious over Barghouthi in view of Breuer, Eng, and Goode

1. Motivation to Combine Barghouthi, Breuer, Goode, and Eng

A POSITA at the time of the claimed invention of the '249 Patent would have been motivated to combine Barghouthi, Breuer, Eng, and Goode for the reasons discussed in Sections XI.A.1, XI.B.1, and XI.C.1.

2. Claim 20[preamble]

a. Claim 20[a]

Element 20[a] is disclosed by the prior art for the same reasons as Element 1[b] and Claim 2.

b. Claim 20[b]

Barghouthi in combination with Breuer, Eng, and Goode discloses a database that stores payment information of each of the one or more enrolled RESPORGs, including a buy rate and a floor rate.

As explained above in Section XI.B.2, Eng discloses routing communications between a requesting telecommunications service provider (i.e., terminating RESPORG) and an offering telecommunications service provider (i.e., originating RESPORG) when the offering telecommunications service provider's

offer to provide its telecommunications services (i.e., its floor rate) matches (i.e., is less than or equal to) the requesting telecommunication service provider's request to buy telecommunication services (i.e., buy rate). EX1007, 2:44-61. Further, Eng expressly discloses that these offers (i.e., floor rate) and requests (i.e., buy rate) are stored in a database. *Id.*, Figures 1B, 2, 3A, 4, 6:45-9:61 (explaining that Eng's system "collect[s] rate information from carriers around the world regarding cost and service parameters of routing various classes of calls from a first location to a second location" (*id.*, 9:27-30), and then "derives rate-tables from the collected rate information which list cost of connecting any two locations within the telecommunication node network via various routes ... [which] is then stored in a rate-table database 400 representative of rates charged by different carriers for various routes" (*id.*, 9:50-61)).

Element 20[b] is therefore obvious over Barghouthi in view of Breuer, Goode, and Eng. EX1003, ¶¶253-255.

c. Claim 20[c]

Element 20[c] is disclosed by the prior art for the same reasons as Element 1[b] and Claim 2.

d. Claim 20[d]

Element 20[d] is disclosed by the prior art for the same reasons as Element 1[b] and Claim 2.

To further explain, the '249 Patent describes an “access control list (ACL)” as a list that contains “each of the RESPORGs enrolled on the toll-free exchange 302,” (EX1001, 6:21-23), and further describes that the ACL is used to “determine[] whether the originating RESPORG 102 is an authorized RESPORG” (*id.*, 9:31-35). “If the database 410 determines that the originating RESPORG is not listed on the access control list, ... the call is rejected.” *Id.*, 9:48-53.

Barghouthi performs the same function, and may only allow calls to be processed if the device initiating the call is stored in the registry: “According to an additional embodiment, the routing component 130 may query the direct routing portion 142 only if the identifier or number of the device initiating the call (i.e., the ingress point 110) is stored in the direct routing portion 142 of the registry 140.” EX1005, 4:47-51. In this situation, a POSITA would have understood that Barghouthi’s direct routing portion 142 of registry 140 acts as the claimed access control list, which lists or contains each enrolled device. EX1003, ¶261. Further, a POSITA would have understood that a similar registry or access control list could be maintained for originating RESPORGs, as disclosed in Breuer. *Id.*

Element 20[d] is therefore obvious over Barghouthi in view of Breuer, Goode, and Eng. EX1003, ¶¶258-262.

XII. SECONDARY CONSIDERATIONS

Petitioner is unaware of any evidence of secondary considerations that would support a finding of non-obviousness. The asserted prior art demonstrates there is no evidence of failure by others and that the features recited in the Challenged Claims were readily available in the prior art well before the filing date of the '249 Patent.

XIII. CONCLUSION

Petitioner respectfully requests institution of an IPR and cancellation of the Challenged Claims.

Respectfully submitted,

Dated: December 24, 2022

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24, Petitioner certifies that this petition for *Inter Partes* Review contains 13,995 words, excluding the parts that are exempted by 37 C.F.R. §42.24(a)(1), as measured by Microsoft Word, the word-processing system used to prepare this Petition.

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6 and 42.105, the undersigned hereby certifies that on December 24, 2022, a copy of the foregoing Petition, including all attachments, appendices and exhibits, was served, via overnight delivery, on the following counsel of record for Patent Owner:

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A courtesy copy was also served via electronic mail on the attorneys of record listed below for the following related matter: *Teliix Technology LLC, et al. v. Affinity Network, Inc.*, Case No. 2:22-cv-00362 (D. Nev.)

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APPENDIX A

Claim No.	Claim Language
1[preamble]	A method for routing toll-free calls through a toll-free exchange, the method, performed by a policy router of the toll-free exchange, comprising:
1[a]	receiving, from an originating responsible organization (RESPORG), a toll-free call, wherein the toll-free call is directed to a toll-free subscriber that is served by a terminating RESPORG;
1[b]	querying a database to determine a RESPORG identification associated with the terminating RESPORG, wherein the database is associated with the toll-free exchange and stores the RESPORG identification associated with the terminating RESPORG; and
1[c]	routing, to the terminating RESPORG, the toll-free call based in part on the RESPORG identification.
2	The method of claim 1, wherein the originating RESPORG and the terminating RESPORG are enrolled in the toll-free exchange.
3	The method of claim 1, wherein the RESPORG identification is obtained by a service control point.
4	The method of claim 1, further comprising: monitoring the toll-free call to generate a call detail record, wherein the call detail record includes at least one of: a time duration of the toll-free call, an identification of the originating RESPORG and the terminating RESPORG, buy-rate of the terminating RESPORG, a floor rate of the originating RESPORG, and a cost associated with the toll-free call.
5	The method of claim 4, wherein routing to the terminating RESPORG further comprises: determining that the floor rate of the originating RESPORG is less than the buy rate of the terminating RESPORG.
6[preamble]	The method of claim 1, further comprising:
6[a]	determining whether the terminating RESPORG is enrolled with the exchange;
6[b]	based on a determination that the terminating RESPORG is not enrolled with the exchange, rejecting the toll-free call; and

Claim No.	Claim Language
6[c]	based on a determination that the terminating RESPORG is enrolled with the exchange, connecting the toll-free call to the terminating RESPORG.
7	The method of claim 6, wherein based on a determination that the terminating RESPORG is not enrolled with the exchange, further comprises: determining whether the originating RESPORG requested to connect the toll-free call to a public switched telephone network.
8	The method of claim 1, wherein a carrier identification code (CIC) of the terminating RESPORG is not used by the method.
9	The method of claim 1, further comprising routing a media portion of the toll-free call through a media server farm, wherein the media server farm configures the media portion of the toll-free call for routing.
10[preamble]	A method for routing toll-free calls without using a carrier identification code (CIC), comprising:
10[a]	receiving, from an originating responsible organization (RESPORG), a toll-free call, wherein the toll-free call is directed to a toll-free subscriber that is served by a terminating RESPORG;
10[b]	querying a database to determine a RESPORG identification associated with the terminating RESPORG, wherein the database is associated with the toll-free exchange and stores the RESPORG identification associated with the terminating RESPORG; and
10[c]	routing, to the terminating RESPORG, the toll-free call through a protected network based in part on the RESPORG identification.
11[preamble]	The method of claim 10, further comprising:
11[a]	determining whether the terminating RESPORG is enrolled with the exchange;
11[b]	based on a determination that the terminating RESPORG is not enrolled with the exchange, rejecting the toll-free call; and
11[c]	based on a determination that the terminating RESPORG is enrolled with the exchange, connecting the toll-free call to the terminating RESPORG.

Claim No.	Claim Language
12	The method of claim 10, further comprising: monitoring the toll-free call to generate a call detail record, wherein the call detail record includes at least one of: a time duration of the toll-free call, an identification of the originating RESPORG and the terminating RESPORG, buy-rate of the terminating RESPORG, a floor rate of the originating RESPORG, and a cost associated with the toll-free call.
13	The method of claim 12, wherein routing to the terminating RESPORG further comprises: determining that the floor rate of the originating RESPORG is less than the buy rate of the terminating RESPORG.
14	The method of claim 10, further comprising routing a media portion of the toll-free call through a media server farm, wherein the media server farm configures the media portion of the toll-free call for routing.
15[preamble]	The method of claim 10, wherein receiving, from an originating RESPORG, a toll-free further comprises:
15[a]	receiving, at a session border controller, a data portion of the toll-free call; and
15[b]	receiving, at a media gateway server farm, a media portion of the call.
16[preamble]	The method of claim 15, wherein routing, to the terminating RESPORG further comprises:
16[a]	routing, from a second session border controller to the terminating RESPORG, the data portion of the toll-free call;
16[b]	routing, from the media gateway server farm to the terminating RESPORG, the media portion of the call.
17[preamble]	A system for routing a toll-free call using a toll-free exchange, the system comprising:
17[a]	at least one session border controller for routing a data portion of the toll-free call within the toll-free exchange;
17[b]	a policy router for determining, based at least on data included within the data portion, a responsible organization (RESPORG) identification (ID) associated with a terminating RESPORG;

Claim No.	Claim Language
17[c]	a service control point for storing the RESPORG ID of the terminating RESPORG;
17[d]	a database for storing enrollment information associated with the terminating RESPORG; and;
17[e]	a media gateway server farm having one or more server computing devices for routing a media portion of the toll-free call based in part on the RESPORG ID of the terminating RESPORG.
18	The system of claim 17, further comprising a thrasher component for storing a call data record of the toll-free call.
19[preamble]	The system of claim 17, further comprising:
19[a]	a first session border controller for receiving the data portion of the toll-free call, wherein the first session border controller is further configured to read data from a header of the data portion of the toll-free call and to write data to the header of the data portion of the toll-free call; and
19[b]	a second session border controller for routing the data portion of the toll-free call to the terminating RESPORG based in part on the data read from the data portion of the toll-free call.
20[preamble]	The system of claim 17, wherein the database stores at least one of:
20[a]	enrollment status information of one or more enrolled RESPORGs;
20[b]	payment information of each of the one or more enrolled RESPORGs, comprising: a buy rate; and a floor rate;
20[c]	identification information of each of the one or more enrolled RESPORGs; and
20[d]	an access control list for listing each enrolled RESPORG.