

UNITED STATES PATENT AND TRADEMARK OFFICE-

BEFORE THE PATENT TRIAL AND APPEAL BOARD

~~META PLATFORMS, INC.~~

GOOGLE LLC, Petitioner

v.

VOIP-PAL.COM, INC., ~~(Alleged)~~ Patent Owner

~~U.S. PATENT NO~~

Patent No. 10,880,721

~~Case IPR2022-01234~~

PETITION FOR *INTER PARTES* REVIEW
~~UNDER 35~~OF U.S.C. §~~312 AND 37~~
~~C.F.R. §42.104~~ PATENT NO. 10,880,721

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 10,880,721 ('721 Patent)
1002	File History of U.S. Patent No. 10,880,721(without NPL's and foreign references)
1003	Declaration of Dr. Vijay Madiseti
1004	Curriculum vitae of Dr. Vijay Madiseti
1005	U.S. Patent No. 7,668,159 ("Buckley")
1006	U.S. Patent No. 7,995,565
1007	U.S. Patent No. 6,954,654 ("Ejzak")
1008	U.S. Patent App. Pub. No. 2009/0047922
1009	U.S. Patent No. 8,731,163 ("Bates")
1010	RFC 3261
1011	U.S. Patent No. 7,245,609
1012	Claim Construction Order (Dkt. No. 67) in Case No. 6:21-cv-00668-ADA (W.D. Tex.)
1013	Joint Claim Construction Statement (Dkt. No. 59) in Case No. 3:22-CV-03202 (N.D. Cal)
1014	U.S. Patent Pub. No. 2008/0167039
1015	U.S. Patent Pub. No. 2002/0102973
1016	U.S. Patent No. 8,542,815
1017	Exhibit 2016 in <i>Apple, Inc. v. VoIP-Pal.com, Inc.</i> , IPR 2016-01201 (P.T.A.B. Feb. 10, 2017)
1018	Email with attachment from Counsel for Patent Owner Regarding Claim Construction, dated March 2, 2022

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1019	“Convergence Technologies for 3G Networks IP, UMTS, EGPRS and ATM”, by Jeffery Bannister et al., Wiley, England (2004)
1020	IETF RFC 3986, <i>available at</i> https://datatracker.ietf.org/doc/html/rfc3986
1021	IETF RFC 2543, <i>available at</i> https://datatracker.ietf.org/doc/html/rfc2543
1022	U.S. Patent No. 7,283,507
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1024	Excerpts from Wireless Encyclopedia, Althos Publishing (2007)
1025	International Patent Publication No. WO 01/89145 A2
1026	Excerpt from the File History of U.S. Patent No. 10,880,721 – “Roaming – Wikipedia” (submitted along with IDS on September 24, 2013)
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<u>1028</u>	<u>Parallel Litigation – N.D. Cal. Stay Order</u>
<u>1029</u>	<u>Parallel Litigation – Transfer from W.D. Tex. to N.D. Cal.</u>
<u>1030</u>	<u>Parallel Litigation – Defendants’ Preliminary Invalidity Contentions</u>
<u>1031</u>	<u>Parallel Litigation – Plaintiffs’ Preliminary Infringement Contentions</u>

TABLE OF ABBREVIATIONS

Term	Abbreviation
Application Server	AS
Circuit-Switched	CS
Domain Name System	DNS
E.164 Number Mapping	ENUM
Internet Protocol	IP
IP Multimedia Routing Number	MRN
IP Multimedia Subsystem	IMS
Packet-Switched	PS
Person of Ordinary Skill in the Art	POSITA
Public Safety Answering Point	PSAP
Public Switched Telephone Network	PSTN
Session Initiation Protocol	SIP
Uniform Resource Indicators	URI
User Equipment	UE
Voice-over-IP	VoIP
wireless Local Area Network	WLAN

I. INTRODUCTION

~~Meta Platforms, Inc.~~ Google LLC (“MetaGoogle” or “Petitioner”) requests *inter partes* review of claims 1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 45-46, 49-50, 135-136, and 140 (“Challenged Claims”) of U.S. Patent No. 10,880,721 (EX1001, “the ’721 Patent”). This Petition is being submitted concurrently with a Motion for Joinder, requesting institution and joinder with *Meta Platforms, Inc. v. VoIP-PAL.com, Inc.*, Case No. IPR2022-01234 (“the Meta IPR Proceeding”). This Petition is substantively identical to the petition in the Meta IPR Proceeding. See EX1027. The ’721 patent is the subject of another *inter partes* review petition seeking to join the Meta IPR Proceeding—*Samsung Electronics Co. v. VoIP-PAL.com, Inc.*, Case No. IPR2022-01392, which was filed on August 23, 2022.

The Challenged Claims address a technique for routing phone calls. The technique starts when a phone sends to a server a message that includes the phone’s location and a destination node identifier. The server responds with a temporary, local number selected from a pool. The temporary number is used to establish a call between the phone and a destination node. The patent uses this technique to help avoid long distance and roaming charges by routing the call over an IP network. But the patented technique was well-known in the prior art. This includes art that disclosed using the phone’s location to select a temporary, local number from a pool, and using that number to route calls to a destination node. The

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art also disclosed

using temporary numbers in Voice-over-IP (“VoIP”) calls and calls made when mobile phones were roaming away from their home networks. The Challenged Claims should be canceled.

II. MANDATORY NOTICES

A. Real Party-In-Interest

Petitioner identifies the following real ~~parties~~party-in-interest: ~~Meta Platforms, Inc. (fka Facebook, Inc.) and WhatsApp~~Google LLC.¹

¹ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

B. Related Matters

VoIP-Pal.com (“Patent Owner” or “VoIP-Pal”) is asserting the ’721 Patent and related U.S. Patent 8,630,334 (“’234 Patent”) against Petitioner in Case No. [5:22-cv-03202-03199](#) (N.D. Cal.) (the “Litigation”). Both patents are also asserted in other pending litigations:

- ~~*VoIP-Pal v. Google*, No. 3:22-cv-03199 (N.D. Cal.)~~
- *VoIP-Pal v. Amazon*, No. 6-21-cv-00668 (W.D. Tex.)
- *VoIP-Pal v. Verizon*, No. 6-21-cv-00672 (W.D. Tex.)
- *VoIP-Pal v. T-Mobile*, No. 6-21-cv-00674 (W.D. Tex.)
- *VoIP-Pal v. Samsung*, No. 6-21-cv-01246 (W.D. Tex.)
- *VoIP-Pal v. Huawei*, No. 6-21-cv-01247 (W.D. Tex.)
- *Verizon v. VoIP-Pal*, No. 3-21-cv-05275 (N.D. Cal.)
- *Twitter v. VoIP-Pal*, No. 3-21-cv-09773 (N.D. Cal.)
- *VoIP-Pal v. Meta Platforms*, Case No. 3-22-cv-03202 (N.D. Cal.)
- *VoIP-Pal v. Huawei*, Case No. 3-23-cv-00151 (N.D. Tex.)

Both patents were also asserted in completed litigations:

- *VoIP-Pal v. Apple*, No. 6-21-cv-00670 (W.D. Tex.)
- *Apple v. VoIP-Pal*, No. 3:21-cv-05110 (N.D. Cal.)
- *VoIP-Pal v. AT&T*, No. 6-21-cv-00671 (W.D. Tex.)

- *AT&T v. VoIP-Pal*, No. 3-21-cv-05078 (N.D. Cal.)

Petitioner is simultaneously filing one other petition challenging different '721 Patent claims and two other petitions challenging the '234 Patent.

Certain claims of the '234 Patent are or were subject to a petition for IPR in *Google LLC v. VoIP-Pal.com, Inc.*, No. IPR2022-01072 (P.T.A.B.); *Google LLC v. VoIP-Pal.com, Inc.*, No. IPR2022-01073 (P.T.A.B.); *Amazon.com, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01178 (P.T.A.B.); *Amazon.com, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01179 (P.T.A.B.); *Meta Platforms, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01231 (P.T.A.B.); *Meta Platforms, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01232 (P.T.A.B.); *Samsung Electronics Co. v. VoIP-Pal.com, Inc.*, No. IPR2022-01390 (P.T.A.B.); *Samsung Electronics Co. v. VoIP-Pal.com, Inc.*, No. IPR2022-01391 (P.T.A.B.). Certain claims of the ~~related~~ '721 Patent are subject to

a

petition for IPR in *Google LLC v. VoIP-Pal.com, Inc.*, No. IPR2022-01074 (P.T.A.B.); *Google LLC v. VoIP-Pal.com, Inc.*, No. IPR2022-01075 (P.T.A.B.); *Amazon.com, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01180 (P.T.A.B.); *Amazon.com, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01181 (P.T.A.B.); *Meta Platforms, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01234 (P.T.A.B.); *Meta Platforms, Inc. v. VoIP-Pal.com, Inc.*, No. IPR2022-01235 (P.T.A.B.); *Samsung Electronics Co. v. VoIP-Pal.com, Inc.*, No. IPR2022-01392 (P.T.A.B.); *Samsung*

Petitioner, Patent Owner, Amazon, ~~Google~~[Meta](#), Twitter, AT&T, and Verizon are also involved in pending and closed litigations involving U.S. Patent No. 10,218,606.⁺²

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

C. [Lead and Back-Up Counsel](#) ~~and Service Information~~

Lead Counsel	Back-Up Counsel
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⁺² [Meta, No. 6-20-cv-00267 \(W.D. Tex.\) and No. 3-22-cv-04279 \(N.D. Cal.\);](#) ¶

¶

Amazon, No. 6:20-cv-00272 (W.D.Tex.); Google, No. 6:20-cv-00269 (W.D.Tex.) [and No. 3-22-cv-05419 \(N.D. Cal.\)](#); Twitter, Nos. 3:21-cv- 02769 ¶ and 3:20-cv-02397 (N.D.Cal.); Apple, No. 5:20-cv-02460 (N.D.Cal.) and No. ¶

¶

6:20-cv-00275 (W.D.Tex.); AT&T, No. 5:20-cv-02995 (N.D.Cal.) and No. 6:20-¶

¶

cv-00325 (W.D.Tex.); Verizon, No. 5:20-cv-03092 (N.D.Cal.) and No. 6:20-cv-00327 (W.D.Tex.).

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~~D.37 C.F.R. §42.8(b)(4):~~ under §42.8(b)(3)

Lead counsel: Naveen Modi (Reg. No. 46,224). Backup counsel: (1) Joseph

E. Palys (Reg. No. 46,508), (2) Daniel Zeilberger (Reg. No. 65,349).

D. Service Information

~~Meta concurrently submits a Power of Attorney, 37 C.F.R. §42.10(b),~~
~~and~~ Service information is Paul Hastings LLP, 2050 M Street NW, Washington,
D.C. 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: Google-VoIP-Pal-
IPR@paulhastings.com. Petitioner consents to electronic service ~~to~~
~~Meta-VoIP-IPR@kirkland.com.~~

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

Review of 20 claims is requested. The undersigned authorizes the Office to charge to Deposit Account No. ~~506092~~50-2613 the 37 C.F.R. §42.15(a)(1) fee and any additional fees due for this Petition.

IV. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies under Rule 42.104(a) that the '721 Patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR of the Challenged Claims on the grounds herein. Petitioner certifies: (1) Petitioner does not own the '721 Patent; (2) Petitioner (or any real party-in-interest) has not filed a civil action challenging the validity of any '721 Patent claim; (3) ~~Petitioner files this Petition within one year of the date it was served with a complaint asserting infringement of the '721 Patent;~~ (4) estoppel provisions of 35 U.S.C. §315(e)(1) do not prohibit this IPR; and (54) this Petition is filed after the '721 Patent was granted.

V. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

A. Prior-Art References

1. **U.S. Patent No. 7,668,159 (“Buckley”) (EX1005)**, filed August 3, 2007 and granted February 23, 2010, is prior-art under at least pre-AIA 35 U.S.C. §102(e).
2. **U.S. Patent No. 6,954,654 (“Ejzak”) (EX1007)**, filed July 31, 2001 and granted October 11, 2005, is prior-art under at least pre-AIA 35 U.S.C. §§102(a) and 102(b).
3. **U.S. Patent No. 8,731,163 (“Bates”) (EX1009)**, filed May 9, 2007 and granted May 20, 2014, is prior-art under at least pre-AIA 35 U.S.C. §102(e).

B. Relief Requested

Petitioner requests cancellation of the Challenged Claims as unpatentable under 35 U.S.C. §103 as follows:

Ground	Claims	Proposed Statutory Rejection
I	1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 46, 49-50, and 135-136	Obvious under §103 over Buckley
II	50 and 140	Obvious under §103 over Buckley in view of Ejzak
III	1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 45-46, 49-50, and 135-136	Obvious under §103 over Buckley in view of Bates
IV	50 and 140	Obvious under §103 over Buckley in view of Bates and further in view of Ejzak

VI. NO DISCRETIONARY DENIAL

~~**A.No Prior Petition by Petitioner**~~

~~Neither Petitioner nor any associated real party in interest has previously filed any IPR or PGR petitions against the '721 Patent. This petition is being filed before Patent Owner has filed its Preliminary Response to any other petition not filed by Petitioner. Thus, this is not a “follow-on” petition and there is no basis for the Board to exercise discretion under 35 U.S.C. §314(a) and 37 C.F.R. §42.108(a). Also, there are no other IPR or PGR petitions challenging claims 2 or 9 of the '721 Patent.~~

Petitioner respectfully requests that the Board decline to exercise its discretion to deny institution under §§ 314(a) or 325(d).

§314(a): On June 1, 2022, the co-pending district court litigation was transferred from the Western District of Texas to the Northern District of California. EX1029. At the time of filing of this Petition, no trial date has been set. To the contrary, the district court has entered a stay of the proceedings. EX1028. Moreover, this Petition is being submitted concurrently with a Motion for Joinder, requesting institution and joinder with the Meta IPR Proceeding, which the Board instituted on January 31, 2023. This Petition raises identical issues to those in the Meta IPR Proceeding. And to alleviate any concerns of duplicative efforts between the district court and the Board, Petitioner hereby stipulates that it will not pursue, in district court, invalidity based on any instituted IPR ground.

§325(d): Where a petitioner files a me-too / copycat petition in conjunction with a timely motion for joinder and agrees to assume a “passive understudy role,” the *General Plastic* factors are “effectively neutraliz[ed].” *Apple Inc. v. Uniloc 2017 LLC*, IPR2018-00580, Paper 13 at 10 (Aug. 21, 2018); *see also id.* at 10-11 (discussing lack of burden or prejudice). While Google previously challenged the ’721 patent, this case is distinguishable from *Apple Inc. v. Uniloc 2017 LLC*, IPR2020-00854, Paper 9 at 4 (Oct. 28, 2020) (precedential) (“*Uniloc II*”).

~~**B.The Presented Grounds Are Dissimilar to Previous Art and Arguments**~~

~~All factors under 35 U.S.C. §325(d) favor institution. The grounds apply Buckley, Ejzak, and Bates, which were not applied against the Challenged Claims or discussed during the '721 Patent's prosecution. See generally EX1002. Nor are these references relied upon in any other IPR or PGR proceeding against the Challenged Claims.~~

~~**C.Efficiency, Fairness, and the Merits Support Institution**~~

~~Under the Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, the Board should not exercise its~~

~~§314(a) discretion based on the Litigation.~~

~~**Factor 1:** Institution will enable the Board to resolve validity and relieve the Court of that issue. Petitioner will move the Court for a stay if IPR is instituted.~~

General Plastic Factor 1: Factor 1 weighs in favor of institution. Although Petitioner previously filed two petitions challenging the claims of the '721 patent, see *supra* Section II.B, this Petition incudes Petitioner's first challenge to claims 2 and 9 of the '721 patent. On balance and based on the particular facts, factor 1 thus weighs in favor of institution. See *Advanced Micro Devices, Inc. v. Monterey Research, LLC*, IPR2021-00776, Paper 13 at 12 (Oct. 13, 2021) (finding factor 1 did not weigh against institution when the "me-too" petition challenged different

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claims that the petitioner did not challenge in its two previous petitions).

General Plastic Factors 2, 4, and 5: Factors 2, 4, and 5 do not weigh in favor of discretionary denial. In *Uniloc II*, the Board noted that petitioner Apple failed to provide any context by which to ascertain Apple’s knowledge of the prior art used in the instituted petition that Apple sought to join. *Uniloc II* at 10-11. In this case, Google knew of the Buckley, Bates, and Ejzak prior art references when filing its prior IPR petitions. EX1030. However, Google was not aware of the specific Buckley, Bates, and Ejzak analysis used in this Petition until June 30, 2022, when the Meta IPR Proceeding was filed. Indeed, Google’s first petitions for the ’721 patent, which were filed earlier that month, did not rely on the Buckley, Bates, and Ejzak prior art. Google did not seek joinder to the Meta IPR Proceeding until after

(1) Google’s first petitions were denied, and (2) the Meta IPR Proceeding was instituted, thereby minimizing use of the Board’s resources. See *Atlassian Corp. v.*

Express Mobile Inc., IPR2022-00783, Paper 16 at 10 (Oct. 7, 2022) (finding that factors 2, 4, and 5 did not weigh against institution when the petitioner “was not aware of . . . the specific combinations, raised in the grounds” of the instituted petition).

General Plastic Factor 3: Factor 3 weighs in favor of institution. In *General Plastic*, the Board said that “[t]he absence of any restrictions on follow-on petitions would allow petitioners the opportunity to strategically stage their prior art and

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arguments in multiple petitions, using our decisions as a roadmap, until a ground is found that results in the grant of review.” *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 17 (Sept. 6, 2017). But roadmapping concerns are “minimized” when “a petitioner files a later petition that raises unpatentability challenges substantially overlapping with those” in an earlier petition and “the later petition is not refined based on lessons learned from later developments.” *Code200, UAB v. Bright Data Ltd.*, IPR2022-00861, Paper 18 at 5 (Aug. 23, 2022) (precedential); see *Expedia, Inc. v. Express Mobile, Inc.*, IPR2022-00785, Paper 16 at 9 (Sept. 27, 2022).

Here, roadmapping concerns are minimized because Petitioner presents substantively identical challenges to claims 1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 45-46, 49-50, 135-136, and 140 of the ’721 patent based on the same prior art and the same unpatentability theories as presented in the Meta IPR Proceeding. See

~~**Factor 2:** The Board will very likely issue its Final Written Decision before trial in the Litigation where no trial date is scheduled.~~

~~**Factor 3:** All major milestones in the Litigation are yet to occur, and deadlines for them have not been set, such that substantial work remains in the Litigation.~~

~~**Factor 4:** Petitioner stipulates in the Litigation that, if this IPR is instituted, Petitioner will not pursue invalidity of the Challenged Claims on the grounds raised, or that reasonably could have been raised, in this IPR.~~

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~~Also, claims 2 and 9 challenged in this Petition are not asserted in the Litigation and not challenged in any other IPR or PGR petition. The Board should address those additional claims for the public's benefit. *Google v. Ecofactor*, IPR2021-01578, Paper 9 (P.T.A.B. Mar. 18, 2022).~~

~~**Factor 5:** In view of the other *Fintiv* factors—which heavily weigh against the exercise of §314(a) discretion—the parties' similarity is of limited weight.~~

~~**Factor 6:** This Petition's merits are strong, which weighs against the Board exercising §314(a) discretion under EX1027. Moreover, the Meta IPR Proceeding was filed before the Board or Patent Owner addressed the merits of any '721 petition. Permitting Google to join the Meta IPR Proceeding in this context would be the "common" and "accepted approach." *Expedia*, IPR2022-00785, Paper 16 at 7-9. Thus, factor 3 also weighs in favor of institution.~~

General Plastic Factor 6: Factor 6 weighs in favor of institution for two reasons. First, the Board has already allocated resources to complete the Meta IPR Proceeding. See *Advanced Micro Devices, Inc. v. Monterey Research, LLC*, IPR2021-00776, Paper 13 at 17 (Oct. 13, 2021). And while the Board need not speculate whether Meta Platforms, Inc. ("Meta") will settle with the Patent Owner, see *id.*, the Meta IPR Proceeding could continue even if Meta were to settle because Google (via this IPR proceeding) and Samsung (via IPR2022-01392) are both vying to join the Meta IPR proceeding. Thus, as a second reason, Petitioner submits that any potential strain on Board resources is minimized because the Meta

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IPR Proceeding could reach its conclusion regardless of the constitution of the petitioner. See *Expedia*, IPR2022-00785, Paper 16 at 10.

General Plastic Factor 7: The seventh *General Plastic* factor also weighs in favor of institution because Petitioner merely seeks to join an ongoing proceeding as an understudy, and the Board will not face difficulty in timely issuing a final written decision in that proceeding. See *id.*

Moreover, the seven *General Plastic* factors are “a non-exhaustive list,” and “additional factors may arise in other cases for consideration, where appropriate.” *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16, 18 (Sept. 6, 2017). One additional factor that the Board may consider is whether a petitioner’s parallel district court litigation has been stayed. See *Google LLC v. Express Mobile, Inc.*, IPR2022-00598, Paper 13 at 9-10 (Aug. 19, 2022). Here, Google’s district court litigation in the Northern District of California has been stayed (except with respect to a motion for judgment on the pleadings), at least as of the time of the filing of this Petition. EX1028. This stay further “alleviates concerns about potential issues that may arise from having Board and district court proceedings occurring in parallel,” *Google*, IPR2022-00598, Paper 13 at 9-10, which provides any additional support needed for the Board to grant institution.

VII. THE '721 PATENT

A. Technology Summary

Traditional Public Switched Telephone Networks (PSTNs) route telephone calls over circuit-switched telephone (aka “voice”) networks.²³ See EX1007 1:19-22.

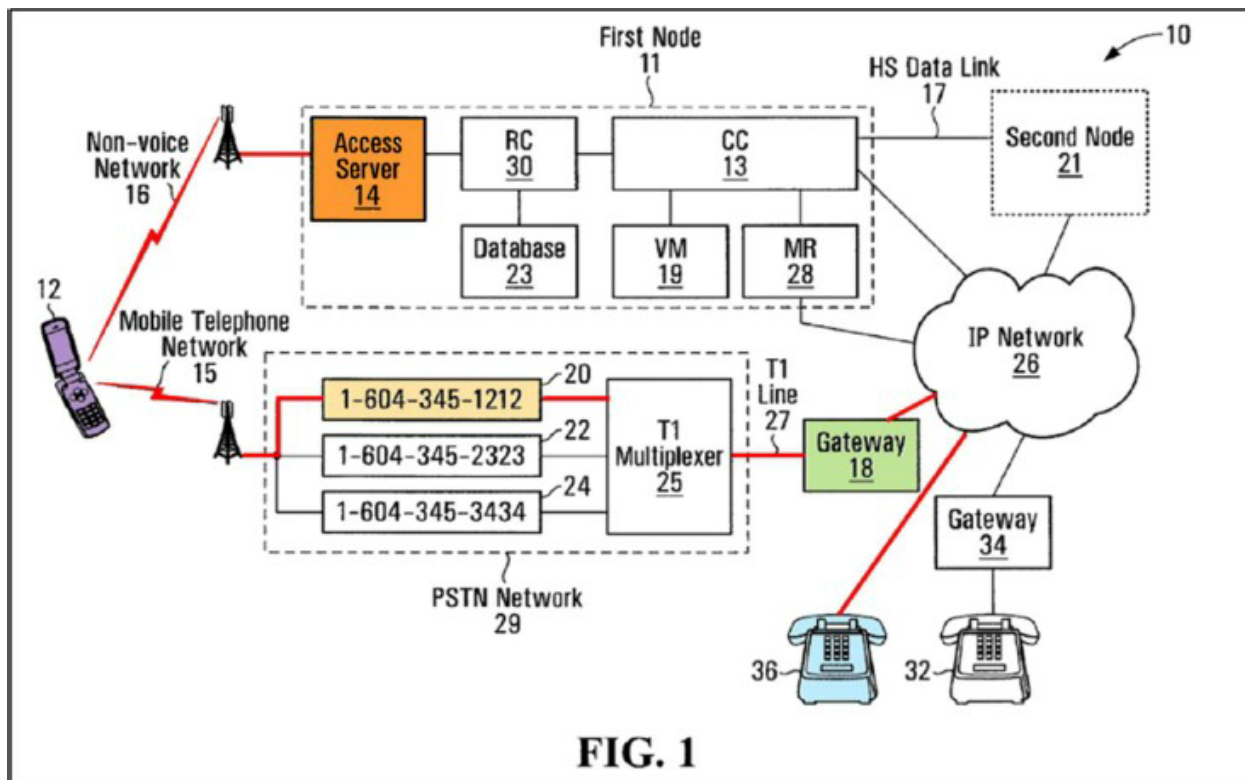
The ’721 Patent uses a sequence of messages sent over a “non-voice” network (such as a packet-switched Internet Protocol (IP) network) to route PSTN voice calls over an IP network (aka VoIP). EX1001 8:36-42, 9:9-16.

The ’721 Patent’s process begins when a mobile telephone (purple³⁴ element 12 in Figure 1 below) sends an “access code request message” to an access server (orange element 14) belonging to a telecommunications service provider (such as AT&T). *Id.* 11:51-55. The access code request message includes the intended callee’s identifier, such as a telephone number, and the caller’s “location identifier.” *Id.* 11:66-12:2, 12:20-22. Based on that information in the access code request message, the access server responds with an “access code” in an “access code reply message.” *Id.* 12:63-67. ~~The “access code” is a temporary number, such as a local telephone number, used to route the call. *Id.* 13:4-7~~

²³ Such networks are known as “circuit-switched” because they can involve a dedicated circuit connection to transmit data (as electrical signals) between the caller and destination node. In contrast, “packet-switched” networks (such as the Internet) ~~break data into smaller packets that are separately routed over network connections to the recipient, which reassembles the packets when received. See EX1003 ¶40.~~

^{3,4} Color in the diagrams in this petition are annotations added by Petitioner for illustration. All emphasis herein is added, unless indicated otherwise.

[Internet\) break data into smaller packets that are separately routed over network connections to the recipient, which reassembles the packets when received. See EX1003 ¶40.](#)



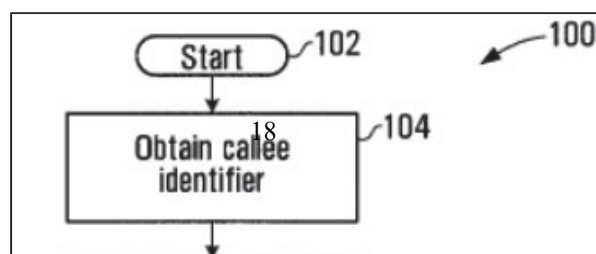
In Figure 1, the “access code” is the temporary telephone number in yellow-highlighted element 20 (*i.e.*, 1-604-345-1212). This temporary number is used to route the call within the phone’s home network towards a gateway (green element 18). The gateway bridges the PSTN (element 29) to an IP Network (element 26),

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so that calls originating or terminating on the PSTN can be routed over IP network
to a callee's IP phone (blue element 36). *Id.* 13:49-56. As was well-known in the
art, IP networks such as the Internet do not apply long-distance or roaming
charges, so routing a call over such networks in this manner avoids such charges.
EX1011 (prior art) '1:7-19 ("By moving voice traffic to IP networks, companies
may reduce or eliminate certain toll charges associated with transporting calls over
[PSTN]").

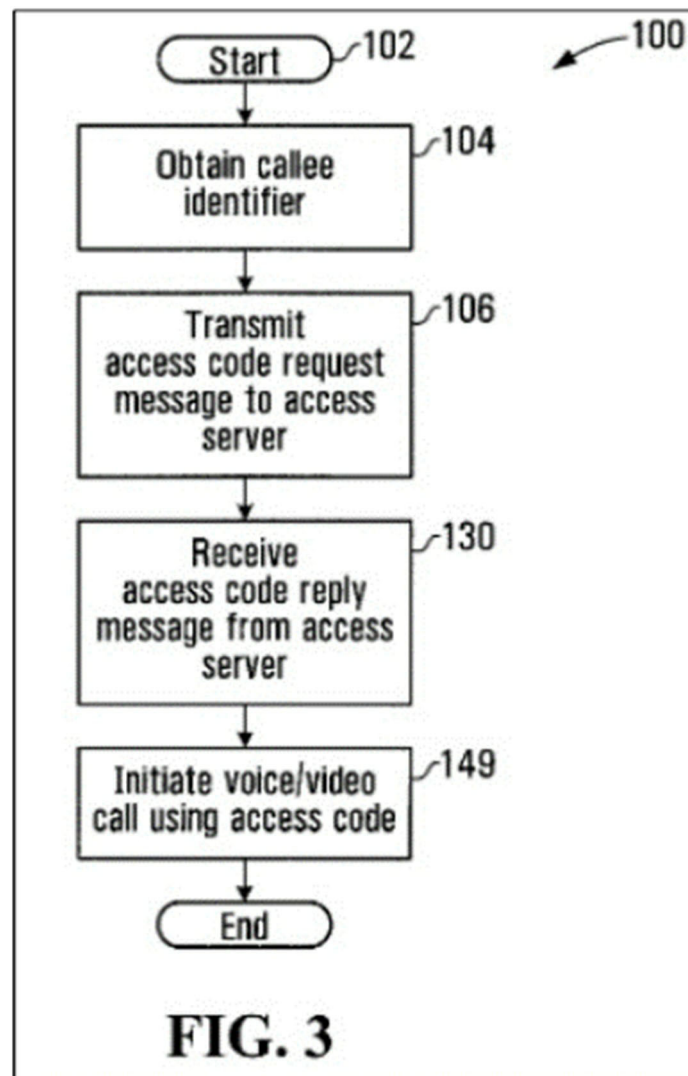
~~The access server (element 14) may receive the access code request
message "over a non-voice network, such as an internet using WiFi or GPRS
technology for example" EX1001 11:58-59. The mobile telephone's location
identifier (which is included in the access code request message) may be "an IP
address of the mobile telephone [] in a wireless IP network, such as the non-voice
network..." *Id.* 12:26-~~

~~29. The server's access code reply message, which includes the temporary
number (access code), may be returned over the non-voice, IP network (element
16). The mobile telephone may then use the access code to initiate a call on the
voice network (element 15) that is then routed over the IP Network (element 26).~~

The purported invention is summarized in Figure 3, which depicts the
process from the telephone's perspective as found, e.g., in claim 1:



~~The '721 Patent contains symmetric claims from the access server's perspective, e.g., claim 51.~~



B. Person of Ordinary Skill in the Art

A POSITA at the time of the '721 Patent would have had a Bachelor's degree in Computer Science or Electrical Engineering, or an equivalent field, and approximately two years of experience with networks. Additional education might compensate for less experience, and vice-versa. EX1003, ¶¶45-47.

VIII. CLAIM CONSTRUCTION

A. Agreed constructions

This Petition applies the ~~parties' agreed~~ constructions ~~in~~agreed to by the ~~Litigation~~parties in Case No. 5:22-cv-03202 (N.D. Cal.) for the following terms governed by 35 U.S.C. § 112 ¶ 6:

Claim Term	Agreed Construction
“means for receiving, from a user of the wireless apparatus, a destination node identifier” (claim 20)	<u>Function</u> : receiving, from a user of the mobile telephone, a destination node identifier <u>Structure</u> : a dialing input, which is a key pad, a voice recognition unit, or a parameter memory with prestored destination node identifiers
“means for transmitting an access code request message to an access server” (claim 20)	<u>Function</u> : transmitting an access code request message to an access server <u>Structure</u> : a network interface
“means for receiving an access code reply message from the access server	<u>Function</u> : receiving an access code reply message from the access server in

in response to the access code request message” (claim 20)	response to [said/the] access code request message <u>Structure</u> : a network interface
“means for receiving from the wireless [apparatus/device] [the/an] access code request message” (claims 34, 77)	<u>Function</u> : receiving from the mobile telephone [said/an] access code request message <u>Structure</u> : a network interface
“means for transmitting the access code reply message including the access code to the wireless apparatus” (claims 34, 77)	<u>Function</u> : transmitting [said/an/the] access code reply message including [said/the] access code to the [mobile telephone/wireless apparatus] <u>Structure</u> : a network interface

B. “gateway” (Claims 1, 20, 38)

The plain and ordinary meaning of “gateway” in the ’721 Patent is a “device that connects networks that use different communication protocols.” EX1023; EX1024; EX1025 (cited during prosecution, *see* EX1002, 119-125), 1:14-15; EX1001, Fig. 1, 23:21-32, 32:3-6; EX1003, ¶¶49-51. A W.D.Tex.⁴ court similarly construed the term to mean “[a] device that connects networks and can adjust a protocol of traffic moving between the connected networks.” EX1012, 3.

⁴ ~~Petitioner was not a party in any case where the claims have been construed.~~

Patent Owner contended this term carries an unspecified “plain and ordinary meaning,” without clarifying what that meaning is. EX1013, 8.

The asserted grounds satisfy all the above constructions, as explained below.

C. “means for causing the wireless apparatus to establish communications with the destination node through the communications channel identified by the access code” (Claim 20)

The Board should construe this term as performing the function of “causing the wireless apparatus to establish communications with the destination node through the communications channel identified by the access code” and as incorporating the structure of “a network interface, including switched line channels in a public switched telephone network (PSTN).” EX1001, 9:25-27, 9:50-62, 13:38- 48, 23:38-52; EX1003 ¶55. Patent Owner argued the term should instead incorporate the structure of “[m]obile telephone 12 having a microprocessor 52 programmed to implement the algorithm illustrated in FIG. 3, which includes block 149 labeled ‘Initiate voice/video call using access code.’ The apparatus 12 includes an I/O port~~(56)~~ (56) for communication. See FIG. 2.” EX1018. The asserted grounds satisfy both constructions, as explained below.

D. “means for communicating with the routing controller to obtain from the routing controller the access code” (Claim 34)

The Board should construe this term as performing the function of “communicating with said routing controller to obtain from said routing controller said access code” and as incorporating the structure of “an input/output port that transmits the access code request message, as received from the mobile telephone, to the routing controller and receives, from the routing controller, the access code reply message.” EX1001, 14:40-53, 14:58-64; EX1003 ¶57. Patent Owner argued the term should instead incorporate the structure of “[a]n I/O port of an access server and/or an I/O port of a routing controller.” EX1018. The asserted grounds satisfy both constructions, as explained below.

Petitioner does not contend that any other terms require construction to resolve this Petition.

IX. OVERVIEW OF THE PRIOR ART

A. Buckley

Buckley teaches routing PSTN calls over packet-switched networks. *See*

EX1005, Abstract. ~~Buckley’s Figure 1 depicts example components that may be involved, including:~~

~~•mobile phones (i.e. User Equipment (UE) (element 102));~~

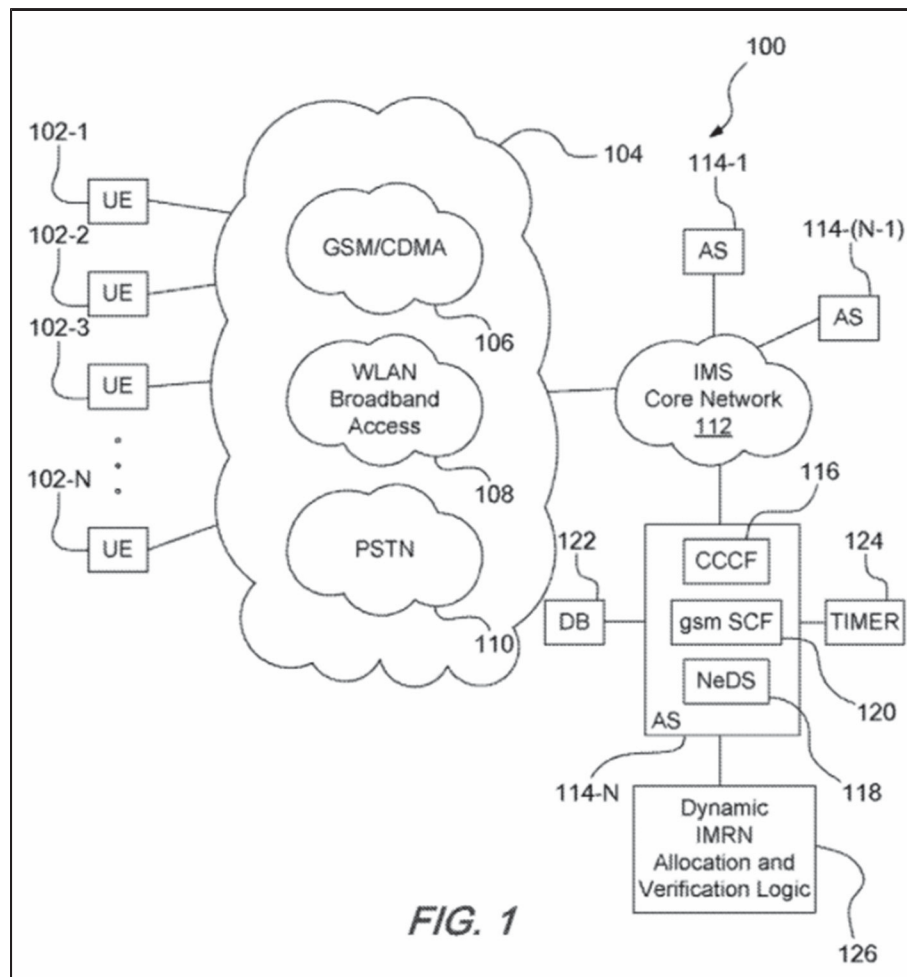
~~•Circuit-Switched (CS) networks (e.g. PSTN (element 110)); and,~~

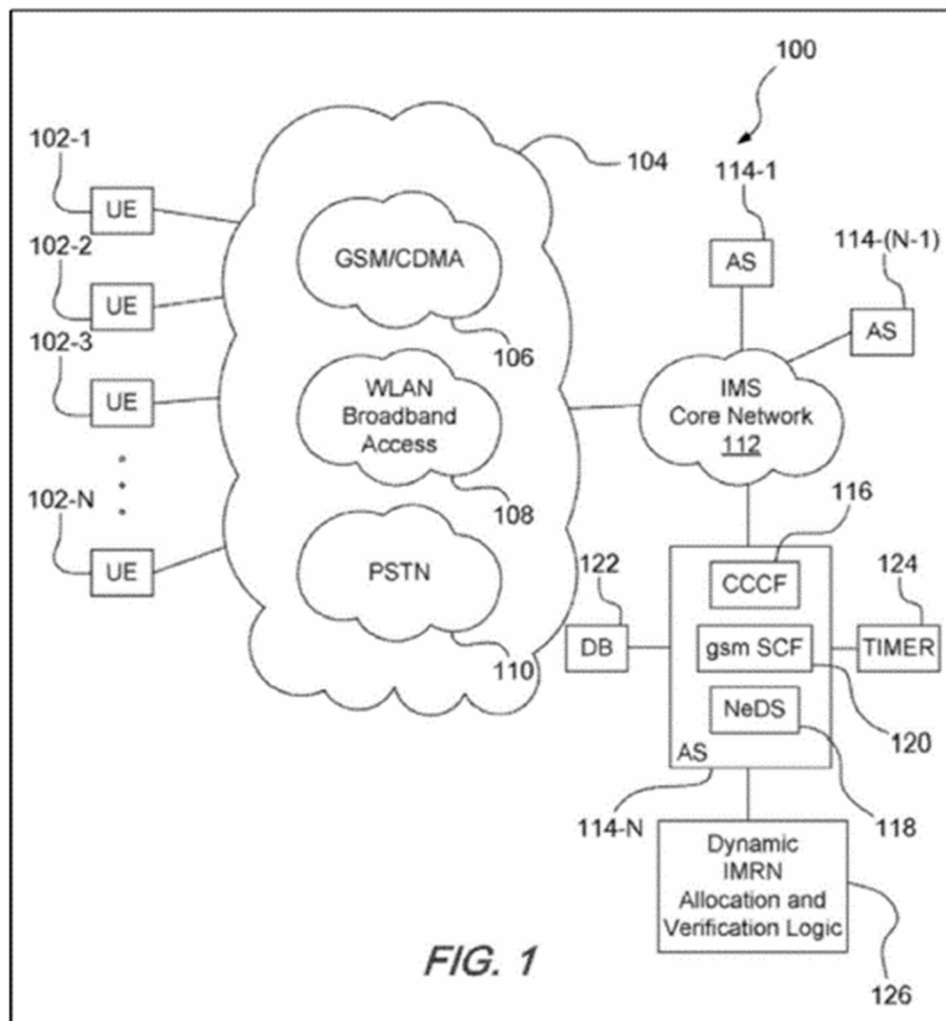
● ~~Packet-Switched (PS) networks (e.g. wireless Local Area Network~~

~~(WLAN) Broadband Access (element 108) and Internet protocol~~

~~Multimedia Subsystem (IMS) Core Network (element 112)).~~

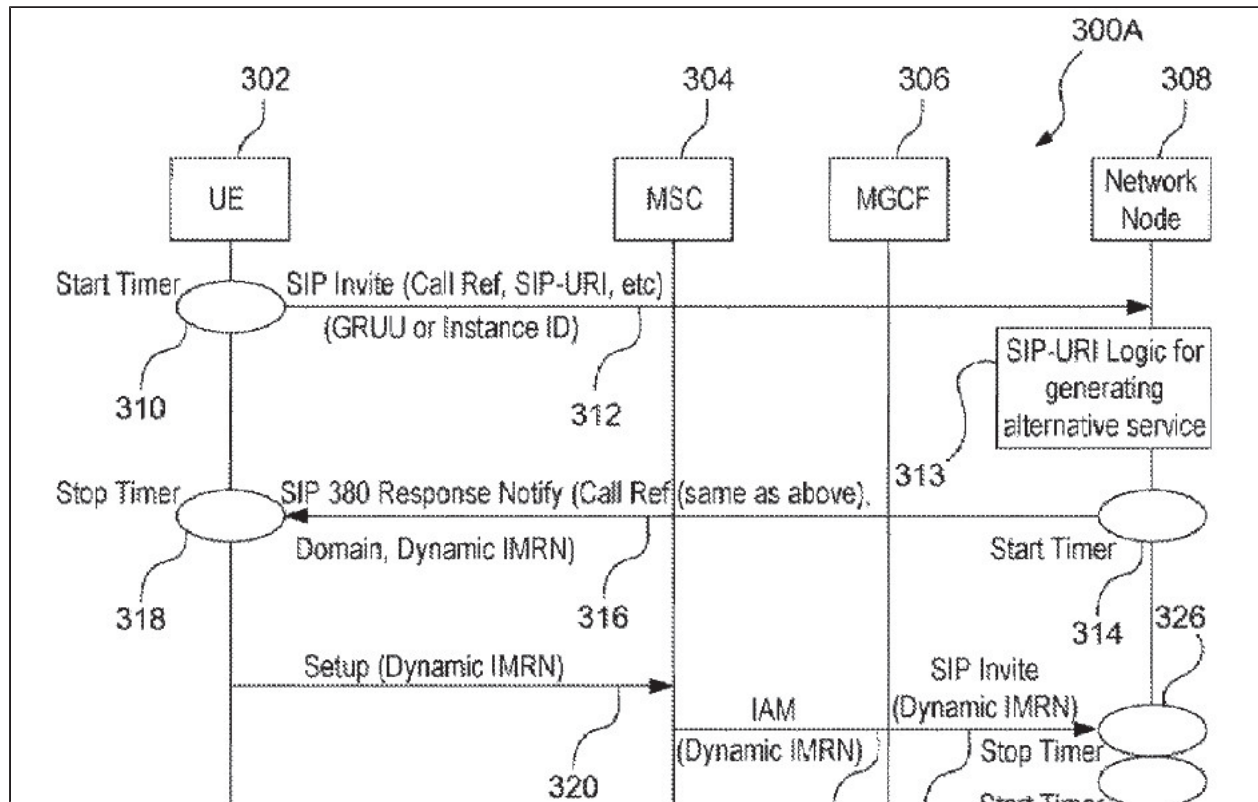
~~*Id.*, 3:19-65.~~

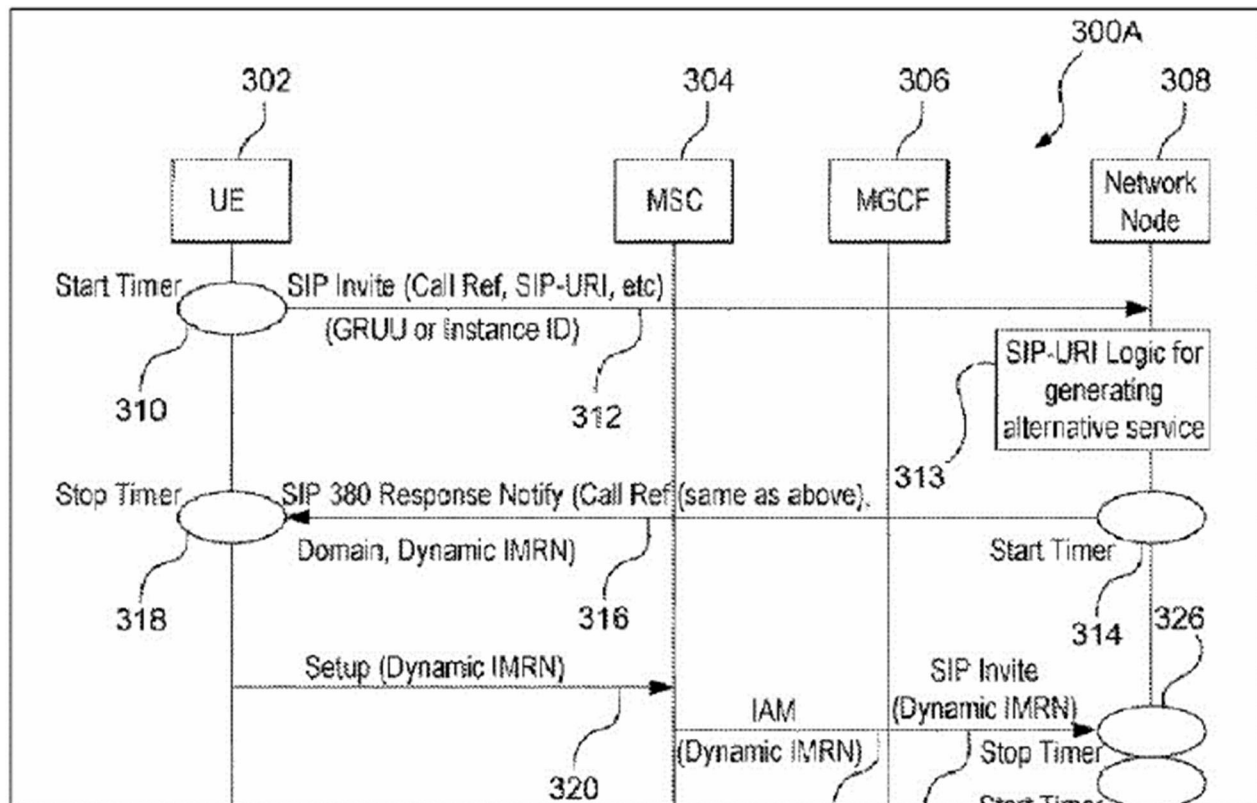




Buckley's Application Server (AS) (element 114-1 through 114-N) uses well-known Session Initiation Protocol (SIP) messaging (access code request and reply messages) to assign a temporary IP Multimedia Routing Number (IMRN) (access code) that allows CS-originated calls to be routed over IMS (IP) networks. *Id.* For example, Figure 3A (excerpted below) depicts this process, which begins when the calling mobile phone (UE, element 302) sends a SIP Invite message (element 312) to the home AS (network node 308). *Id.*, 6:55-63. ~~The AS selects a temporary IMRN from a pool and sends it back to the mobile telephone (UE) in a SIP Response message (element 316). *Id.*, 4:31-40, 7:29-42. The UE then uses the~~

~~IMRN to initiate a call (element 320) that an AS routes to the callee. *Id.*, 4:15-40, 7:47-64. The SIP messaging includes caller and callee Uniform Resource Indicators (URI) that identify location. *Id.*, 2:62-3:12, 5:18-58, Figures 3A, 3B.~~





B. Bates

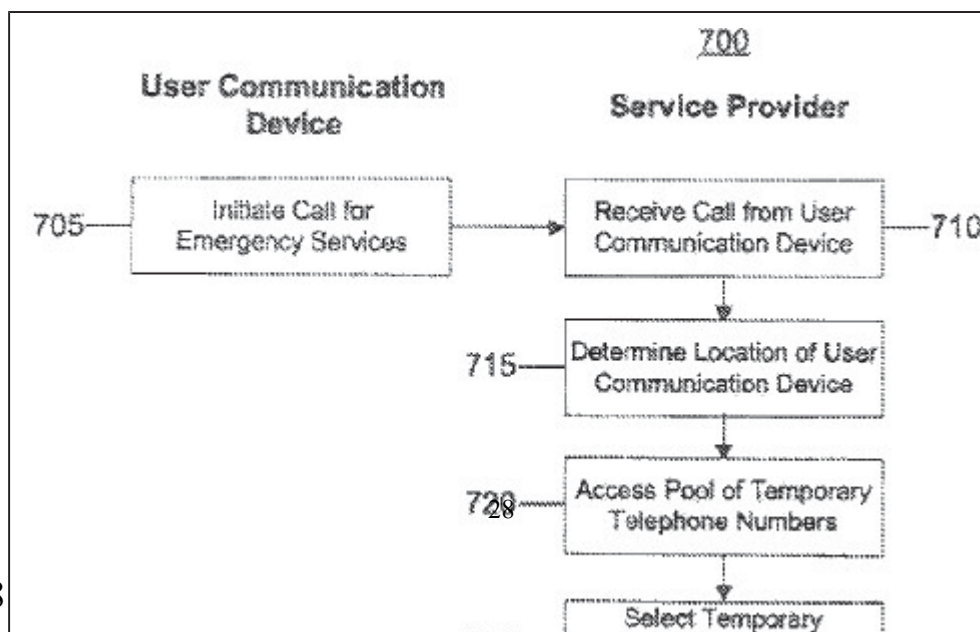
Bates “relates to identifying and assigning correct location information to callers in a communication system.” EX1009, 1:12-13. ~~As background, Bates involves routing calls to the appropriate Public Safety Answering Point (PSAP) (i.e., emergency services, such as 9-1-1). *Id.* 1:17-26, 3:39-57.~~ Like Buckley, the call routing occurs across a network environment that includes “circuit-switched voice network[s] [such as the PSTN,] and packet-switched data networks [that] may include networks based on the Internet protocol (IP).” *Id.*, 6:32-38; EX1005, 1:21-

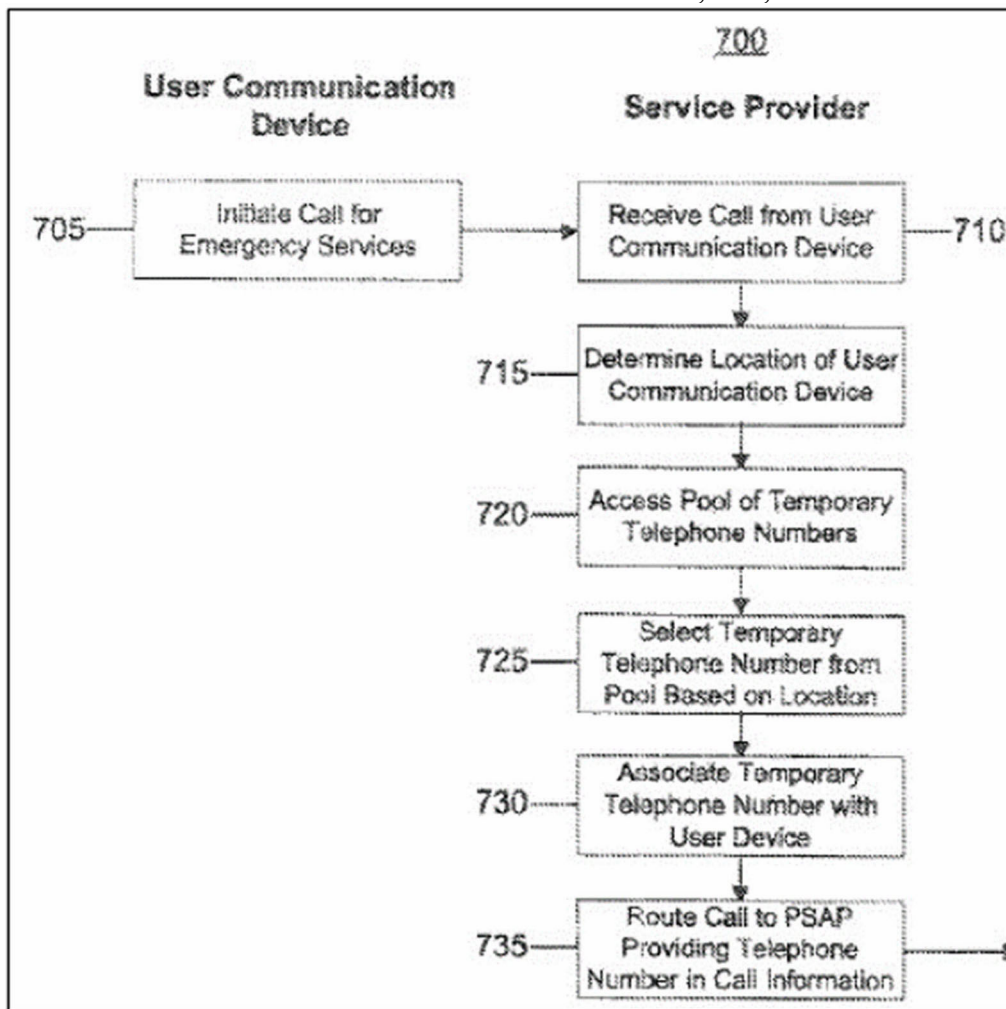
~~28. Bates teaches how to improve such call routing decisions by selecting a temporary number for the call from a pool of temporary numbers, where the~~

~~selection is based on a user device's location. See EX1009, Abstract, 12:25-31, Figure 7 28.~~

Notably, the context in which Bates's process for selecting a temporary number applies is directly related to Buckley's procedure for setting up calls. Bates's Figure 7 (excerpted below), for example, depicts a process highly analogous

to that depicted in Buckley's Figure 3A excerpted above (and analogous portions of Buckley's Figure 3B). ~~As shown below, in Bates, a mobile telephone (a "User Communication Device," corresponding to Buckley's UE 302) initiates a call by sending an access code request message (element 705 below) to a Service Provider's node (corresponding to Buckley's AS network node 308). Based on the location of the caller's mobile telephone, Bates teaches selecting a temporary number from a pool of numbers that enable making a local call (elements 715-725 below, applicable to element 313 in Buckley's Figure 3A above, as well as element 204 in Buckley's Figure 2).~~





C. Ejzak

Ejzak teaches techniques for use in a communication system having many of the same network entities, and associated functionalities, taught in Buckley. Compare EX1005, Figure 3A with EX1007 Figure 1 (element 141) and Figure 3. Like Buckley and Bates, Ejzak teaches PSTN and VoIP call interoperability such that calls can traverse packet-switched (*e.g.*, IP) and circuit-switched (*e.g.*, PSTN) networks. See EX1007, 2:36-40. ~~Ejzak further teaches using access codes, establishing emergency service calls, and using a mobile phone's location to route calls over the least cost path. *Id.*, 7:28-36, 4:46-60, 8:43-48; EX1003 ¶¶63, 67. Ejzak~~

~~further teaches querying a Domain Name System (DNS) using the callee identifier.~~

~~Specifically, “[q]ueries are sent to DNS, which responds with the associated resource records [e.g., IP addresses] for the requested input.” *Id.*, 8:29-36.; EX1003 ¶63.~~

~~Thus, the DNS replies with the appropriate IP address, from a set of available IP addresses, to enable communications over an IP network or to route the call to a~~

~~PSTN gateway for communication over a PSTN. *See id.* 8:63-9:6; *see also id.* 9:8-~~

~~12; EX1003 ¶¶64-65. Ejzak’s DNS further includes “the functionality of an ENUM-~~

~~[E.164 Number Mapping] Server,” which maps PSTN numbers to IP addresses, and~~

~~vice-versa, thus rendering them interchangeable for the purpose of identifying IP-~~

~~network communication channels. EX1007, 8:29-48; EX1003 ¶66.~~

X. SPECIFIC GROUNDS

A. Ground I: Claims 1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 46, 49-50, 135-136, and 140 Are Obvious Over Buckley.

1. Claim 1⁵

a. Element 1[preamble]

Buckley teaches this element. EX1003 ¶¶69-70.

Buckley teaches methods for UEs (User Equipment), in particular “mobile communication device[s] (e.g. cellular phones ...).” EX1005, 3:25-40. Buckley’s UEs (wireless devices) communicate with a callee’s communication device (destination node), such as a phone, via a communication network. EX1005, *e.g.*, cl. 1 (“A method for use in processing calls in a network environment”), 2:8-9 (“originating a SIP call ... with ... the called party”).

b. Element 1[a]

Buckley teaches this element. EX1003 ¶¶71-72. Buckley teaches that the communication device of a “called party” (destination node) can be “identified with a Uniform Resource Indicator (URI)” (destination node identifier), which is

associated with the destination node because the URI identifies the destination node. EX1005, 1:51-53. The “user of the UE device” (user of the wireless device) “either enters the URI via a suitable interface ... or selects it from a list stored in

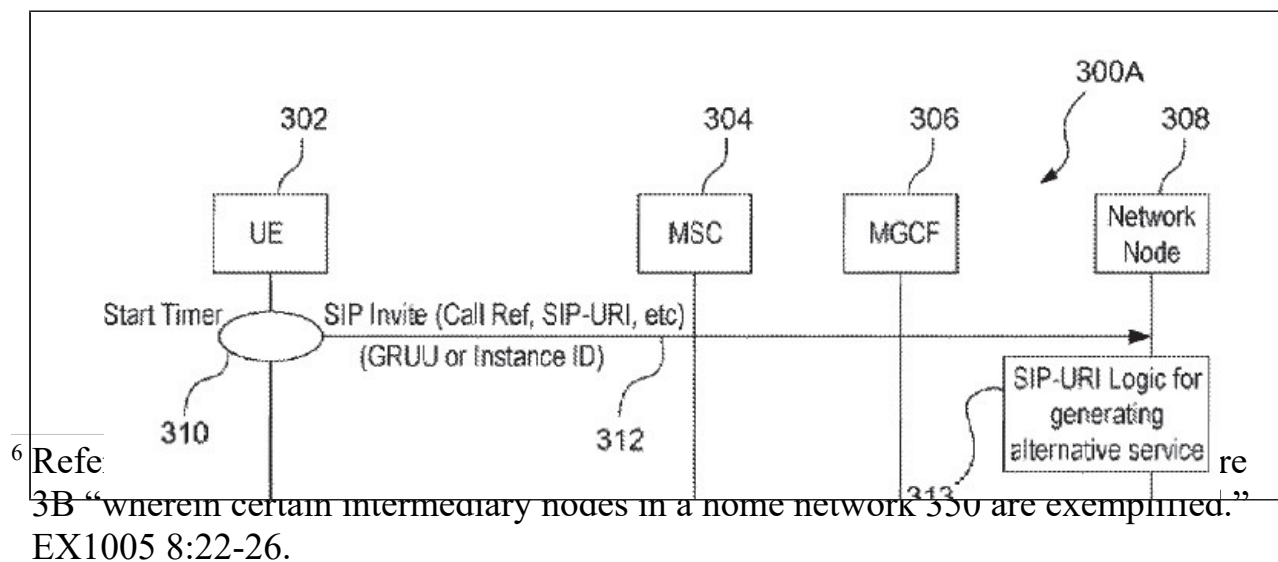
⁵ **The complete text of the claims’ corresponding portions is in the claim listing in Appendix A.**

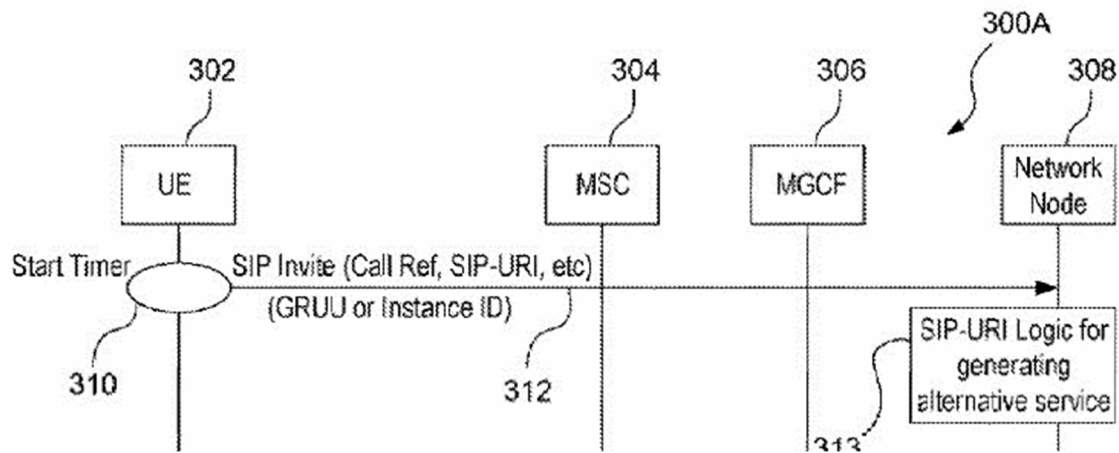
c. **Element 1[b]**

Buckley teaches this element. EX1003 ¶¶73-80.

i. Element 1[b][i]

As shown, for example, in Figure 3A (excerpted below),⁶ Buckley teaches that when a UE (wireless device) 302 initiates a call, it transmits an SIP Invite (access code request) message 312 to a network node 308 called an Application Server (AS) (access server). EX1003 ¶74; EX1005 6:58-63 (“A Wireless UE device 302 ... is operable to generate a SIP Invite message 312 towards an application server (AS) node 308 in response to detecting that a SIP call is being initiated from UE device 302”).





The SIP Invite message (access code request message) invites (*i.e.*, requests) the AS to provide an IP multimedia routing number (IMRN) (access code, as explained below), which the AS selects from a pool of IMRNs (access codes). EX1005, 8:54-61 (“[W]hen the UE device detects that it needs to invoke CS call origination, it may produce and send a SIP Invite message ... [T]he SIP Invite message is set to indicate that the call needs to be set up over CS.”); *id.*, 4:34-37 (AS node capable of “configuring and managing ***a pool of IP multimedia routing numbers (IMRNs)*** from which a select IMRN may be dynamically-allocated or otherwise selected for purposes of SIP call routing....”).

The IMRN identifies, for example, a telephone number known as an E.164 number. EX1005, 4:47 (“E.164 numbers [] are operable as IMRNs”), 4:63-67 (“E. 164 is indicative of the International Telecommunications Union (ITU) telephone numbering plan....”). The IMRN telephone numbers are access codes because they provide access to call the destination node. EX1003 ¶76; EX1001, 2:44 (“The access

code may include a telephone number.”). For example, the IMRN is required for the UE to have access to a communication channel set up as a CS-network call. EX1003 ¶76; EX1005, 9:61-63 (“[T]he UE shall use the IMRN ... as the E.164 number to set up a CS call”). Moreover, the IMRN telephone number is a code of digits used by the wireless device in place of the original destination node identifier (*i.e.* the URI) to connect to the AS so that the AS can complete the call to the destination node’s original URI; indeed, that is the AS node’s purpose in providing the IMRN. EX1005, 6:38-40 (“[T]he UE sets up a call using the IMRN that terminates on the AS node. The IMRN is then interrogated against the record to retrieve the called party’s URI”).

Buckley’s Application *Server* is an access server because it provides access to the callee’s communication device (destination node), including by providing the IMRN (access code) used to communicate with the callee. EX1003 ¶77.

ii. Element 1[b][ii]

Buckley’s SIP Invite message (access code request message) includes the called party’s device’s URI (destination node identifier). EX1005, 6:63-65 (“[T]he SIP Invite message 312 includes applicable call information such as [the] called party’s SIP URI....”), 1:51-52 (“called party ... is identified with a Uniform Resource Indicator (URI)”).

The SIP Invite also includes the UE’s (wireless device’s) geographic location information in a P-Preferred-ID. EX1005 at 8:67-9:20. “The

P-Preferred-ID is set to the calling line identity (CLI) associated with the user or subscriber of the UE device for identification in the CS network”—in other words, a telephone number. *Id.*, 9:3-6, 9:20 (example “P-Preferred-Identity: <tel: +1-555-1001>”). A POSITA would have recognized that the telephone number includes a geographic location identifier because each of the country, area code, and telephone prefix (*i.e.*, the three digits in a telephone number before the final four digits), are associated with the phone’s geographic location. EX1001, 12:39-42 “[T]he location identifier may include a ... local calling area where the mobile telephone is or may be situated.”); EX1005, 5:34-44; EX1003 ¶79. The P-Preferred-ID is thus a geographic location identifier that identifies the geographical location of the caller’s wireless device. *See id.*

Further, the SIP Invite also includes the UE’s geographic location information in the “calling party’s SIP URI.” EX1005, 5:25-27, 47-53. Buckley teaches that a “typical” “URI (or SIP address)” is in “the form of sip:<username>@<hostname>” (EX1005, 5:25-27, 7:1-2), and provides an example showing that the hostname can be an IP address (EX1005, 9:27: “Contact: sip:alice@**192.0.2.1**”); *see also* EX1010⁷,

149 (teaching that the host name can contain a IP address). Thus, Buckley teaches a “typical” calling party’s SIP URI in the form of a network address that includes

⁷ EX1010 (RFC 3261) is cited in Buckley. EX1005, 5:29-33.

an IP address. EX1003 ¶80. A POSITA would have recognized the SIP URI is a geographic location identifier because it “typically” includes an IP address and IP addresses can be translated into geographic locations. *See* EX1001, cl. 6; EX1009 9:6-9; EX1003 ¶80.

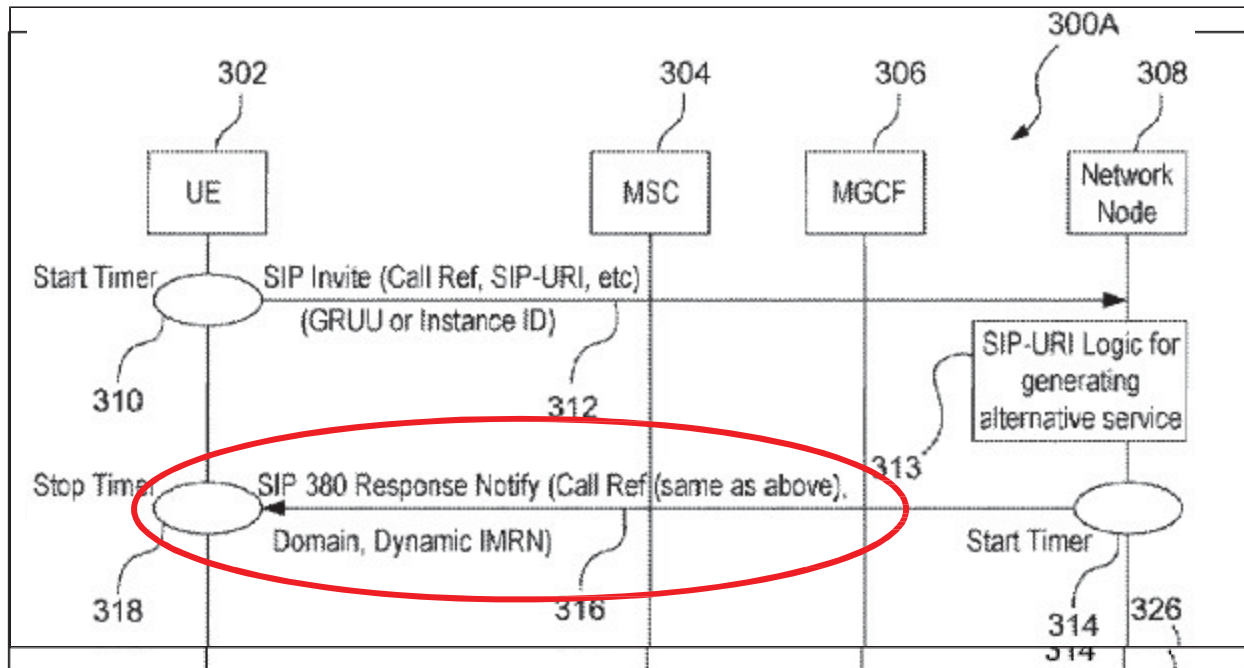
d. **Element 1[c]**

Buckley teaches this element. EX1003 ¶¶81-89.

i. Element 1[c][i]

As shown, for example, in Figure 3A excerpted below, Buckley teaches that UE 302 (wireless device) receives from AS network node 308 (access server) a SIP Response 316 (access code reply) message in response to the SIP Invite (access code request) 312 message. EX1005, 7:29-34 (“***Responsive to the Invite message 312***, ... AS node 308 disposed in the user’s home IMS network is operable to launch SIP- URI logic 313 for generating and populating a suitable SIP 380 (Alternative Service) Response message (e.g. SIP [] Response message [316]).”⁸); EX1003 ¶82.

⁸ The “380” in “SIP 380 Response” refers to a defined response code type (an “Alternative Service”) used when a server may connect the call in a different manner than requested, and such a “SIP 380 Response” is element 16 in Figure



ii. Element 1[c][ii]

The SIP Response includes an IMRN (access code) that the UE uses to get access to communicate with the callee. EX1005, 7:36-42 (“[T]he network node (in this example, the IMS AS node) dynamically allocates or otherwise identifies a selected IMRN mapped to the call information or parameters ... and returns it back to UE device 302 via SIP 380 [Response] message 316.”); EX1003 ¶83.

Buckley teaches that the IMRN is based on the location identifier that was sent in the SIP Invite (access code request message), which, as discussed above, includes the P-Preferred ID and/or caller’s URI. Specifically, Buckley teaches the

3A. EX1005, 7:41-42 (“SIP 380 message 316”), 7:49-50 (“SIP 380 Response message 316”): EX1003 ¶82.

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IMRN can be constructed based on “some relationship(s) to one or more of the parameters received in a message ... from the UE device” or “may be mapped to ***all the received SIP call information***” in the SIP Invite. EX1005, 3:4-12, 4:41-49, 6:1-

3. And, “all the received SIP call information” would include the caller’s P-Preferred-ID and SIP URI. *Id.*, 6:63-66 (“[T]he SIP Invite message 312 includes applicable call information such as ... the P-Preferred-Identity”); 5:47-53 (“The call information may include information such as ... [the] calling party’s SIP URI....”). Thus, this mapping to “***all the received SIP call information***” bases the IMRN on the location identifier(s) (caller’s P-Preferred ID and/or URI) in the SIP Invite. EX1003 ¶84.

iii. Element 1[c][iii]

A POSITA would have understood that an E.164 telephone number (used in Buckley as an IMRN (access code)) identifies a communications channel on a gateway. EX1003 ¶85. Moreover, the ’721 Patent itself confirms that a telephone number was known to identify a communication channel. EX1001 3:36-38 (“[t]he access code may include a telephone number identifying a channel operably configured to cooperate with an IP network.”). Further, Buckley’s SIP messaging process described above creates a “SIP session” based on the IMRN (E.164 number), and a SIP session is a channel because it establishes the end-to-end communication pathway for the duration of the communication “session.” EX1005, 7:50-56, Figure

3A (“The IMRN is then interrogated against the record to retrieve the called party’s URI for *establishing a SIP session with the called party* (i.e. between the calling party (UE device) ... and the called party....”); EX1003 ¶86. The wireless device uses the IMRN in place of the destination node URI (destination node identifier) to connect to the AS (gateway) such that the AS can complete the call to the original destination node URI; indeed, that is the AS’s purpose in providing the IMRN. *See* EX1005, 6:38-40 (“the UE sets up a call using the IMRN that terminates on the AS node. The IMRN is then interrogated against the record to retrieve the called party’s URI”).

The AS is a gateway because it converts the CS network call setup initiated by the UE (wireless device) to a SIP call setup on a PS network, which requires adjusting traffic between two different networks that use two different protocols (e.g., Internet Protocol (IP) used by the packet-switched network, and PSTN protocol used by the circuit-switched network). EX1005, 6:14-23 (“[A]ppropriate call setup is then initiated by the UE device using the selected IMRN, whereby the accepted IMRN is returned to the AS node since it terminates thereat. Upon receipt of the IMRN at the AS node ... the called party’s SIP URI or Tel URI ... is utilized by the AS node for effectuating the SIP session with the called party by producing and sending a SIP Invite message”); EX1003 ¶88. Indeed, teaching the transition of calls initiated on a CS network to a PS network (which use two different protocols)

is one of Buckley’s inventions. *See* EX1005, 1:24-27 (Disclosing “managing call

routing in a network environment including a circuit-switched (CS) network and an IP multimedia subsystem (IMS) network [which is a PS network]”); 1:51-57 (“[I]f the called party happens to be an IP-only subscriber and is identified with a Uniform Resource Indicator (URI), the originating UE device may not be able to make the IP-based call since the UE device can effectuate only E.164 number-based calls while operating in the circuit-switched cellular network domain.”).

iv. Element 1[c][iv]

The SIP Response includes an IMRN (access code) that the UE uses to get access to communicate with the destination node. EX1005, 7:36-42 (“[T]he network node (in this example, the IMS AS node) dynamically allocates or otherwise identifies a selected IMRN mapped to the call information or parameters ... and returns it back to UE device 302 via SIP 380 [Response] message 316.”); EX1003 ¶89. The IMRN (access code) is an E.164 number that is different from, and hence at the AS it must be “mapped to,” the destination node’s URI (destination node identifier). EX1005, 4:41-51; EX1003 ¶89. For example, Buckley teaches “dynamically allocating or otherwise selecting the E.164 number [IMRN] to a received called party’s URI (e.g. SIP URI or Tel URI) and other received information; and providing the selected E.164 number to the originating UE device

via a SIP 380 (Alternative Service) Response message” to provide access to reach

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the called party. EX1005, 4:52-57.

e. **Element 1[d];**

Buckley teaches this element. EX1003 ¶¶90-93.

i. Element 1[d][i]

Buckley teaches the UE (wireless device) initiating a call using the IMRN (access code) to identify the destination node, e.g., using “a call setup message 320 that includes the selected IMRN” resulting in messages “towards the AS node, which then uses the IMRN mapping for establishing the SIP session or call to the called party.” EX1005, 7:50-56, Figure 3A. The call is initiated through the AS, which associates the IMRN to the destination node’s URI (destination node identifier per Element 1[a]). EX1005, 6:37-43 (“Upon correlating the IMRN with the call reference number, the *UE sets up a call using the IMRN* that terminates on the AS node. The IMRN is then interrogated against the record to *retrieve the called party’s URI* for establishing a SIP session with the called party”).

ii. Element 1[d][ii]

Buckley teaches this element. EX1003 ¶92; Element 1[c]ii.

iii. Element 1[d][iii]

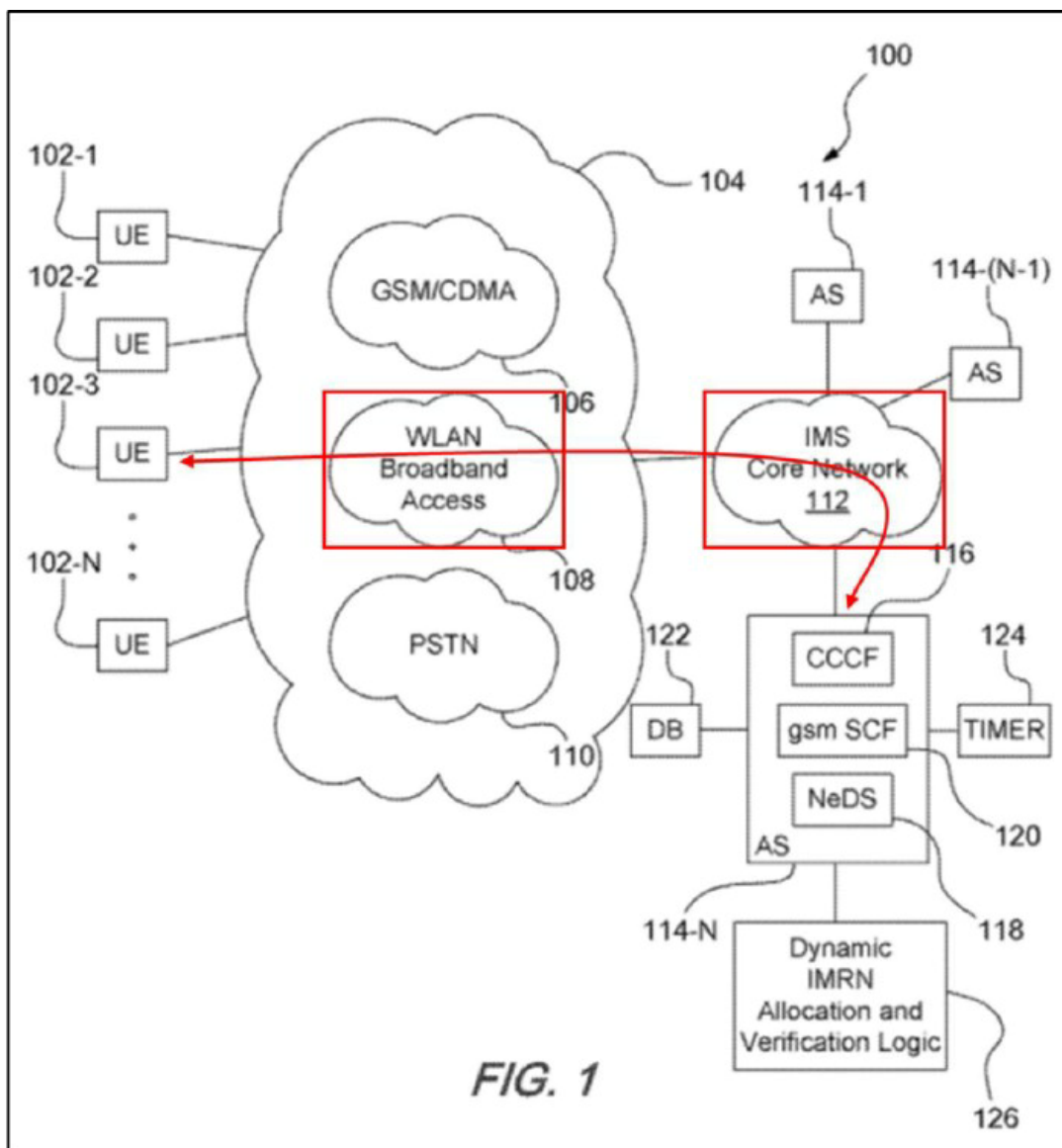
Buckley teaches this element. EX1003 ¶93; Element 1[c]iii.

2. Claim 2

Buckley teaches this claim. EX1003 ¶¶94-97.

For example, Figure 1 depicts a UE (wireless device) connected to an AS (114-N) (access server) via a non-voice, packet switched (PS) network including a

WLAN Broadband Access network (108) and the IMS Core Network (112) as annotated in red. EX1005, 3:23-24 (“[A]ccess space 104 [is] comprised of a number of access technologies available to a plurality of UE devices”), 3:41-43 (“The access space 104 may be comprised of both CS and **PS networks**, which may involve wireless technologies, wireline technologies, broadband access technologies, etc.”).



The UE transmits its SIP Invite (access code request message) “to an

application server (AS) node in the IMS network” through this WLAN Broadband Access network. *Id.* 14:33-36. PS networks, including the IMS and WLAN Broadband Access networks, are non-voice networks in the ’721 Patent’s parlance because they carry IP data packets, not merely voice signals. EX1001 at 11:58-59 (“non-voice network, such as an Internet, using WiFi or GPRS technology for example”); EX1003 ¶¶96. A POSITA would also have found it obvious to transmit the SIP Invite through a non-voice network because the SIP Invite is not a voice signal, so there is no specific need for a voice network to transmit it, and a non-voice network would more efficiently handle such data communication. EX1003 ¶¶96.

3. Claim 6

Buckley teaches this claim. EX1003 ¶¶98-100.

As discussed in Element 1[b], Buckley’s SIP Invite (access code requests message) includes the “calling party’s SIP URI” (location identifier) which “may take on the form of sip: <username>@<**hostname**>.” EX1005, 5:47-53, 5:25-27. A POSITA would have recognized that the hostname can “contain [a] numeric IPv4 or IPv6 address.” EX1010 (RFC 3261)⁹, 148; EX1003 ¶¶99. Buckley teaches an exemplary SIP URI of “sip:alice@**192.0.2.1**,” which includes an IP address as the hostname, namely “192.0.2.1”. EX1005, 9:27. Thus, Buckley teaches transmitting the wireless device’s IP address (as the hostname) when transmitting the location

⁹ RFC 3261 is cited in relevant part in Buckley. EX1005, 5:29-33.

As discussed in Claim 2, Buckley teaches that the SIP Invite is sent through a WLAN Broadband Access network, which includes “wireless local area networks”

and a POSITA would have understood this to include a wireless IP network.

EX1005, 3:51; EX1003 ¶100.

4. Claim 9

Buckley teaches this claim. EX1003 ¶¶101-103.

Buckley teaches a UE and AS (access server) connect via a non-voice, packet-switched network. *See* Claim 2.

Buckley teaches the IMRN is received after being transmitted from the AS via a packet-based SIP Response (access code reply message) over the IMS network (a non-voice PS network in the '721 Patent's parlance). EX1005, 30:23-34 (the mobile communication device “receive[s] a SIP 380 (Alternative Service) Response message from the IMS network”). A POSITA would also have found it obvious that the SIP Response could be received through another type of non-voice network because the SIP Response is not a voice signal, so there is no specific need for a voice network to transmit it, and a non-voice network would more efficiently handle such data communication. EX1003 ¶103.

5. Claim 14

Buckley teaches this claim. EX1003 ¶¶104-105; Element 1[b].

The IMRN identifies, for example, a telephone number known as an E.164 number. EX1005, 4:47 (“E.164 numbers [] are operable as IMRNs”), 4:63-67 (“E.164 is indicative of the International Telecommunications Union (ITU) telephone numbering plan....”).

6. Claim 15

Buckley teaches this claim. EX1003 ¶¶106-110.

As the '721 Patent describes, “the access server 14 and the routing controller 30 need not be separate, but may, for example, be combined in a single component” and “the routing controller 30 executes a process to facilitate communication between callers and callees”. EX1001, 15:14-20.

Buckley teaches a network node (308 in Figs 3A and 3B) where an AS (access server) is “provided with appropriate logic/structure/software/firmware module(s). EX1005, 4:42-45; EX1003 ¶108. A POSITA would have understood that these modules comprise a routing controller operably configured to route a call between the caller and destination node described above for Claim 1 where, *e.g.*, an E.164 number is used as an IMRN (access code). EX1005, 4:31-40 (“IP multimedia *routing* numbers (IMRNs) from which a select IMRN may be dynamically-allocated or otherwise selected for purposes of SIP call *routing*”); EX1003 ¶108. For example, AS contains modules that: “maintain a pool of E.164

numbers that are operable as IMRNs which terminate on the AS node”, select an E.164 number and map it a “called party’s” URI (destination node identifier), “provid[e] the selected E.164 number to the originating UE device”, and “verify[] that the selected E.164

number has not timed out when that selected E.164 number is returned” during CS call set up. EX1005, 4:46-58. These modules are AS components that route a call to the destination node by, *inter alia*, allocating the IMRN to the called party’s address such that when the IMRN is returned to the AS via a CS network the call can be established. EX1005, 4:52-52 (The modules “allocate[e] or otherwise select[] the E164 number [IMRN] to a received called party’s URI.”); *Id.* 6:16-23, (“[T]he accepted IMRN is returned to the AS node since it terminates thereat. Upon receipt of the IMRN at the AS node ... the called party’s SIP URI or Tel URI ... is utilized by the AS node for effectuating the SIP session with the called party.”); EX1003 ¶¶109-110. The AS converts the CS network call setup initiated by the UE with the IMRN to a SIP call setup to route the call to the original destination node on an IP network. EX1005, 6:14-23 (“[A]ppropriate call setup is then initiated by the UE device using the selected IMRN, whereby the accepted IMRN is returned to the AS node since it terminates thereat. Upon receipt of the IMRN at the AS node ... the called party's SIP URI or Tel URI ... is utilized by the AS node for effectuating the SIP session with the called party by producing and sending a SIP Invite message”)

7. Claim 16

a. Element 16[preamble]

Buckley teaches this element. EX1003 ¶111; Element 1[preamble].

b. Element 16[a]

Buckley teaches this element. EX1003 ¶112; Element 1[b].

c. Element 16[b]

Buckley teaches this element. EX1003 ¶¶113-114; Claim 15; Element 1[c], [d].

Buckley teaches a network node (308 in Figs 3A and 3B) where an AS (access server) is “provided with appropriate logic/structure/software/firmware module(s). EX1005, 4:42-45; EX1003 ¶114. A POSITA would have understood that these modules must communicate with one another to accomplish routing a call between callers and destination nodes as described above for Claim 1 where, e.g., an E.164 number is used as an IMRN (access code). EX1003 ¶114. For example, AS contains modules that: “maintain a pool of E.164 numbers that are operable as IMRNs which terminate on the AS node”, select an E.164 number and map it a “called party’s” URI (destination node identifier), “provid[e] the selected E.164 number to the originating UE device”, and “verify[] that the selected E.164 number has not timed out when that selected E.164 number is returned” during CS call set up. *Id.*, 4:46-

58. These modules must communicate with one another to, for example, provide the selected E.164 number to the UE. The module that selects the number must communicate the selected number to the module that provides or transmits the number to the UE. EX1003 ¶114.

d. Element 16[c]

Buckley teaches this element. EX1003 ¶115; Element 1[c].

8. Claim 20

a. Element 20[preamble]

Buckley teaches this element. EX1003 ¶116; Element 1[preamble].

b. Element 20[a]

Buckley teaches this element. EX1003 ¶¶117-119.

Buckley teaches means for receiving, which the parties agree incorporates the structure of a dialing input, which is a keypad, a voice recognition unit, or a parameter memory with pre-stored destination node identifiers. For example, Buckley teaches a keypad. *See* EX1005, 13:65-67 (“[D]isplay 422, *keyboard/keypad 424*, ... are part of the user interface of the mobile communication device”).

Buckley teaches the element’s remainder. *See* Element 1[a].

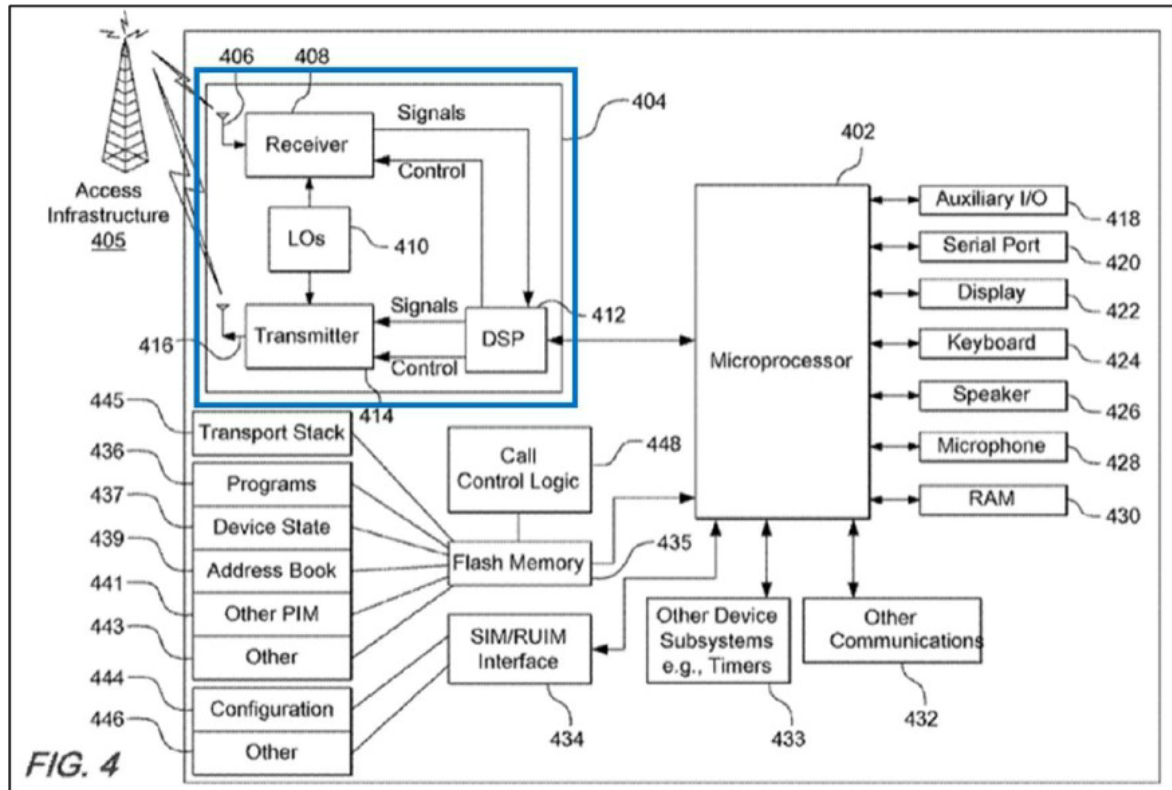
c. Element 20[b]

Buckley teaches this element. EX1003 ¶¶120-122.

Buckley discloses means for transmitting, which the parties agree incorporates a network interface structure. Figure 4 depicts a “mobile communication device” with a “communication subsystem 404 [that] includes one or more receivers 408 and one or more transmitters 414,” as outlined below in blue.

EX1005, 13:23-39. As a POSITA would have recognized, and as the data transmission lightning-bolt shapes indicate, this structure comprises a network

interface that communicates with, e.g., Access Infrastructure 405 which provides access to the mobile network. EX1003 ¶121.



Buckley teaches the element's remainder. See Element 1[b].

d. Element 20[c]

Buckley teaches this element. EX1003 ¶¶123-125.

Buckley teaches the means for receiving, which the parties agree incorporates a network interface structure. Figure 4 depicts a “mobile communication device” with a “communication subsystem 404 generally includes one or more receivers 408 and one or more transmitters 414.” EX1005, 13:37-39; Figure 4. See Element 20[b].

Buckley teaches the element's remainder. Element 1[c].

e. **Element 20[d]**

Buckley teaches this element. EX1003 ¶¶126-127.

Patent Owner contends this element incorporates the structure of a “[m]obile telephone 12 having a microprocessor 52 programmed to implement the algorithm illustrated in FIG. 3, which includes block 149 labeled ‘Initiate voice/video call using access code.’ The apparatus 12 includes an I/O port (56) for communication. See FIG. 2.” EX1018, 15-16. Buckley’s Figure 4 depicts a “mobile communication device” where a “microprocessor 402 providing for the overall control of an embodiment of UE 302 is operably coupled to a communication subsystem 404.” EX1005, 13:23-35; Figure 4. Buckley also discloses the microprocessor implements the algorithm illustrated in Figure 3 for establishing communications because it is “coupled to a communication subsystem 404 that is capable of multi-mode communications (e.g. CS domain, IP domain such as IMS, etc.)” that transmits an access code request message, receives an access code reply message, and initiates a call using the IMRN (access code). *Id.*, 13:35-37; EX1003 ¶127; Element 20[b]-[c]; Element 1[d]. Part of the “multi-mode communications” includes the “PSTN.” EX1005, Figure 1, 3:53-55 (“[P]art of the access space 104 is the conventional wireline PSTN infrastructure 110”). The access code is based on the location identifier. Element 1[c].

9. Claim 25

Buckley teaches this element. EX1003 ¶128; Claim 6.

10. Claim 34

a. Element 34[preamble]

Buckley teaches this element. EX1003 ¶¶129-132; Element 1[preamble].

Buckley also teaches roaming with a wireless apparatus. EX1003 ¶130.

Buckley teaches methods for UEs (User Equipment), in particular “mobile communication device[s] (e.g. cellular phones ...),” that are “untethered,” “capable of operating in multiple modes,” and “can transition from one mode of communications to another mode of communications without loss of continuity.” EX1005, 3:25-40. A POSITA would have understood that an “untethered” UE performing such transitions would commonly be roaming across different geographic locations, and that Buckley’s methods would be applied during such roaming. EX1001, 1:17-19; EX1015 [0029]; EX1003 ¶130.

Further, Buckley was designed for use across different “wireless technologies such as Global System for Mobile Communications (GSM) networks and Code Division Multiple Access (CDMA) networks”, which were typically operated by different service providers. EX1005, 3:41-53; EX1026, 1; EX1003 ¶131. Buckley further “envisaged that the teachings hereof may be extended to *any* 3rd Generation Partnership Project (3GPP)-compliant cellular network,” and such networks and 3GPP standards were well-understood to provide for roaming by

mobile telephone service provider's network and not the mobile telephone's home network. EX1005, 3:41-53; EX1003 ¶131. Indeed, Buckley teaches performing its methods in situations where UEs had to "register" with new networks, where the AS was "required" to provide "inter-operator" functions for UEs to communicate over different service operator networks, and where UEs would communicate with servers in the "user's *home* IMS network." EX1005, 2:34-47, 4:1-6, 8:22-47. A POSITA would have understood that such steps occur when the UE was roaming in another mobile telephone service provider's network and not in the mobile telephone's home network, as recited in the preamble. EX1003 ¶312.

b. Element 34[a]

Buckley teaches this element. EX1003 ¶133; Claim 15.

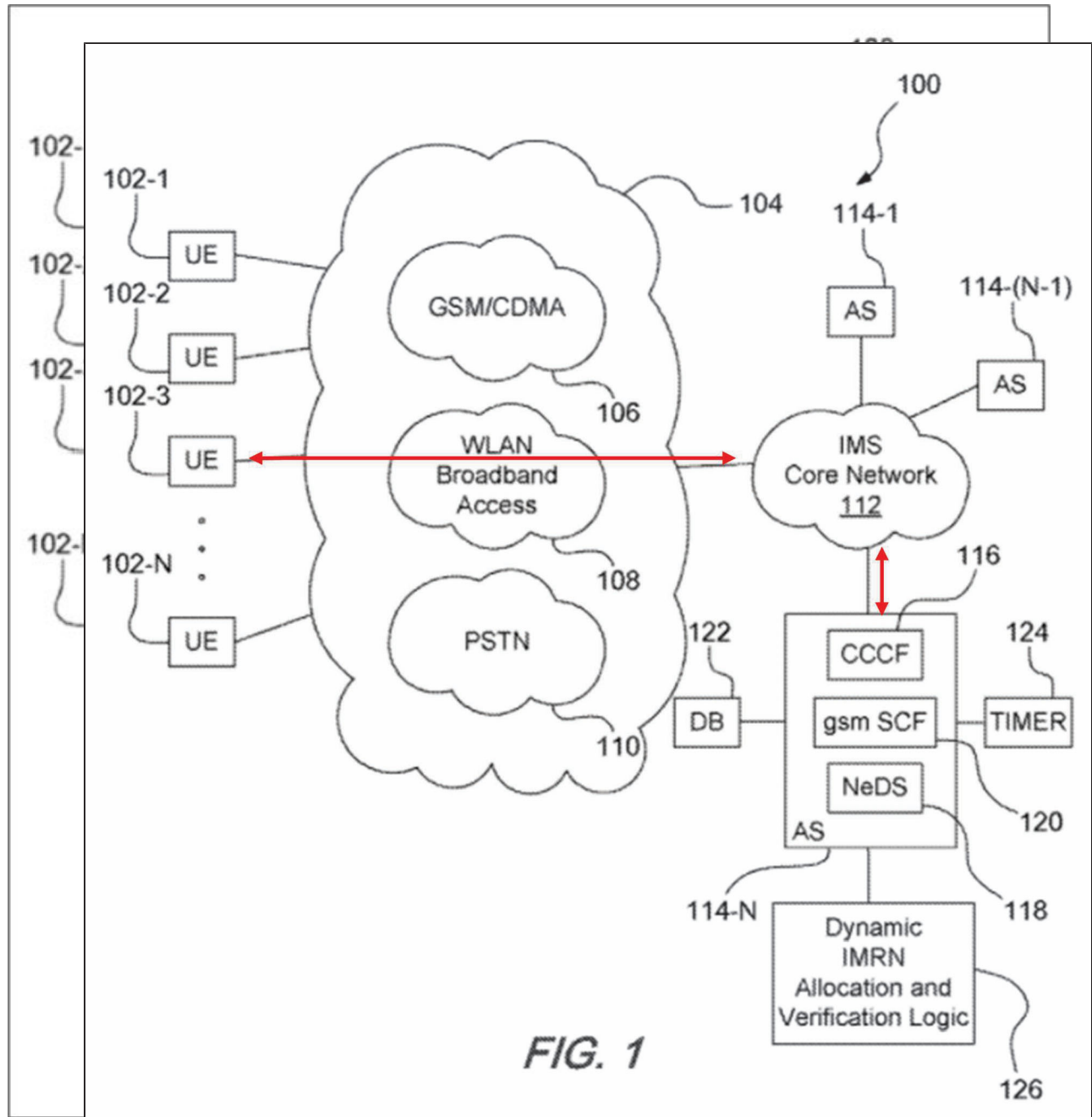
c. Element 34[b]

Buckley teaches this element. EX1003 ¶134; Element 1[b].

d. Element 34[c]

Buckley teaches this element. EX1003 ¶¶135-137.

Buckley discloses means for receiving, which the parties agree incorporates the structure of "a network interface." Buckley teaches the AS has a network interface that allows communication with the UE via the IMS core network, as depicted in FIG.1. A POSITA would have understood the AS in FIG.1 contains a network interface to connect to the "IMS Core Network" and ultimately the UE as

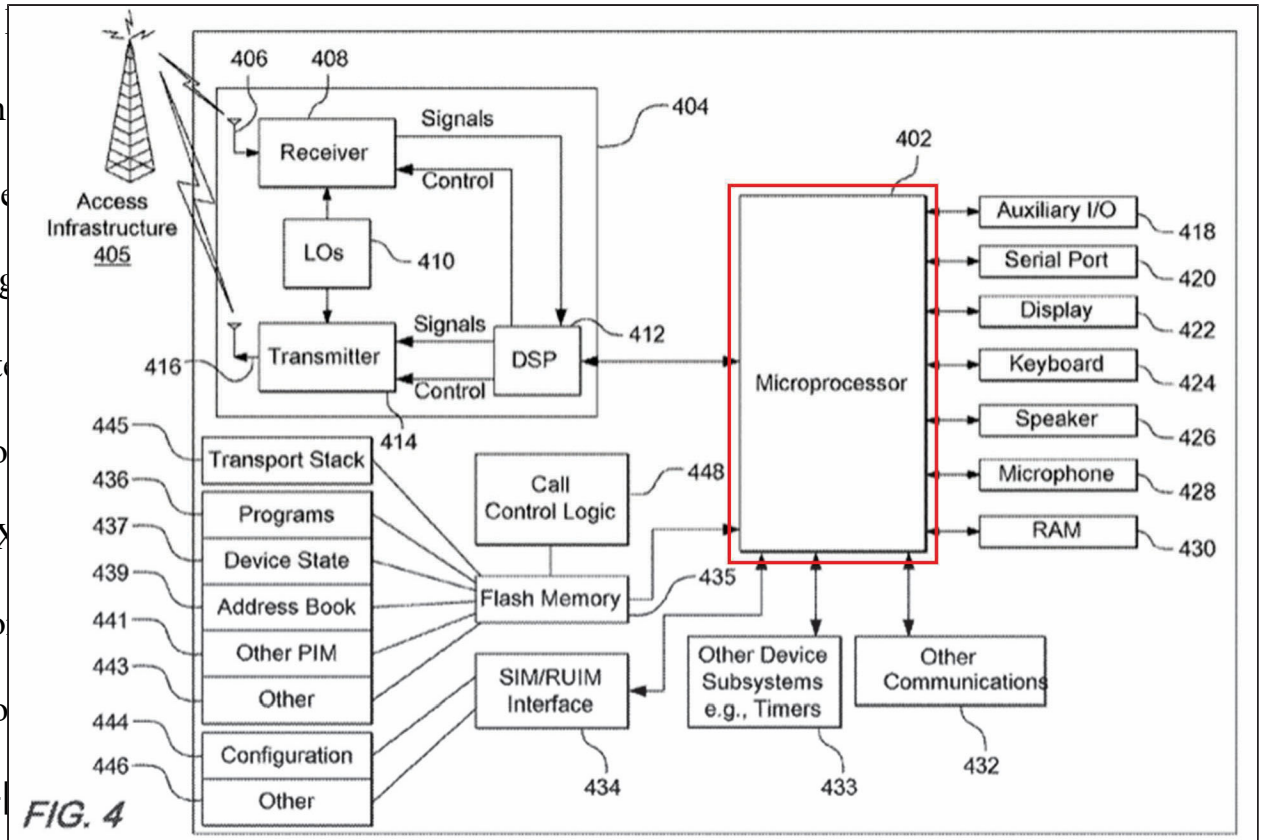


Buckley discloses the element's remainder. *See* Element 16[a].

e. **Element 34[d]**

Buckley teaches this element. EX1003 ¶¶138-139.

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f. **Element 34[e]**

Buckley teaches this element. EX1003 ¶¶140-141X.

Buckley discloses means for transmitting. *See* Element 34[c] Buckley teaches the element’s reminder. *See* Element 16[c].

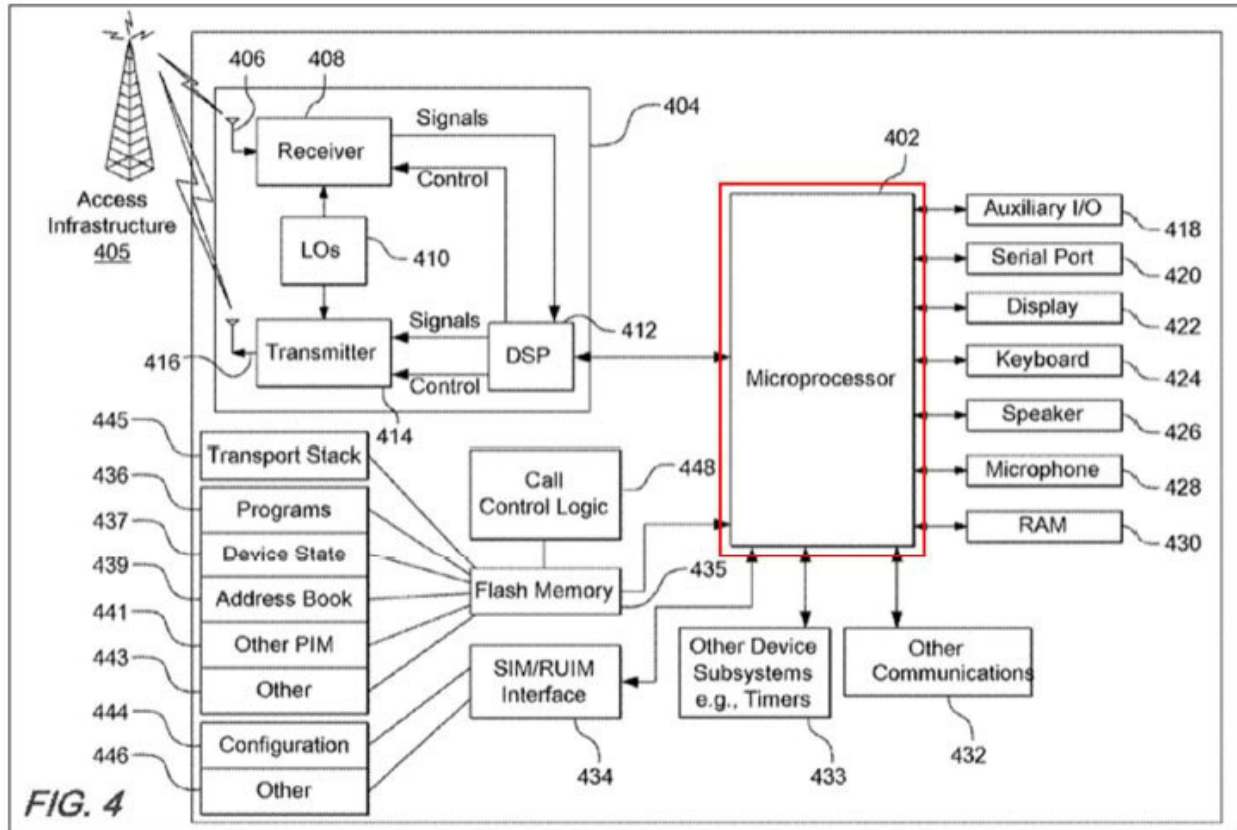
11. Claim 38

a. **Element 38[preamble]**

Buckley teaches this element. EX1003 ¶142; Element 20[preamble].

b. **Element 38[a]**

Buckley teaches this element. EX1003 ¶143. Buckley teaches a wireless device with “a microprocessor” in FIG 4, as outlined in red. *See* EX1005, Figure 4.

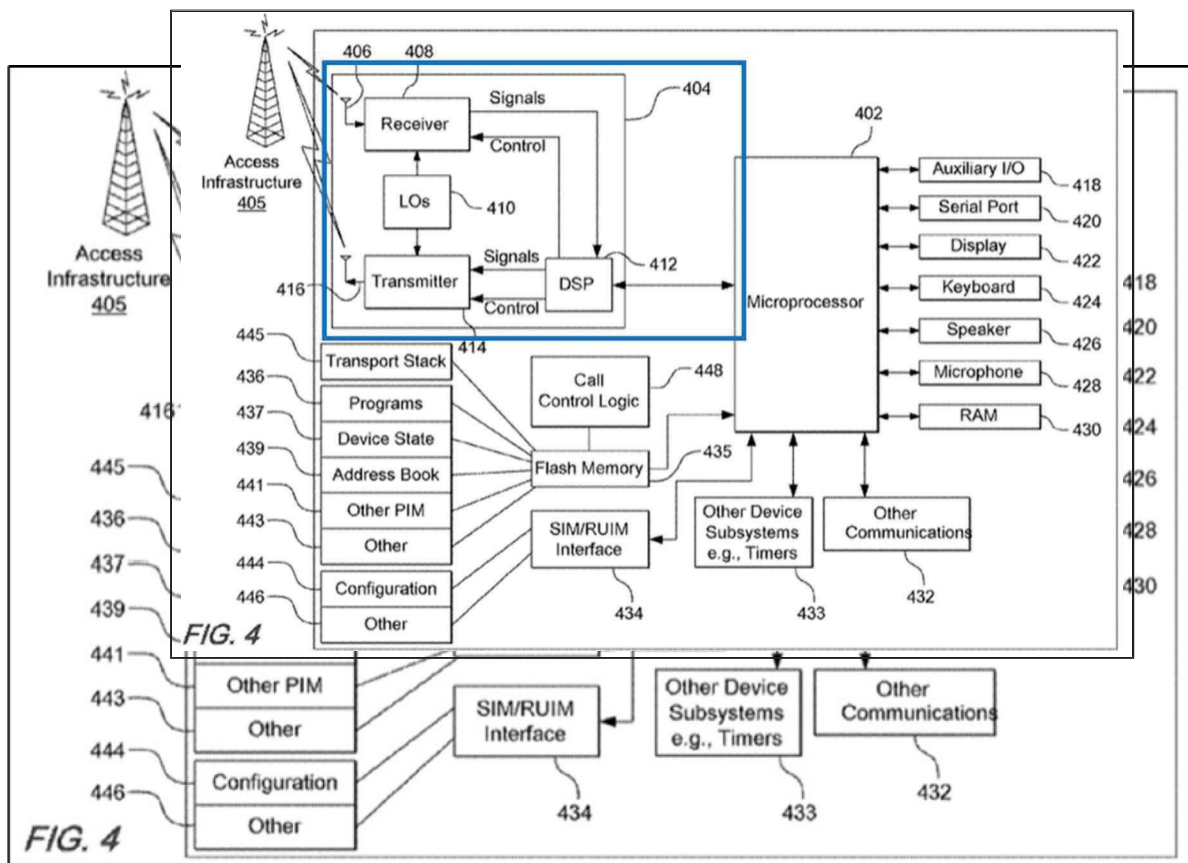


c. **Element 38[b]**

Buckley teaches this element. EX1003 ¶¶144-145.

Buckley teaches a wireless device with a network interface. *See* Claim 20[b].

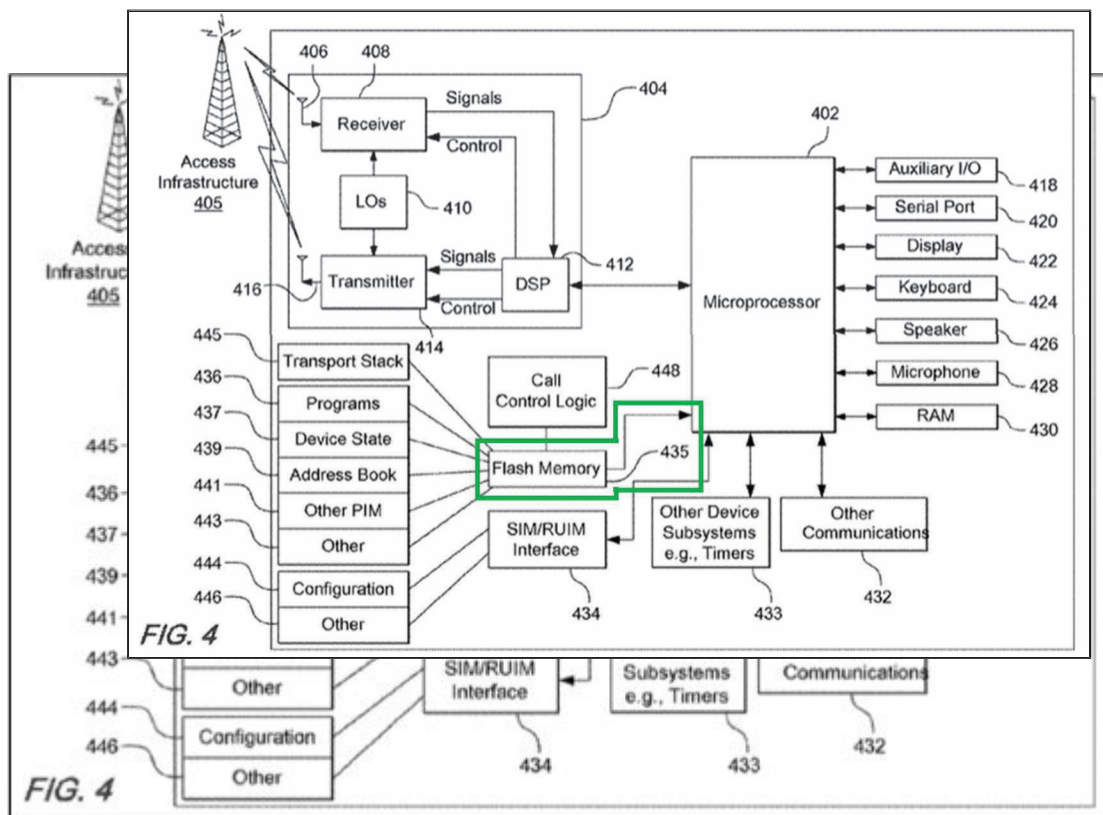
The network interface communicates with a processor as outlined in blue below in Figure 4. *See* EX1005, Figure 4; 13:33-37 (“A **microprocessor** [] providing for the overall control of an embodiment of UE [] **is operably coupled to a communication subsystem** [] that is capable of multi-mode communications (e.g. CS domain, IP domain such as IMS, etc.).



d. **Element 38[c]**

Buckley teaches this element. EX1003 ¶¶146-147.

Buckley teaches a wireless device with a computer readable medium in communication with a processor as outlined in green in FIG 4 below. *See* EX1005, Figure 4; 14:11-14 (“Operating system software and applicable service logic software may be embodied in a persistent storage module (i.e., non-volatile storage) such as Flash memory”).



e. **Element 38[d]**

Buckley teaches this element. EX1003 ¶148; Element 1[a].

f. **Element 38[e]**

Buckley teaches this element. EX1003 ¶149; Element 1[b].

g. **Element 38[f]**

Buckley teaches this element. EX1003 ¶150; Element 1[c].

h. **Element 38[g]**

Buckley teaches this element. EX1003 ¶151; Element 1[d].

12. Claim 39

Buckley teaches this claim. EX1003 ¶¶152-153; Claim 2.

Moreover, Buckley teaches a wireless device with an IP (non-voice) network interface. *See* EX1005, Figure 4; 13:33-39 (“A microprocessor providing for the

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overall control of an embodiment of UE is operably coupled to a communication

subsystem that is capable of ***multi-mode communications*** (e.g. CS domain, ***IP domain such as IMS***, etc.). The communication subsystem generally includes one or more receivers and one or more transmitters”). *See* Element 20[b]-[c].

13. Claim 43

Buckley teaches this claim. EX1003 ¶154; Claim 6.

14. Claim 46

Buckley teaches this claim. EX1003 ¶155; Claim 9, Claim 39.

15. Claim 49

a. Element 49[preamble]

Buckley teaches this element. EX1003 ¶156; Element 34[preamble], Element 38[preamble].

b. Element 49[a]

Buckley teaches this element. EX1003 ¶157; Claim 15.

c. Element 49[b]

Buckley teaches this element. EX1003 ¶¶158-159.

Buckley’s AS is an access server. *See* Claim 1[b]. The AS has “one or more processors” (EX1005, cl. 34) and is “provided with appropriate logic/structure/software/firmware module(s).” *Id.*, 4:42-43. As a POSITA would have recognized, a computer readable medium in the form of memory is necessarily required to store software and firmware modules performing the logic and operations ascribed to the AS. EX1003 ¶159.

d. **Element 49[c]**

Buckley teaches this element. EX1003 ¶160; Element 16[a].

e. **Element 49[d]**

Buckley teaches this element. EX1003 ¶161; Element 16[b].

f. **Element 49[e]**

Buckley teaches this element. EX1003 ¶162; Element 16[c].

16. Claim 50

a. **Element 50[preamble]**

Buckley teaches this element. EX1003 ¶163; Element 1[preamble]; Element 38[c].

b. **Element 50[a]**

Buckley teaches this element. EX1003 ¶164; Element 1[a].

c. **Element 50[b]**

Buckley teaches this element. EX1003 ¶165; Element 1[b].

d. **Element 50[c]**

Buckley teaches this element. EX1003 ¶¶166-169; Element 1[c].

Buckley teaches that the IMRN (access code) identifies an IP address of the called party such that the AS (access server) can set up a SIP session (channel) for the call. EX1003 ¶167. The IMRN (access code) is mapped to the called party's URI (destination node identifier), which allows the AS (access server) to translate the IMRN to called party's URI when the UE sets up the call. EX1005, 6:38-40

(“[T]he UE sets up a call using the IMRN that terminates on the AS node. The IMRN is then interrogated against the record to retrieve the called party’s URI”). The called party’s URI can be a SIP URI, which Buckley teaches “typically” includes an IP network address as discussed in Element 1[b][ii].

Also, it would have been obvious to alternatively use an IP address as the access code (IMRN) (in addition to, or instead of, an E.164 number) because an IMRN is an “**IP** multimedia routing number” and hence is ordinarily expected to carry an IP address. EX1005, 4:32-38; EX1003 ¶168. Buckley teaches that E.164 numbers are just one example of an IMRN. EX1005, 15:56 (“a pool of IMRNs, (e.g., the E.164 numbers)”). Moreover, Buckley’s system has as its core an “**IP** multimedia subsystem (IMS) core network” that “is coupled to the various access networks ... including any CS-based networks.” EX1005, 3:56-58. As was “well known, the IMS standard defined by the 3GPP is designed to allow service providers [to] manage a variety of services that can be delivered via IP over any network type, wherein IP is used to transport both bearer [voice] traffic and SIP-based signaling traffic.” *Id.*, 3:58-62.

Further, Buckley’s UE (wireless device) was preferably able to operate over both PSTN (CS) and IP (PS) networks to “transition from one mode of communications to another mode of communications without loss of continuity.” *Id.*, 3:35-40. “Furthermore, in order to effectuate call control of a SIP call using CS as the voice bearer,” Buckley’s IMS application server element in the home IMS

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network includes functionality that “tracks all call sessions and related mobile
Voice-over-IP (VoIP) bearer traffic, between CS and IMS domains.” EX1005,
4:18-

25. It would have been obvious that Buckley’s AS should provide an IMRN
(access code) that included, or at least identified, an appropriate IP address to take
advantage of Buckley’s UE’s ability to transition from a PSTN (circuit-switched)
mode to an IP (packet-switched) communication mode to reach the callee over
Buckley’s IMS network. EX1003 ¶169.

e. **Element 50[d]**

Buckley teaches this element. EX1003 ¶170; Element 1[d]; 50[c].

17. Claim 135

Buckley teaches this claim. EX1003 ¶171; Claims 2, 9. Specifically, a
POSITA would have recognized the “WLAN Broadband Access (108)” network in
Figure 1 comprises wireless local area networks which operate on WiFi protocols.
See EX1005 3:50-52 (“Reference numeral 108 refers to broadband access networks
including *wireless* local area networks or WLANs.”); EX1022 2:30-33; EX1003
¶171.

18. Claim 136

Buckley teaches this claim. EX1003 ¶¶172-173. The same SIP Invite
contains both the destination node’s URI (destination node identifier) and the
caller’s URI and P-Preferred-ID (location identifiers). Element 1[b].

19. Claim 140

a. Element 140[preamble]

Buckley teaches this element. EX1003 ¶174; Element 1[preamble].

b. Element 140[a]

Buckley teaches this element. EX1003 ¶¶175-176.

Buckley teaches, or at least renders obvious, that the IMRN (access code) is an IP address associated with the AS (IP network communication device). Claim-

~~63.~~

63. Buckley teaches that the IMRN terminates on the AS that connects the wireless device and the destination node. Element 1[c][iii]. It would have been obvious to include an IP address in the access code reply message using Buckley's system for IMRNs (as the IMRN or in addition to it), as discussed in Claim 50[c], so that a wireless device transitioning to, or initiating, a VoIP call could communicate directly with the AS on the IP network. EX1003 ¶176

c. Element 140[b]

Buckley teaches this element. EX1003 ¶¶177-178.

The wireless device uses the IMRN to establish communications with the destination node. Element 1[d][iii].

B. Ground II: Claims 50 and 140 Are Obvious Over Buckley in View of Ejzak.

1. Motivation to Combine

A POSITA would have been motivated to modify Buckley with Ejzak because both references are in the call routing field and directed to the same problem of improving call routing, including across packet-switched and circuit-switched networks. *Compare* EX1005 (Buckley), Abstract (“Methods and apparatus for use in processing Session Initiation Protocol (SIP) calls in a network environment which includes a circuit-switched (CS) network and an Internet Protocol (IP) multimedia subsystem (IMS) network”), *with* EX1007 (Ejzak), 2:35-38 (“[T]he present invention provides a communication system that ... allows for interworking between CS domains and PS domains.”); EX1003 ¶179. Further, as described in the background sections above, Buckley and Ejzak rely on a substantially similar network architecture, employing network entities with substantially the same functionality throughout. *Compare* EX1005 (Buckley), Figure 3A *with* EX1007 (Ejzak), Figure 1 (element 141) and Figure 3.

A POSITA would have been motivated to combine the references to apply Ejzak’s known techniques to improve Buckley and to help achieve Buckley’s expressly desired advantages. Ejzak teaches responding to a SIP Invite by determining how to route a call that may transition between PS and CS networks.

EX1007 (Ejzak), 8:58-9:12. Buckley's preferred embodiment desires that capability of seamless transitions between such networks. EX1005 (Buckley), 3:35-40 ("Preferably, the UE device is capable of operating in multiple modes in that it can engage in both circuit-switched (CS) as well as packet-switches (PS) communications, and can transition from one mode of communications to another mode of communications without loss of continuity."). A POSITA would thus have been motivated to combine Ejzak with Buckley to help achieve such transitions "without loss of continuity" by determining how to route a call that may transition between such networks in accordance with Ejzak's teachings. *See* EX1003 ¶180.

A POSITA also would have been motivated to modify Buckley to query Ejzak's DNS/ENUM server with an E.164 address to identify a corresponding IP address that enables routing a call over an IP network, because an IP address would help ensure that calls can be completed to VoIP phones, and over packet-switched IP networks, that lack direct PSTN access. EX1003 ¶181. This further achieves Buckley's goal of "managing call routing in a network environment including a circuit-switched (CS) network and an IP multimedia subsystem network" where a PSTN call may be completed over an IP network or where a particular user device may be operating over only an IP network. EX1005 (Buckley), 1:22-28, 1:51-57. Thus, basic market forces for enhanced reach and operability would have prompted applying Ejzak's teachings to embody or enhance Buckley's design. *See* EX1003

¶181.

A POSITA would have had a reasonable expectation of success in combining Buckley with Ejzak. *See* EX1003 ¶182. Buckley’s system takes place in the context of SIP messaging, which Ejzak also employs. EX1005, 2:30-34 (“Methods and apparatus suitable for use in processing ***Session Initiation Protocol (SIP)*** calls in a network environment which includes a circuit-switched (CS) network and an Internet Protocol (IP) multimedia subsystem (IMS) network are described.”); EX1007, 3:16-20 (“[T]he present invention is designed to utilize emerging Internet standards and protocols. An example of this is the use of ***Session Initiation Protocol (SIP)*** for IMS signaling for establishing a call.”). As Ejzak recognizes and a POSITA would have understood, SIP is flexible by design and accommodated adding new features. EX1007, 15:30-43 (“SIP has sufficient protocol features and extensibility to allow realization of enhanced features and services. ... It is possible to define new features and provision their availability per subscriber, along with any parameters governing operation of the feature.... SIP option tags allow for independent definition of arbitrary new features, parameters associated with those features, and procedures associated with those features.”).

Further, Ejzak teaches that its architecture “enables ***home control*** of all services—whereby the IMS provides feature and service ***control from the home***

network rather than the serving network—to be available for all circuit-switched services” and Buckley’s preferred messaging protocol requires using the “home IMS network’s AS node.” EX1007, 1:64-67; EX1005, 6:45-46. Buckley further teaches that its “message flow between the UE device and the home IMS network’s AS node may be mediated through a number of other appropriate network infrastructure elements” including a “mobile switching center (MSC) and a media gateway control function (MGCF) element” in the network. EX1005, 6:45-47; 6:51-53. Ejzak provides implementations for such “appropriate” network infrastructure elements” that can map numbers to IP addresses and route bearer (voice) traffic over an IP network, including a Mobile Switching Center (MSC), an enhanced “interworking MSC (iMSC),” Mediate Gateway Control Functions (MGCF), and Domain Name Service (DNS) entities. EX1007, Figure 1, 1:11-12; 5:14; 4:40; 8:30; 8:36-43.

Ejzak’s teachings are thus readily incorporated into Buckley’s network and SIP messaging, which is by its nature sufficiently flexible to accommodate adopting Ejzak’s features. EX1003 ¶183.

Additionally, a POSITA would have had a reasonable expectation of success in combining Buckley with Ejzak because Buckley teaches that it would “be further recognized by those skilled in the art that the message flow between the UE device and the home IMS network’s AS node may be mediated through a number of other appropriate network infrastructure elements, and may be implemented in a

of ways depending on the device capabilities as well as the network features and protocols being used.” EX1005, 6:44-50. Buckley thus teaches that a POSITA would already have understood how to implement the system in a manner that routes the traffic appropriately across the specific types of networks being used; as a result, a POSITA would have understood that Ejzak’s DNS/ENUM could be readily used to map a E.164 telephone number to an IP address (i.e., for the E.164 access code to identify an IP address) so the bearer traffic (the voice call) could traverse an IP network, as taught in both Buckley and Ejzak. EX1005, e.g., 6:50-54 (teaching one “typical” message flow for “CS-originated SIP calls” that could terminate on a VoIP phone); EX1003 ¶184.

2. Claim 50

a. Element 50[preamble]

Buckley in view of Ejzak render this element obvious. EX1003 ¶185; Ground I, Element 1[preamble]; Ground I, Element 50[preamble].

b. Element 50[a]

Buckley in view of Ejzak render this element obvious. EX1003 ¶186; Ground I, Element 50[a].

c. Element 50[b]

Buckley in view of Ejzak render this element obvious. EX1003 ¶187; Ground I, Element 50[b].

d. **Element 50[c]**

Buckley in view of Ejzak render this element obvious. EX1003 ¶¶188-191; Ground I, Element 50[c].

Ejzak teaches identifying a “replacement” IP address as a possible communications channel through which calls can be conducted, if the server determines that the call is to take place over a packet-switched network. *See* EX1007 8:67-91 (“DNS query resolves the replacement domain name to a set of ***IP addresses.***”). A POSITA would have recognized that Ejzak’s IP addresses are a possible channel for the call, including because Ejzak teaches that IP addresses can be used to connect to “media ***channels.***” EX1007, 5:8-9; EX1003 ¶189. Indeed, Ejzak’s purpose in assigning an IP address is to complete a call, which requires a communication channel. EX1007, Figure 5; EX1003 ¶189. In the combination asserted in this ground, Ejzak’s “replacement” IP address would be included within Buckley’s pool of access codes, intended for use in the event the call is to occur over an IP network. EX1005, 5:5-7 (“[I]t may be desirable to provide for different pools of IMRNs”); EX1003 ¶189.

Additionally, Ejzak’s DNS/ENUM service interchangeably maps E.164 numbers to an appropriate IP address to route the call, and vice versa, including when the call may need to transition from a PSTN to a VoIP call. EX1007, 8:29-36, 8:43- 48; EX1003 ¶190. Hence, it would have been obvious that each E.164 number in

Buckley’s pool of IMRNs (access codes) also “identifies an IP network address as a possible channel through which said call can be conducted” as this claim requires because Ejzak teaches that it was well-known and beneficial to use DNS/ENUM services for that purpose, particularly for networks and devices that provide for both communication modes. EX1003 ¶190.

To the extent this claim also requires that an access code communicated back to the mobile telephone itself be an IP address, it would have been obvious to do so using Buckley’s system for IMRNs (as the IMRN or in addition to it), as discussed above, so that a mobile telephone transitioning to, or initiating, a VoIP call could communicate directly with the network entities for the IP network identified by Ejzak’s network selection procedures. EX1003 ¶191.

e. Element 50[d]

Buckley in view of Ejzak render this element obvious. *See* EX1003 ¶192; Ground I, Element 50[d]; Ground II, 50[c].

3. Claim 140

a. Element 140[preamble]

Buckley in view of Ejzak render this element obvious. EX1003 ¶193; Ground I, Element 140[preamble].

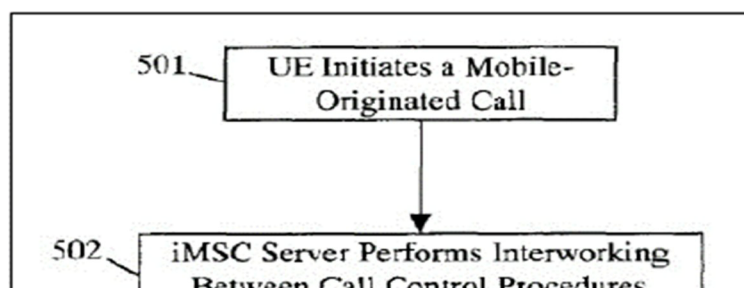
b. Element 140[a]

Buckley in view of Ejzak render this element obvious. EX1003 ¶194; Ground I, Element 140[a]; Ground II, Element 50[c].

c. **Element 140[b]**

Buckley in view of Ejzak render this element obvious. EX1003 ¶¶195-198; Ground I, Element 140[b].

Ejzak also teaches enabling communications between the caller and the callee in response to a call received at the IP network address. For example, “FIG. 5 depicts a flow chart 500 of a mobile unit originating a call with the communication system of the present invention” (EX1007, 13:58-60):



As can be seen, the communications are enabled because the called party (*i.e.*, callee) is able to answer the call, in response to a call received at the IP address discussed in Claim 38.

Ejzak further teaches that such communications would be established through an IP network. EX1007, 1:55-58 (“The present invention enables an IP Multimedia Subsystem (IMS) to support features and services for mobile units using either circuit-switched or IP Multimedia call control procedures.”). Indeed, establishing the communication through an IP network is one of the reasons that the DNS query would “resolves the replacement domain name to a set of *IP addresses*.” EX1007, 8:67-9:1; *See* EX1003 ¶¶196-198.

C. Ground III: Claims 1, 2, 6, 9, 14-16, 20, 25, 34, 38-39, 43, 45-46, 49-50, 135-136, and 140 Are Obvious Over Buckley in View of Bates.

1. Motivation to Combine

Bates builds upon Buckley’s disclosed transmission of location information, and further informs a POSITA why such location information is important in selecting a temporary number that will optimize call routing and enable a local call. A POSITA would have been motivated to modify Buckley with Bates for a number of reasons. *See* EX1003 ¶¶199-205.

Both references are in the call routing field and are directed to improving call routing. Both teach improved methods of routing PSTN and VoIP calls across packet-switched and circuit-switched networks. *Compare* EX1005 (Buckley),

Abstract (“Methods and apparatus for use in processing Session Initiation Protocol (SIP) calls in a network environment which includes a circuit-switched (CS) network and an Internet Protocol (IP) multimedia subsystem (IMS) network”), *with* EX1009 (Bates), 14:26-31 (Invention “enabl[es] interoperability of non-traditional communication networks with established, traditional PSTN-based emergency services.”).

The similarities between references is substantial, and a POSITA therefore would have had a reasonable expectation of success in combining Buckley with Bates. *See* EX1003 ¶¶200-201. For example, both references teach selecting temporary telephone numbers to allow calls to be transferred or routed between IP and PSTN networks. *Compare* EX1005 (Buckley), 4:26-40, *with* EX1009 (Bates), 14:2-8, 26-37. Both references also teach selecting telephone numbers from a pool of numbers that are temporarily assigned in response to a communication request. *Compare* EX1005 (Buckley), 4:46-49, *with* EX1009 (Bates), 1:32-37. Both references also teach receiving a message that contains a user device’s location information and using that received information when selecting a temporary number from the pool. *Compare* EX1005 (Buckley), 3:4-12, 4:41-49, 6:1-3, *with* EX1009 (Bates), 3:42-49, 18:67-19:2, 19:54-55. The analogous overlap can also be seen in comparing, for example, Figure 3A of Buckley with Figure 7 of Bates, as discussed above in Section **Error! Reference source not found.IX**.

A POSITA also would have had a reasonable expectation of success in

combining the references because Buckley expressly contemplates routing emergency calls, and Bates seeks to improve on such routing. For example, Buckley teaches XML code for establishing registration information used for emergency calls. *See* EX1005 11:28-43; 12:8-18; EX1006, 11:44-45; EX1003 ¶202. A POSITA would have therefore understood that Bates's techniques and rationale for selecting a geographically-correct telephone number (described below) could be utilized by Buckley's system to select a local IMRN E.164 telephone number to optimize routing decisions, including ensuring proper routing of emergency calls and avoiding unnecessary long distance and roaming charges. EX1003 ¶202. Multiple prior art references from the same inventor (Buckley) and assignee (RIM) further confirm that a POSITA would have understood from Buckley's disclosure that Buckley's system included ensuring proper emergency call routing. EX1006, 11:44- 45; EX1008, [0041]-[0042], Figure 6; EX1003 ¶202.

A POSITA also would have had a reasonable expectation of success in combining, and be motivated to combine, Buckley and Bates because they both teach techniques for establishing channels for bi-directional communication. EX1003 ¶203. Buckley's IMRN access code, which may be an E.164 telephone number as discussed above in Ground I, identifies a communication channel. *Accord*, EX1001 3:30-32 ("The access code may include a telephone number identifying a channel

operably configured to cooperate with an IP network."). So too does Bates's

geographically-correct telephone number identify a communication channel. EX1009, 3:43-50, Figure 4 (“Establish the Communication Session Including the Temporary Telephone Number”). Buckley’s and Bates’s techniques for mapping such temporary numbers to call participants identifies the channels on which they communicate.

A POSITA would also have been motivated to modify Buckley with Bates’s teachings to produce better routing results, including for routing local calls. EX1003 ¶204. Buckley teaches constructing the IMRN based on “some relationship(s) to one or more of the parameters received in a message ... from the UE device” in the SIP Invite. EX1005, 3:4-12, 4:41-49. But Buckley does not expressly teach all such “relationship(s)” that a POSITA may use to map the received information to an IMRN. A POSITA would have been motivated to select available and known techniques for creating such relationships to embody Buckley’s system. EX1003 ¶204. Bates provides one such technique that determines a “*geographically-correct telephone number* (e.g., a telephone number including a 202 area code for a call that was determined to have been made by a user located in the Washington, D.C. area, where the 202 area code indicates that the user placed the call from the Washington, D.C. area).” EX1009, 3:43-50. A POSITA would have thus appreciated that Bates’s “geographically-correct” relationship technique is a known technique that can be

used to improve or carry out Buckley’s number selection process, and was an

obvious-to-try option for mapping IMRNs to the “received SIP call information” that yields predictable results (a local call). EX1003 ¶204.

Bates itself teaches the communication service that selects temporary telephone numbers may do so whenever the server “determine[s] that the type of communication session requested by the user communication device 110 would benefit from having a temporary telephone number.” EX1009, 7:55-64; *Id.* 11:26-31 (“The communications service provider 120 determines whether the type of communication session would benefit from a temporary telephone number (420). In one implementation, the communications service provider 120 may analyze the communication session request to determine whether a temporary telephone number would be beneficial.”). Bates further teaches using a “geographically-correct telephone number” allows “the temporary telephone number [to be] used to ... route the call to the appropriate public safety answering point [(PSAP)] for the location of the user communication device 110,” which is helpful to ensure, for example, that a mobile phone caller with a Los Angeles area code does not get connected to the Los Angeles 9-1-1 when traveling in New York. EX1009, 12:28-32. Thus, a POSITA would have been motivated to modify Buckley with Bates to produce better call routing results, including in the emergency services context. *See* EX1003 ¶205. Additionally, as discussed above, a POSITA would have known that selecting a

“geographically correct” local telephone number can produce a local call that

avoids long distance and roaming charges, providing further motivation to modify Buckley with Bates's techniques to obtain these predictable and desirable results. See EX1014 at Abstract, [0036]; EX1001 at 1:20-28 EX1003 ¶205.

2. Claim 1

a. Element 1[preamble]:

Buckley in view of Bates renders this element obvious. EX1003 ¶206; Ground I, Element 1[preamble].

b. Element 1[a]

Buckley in view of Bates renders this element obvious. EX1003 ¶¶207-208; Ground I, Element 1[a].

Bates teaches “a request to place a call to a call recipient is received from the user” EX1009, Abstract. Moreover, Bates teaches the “user *places a call* for emergency services (e.g., a *9-1-1 call*).” *Id.*, 3:39-40. The 9-1-1 number is a destination node identifier associated with the destination node, which is emergency services. See EX1003 ¶208.

c. Element 1[b]

Buckley in view of Bates renders this element obvious. EX1003 ¶¶209-211; Ground I, Element 1[b].

Bates teaches the service “receive[s] a request from the user communication device to establish a communication session with the recipient communication device,” and “the *location key* [(location identifier)] may be included in the

request.” EX1009, 11:12-15, 12:7-8. “The location key is an identifier used by the communications services provider 120 to identify a particular location” of the user’s wireless device. *Id.* 9:27-29. That location key may be input by the user for transmission to the service provider’s access server. *Id.*, 8:56-9:1 (“[T]he user provides his or her current location by explicitly providing his or her address (e.g., entering location in a text box provided in a graphical user interface (GUI) of the communications service provider 120 or orally reciting location in a voice communication). In another implementation, the communications service provider 120 maintains a list of potential locations for the user and the user selects a location from a list provided by the communications service provider....”). Thus, Bates teaches that the access code request message includes a geographical location identifier (Bates’s “location key”) that is separate and distinctive from said destination node identifier (e.g., 9-1-1).

The remaining components of this element are taught by Buckley as described above in Ground I, Element 1[b].

d. Element 1[c]

Buckley in view of Bates renders this element obvious. EX1003 ¶¶212-217; Ground I, Element 1[c].

As described above, Buckley teaches receiving an access code reply message from the access server in response to said access code request message. Ground I, Element 1[c] In the asserted combination, the access code included in the access code

reply message is selected based on Bates's techniques to select a geographically correct telephone number that would be used by the caller's mobile phone to enable a local call. EX1009, 18:67-19:2 ("[A] communications service provider may ... select a temporary number that corresponds to the location of the user communication device."); 19:53-55 ("The temporary telephone number is a geographically-correct telephone number"); 3:45-49 ("***geographically-correct telephone number*** (*e.g.*, a telephone number including a 202 area code for a call that was determined to have been made by a user located in the Washington, D.C. area, where the 202 area code indicates that the user placed the call from the Washington, D.C. area)"). Either the caller's IP address or P-Preferred-ID as taught by Buckley or the location key as taught by Bates would provide the location information necessary to utilize Bates's technique to select a geographically-correct IMRN (access code). EX1003 ¶213.

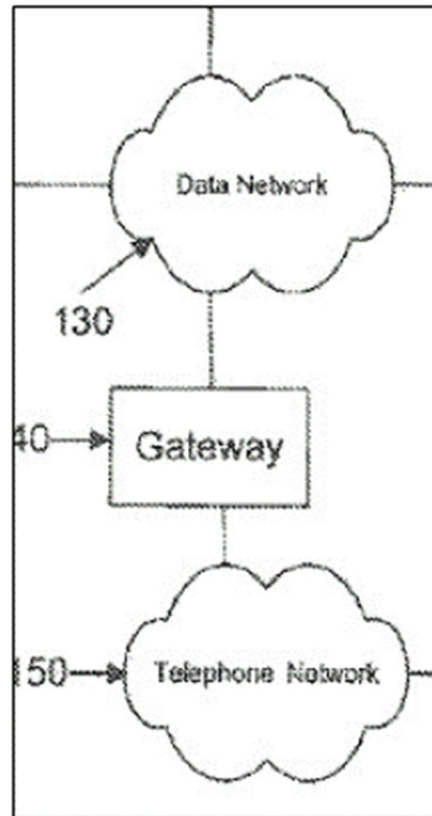
Bates's geographically-correct number selection technique, when applied in Buckley's system, yields a number that is different than the number dialed (*e.g.* 9-1-1) because the geographically-correct number will have a local area code, such as 202 in the Washington, D.C.. EX1009, 3:43-50; EX1003 ¶214. Bates's technique to select a geographically-correct telephone number (access code), when applied to Buckley's system, includes associating the telephone number with the location identifier (whether Buckley's caller's IP address or P-Preferred-ID or Bates's location key). The purpose of selecting a geographically-correct telephone number

in the asserted ground is to choose a number that ensures the caller is placing a local call to local emergency services, and not (for example) placing a call to emergency services in California when the caller is in Washington, D.C, or to avoid needlessly incurring long distance or roaming charges. EX1009 3:54-56 (Teaching the system “routes the call to the appropriate public safety answering point (PSAP) based on the location associated with the temporary telephone number”); EX1003 ¶214.

A POSITA would have understood that the geographically correct telephone number used in Bates identifies a communications channel. EX1003 ¶215. Moreover, the '721 Patent itself confirms that a telephone number identifies a communication channel. EX1001 3:36-38 (“[t]he access code may include a telephone number identifying a channel operably configured to cooperate with an IP network.”). Further, Bates’s temporary number selection process and system described above is used to “***establish a communication session*** with an emergency services provider” or between “communication device[s]”, and such a “communication session” is a channel. EX1009, 14:26-32, 4:48-61, 11:26-31, 12:17-21 (“The communications service provider 120 establishes the communication session requested by the user communication device 110 including the temporary telephone number in information used to establish the communication session (450).”), 15:28-30; EX1003 ¶215.

Like Buckley, Bates also teaches a gateway, as shown, for example, in this

excerpt from Figure 1 which illustrates the gateway spanning two different networks (*i.e.*, a packet-switched data network and a circuit-switched telephone network, that as described in Ground I, would operate on different protocols):



EX1009, 6:21-24 (“[T]he gateway 140 is a PSTN gateway configured to convert communications from data network 130 (e.g. IP packets) to communications suitable for delivery by a PSTN. By enabling communications between data network 130

and telephone network 150, the gateway 140 enables communications between a device connected only to data network 130 and a device connected only to the telephone network 150.”). Buckley’s AS is a gateway because Buckley’s invention helps span different types of network as discussed in Ground I, and a POSITA

would have found it obvious that Buckley's AS would have the qualities of a gateway as described by Bates to bridge different network types. EX1005, 2:30-34 ("Methods and apparatus suitable for use in processing Session Initiation Protocol (SIP) calls in a network environment which includes a circuit-switched (CS) network and an Internet Protocol (IP) multimedia subsystem (IMS network) are described."); EX1003 ¶216.

The remaining elements are taught by Buckley as described in Ground I, Element 1[c], with Bates's selection technique applied to Buckley. EX1003 ¶217.

e. **Element 1[d]**

Buckley in view of Bates renders this element obvious. EX1003 ¶218; Ground I, Element 1[d].

3. Claim 2

Buckley in view of Bates renders this claim obvious. EX1003 ¶219; Ground I, Claim 2.

4. Claim 6

Buckley in view of Bates renders this claim obvious. EX1003 ¶¶220-221; Ground I, Claim 6.

Bates also teaches the location identifier is an IP address. *See* EX1009, 9:4-9 ("the communications service provider 120 may **determine a current location** of the user communication device 110 **based on an IP address the user communication device** is using to connect to the data network 130"). Bates also

teaches the user communication device may be “a wireless phone” that connects via a “data network [that] may include ... a wired or *wireless* data pathway.” *id.*, 4:22-23, 6:12-13. A POSITA would have recognized that when the user communication device is connected to a wireless network, its IP address would be a wireless IP network address. EX1003 ¶221.

5. Claim 9

Buckley in view of Bates renders this claim obvious. EX1003 ¶222; Ground I, Claim 9.

6. Claim 14

Buckley in view of Bates renders this claim obvious. EX1003 ¶223; Ground I, Claim 14.

7. Claim 15

Buckley in view of Bates renders this claim obvious. EX1003 ¶¶224-226; Ground I, Claim 15.

Again, as the '721 Patent describes, the access server and routing controller may, be combined in a single component and the routing controller facilitates communication between callers and callees. EX1001, 15:13-20.

Bates’s “emergency services proxy server” comprises a routing controller because it facilitates communication between a caller and destination node by assigning the “geographically correct telephone number” and establishing a call with the appropriate PSAP (which may be a caller or destination node) while

informing the PSAP of the UE's location. *See* EX1009, 13:61-14:1 (“[T]he emergency services proxy server 524 may be configured to ... relay the request to enhanced emergency service provider 540 including the temporary telephone number”); *Id.*, 3:53-57 (“The traditional emergency services call handling system routes the call to the appropriate public safety answering point (PSAP) based on the location associated with the temporary telephone number and establishes the emergency services call between the user and the PSAP”); *Id.*, 14:13-15 (“the user communication device may be able to receive a return call from the PSAP”); EX1003 ¶226; Element 1[c]- [d].

8. Claim 16

a. Element 16[preamble]

Buckley in view of Bates renders this element obvious. EX1003 ¶227; Ground I, Element 16[preamble].

b. Element 16[a]

Buckley in view of Bates renders this element obvious. EX1003 ¶228; Ground I, Element 16[a].

c. **Element 16[b]**

Buckley in view of Bates renders this element obvious. EX1003 ¶229;

Ground I, Element 16[b].

d. **Element 16[c]**

Buckley in view of Bates renders this element obvious. EX1003 ¶230;
Ground I, Element 16[c].

9. **Claim 20**

a. **Element 20**

Buckley in view of Bates renders this element obvious. EX1003 ¶231;
Ground I, Element 20[preamble].

b. **Element 20[a]**

Buckley in view of Bates renders this element obvious. EX1003 ¶232;
Ground I, Element 20[a].

c. **Element 20[b]**

Buckley in view of Bates renders this element obvious. EX1003 ¶233;
Ground I, Element 20[preamble]; Ground III, Element 1[b].

d. **Element 11[c]**

Buckley in view of Bates renders this element obvious. EX1003 ¶234;
Ground I, Element 20[preamble]; Ground III, Element 1[c].

e. **Element 11[d]**

Buckley in view of Bates renders this element obvious. EX1003 ¶235;

Ground I, Element 20[preamble].

10. Claim 25

Buckley in view of Bates renders this claim obvious. EX1003 ¶236; Ground I, Claim 25; Ground III, Claim 6.

11. Claim 34

a. Element 34[preamble]

Buckley in view of Bates renders this element obvious. EX1003 ¶¶237-238; Ground I, Element 34[preamble].

Further, Bates additionally teaches that the mobile phone would be roaming. EX1009, 4:43-47 (“[T]he user communication device 110 may be mobile such that the user communication device 110 may establish a connection with communications service provider 120 at multiple different points in data network 130 located in multiple different geographic areas.”).

b. Element 34[a]

Buckley in view of Bates renders this element obvious. EX1003 ¶239; Ground I, Element 34[a]; Ground III, Claim 15.

c. Element 34[b]

Buckley in view of Bates renders this element obvious. EX1003 ¶240; Ground I, Element 34[b].

d. **Element 34[c]**

Buckley in view of Bates renders this element obvious. EX1003 ¶241;

Ground I, Element 34[c]; Ground III, Element 1[b].

e. **Element 34[d]**

Buckley in view of Bates renders this element obvious. EX1003 ¶242;
Ground I, Element 34[d]; Ground III, Element 1[c]; Claim 15.

f. **Element 34[e]**

Buckley in view of Bates renders this element obvious. EX1003 ¶243;
Ground I, Element 34[e].

12. Claim 38

a. **Element 38[preamble]**

Buckley in view of Bates renders this element obvious. EX1003 ¶244;
Ground I, Element 38[preamble].

b. **Element 38[a]**

Buckley in view of Bates renders this element obvious. EX1003 ¶245;
Ground I, Element 38[a].

c. **Element 38[b]**

Buckley in view of Bates renders this element obvious. EX1003 ¶246;
Ground I, Element 38[b].

d. **Element 38[c]**

Buckley in view of Bates renders this element obvious. EX1003 ¶247;

Ground I, Element 38[c].

e. **Element 38[d]**

Buckley in view of Bates renders this element obvious. EX1003 ¶248;
Ground I, Element 38[d].

f. **Element 38[e]**

Buckley in view of Bates renders this element obvious. EX1003 ¶249;
Ground I, Element 38[e]; Ground III, Element 1[b].

g. **Element 38[f]**

Buckley in view of Bates renders this element obvious. EX1003 ¶250;
Ground I, Element 38[f]; Ground III, Element 1[c].

h. **Element 38[g]**

Buckley in view of Bates renders this element obvious. EX1003 ¶251;
Ground I, Element 38[g].

13. Claim 39

Buckley in view of Bates renders this claim obvious. EX1003 ¶252; Ground I, Claim 39.

14. Claim 43

Buckley in view of Bates renders this claim obvious. EX1003 ¶253; Ground I, Claim 43; Ground III, Claim 9.

15. Claim 45

Buckley in view of Bates renders this claim obvious. EX1003 ¶¶254-255.

Bates teaches “the current physical address of the user accessing the communications service provider 120 with the user communication device ... may be *explicitly supplied by the user.*” EX1009, 5:30-34; Ground III, Element 1[b]; EX1003 ¶255.

16. Claim 46

Buckley in view of Bates renders this claim obvious. EX1003 ¶256; Ground I, Claim 46.

17. Claim 49

a. Element 49[preamble]

Buckley in view of Bates renders this element obvious. EX1003 ¶257; Ground I, Element 49[preamble].

b. Element 49[a]

Buckley in view of Bates renders this element obvious. EX1003 ¶258; Ground I, Element 49[a]; Ground III, Claim 15.

c. Element 49[b]

Buckley in view of Bates renders this element obvious. EX1003 ¶259; Ground I, Element 49[b].

d. **Element 49[c]**

Buckley in view of Bates renders this element obvious. EX1003 ¶260;

Ground I, Element 49[c].

e. **Element 49[d]**

Buckley in view of Bates renders this element obvious. EX1003 ¶261;

Ground I, Element 49[d]; Ground III, Element 1[b]-[c]; Ground III, Claim 15.

f. **Element 49[e]**

Buckley in view of Bates renders this element obvious. EX1003 ¶262;

Ground I, Element 49[e].

18. Claim 50

a. **Element 50[preamble]**

Buckley in view of Bates renders this element obvious. EX1003 ¶263;

Ground I, Element 50[preamble].

b. **Element 50[a]**

Buckley in view of Bates renders this element obvious. EX1003 ¶264;

Ground I, Element 50[a].

c. **Element 50[b]**

Buckley in view of Bates render this element obvious. EX1003 ¶265; Ground I Element 50[b]; Ground III, Element 1[b].

d. **Element 50[c]**

Buckley in view of Bates render this element obvious. EX1003 ¶266; Ground I, Element 50[c]; Ground III, Element 1[c].

e. **Element 50[d]**

Buckley in view of Bates render this element obvious. EX1003 ¶267; Ground
I, Element 50[d].

19. Claim 135

Buckley in view of Bates renders this claim obvious. EX1003 ¶268; Ground
I, Claim 135.

20. Claim 136

Buckley in view of Bates renders this claim obvious. EX1003 ¶269; Ground
I, Claim 136.

21. Claim 140

a. **Element 140[preamble]**

Buckley in view of Bates render this element obvious. EX1003 ¶270; Ground
I, Element 140[preamble].

b. **Element 140[a]**

Buckley in view of Bates render this element obvious. EX1003 ¶271; Ground
I, Element 140[a].

c. **Element 140[b]**

Buckley in view of Bates render this element obvious. EX1003 ¶272; Ground
I, Element 140[b].

D. Ground IV: Claims 50 and 140 Are Obvious Over Buckley in View of Bates and Further in View of Ejzak.

1. Motivation to Combine

A POSITA would have been motivated to combine Buckley with Bates for the reasons described in Ground III. A POSITA would have been further motivated to combine Buckley with Ejzak for the reasons described in Ground II. In that ground, Ejzak’s DNS/ENUM server provides the ability for any E.164 number (including those used in, and selected from, the pools in Buckley and Bates) to identify an IP address that can be used to route a call. EX1007, 8:29-36; 8:43-48; 8:67-91. Ejzak’s also provides the ability to replace an E.164 number from the pool with an IP address used to route the call. *Id.* Ejzak’s teachings may therefore be incorporated into the combination of Buckley with Bates in the same way that it can be incorporated into Buckley as described in Ground II; in other words, Buckley’s pool is able to accommodate both techniques, each motivated for the reasons set forth in Grounds II and III. EX1005, 5:5-6 (“To allow flexibility, it may be desirable to provide for different pools of IMRNs....”); EX1003 ¶273.

2. Claim 50

a. Element 50[preamble]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶274; Ground III, Element 50[preamble]; Ground II, Element 50[preamble].

b. Element 50[a]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶275; Ground III, Element 50[a]; Ground II, Element 50[a].

c. Element 50[b]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶276; Ground III, Element 50[b]; Ground II, Element 50[b].

d. Element 50[c]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶277; Ground III, Element 50[c]; Ground II, Element 50[c].

e. Element 50[d]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶278; Ground III, Element 50[d]; Ground II, Element 50[d].

3. Claim 140

a. Element 140[preamble]

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶279; Ground III, Element 1[preamble].

b. **Element 140[a]**

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶280; Ground II, Element 140[a].

c. **Element 140[b]**

Buckley in view of Bates, in further view of Ejzak render this element obvious. EX1003 ¶281; Ground II, Element 140[b].

XI. SECONDARY CONSIDERATIONS

Petitioner is unaware of any evidence of secondary considerations that would support a finding of non-obviousness. *See* EX1003, ¶282.

XII. CONCLUSION

Petitioner requests institution of IPR.

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Petition for *Inter Partes* Review of U.S. Patent No. 10,880,721

~~552-4200~~

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CERTIFICATE OF COMPLIANCE

This Petition complies with the type-volume limitations as mandated in 37 C.F.R. §42.24, totaling ~~13,967~~13,931 words. Counsel has relied upon the word count feature provided by Microsoft Word.

~~/W. Todd Baker/~~

Respectfully submitted,

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CERTIFICATE OF SERVICE

~~The undersigned~~I hereby ~~certifies~~certify that ~~aon February 28, 2023, I~~
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Petition for *Inter Partes* Review of U.S. Patent No. 10,880,721

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APPENDIX A

No.	Element
1[preamble]	A method of establishing communications between a wireless device and a destination node of a communications network, the method comprising:
1[a]	receiving from a user of the wireless device a destination node identifier associated with the destination node;
1[b][i]	“transmitting an access code request message to an access server,...”
1[b][ii]	“...the access code request message including the destination node identifier and a location identifier identifying a geographical location of the wireless device;”
1[c][i]	“receiving an access code reply message from the access server in response to said access code request message, ...”
1[c][ii]	“...the access code reply message including an access code based on the location identifier in the access code request message, ...”
1[c][iii]	“...the access code identifying a communications channel on a gateway through which communications between the wireless device and the destination node can be conducted,...”
1[c][iv]	“...the access code being distinct from the destination node identifier; and,
1[d][i]	“in response to receiving the access code reply message, causing the wireless device to use the access code received in the access code reply message to initiate communications from the wireless device to the destination node through the channel identified by the access code,...”
1[d][ii]	“...wherein the access code is based on the location identifier transmitted in the access code request message and ...”
1[d][iii]	“...enables the communications to be established from the wireless device to the destination node through the channel on the gateway identified by the access code.”
2	The method of claim 1, wherein transmitting comprises transmitting the access code request message to the access server on a non-voice network.
6	The method of claim 1, wherein the location identifier comprises an Internet Protocol (IP) address of the wireless device in a wireless Internet Protocol (IP) network.
9	9. The method of claim 1, wherein receiving the access code

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	reply message comprises receiving the access code reply message from the access server on a non-voice network.
14	The method of claim 1, wherein receiving the access code reply message comprises receiving, in the access code reply message, a telephone number or an Internet Protocol (IP) address.
15	The method of claim 14, wherein establishing communications between the wireless device and the destination node comprises engaging a routing controller to route the call on a public switched telephone network (PSTN) or an IP network to the destination node.
16[preamble]	The method of claim 1 further comprising:
16[a]	receiving at the access server, the access code request message from the wireless device;
16[b]	causing the access server to communicate with a routing controller to obtain from the routing controller the access code, wherein the access code identifies a communications channel associated with the location identifier and wherein the access code is useable by the wireless device in a subsequent communication to cause the routing controller to establish a call to the destination node using the communications channel; and
16[c]	causing the access server to transmit the access code reply message to the wireless device.
20[preamble]	A wireless apparatus comprising:
20[a]	means for receiving from a user of the wireless apparatus a destination node identifier associated with a destination node with which the user wishes to communicate;
20[b]	means for transmitting an access code request message to an access server, the access code request message including the destination node identifier and a location identifier identifying a geographical location of the wireless apparatus;
20[c]	means for receiving an access code reply message from the access server in response to the access code request message, the access code reply message including an access code based on the location identifier in the access code request message, the access code identifying a communications channel on a gateway through which communications between the wireless apparatus and the destination node can be conducted, the access code being distinct from the destination node identifier; and
20[d]	means for causing the wireless apparatus to establish

	communications with the destination node through the communications channel identified by the access code in the access code reply message, the access code being based on the location identifier transmitted in the access code request message.
25	The apparatus of claim 20, wherein the location identifier comprises an Internet Protocol (IP) address of the wireless apparatus in a wireless IP network.
34[preamble]	A system for enabling roaming by a wireless apparatus, the system comprising the wireless apparatus of claim 20 and further comprising:
34[a]	a routing controller;
34[b]	the access server, wherein the access server comprises:
34[c]	means for receiving from the wireless apparatus the access code request message;
34[d]	means for communicating with the routing controller to obtain from the routing controller the access code wherein the access code identifies a communications channel associated with the location identifier and wherein the access code is useable by the wireless apparatus to cause the routing controller to establish a call to the destination node using the communications channel; and
34[e]	means for transmitting the access code reply message including the access code to the wireless apparatus.
38[preamble]	A wireless apparatus comprising:
38[a]	a processor circuit comprising at least one processor;
38[b]	a network interface in communication with the processor circuit; and
38[c]	a non-transitory computer readable medium having computer executable codes stored thereon for directing the processor circuit to:
38[d]	receive from a user of the wireless apparatus a destination node identifier associated with a destination node with which the user wishes to communicate;
38[e]	transmit an access code request message to an access server, the access code request message including the destination node identifier and a location identifier identifying a geographical location of the wireless apparatus;
38[f]	receive an access code reply message from the access server in response to the access code request message, the access code

	reply message including an access code based on the location identifier in the access code request message, the access code identifying a communications channel on a gateway through which communications between the wireless apparatus and the destination node can be conducted, the access code being distinct from the destination node identifier; and
38[g]	initiate communications from the wireless apparatus, via the network interface, using the access code based on the location identifier, to establish communications between the wireless apparatus and the destination node through the communications channel identified by the access code.
39	The apparatus of claim 38, wherein the network interface comprises a non-voice network interface, and wherein the codes for directing the processor circuit to cause the access code request message to be transmitted include codes for directing the processor circuit to cause the access code request message to be transmitted to the access server using the non-voice network interface on a non-voice network.
43	The wireless apparatus of claim 38, wherein the location identifier comprises an Internet Protocol (IP) address of the wireless apparatus in a wireless IP network.
45	The wireless apparatus of claim 38, wherein the location identifier comprises a user-configured identifier of a location associated with the wireless apparatus.
46	The wireless apparatus of claim 38, wherein the network interface comprises a non-voice network interface, and wherein the codes for directing the processor circuit to receive an access code reply message include codes for directing the processor circuit to cause the access code reply message to be received from the access server using the non-voice network interface on a non-voice network.
49[preamble]	A system for enabling roaming by a wireless apparatus, the system comprising the wireless apparatus of claim 38 and further comprising:
49[a]	a routing controller; and
49[b]	an access server comprising a processor circuit and a computer readable medium in communication with the processor circuit, the computer readable medium encoded with codes for directing the processor circuit of the access server to:
49[c]	receive the access code request message from the wireless

	apparatus;
49[d]	communicate with the routing controller to obtain from the routing controller the access code wherein the access code identifies a communications channel associated with the location identifier and wherein the access code is useable by the wireless apparatus to cause the routing controller to establish a call to the destination node using the communications channel; and
49[e]	transmit the access code reply message to the wireless apparatus.
50[premake]	A non-transitory computer readable medium having stored thereon computer executable codes for directing a processor circuit of a wireless device to establish communications with a destination node on a network, the codes comprising codes for directing the processor circuit to:
50[a]	cause the wireless device to receive from a user of the wireless device a destination node identifier associated with the destination node;
50[b]	cause the wireless device to transmit an access code request message to an access server, the access code request message including the destination node identifier and a location identifier identifying a geographical location of the wireless device;
50[c]	cause the wireless device to receive an access code reply message comprising an access code identifying an Internet Protocol (IP) address based on the location identifier in the access code request message, the access code representing a communications channel of a network element in the network through which communications between the wireless device and the destination node can be conducted, the communications channel being associated with the geographical location of the wireless device, the access code being distinct from the destination node identifier; and
50[d]	cause the wireless device to use the access code comprising the Internet Protocol (IP) address based on the location identifier to establish communications between the wireless device and the destination node through the communications channel of the network element identified by the access code.
135	The method of claim 1 wherein the access code request message is transmitted from the wireless device via a WiFi network and the access code reply message is received by the wireless device via the WiFi network.

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136	The method of claim 1, wherein the destination node identifier and the location identifier are transmitted at the same time.
140[preamble]	The method of claim 1, further comprising:
140[a]	(a) receiving, in the access code reply message, an Internet Protocol (IP) address; and
140[b]	(b) establishing the communications between the wireless device and the destination node based on the Internet Protocol (IP) address received in the access code reply message.