

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION AND AFFIRMED NETWORKS, INC.,
Petitioners,

v.

LEMKO CORPORATION,
Patent Owner.

Case IPR2023-00570
U.S. Patent No. 9,191,980

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE ’980 PATENT IS BASED ON LEMKO’S NEW DISTRIBUTED MOBILE ARCHITECTURE.....	3
A.	Conventional Network Architectures Were Based on a Hierarchical, Specialized-Hardware Paradigm	3
B.	Lemko’s Patented DMA Technology Solved the Industry’s Long-Felt Need	8
C.	Waylett is Based on the Conventional Network Approach	12
III.	LEVEL OF ORDINARY SKILL IN THE ART	14
IV.	Overview of the Challenged Claim	14
V.	Claim Construction.....	14
A.	The Board Should Deny the Petition Because Petitioners Failed to Construe the Key “Distributed Mobile Architecture” Term	14
B.	“DMA Servers” are Coupled by Peer-to-Peer Connections.....	17
C.	“DMA Gateway”	20
VI.	PETITIONERS FAIL TO DEMONSTRATE A REASONABLE LIKELIHOOD OF SUCCESS ON ANY CHALLENGED CLAIM	23
A.	Waylett Does Not Disclose a “DMA Server”	23
B.	Waylett Does Not Render Obvious a DMA Gateway Communicatively Coupled to a Plurality of DMA Servers	26

C. Waylett Does Not Render Obvious “Registration Data”
as Required by the Claims..... 28

1. Waylett Does Not Teach Registration Data that is
Stored at the First DMA Server” 29

2. Waylett Does Not Teach Determining that a DMA
Gateway “Supports Communication with the
Destination Device Based on Registration Data” 29

3. Waylett Does Not Teach Registration Data that
“Indicates that the Destination Device is Not
Within a Wireless Coverage Area Associated with
the First DMA Server” 31

VII. CONCLUSION 33

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Meta Platforms, Inc., v. Almondnet, Inc.,</i> No. IPR2022-00929, Paper 7 (P.T.A.B. Oct. 26, 2022).....	15
<i>Orthopediatrics Corp. v. K2M, Inc.,</i> No. IPR2018-01547, Paper 9 (P.T.A.B. Feb. 22, 2019).....	15
<i>Samsung Elec. Co. v. Blaze Mobile, Inc.,</i> No. IPR2021-01571, Paper 15 (P.T.A.B. Apr. 4, 2022)	16
<i>Xerox Corp. v. Bytemark, Inc.,</i> No. IPR2022-00624, Paper 9 (P.T.A.B. Aug. 24, 2022).....	31, 32
Other Authorities	
37 C.F.R. § 42.104(b)(3).....	14, 16, 17
37 C.F.R. § 42.104(b)(4).....	14, 16, 17
Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019).....	15, 16

PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Declaration of Todor Cooklev, Ph.D. in Support of Patent Owner's Preliminary Response
2002	Wikimedia Commons, "File: Lucent 5ESS GSM Mobile Switching Centre.jpg" (May 31, 2006) https://commons.wikimedia.org/wiki/File:Lucent_5ESS_GSM_Mobile_Switching_Centre.jpg (June 27, 2023)
2003	Wikipedia, "Mobile switching centre server" https://en.wikipedia.org/wiki/Mobile_switching_centre_server (June 27, 2023)
2004	Techopedia.com, "What is a Base Station Controller?" (Oct. 19, 2011) https://www.techopedia.com/definition/24191/base-station-controller-bsc
2005	Metin UZAR Blog Post, "Base Station Controller (BSC)" (Sept. 19, 2009) https://razunitem.wordpress.com/2009/09/19/base-station-controllerbsc/
2006	Image of Motorola BSC https://monsite.woopic.com/383/p/Telecommunications/img/684d91850fe954cc28a1cf8fce498804.jpg (June 28, 2023)
2007	Electronics-notes.com, "Cellular / Mobile Backhaul" https://www.electronics-notes.com/articles/connectivity/cellular-mobile-phone/mobile-communications-backhaul-link.php (June 28, 2023)
2008	Network Functions Virtualisation Introductory White Paper (Oct. 2012) https://portal.etsi.org/NFV/NFV_White_Paper.pdf

2009	Dyton, J. "Lemko solutions keep connectivity alive regardless of the circumstances" (July 16, 2020) https://connectedremag.com/das-in-building-wireless/wireless/lemko-solutions-keep-connectivity-alive-regardless-of-the-circumstances/
2010	Lemko.com, distributed Mobile Architecture™ (dMA™) Overview lemko.com/htm/distributed_mesh_architecture.htm (June 28, 2023)
2011	Lemko.com, Lemko's Fundamental Architecture https://www.lemkocorp.com/solutions/ (June 5, 2023)
2012	The Wayback Machine - InterWAVE, GSM/GPRS Products https://web.archive.org/web/20031204132701/http://iwv.com/gsm_products.html#nib (captured Dec. 4, 2003)
2013	InterWAVE, WAVEXpress GSM Network In-A-Box (NIB) Datasheet (June 2003) https://mirror.unpad.ac.id/orari/library/library-ref-eng/ref-eng-2/physical/wireless/trend-gsm/microgsm/nib_may_03.pdf
2014	InterWAVE, WAVEXchange II Datasheet (Oct. 2002) https://ftp.unpad.ac.id/orari/library/library-ref-eng/ref-eng-2/physical/wireless/trend-gsm/microgsm/wxc_2_oct_02.pdf
2015	Microsoft Computer Dictionary, Page 168 (5th ed. 2002), definition for "distributed network"
2016	Merriam-Webster Dictionary, definition for "distributed" https://www.merriam-webster.com/dictionary/distributed (June 27, 2023)
2017	Petition for Inter Partes Review, <i>Microsoft Corp. & Affirmed Networks, Inc. v. Lemko Corp.</i> , No. IPR2023-00530, Paper 3 (P.T.A.B. Feb. 14, 2023)
2018	U.S. Patent Application Publication No. US 2003/0081565 A1

I. INTRODUCTION

Lemko's Distributed Mobile Architecture ("DMA") represented a significant paradigm shift in cellular networks. Unlike conventional networks, Lemko's DMA networks include DMA servers that communicate with each other over peer-to-peer ("P2P") connections, forming a decentralized network in which individual DMA servers communicate with each other directly instead of relying on a centralized data center to manage traffic.

In 2008, when Lemko filed the series of patents that include the '980 Patent, then-conventional cellular networks were based on circuit-switched networks with a centralized, hierarchical architecture. All calls were carried from cell towers to regional call centers over expensive backhaul connections. The regional call centers relied on stacks of custom hardware to manage and route calls for an entire region. The cell towers had no functionality for managing and routing calls since that capacity was located in the regional call centers. This approach had many disadvantages, including the need for expensive backhaul to and from regional call centers, even when the two parties to a phone call were in the same area, because the cell towers could not manage or connect calls without the regional call centers).

The Board should deny *inter partes* review because Lemko's Distributed Mobile Architecture ("DMA") bears no resemblance to the legacy communications

networks disclosed in Waylett.¹ Waylett's "network-in-a-box" ("NIB") is not a DMA server and plays no role in anything resembling the '980 Patent's decentralized "distributed mobile architecture." While the NIB packages several components of a legacy communications network installation into a single enclosure, it connects to (and operates within) an existing legacy communications network in the same way as a typical network installation. It does not use peer-to-peer (P2P) connections to carry calls or join with other NIBs to form anything resembling a distributed mobile architecture network.

Because the concept of a DMA is missing from the art of record, Petitioners struggle to identify in the cited art aspects of the claims that only make sense in the context of the DMA. For example, the challenged claim recites a DMA gateway, which is communicatively coupled to a plurality of DMA servers, and which supports communication with a destination device of a call. But because Waylett does not disclose a DMA server, it does not disclose anything resembling a DMA gateway. Similarly, Waylett is silent with respect to the claimed "registration data", which is stored on a DMA server, and is the basis for determining whether a DMA

¹ Microsoft Corporation and Affirmed Networks, LLC ("Petitioners") petitioned for *inter partes* review (IPR) of U.S. Patent No. 9,191,980 (Ex. 1001, the "'980 Patent"), challenging claim 1 ("the Challenged Claim").

gateway supports communication with the destination device, and indicates whether the destination device is not within a coverage area of the DMA server.

Thus, the Petition should be denied for failure to establish a reasonable likelihood of success as to any Challenged Claim.

II. THE '980 PATENT IS BASED ON LEMKO'S NEW DISTRIBUTED MOBILE ARCHITECTURE

A. Conventional Network Architectures Were Based on a Hierarchical, Specialized-Hardware Paradigm

When Lemko filed the '980 Patent, conventional networks were hierarchical because each cell tower (also known as a “base transceiver station” or “BTS”) connects to a single Base Station Controller (“BSC”), which connects to a centralized mobile switching center (“MSC”) that routes calls. *See* '980 Patent at 1:30-42. Cell towers did not communicate directly with other cell towers, and BSCs did not communicate directly with other BSCs. *Ex. 2001* (Declaration of Todor Cooklev, Ph.D., “Cooklev Decl.”) ¶ 48.

These conventional networks were also hardware based. The MSCs were housed at large Digital Signal Processor (DSP) equipment server centers, shown in the photograph below, where the MSCs relied on stacks of DSP equipment servers and provided the call processing functionality for the networks, including switching functions, call set-up, call termination, and routing. *Ex. 2002*.



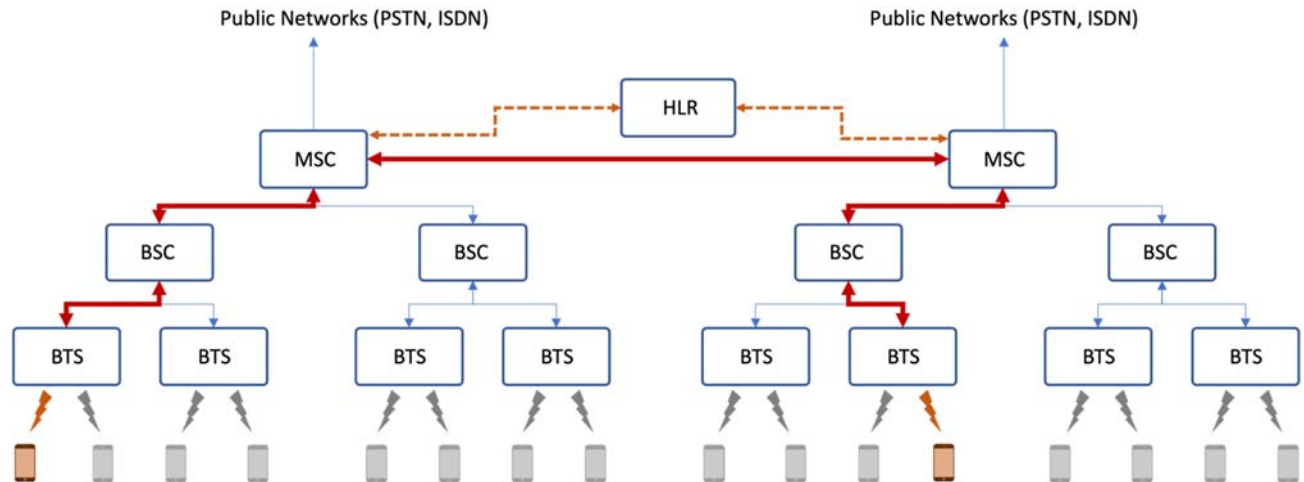
Id.; see also Ex. 2003.

The BSC (shown in the photographs below) connected a BTS (cell site) to the MSC through a “backhaul” connection. Ex. 2004; Cooklev Decl., ¶ 49-50.



Ex. 2005 at 1; Ex. 2006; Cooklev Decl., ¶ 50.

The following figure shows the hierarchical structure of these conventional networks.



Cooklev Decl., ¶ 51. In these conventional networks, the backhaul connections used T1/E1 communication lines. See Ex. 2007 (explaining that “E1/T1 systems were widely used in telecommunications when 2G technologies including GSM were being rolled out and deployed”).²

To place a call between two cell phones or other mobile devices (conventionally called “user equipment” or “UE”) on two different networks, call

² “T1/E1” refers to a telecommunications standard that is either the T1 or E1 digital transmission formats. Both T1 and E1 were developed in the 1960s and provide dedicated connections between two fixed points, with “real time” (less than 1 micro second) communications. Cooklev Decl., ¶ 51

data are routed from (1) an originating UE, (2) to a BTS, (3) to a BSC, (4) to an MSC, (5) to the MSC for the second network, (6) to a BSC, (7) to a BTS, (8) to the receiving UE. This path is shown in red in the schematic diagram above. The BTS to UE connections are wireless radio connections. The other connections in this path are circuit-switched T1/E1 (or T3/E3) connections.³ Thus, for two UEs to communicate, the call data are routed to centralized MSCs (stored at centralized server locations) of the public networks using the T1/E1 communication lines. Cooklev Decl., ¶¶ 51-52

This hierarchical, hardware paradigm had several drawbacks. Such networks were expensive to deploy because they require large amounts of space, power, and hardware resources to accommodate the stacks of servers. The rigid, hardware-based approach made it difficult to integrate and operate the dedicated hardware appliances. See Ex. 2008 at 5 (stating the difficulty in “integrat[ing] and operat[ing] increasingly complex hardware-based appliances”). In addition, this centralized,

³ “Circuit switched” connections establish a dedicated communication path between two devices for the duration of a session. Cooklev Decl., ¶ 52. In contrast, IP networks transmit data in small packets that travel independently over a network and are dynamically routed, which can cause time delays for the message delivery, especially if the network is congested.

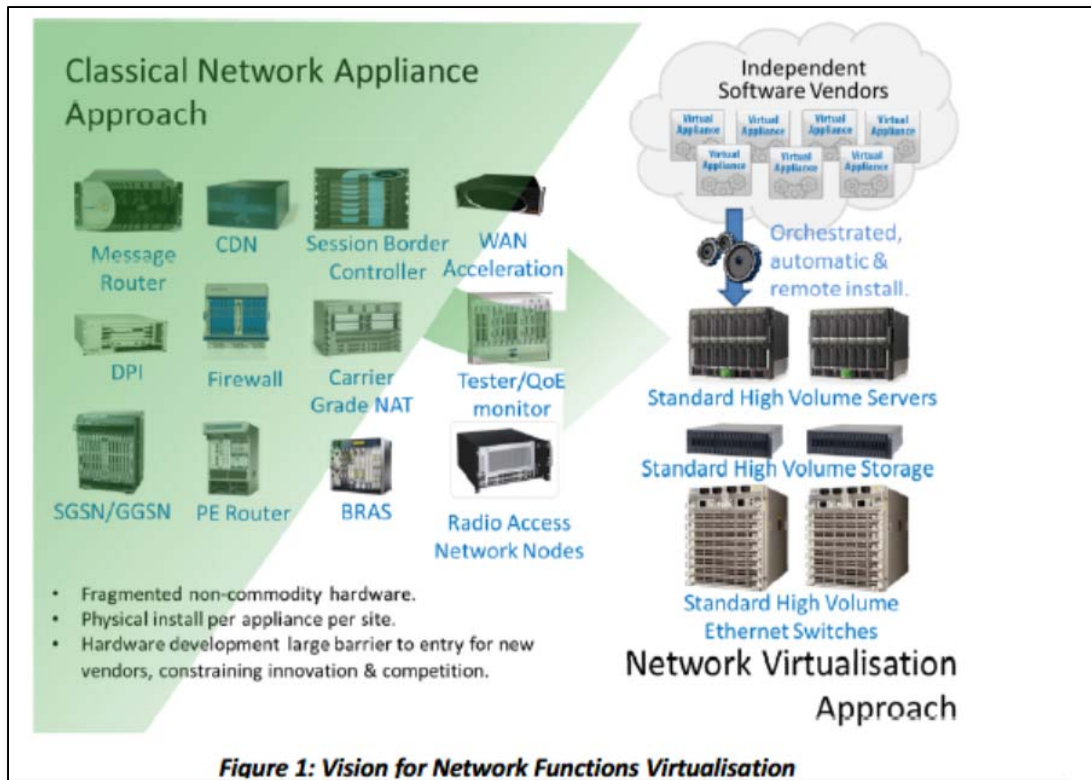
hierarchical network structure required all calls to traverse expensive backhaul connections, even when both UEs were connecting to the same BTS or BTSs in close-proximity. Cooklev Decl., ¶ 53.

In 2012, a broad coalition of network operators published a whitepaper detailing these problems. See Ex. 2008. Entitled “Network Functions Virtualization” (the “NFV Paper”), the paper proposed a network virtualization approach to address these drawbacks, mirroring the solutions Lemko invented years earlier. The NFV Paper’s approach is based on the consolidation of hardware network components onto software:

It involves the implementation of network functions in software that can run on a range of industry standard server hardware, and that can be moved to, or instantiated in, various locations in the network as required, without the need for installation of new equipment.

See Ex. 2008 at 5; Cooklev Decl., ¶ 54.

As shown in the excerpt below, the 2012 NFV Paper contrasted its proposed approach against the “classical network architecture approach.” The NFV Paper noted many drawbacks of the classical approach, including that it (1) depended on “fragmented non-commodity hardware,” (2) required physical installation of appliances at every site, and (3) its hardware requirements made the networks rigid and inflexible, which constrained innovation. See Ex. 2008 at 5.



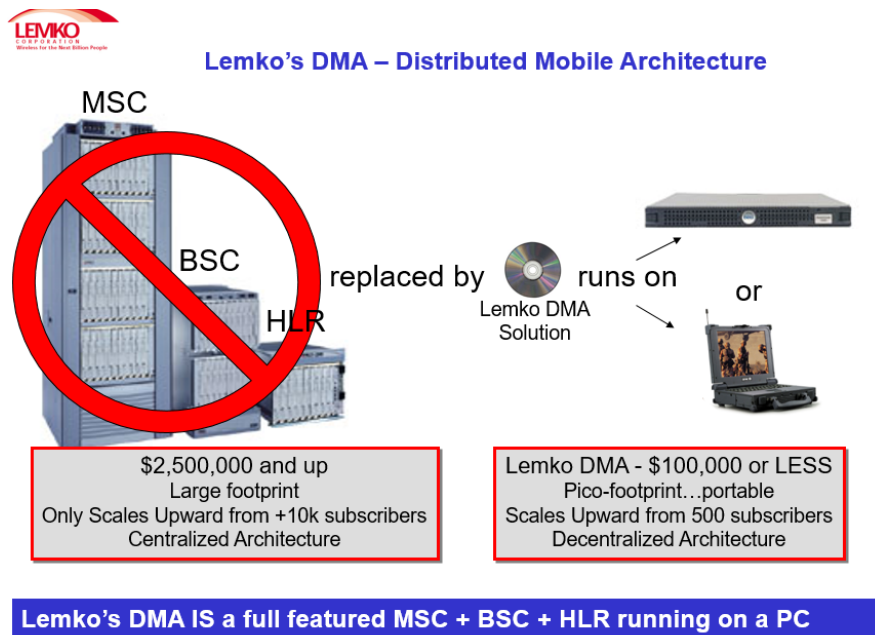
See Ex. 2008 at 5; Cooklev Decl., ¶ 55.

B. Lemko's Patented DMA Technology Solved the Industry's Long-Felt Need

Lemko's approach was fundamentally different, being based on a software-implemented, decentralized, peer-to-peer network paradigm. Instead of cell towers that served only as a conduit to the backhaul leading to and from regional call centers, Lemko's claimed distributed mobile architecture ("DMA") network is based on software-based DMA servers (or DMAS), which are connected to form a peer-to-peer DMA network. Each DMAS has local cellular network management functionality that allows for calls to be connected without the centralized servers of a regional call center. Cooklev Decl., ¶ 56.

Four years before the industry proposed solutions for its long-felt needs in the NPV Paper, Lemko filed the series of patent applications that led to the '980 Patent. Lemko had already solved these needs with its innovative distributed mobile architecture (DMA) infrastructure, which creates a virtualized network. Ex. 2009 at 1 (“to enable distributed networks with a database that enables a customer to create a virtualized network with multiple deployments with its Nodes.”). Indeed, Lemko “developed Network Functions Virtualization (NFV) before that term was coined” because its “software enables all of core network functions, databases and gateways.” *Id.*; Cooklev Decl., ¶ 57.

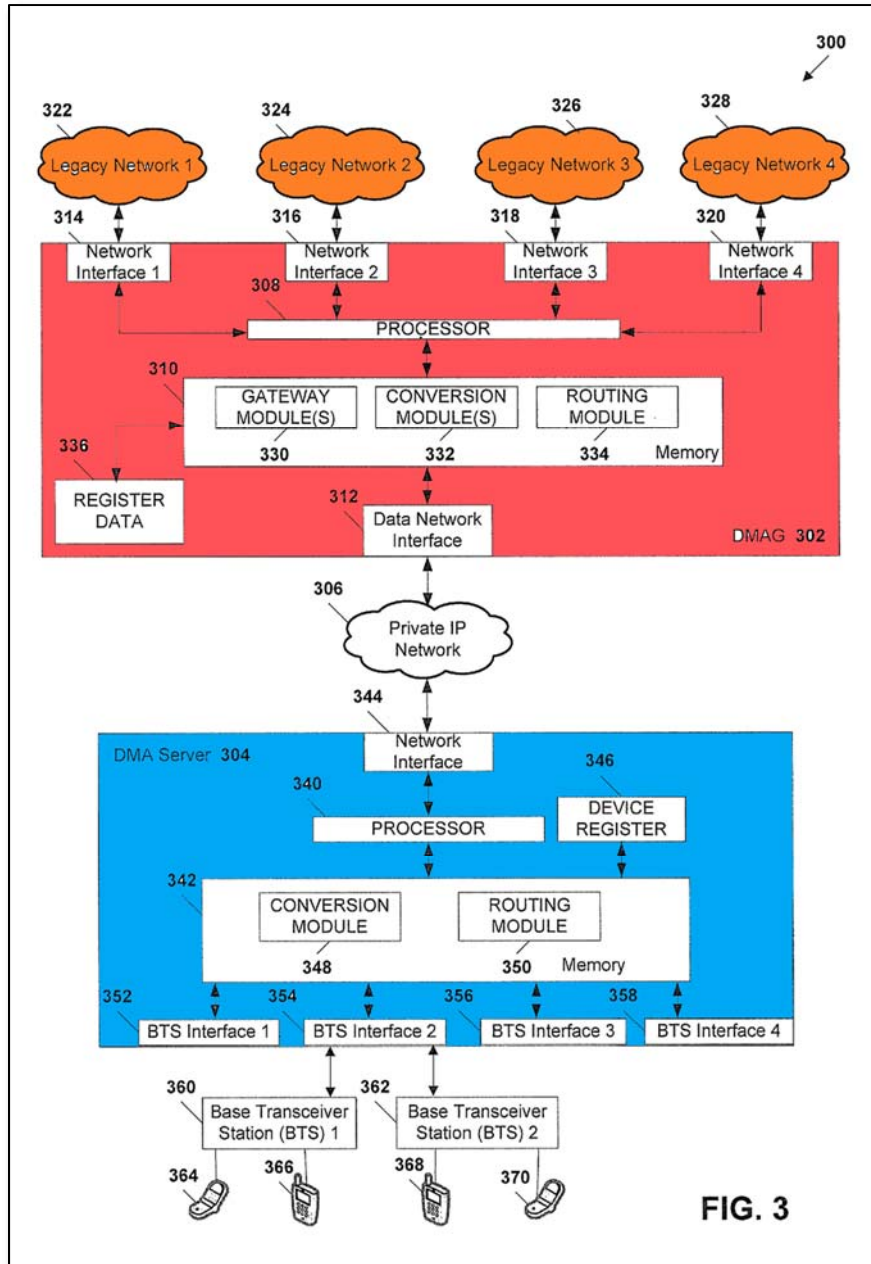
Specifically, Lemko’s DMA implements network functionality, such as MSC, BSC, community location register (“CLR”), and home location register (“HLR”) functionality, on software running on a decentralized, standard server.



Cooklev Decl., ¶ 58 (citing a demonstrative excerpt from Lemko presentation); Ex. 2010 (“[T]he heart of DMA is an all-IP software solution,” including the network functionality of an MSC, BSC, radio network controller (RNC) location registers, and media and data gateways (MSG, GGSN, SGSN); *see also* ’980 Patent at Figs. 1-3 (depicting the DMA servers).

Unlike the conventional network architecture, Lemko’s DMA solution implements a virtualized core of network functionality on software running on a standard server to allow “multiple cellular nodes to be linked via IP connections” thereby reducing backhaul via T1/E1 communication lines and eliminating or reducing the need for a centralized center or hub. Ex. 2010. Lemko developed multiple product lines based on its inventions. *See* Ex. 2011.

In addition to successfully developing these products, Lemko obtained the ’980 Patent (and multiple other patents) to protect various aspects of its novel DMA architecture, providing for complete cellular network functionality. *See* ’980 Patent at Abstract, 4:51-5:6. Specifically, the ’980 Patent discloses DMA servers (304, highlighted in blue) and DMA gateways (302, highlighted in red), which manages connections to legacy networks (highlighted in orange).



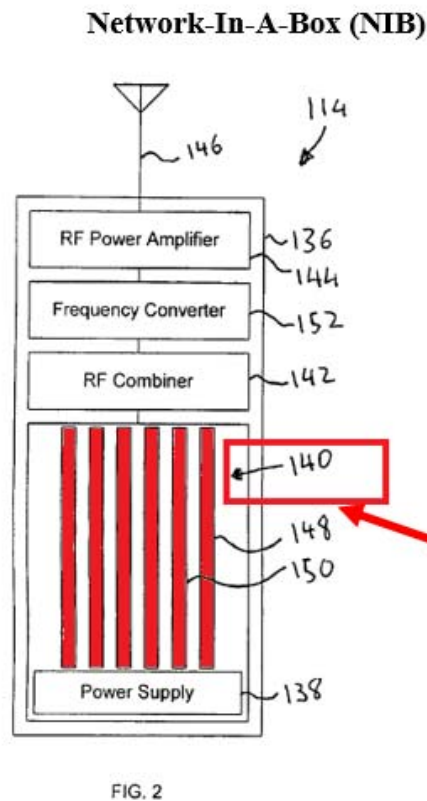
'980 Patent at Fig. 3 (highlighting added).

Each DMA server has its own MSC and BSC functionality, including gateways and a cellular radio network controller (CRNC), to allow for a fully functionally virtualized network. Cooklev Decl., ¶ 61; Ex. 2009; Ex. 2010). Each DMA server is interconnected with other DMA servers in an Internet Protocol (IP)

network via peer-to-peer connections. See '980 Patent at 4:31-44 (describing “peer-to-peer routing” via the IP network between DMA servers), Fig. 1 (showing peer-to-peer connections between DMA servers through an IP network). The use of these peer-to-peer IP network connections between DMA servers in the same network eliminates or reduces the need to route traffic through a backhaul.

C. Waylett is Based on the Conventional Network Approach

Waylett is based on the conventional network appliance approach, which depends on a hierarchical network and hardware-based components. Specifically, Waylett is directed to a network-in-a-box (NIB), such as the WaveExpress NIB platform (reproduced below), that located certain hardware-based components in a single enclosure. Ex. 1005 at 8:7-10, *id.* at 9:36-42 (explaining that embodiments are based upon WaveExpress's NIB platform). These hardware-based components are referenced as cards 140 (highlighted in red below):



Cooklev Decl., ¶ 63 (citing Ex. 2012 at 1); Ex. 1005 at Fig 2 (annotated); *see also id.* at 8:7-36 (disclosing that the NIB includes a number of cards), *id.* at 9:32-46.

Waylett does not disclose connecting NIBs through peer-to-peer connections. Instead, Waylett's NIBs are "stand-alone" (Ex. 1005 8:8) boxes that transfer call data using the standard backhaul circuit-switch T1/E1 communication lines. *See* Ex. 2013 at 1 at 1, (disclosing that the NIB communicates "over E1 or T1 timeslot or Ethernet Port."), Ex. 2014; Ex. 1005 at 7:9-11, 8:33-36 (disclosing the E1 or T1 trunks contained in cards); Cooklev Decl., ¶ 64.

III. LEVEL OF ORDINARY SKILL IN THE ART

For the purpose of this preliminary response only, Lemko applies Petitioners' definition of a person of ordinary skill in the art ("POSITA") as one with "a bachelor's degree in electrical engineering, computer engineering, or an equivalent, as well as two years of industry experience related to telecommunications networks . . . Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education." Pet. at 3.

IV. OVERVIEW OF THE CHALLENGED CLAIM

Petitioners present only a single ground, contending that Claim 1 is obvious over Waylett (Ex. 1005) and the knowledge of a POSITA. Pet. at 2.

V. CLAIM CONSTRUCTION

A. The Board Should Deny the Petition Because Petitioners Failed to Construe the Key "Distributed Mobile Architecture" Term

The Board should deny the Petition under 37 C.F.R. § 42.104(b)(3)-(4) because Petitioners did not construe the Challenged Claims or identify "[h]ow the construed claim is unpatentable under the statutory grounds."

Although the phrase is used hundreds of times in the specification and recited multiple times in the Challenged Claim, Petitioners do not take a position on the meaning of the term "distributed mobile architecture." Pet. at 5-6. Petitioners do not argue that the term has any plain and ordinary meaning to a POSITA or attempt to explain what that plain meaning might be. *Id.* Petitioners do not argue that the

term has a particular meaning in the context of the '980 Patent. *Id.* And Petitioners do not argue that the claims require no express construction. *Id.* Yet Petitioners were obligated to take *at least* one of these paths:

6. Claim Construction: If a petitioner believes that a claim term requires an express construction, the petitioner must include a statement identifying a proposed construction of the particular term and where the intrinsic and/or extrinsic evidence supports that meaning. On the other hand, a petitioner may include a statement that the claim terms require no express construction.

Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019) (“CTPG”) at 44.

The Board should deny the Petition because of Petitioners' failure to address the construction of “distributed mobile architecture,” given its importance to the Challenged Claims. *Meta Platforms, Inc., v. Almondnet, Inc.*, No. IPR2022-00929, Paper 7 at 16 (P.T.A.B. Oct. 26, 2022) (denying a Petition where Petitioner did not meet its “obligation” to construe a key term and its obviousness grounds did not align with the plain meaning of the term); *Orthopediatrics Corp. v. K2M, Inc.*, No. IPR2018-01547, Paper 9 at 10 (P.T.A.B. Feb. 22, 2019) (denying a Petition where Petitioner declined to construe a term that it “should have known . . . was likely to be at issue in th[e] proceeding”).

Petitioners did not meet this basic burden, incorrectly suggesting instead that it has no obligation to construe terms that have not already been construed in district court. Pet. at 5-6. While the Board “will consider any prior claim construction determination in a civil action or ITC proceeding if a federal court or the ITC has previously construed a term of the involved claim using the same standard,” the non-existence of such a prior construction does not relieve Petitioners of its burden to construe the claims under 37 C.F.R. § 42.104(b)(3). CTPG at 47, 44-49.

“[B]ecause the Petition does not address the scope or meaning of ‘[distributed mobile architecture],’ the Petition does not explain why” Waylett’s Network-in-a-Box “would fall within the scope” of the claimed DMA Servers or why Waylett’s WLAN “fall within the scope” of the claimed DMA Gateway. *Samsung Elec. Co. v. Blaze Mobile, Inc.*, No. IPR2021-01571, Paper 15 at 14 (P.T.A.B. Apr. 4, 2022); 37 C.F.R § 42.104(b)(4).

As explained in detail below, they do not. There is nothing “distributed” about the conventional, hierarchical network architectures disclosed in Waylett, and Petitioners do not even attempt to explain what it is about Waylett’s NIB that makes it a DMA server or why Waylett’s WLAN should be considered a DMA Gateway. Pet. at 11-12 (labeling disparate WLAN access points as a “DMA gateway”). Petitioners’ tack of drawing boxes around disparate elements of these systems and calling them DMA gateways—without ever establishing what those terms mean to

a POSITA in the context of the '980 Patent or how the art satisfies those meanings—falls far short of its dual burdens under 37 C.F.R. § 42.104(b)(3)-(4).

B. “DMA Servers” are Coupled by Peer-to-Peer Connections

The Challenged Claim requires a distributed mobile architecture (DMA) server, where individual DMA servers are connected with peer-to-peer connections. Cooklev Decl., ¶ 34-40.

The term “distributed network” is well understood in the networking arts to refer to “[a] network in which processing, storage, and other functions are handled by separate units (nodes) rather than by a single main computer.” Ex. 2015 at 168 (Microsoft Computing Dictionary, 5th Ed.); *see also* Ex. 2016 (Merriam-Webster computing definition of “distributed”) (“having at least some of the processing done by the individual workstations and having information shared by and often stored at the workstations”).

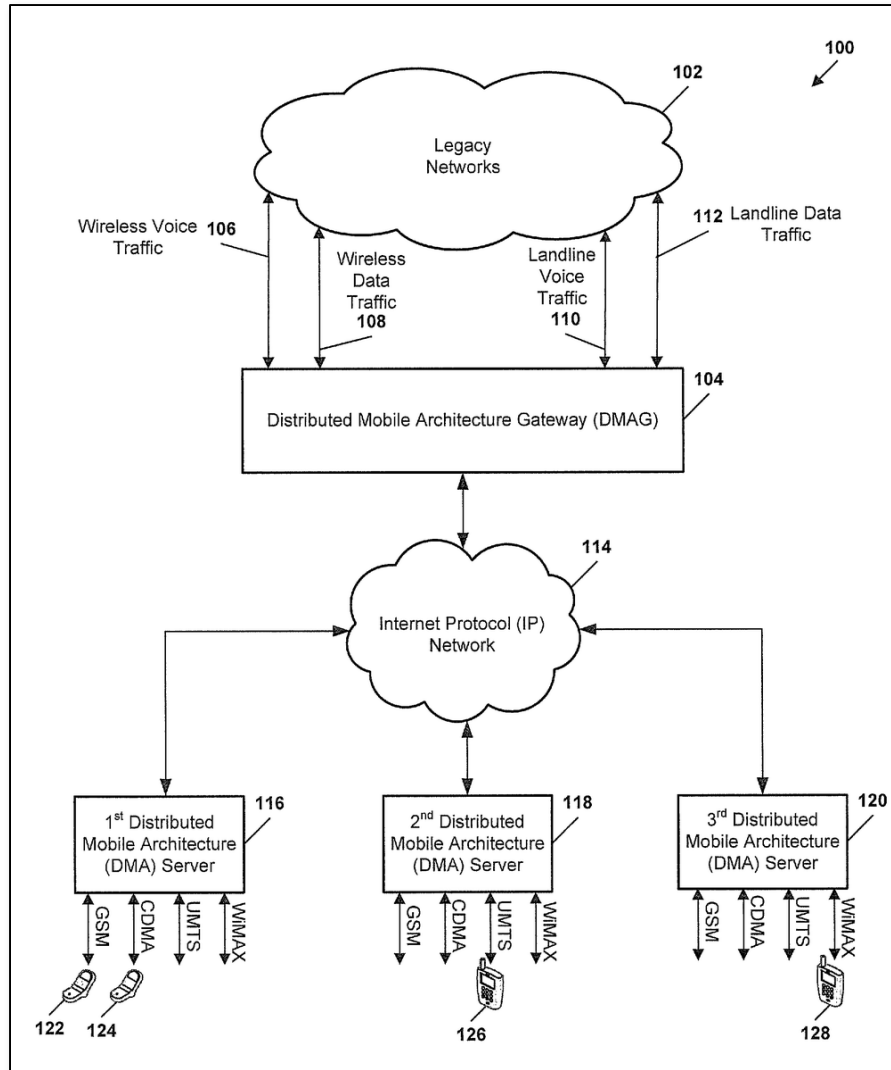
Consequently, rather than managing all calls at a single centralized MSC, like conventional systems, the '980 Patent discloses a “distributed mobile architecture” where call management is distributed among the various DMA servers that make up a DMA network:

When two DMA servers serve two wireless communications devices, the call may be routed via an IP network or via a DMAG. In one illustrative embodiment, the first DMA server 116 may route a call originating at the first wireless communications

device 122 to the fourth wireless communications device 128 via the IP network 114 and via the third DMA server 120. ... **When a call is routed between the DMA servers 116 and 120** and the DMAG 104 is not involved in routing the call, **the routing is known as a peer-to-peer routing**. ...

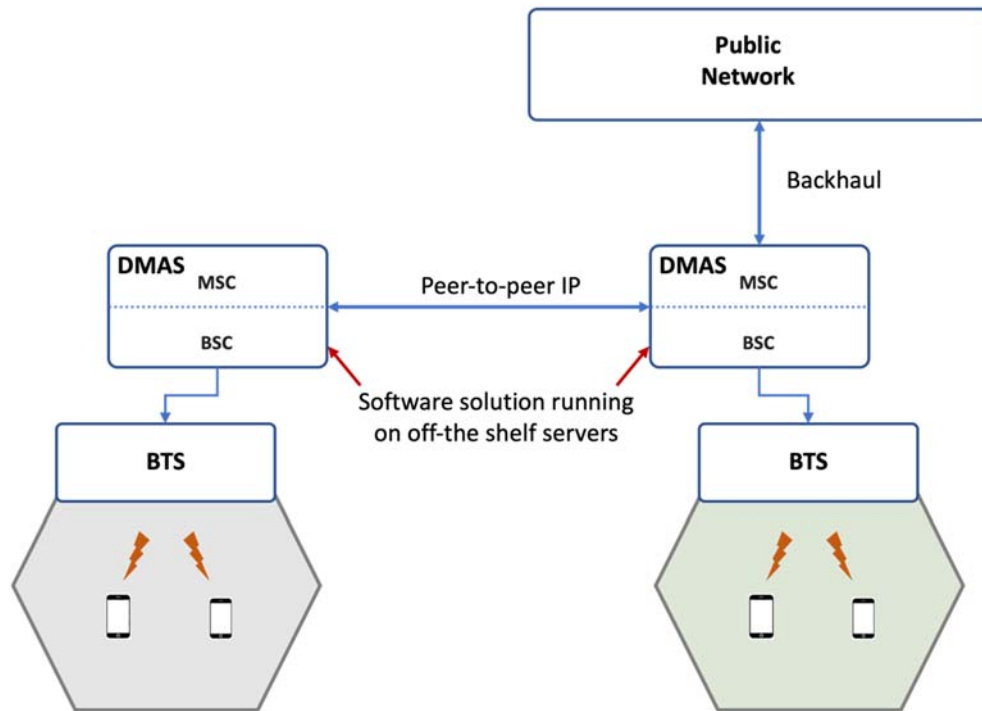
'980 Patent at 4:25-44; *see also id.* at 16:17-26 (describing the control logic within the DMA server as “distributed” and “associated”). In the '980 Patent's DMA servers, the control logic for routing voice and data traffic is distributed among individual DMA servers, which are connected to the other DMA servers using a peer-to-peer connection. *Id.* at 3:54-4:2.

Figure 1 (reproduced below) illustrates that each DMA server (116, 118, 120) is interconnected with other DMA servers in a private Internet Protocol (IP) network 140 via peer-to-peer connections. '980 Patent at 3:44-53, 4:25-44 (“When a call is routed between the DMA servers 116 and 120 and the DMAG 104 is not involved in routing the call, the routing is known as a ***peer-to-peer routing***”) (emphasis added).



Id. at Fig. 1. The use of these peer-to-peer IP network connections between DMA servers in the same network eliminates or reduces the need to route traffic through a backhaul, as is shown schematically in an expanded and annotated view of Figure 1 below:

Lemko Distributed Mobile Architecture



Cooklev Decl., ¶ 38. In Lemko’s DMA network, and in contrast to the conventional network architectures discussed in the previous section, a call from a first UE to a second UE is routed (1) to a BTS, (2) to a DMA, (3) to a second DMA (by a peer-to-peer IP connection), (4) to a BTS, (5) to the receiving UE.

Thus, “DMA server” should be construed to be connected to other DMA servers through peer-to-peer connections.

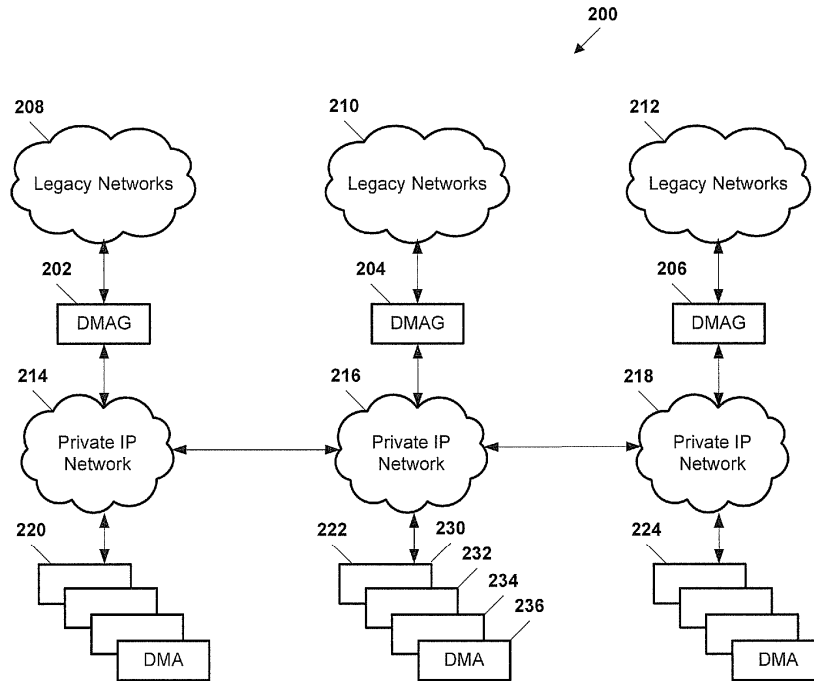
C. “DMA Gateway”

Challenged Claim 1 requires a “distributed mobile architecture gateway (DMAG),” which is a node that controls communications for a plurality of

designated DMA servers by enabling communications with one or more legacy networks. Cooklev Decl., ¶ 41-43.

According to the '980 Patent, “[e]ach of the DMAGs 202-206 may **control communications related to a respective group of DMA servers** by routing voice traffic, data traffic, signaling, or any combination thereof, **between the one or more legacy networks 208-212** and one or more wireless communication devices communicating with the respective groups of DMA servers 220-224.” ’980 Patent at 5:50-64; *see also id.* at 5:66-6:2 (“each DMAG 202-206 may be specified by a communications service provider **as a primary node to control voice traffic, data traffic, signaling, or any combination thereof, for designated DMA servers**”); *id.* at Fig. 2; *id.* at 7:60-62 (“Registration data may identify that a particular DMAG is specified as the primary node **to control communications related to certain DMA servers**”) (emphasis added). This is shown in Figure 2 (reproduced below), where each DMAG (202) connects multiple DMA servers (220) to a legacy network (208, 210, 212).⁴

⁴ Examples of legacy networks include conventional “a landline voice network, such as a Public Switched Telephone Network (PSTN), an Integrated Services Digital Network (ISDN)” a “Digital Subscriber Line (DSL) network, a cable



'980 Patent at Fig. 2.

This meaning of a DMA gateway is also consistent within the claims of the '980 Patent, including claim 12 which recites “the registration data indicates that ***the DMAG is a node that controls communications*** related to the first DMA server.” '980 Patent at 18:21-25 (emphasis added).

television network” and conventional GSM, CDMA or UMTS networks. '980 Patent at 9:9-36.

VI. PETITIONERS FAIL TO DEMONSTRATE A REASONABLE LIKELIHOOD OF SUCCESS ON ANY CHALLENGED CLAIM

The Board should deny the Petition because the asserted references do not render obvious the Challenged Claim. Waylett does not teach or suggest at least the following limitations of the Challenged Claim:

- (1) a plurality of DMA servers connected by peer-to-peer connections;
- (2) a DMA gateway (DMAG) communicatively coupled to a plurality of DMA servers; and
- (3) registration data that “indicates that the destination device is not within a wireless coverage area associated with the first DMA server.”

Each of these failures is an independent basis to find that the Challenged Claim is not obvious over Waylett. Thus, the Board should deny institution.

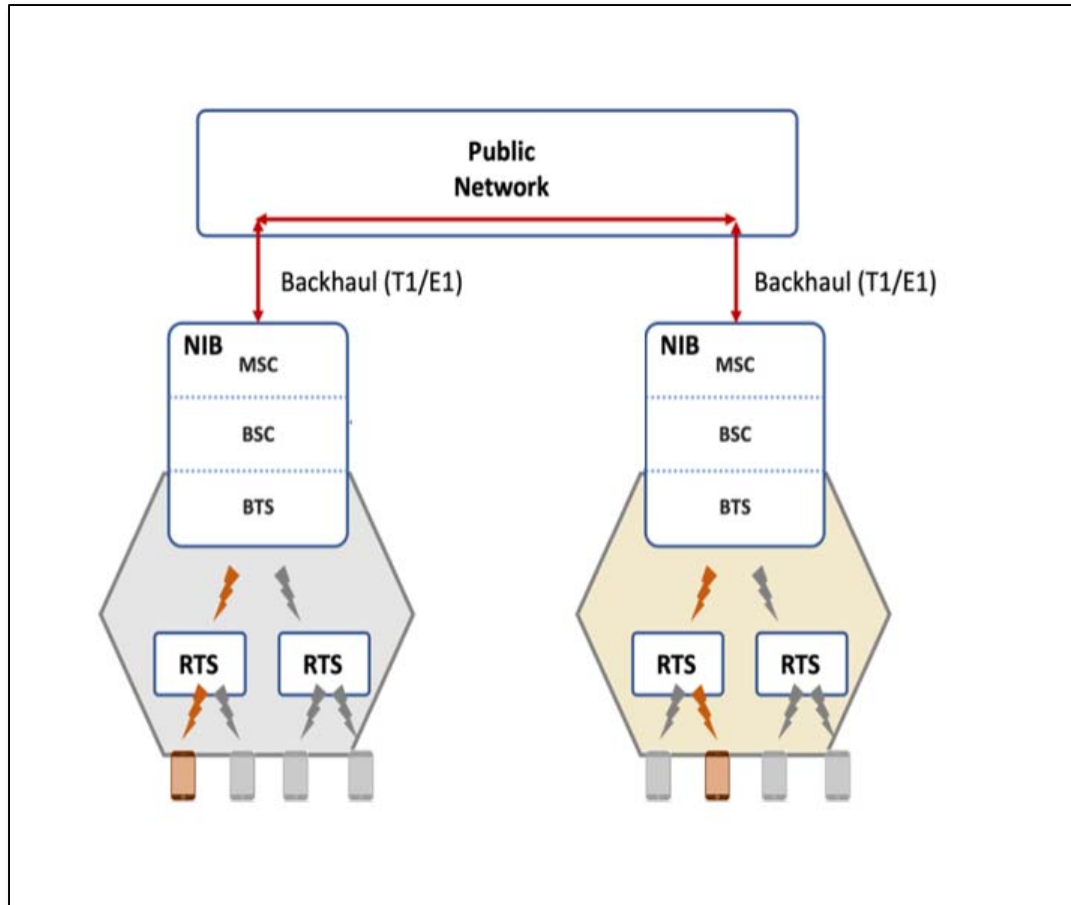
A. Waylett Does Not Disclose a “DMA Server”

The Challenged Claim requires a distributed mobile architecture (DMA) server. As discussed in Section V.A above, a DMA server is connected to other DMA servers via peer-to-peer connections in order to reduce or eliminate the need to route traffic through a backhaul to a centralized hub. Waylett does not teach such a DMA server with peer-to-peer connections to other DMA servers, nor do Petitioners show how and why, absent hindsight and use of the '980 Patent as a

roadmap, a POSITA would have been motivated to modify Waylett to include peer-to-peer connected DMA servers and have a reasonable expectation of success in doing so.

In fact, in another IPR petition filed by Petitioners challenging another of Patent Owner's patents, Petitioners concede that Waylett does not disclose transmitting telephony traffic over a peer-to-peer connection. *See* Ex. 2017 at 24 ("Waylett does not, however, expressly disclose that such a transmission of telephony traffic occurs over a 'peer-to-peer connection.'"). Petitioners made this concession for good reason: Waylett's disclosure of network of hardware-based NIBs fails to teach or render obvious DMA servers interconnected by peer-to-peer connections, for the reasons set forth below.

Waylett describes the hardware-based NIBs as "stand-alone" units (Ex. 1005 at 8:8). Like traditional, centralized MSCs, when multiple NIBs are installed in a private installation the NIBs are connected with conventional T1/E1 communication backhaul links that carry voice and data communications. Waylett also discloses connecting NIBs via a private wide area network (PWAN) for non-telephony functions, such as "distributing HLR registration and authentication loads." Ex. 1005 at 17:10-12; *see also* Ex. 2013 at 1 (disclosing the T1/E1 ports for communication); Ex. 1005 at 7:9-11, 9:65-10:6, 17:7-17, Fig. 11. This hierarchical setup is illustrated below:



Cooklev Decl., ¶ 68 (citing Ex. 1005 at Fig. 11 (annotated); Ex.2013(disclosing that the NIB has “all E1 or all T1” ports for voice and data communication), Ex. 2014; Ex. 1005 at 7:9-11. According to Waylett, all calls from a first NIB are connected to the public network and the public network routes the calls to the second NIB through T1/E1 connections. See Cooklev Decl., ¶ 68 (citing Ex. 2014; Ex. 2013). There are no direct connections between NIBs for carrying calls. Cooklev Decl., ¶¶ 68, 83.

As shown above, in Waylett, the call path from one UE under the first NIB coverage to another UE under the second NIB coverage goes from the first NIB,

over T1/E1 backhaul, to a public network, over T1/E1 backhaul to a second NIB, to the recipient UE. Cooklev Decl., ¶ 69. Other than the radio connection between the UE and the NIB, all of these connections are T1/E1. Circuit-switched, dedicated T1/E1 connections were used by industry for such connections because they provided dedicated, reliable, fixed bandwidth connections between known points (such as between a NIB and a public telephone network). Cooklev Decl., ¶ 69. As Petitioners acknowledge, these were not peer-to-peer connections between NIBs (which Petitioners contend are DMA servers).

Thus, Waylett does not disclose DMA servers interconnected with peer-to-peer connections. Petitioners do not assert that it would have been obvious to a POSITA to so modify Waylett's network. Thus, Waylett cannot render obvious the Challenged Claim.

**B. Waylett Does Not Render Obvious a DMA Gateway
Communicatively Coupled to a Plurality of DMA Servers**

The Challenged Claim requires a “distributed mobile architecture gateway (DMAG)” that “is communicatively coupled to a plurality of DMA servers,” including a first DMA server. '980 Patent at 16:48-50. Waylett's wireless local area network and its access points (together, “WLAN”) are not a DMA gateway because Waylett's WLAN (1) does not connect DMA servers to a legacy network, and (2) is not communicatively coupled to a plurality of DMA servers.

First, Waylett's WLAN cannot be a DMA gateway because it is inconsistent with the hierarchical relationship between DMA servers and DMA gateways. As discussed above, the DMA gateway is a node that controls communications for a plurality of DMA servers by allowing the DMA servers to connect with legacy networks. In Waylett, the WLAN access points (228A, 228B, 228C) do not connect NIBs (which Petitioners allege is a DMA server) to any legacy network. Instead, Waylett discloses various communication flows that go from the UEs 230 to the WLAN access points 228 to the NIB 224 or to the public network 202. Cooklev Decl., ¶ 71-72; Ex. 1005 at 13:41-55 (describing being coupled to different networks "through the NIB 224"), 12:1-5, 13:55-62. Waylett does not describe any communication paths flowing from an NIB to the WLAN access points to a legacy network. Thus, the WLAN is not a DMA gateway.

Second, Petitioners also fail to provide, or even allege, motivation to modify Waylett's teachings to yield a WLAN communicatively coupled to multiple NIBs. Pet. at 16-17. Petitioners argue that a POSITA would be motivated "(i) to provide wireless or cellular type communication via WLAN over an extended service," and "(ii) to avoid tolls and maintain ownership and control of information transmitted between different sites of an enterprise linked by the PWAN." *Id.* Even if these motivations were valid, at best, these are reasons for including "multiple private cellular networks 222," but not NIBs (which Petitioners have alleged are DMA

servers). Petitioners fail to show any motivation for having multiple NIBs—rather than private cellular networks 222—communicatively coupled to the WLAN.

Petitioners do not identify any benefit that a POSITA would have expected to obtain from reorganizing Waylett's network hierarchy to communicatively couple a WLAN to plurality of "stand-alone" NIBs, let alone a reasonable likelihood of success for doing so.

Thus, Waylett does not disclose or render obvious the DMA gateway limitation of the Challenged Claim, which is an independent basis to deny the Petition.

C. Waylett Does Not Render Obvious "Registration Data" as Required by the Claims

The Challenged Claim requires "registration data," and recites that (1) the registration data is "stored at the first DMA server;" (2) the action of determining that a first DMA gateway supports communication with a destination device is performed "based on" the registration data; and (3) the registration data "indicates that the destination device is not within a wireless coverage area associated with the first DMA server." '980 Patent at 16:42-50. Waylett fails to teach or render obvious any of these requirements.

1. Waylett Does Not Teach Registration Data that is Stored at the First DMA Server”

As discussed in Section VI.A, Waylett does not disclose DMA servers. Thus, Waylett cannot disclose storing registration data at a DMA server.

2. Waylett Does Not Teach Determining that a DMA Gateway “Supports Communication with the Destination Device Based on Registration Data”

Waylett does not disclose determining that a DMA gateway “supports communication with the destination device based on registration data,” as required by the Challenged Claim. Petitioners assert that Waylett’s “Identity Module 238” is “registration data.” Pet. at 13 (citing Ex. 1005 at 10:36-38). However, the Identity Module is not used to support communication with a destination device.

Waylett’s Identity Module is akin to a SIM card or virtual SIM card that might typically be used with a cellphone. See Cooklev Decl., ¶ 78; Ex. 1005 at 10:32-52 (describing “identity module 238” as including “SIM cards”, “USIM cards”); *compare with id.* at 10:8-30 (similarly describing a subscriber identity module 236). From these statements, a POSITA would understand that the purpose of the Identity Module in Waylett is to allow a user equipment (UE) that does not have a GSM radio or a GSM SIM card to join a GSM network. Cooklev Decl., ¶ 78; *see also* Ex. 1005 at 10:36-37 (“... to enable the private UE to communicate with the public network 102 and/or the private cellular network 222 via the WLAN 228”); *id.* at 11:4-10 (“identity module 238, and programs or software in the private UE 230 that allow it

to emulate a communication terminal, are also adapted to enable the private UE to control or access supplementary and/or value added services provided by the private cellular network 222 or public network 202 service provider [sic].”) Thus, the function of the Identity Module is limited to connecting to a GSM or similar network.

Waylett does not disclose that the Identity Module has any role in allowing connections to the WLAN, which Petitioners contend is the DMA gateway. Petitioners assert without any evidence that the UE 230 identifiers stored in the Identity Module somehow “identify” that the WLAN supports communication with the UEs 230, but there is no basis for that claim. Pet. at 14-15. A POSITA would understand that a UE 230 in Waylett can communicate with the WLAN 228 without the use of any identifiers stored in the Identity Module 238. Cooklev Decl., ¶ 79.

There is no merit to Petitioners’ argument that it was “well known” to use the process of identifiers to “identify” the location of a WLAN in communication with a destination device. Pet. at 15. There is nothing in Waylett supporting that proposition. Petitioners rely on the Bachmann reference (Ex. 1006), but it is unclear how Bachmann’s identifiers can be used to determine if a DMA gateway supports communication with a destination device. Cooklev Decl., ¶ 80-81 . Further, Bachmann is not asserted as a reference in Petitioners’ sole obviousness ground, and neither Petitioners nor their expert provide a reason a POSITA would have been motivated to redesign Waylett’s network based on Bachmann.

Thus, Waylett fails to satisfy or render obvious the requirement that registration data is used to determine if a DMA gateway supports communication with a destination device.

3. Waylett Does Not Teach Registration Data that “Indicates that the Destination Device is Not Within a Wireless Coverage Area Associated with the First DMA Server”

Waylett does not disclose registration data that “indicates that the destination device is not within a wireless coverage area associated with the first DMA server.” Pet. at 15-16 (citing Ex. 1005 at 11:23-26, 11:26-29). The cited portion of Waylett merely describes the use of “different protocols,” such as IEEE 802.11 standards and HiperLAN. Ex. 1005 at 11:23-29. Indicating the use of different protocols is not the same as disclosing indicating different wireless coverage areas. There is no support for Petitioners’ assertion that “a POSITA would understand different network protocols have different wireless coverage areas.” Pet. at 15 (citing Ex. 1003 at ¶ 98); Ex. 1003 at ¶ 98 (expert declaration identifying no support for claim that “802.11 wireless networks do not overlap with GPRS network...”); Cooklev Decl., ¶ 82.

Petitioners’ expert testimony here should be disregarded as it merely repeats the conclusory assertions for which it is offered to support. *Compare* Ex. 1003 at ¶ 98 *with* Pet. at 15-16 (repeating verbatim sentences albeit in different order). *Xerox Corp. v. Bytemark, Inc.*, No. IPR2022-00624, Paper 9 at 14-15 (P.T.A.B. Aug. 24,

2022) (precedential) (denying institution and holding that an expert declaration is entitled to little weight when it contains an exact restatement of the petition's arguments without any additional supporting evidence or reasoning).

Moreover, Petitioners do not explain how Waylett's Identity Module data indicates that a destination device is not within a wireless coverage area. *See* Pet. at 15-16 (omitting any mention of the "identity module"). Nor could they, because a POSITA would understand that the subscriber information such as that found on a SIM card or the Identity Module lacks any indication that a device is or is not within a wireless coverage area. *See* Cooklev Decl., ¶ 83. To the contrary, a POSITA would understand that SIM-type identity data is used to identify static information about a device, such as its identity, but not the device's current location. Cooklev Decl. ¶ 83. Also, Waylett describes the Identity Module as being "described in greater detail" in another patent application (U.S. App. No. 10/002,551), which published as U.S. Publication No. 2003/0081565 (Ex. 2018), and incorporates its disclosure into Waylett. *See* Ex. 1005 at 10:38-42 (incorporating Ex. 2018 by reference); *see also id.* at 7:39-44, 15:36-38. A POSITA would understand that Waylett's Identity Module is used to enable a terminal of a private branch exchange (PBX) coupled to a private wireless network to communicate with a public wireless network via an A-link, and therefore does not support peer-to-peer calls. Cooklev Decl. ¶ 83 (citing Ex. 2018 at [0005], [0013]). Accordingly, Petitioners fail to

demonstrate how Waylett's Identity Module "indicates" any difference in coverage areas, such that it indicates a destination device is not within a certain wireless coverage area, and Waylett cannot render obvious the Challenged Claim.

VII. CONCLUSION

For all of these reasons, Patent Owner requests that the Board deny institution of *inter partes* review of the Challenged Claim of the '980 Patent.

Dated: June 28, 2023

Respectfully submitted,

/ James Hannah /
James Hannah (Reg. No. 56,369)
Jenna Fuller (Reg. No. 74,212)
Kramer Levin Naftalis & Frankel LLP
333 Twin Dolphin Drive, Suite 700
Redwood Shores, CA 94065
Telephone: (650) 752-1700
Facsimile: (650) 752-1800
jhannah@kramerlevin.com
jfuller@kramerlevin.com

Aaron M. Frankel (Reg. No. 52,913)
Jeffrey H. Price (Reg. No. 69,141)
Jeffrey Eng (Reg. 63,189)
Kramer Levin Naftalis & Frankel LLP
1177 Avenue of the Americas
New York, NY 10036
Telephone: (212) 715-7502
Facsimile: (212) 715-8302
afrankel@kramerlevin.com
jprice@kramerlevin.com
jeng@kramerlevin.com

Attorneys for Patent Owner
Lemko Corporation

CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S PRELIMINARY RESPONSE** specified in 37 C.F.R. § 42.24 has 5,660 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24(b)(1). This word count was prepared using the Microsoft Word word-processing system used to prepare this paper.

Dated: June 28, 2023

/ James Hannah /
James Hannah (Reg. No. 56,369)
Jenna Fuller (Reg. No. 74,212)
Kramer Levin Naftalis & Frankel LLP
333 Twin Dolphin Drive, Suite 700
Redwood Shores, CA 94065
Telephone: (650) 752-1700
Facsimile: (650) 752-1800
jhannah@kramerlevin.com
jfuller@kramerlevin.com

Aaron M. Frankel (Reg. No. 52,913)
Jeffrey H. Price (Reg. No. 69,141)
Jeffrey Eng (Reg. 63,189)
Kramer Levin Naftalis & Frankel LLP
1177 Avenue of the Americas
New York, NY 10036
Telephone: (212) 715-7502
Facsimile: (212) 715-8302
afrankel@kramerlevin.com
jprice@kramerlevin.com
jeng@kramerlevin.com

Attorneys for Patent Owner
Lemko Corporation

CERTIFICATE OF SERVICE

The undersigned certifies, in accordance with 37 C.F.R. § 42.6(e), and pursuant to agreement by the parties that filing with the Board through the Patent Trial and Appeal Case Tracking System (P-TACTS) constitutes electronic service, that service was made on the Petitioners as detailed below.

<i>Date of service</i>	June 28, 2023
<i>Manner of service</i>	Electronic Filing (mhopkins@winston.com; bshelton@winston.com; mrueckheim@winston.com; Winston-MSFT-Lemko-IPR@winston.com)
<i>Documents served</i>	PATENT OWNER'S PRELIMINARY RESPONSE
<i>Persons Served</i>	WINSTON & STRAWN LLP Matthew Hopkins Barry K. Shelton Michael Rueckheim

/ James Hannah /
James Hannah
Registration No. 56,369
Lead Counsel for Patent Owner