MICROSOFT CORPORATION AND AFFIRMED NETWORKS, INC.,

PETITIONERS

V.

LEMKO CORPORATION,

PATENT OWNER

CASE NO. IPR2023-00529 (U.S. PAT. NO. 7,653,414)

CASE NO. IPR2023-00531 (U.S. PAT. NO. 7,855,988)

PETITIONERS' HEARING DEMONSTRATIVES

Roadmap

- **Challenged '414 Patent Overview - *CASE NO. IPR2023-00529***
  - **Waylett Prior Art Overview**
  - **Mauer Prior Art Overview**
- **Challenged '988 Patent Overview - *CASE NO. IPR2023-00531***
  - **Flore Prior Art Overview**
- **Claim Construction Dispute:** "Distributed Mobile Architecture (DMA)"
- ***CASE NO. IPR2023-00529 DISPUTES***
- ***CASE NO. IPR2023-00531 DISPUTES***

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Challenged ‘414 Patent Overview - Case No. IPR2023-00529

Current telephone systems are expensive to deploy. For example, a typical cellular system that includes a mobile switching center (MSC), a base station controller (BSC), and a home location register/visitor location register (HLR/VLR) can cost over $2.0 million. Moreover, such a system may require a minimum of ten thousand users in order to be economically viable. In many rural areas, the population is not large enough to support the installation of such a system. Further, in many cases, the conditions in which the equipment, e.g., the MSC, BSC, and HLR/VLR, are to be operated are extremely harsh and environmentally challenging. An alternative to such a cellular system can include a wired system, but the costs associated with deploying and maintaining land lines are too high for certain rural areas.

Ex. 1001, 1:34-47

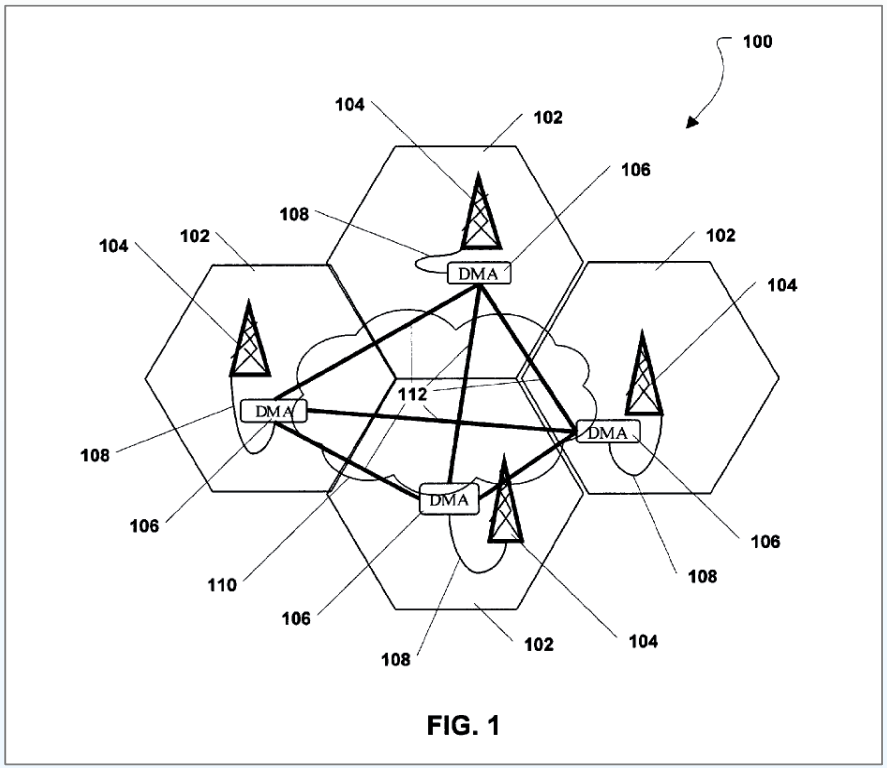


FIG. 1

Ex. 1001, Fig. 1

Pet at 6

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With the configuration of structure described above, the present disclosure provides a flexible telecommunications device, i.e., a DMA, that is distributive and associative, i.e., it can operate stand-alone or seamlessly within an existing cellular or other network. Moreover, the DMA can be integrated with virtually any third party base station. The DMA can operate with multiple air interfaces including CDMA IS-95, CDMA 1X, CDMA EVDO, GSM, GPRS, W-CDMA, 802.11 (Wi-fi), 802.16 (Wi-fi), etc. Further, the DMA can provide integrated prepaid billing, OAMP, network management, and AAA functionality. The DMA can include a Java based user interface and feature configuration system. Also, the DMA can provide real time call metering, call detail record (CDR) generation, and real time call provisioning. The DMA may be implemented in a relatively small footprint and has a relatively low power requirement. Further, the DMA may be implemented using inexpensive and widely available computer equipment.

Ex. 1001, 17:7-24

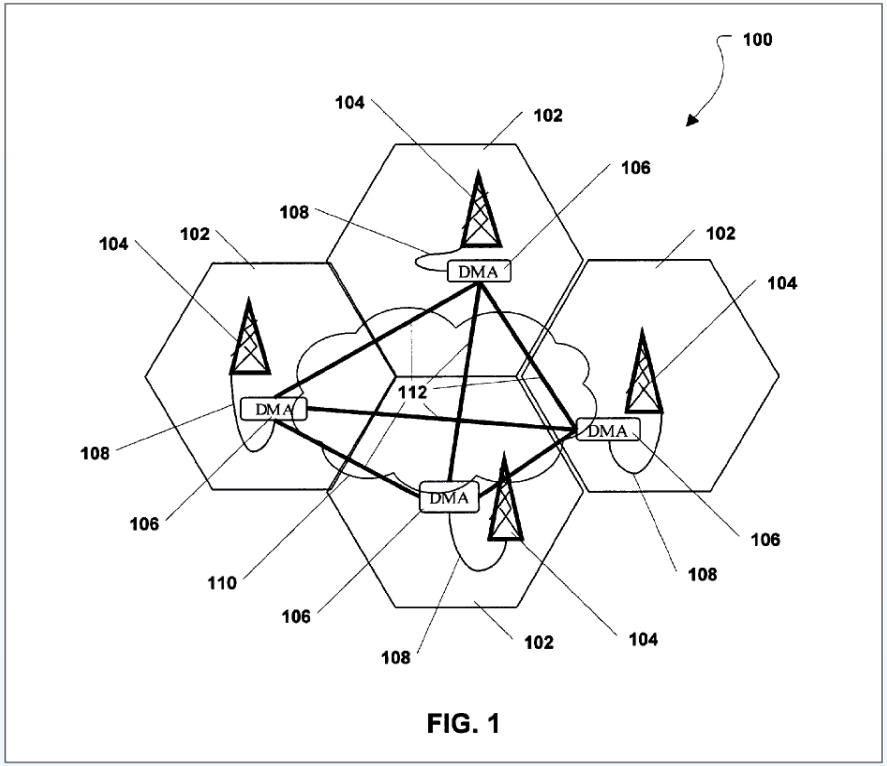


FIG. 1

Ex. 1001, Fig. 1

Pet at 6

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Waylett (Ex. 1006) Prior Art Overview - Case No. IPR2023-00529

A fundamental drawback to the use of conventional wireless networks is the cost associated with radios or user equipment terminals (UEs) capable of communicating with conventional GSM (Global Systems for Mobile communication), GPRS (General Packet Radio Service) or 3G (third generation cellular) wireless networks.

* * *

Another problem in areas or communities that are under served by an existing wireless network, is the difficulty and expense of scaling the network to provide services to additional users or additional services.

Ex. 1006, 1:44-49, 1:57-60; ¶68 of Proctor Decl.

A fundamental drawback to the use of conventional wireless networks is the cost associated with radios or user equipment terminals (UEs) capable of communicating with conventional GSM (Global Systems for Mobile communication), GPRS (General Packet Radio Service) or 3G (third generation cellular) wireless networks.

* * *

The NIB **224** includes a MSC, a BSC and a BTS in a single enclosure.

Ex. 1006, 1:44-49, 9:41-42; ¶67 of Proctor Decl.

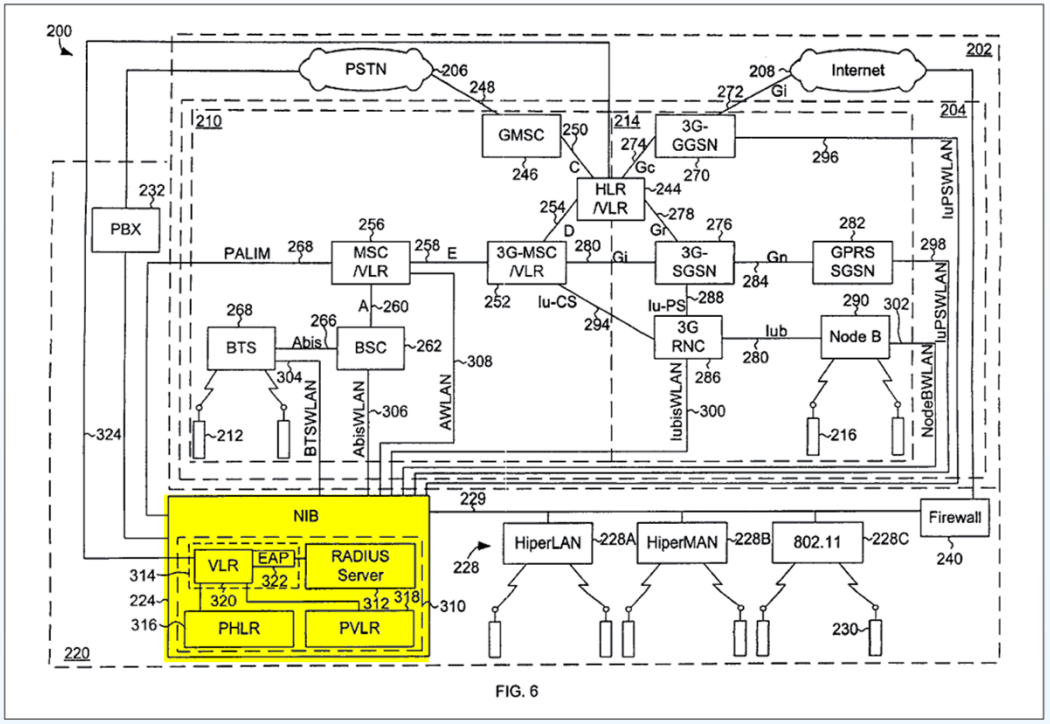


FIG. 6

Ex. 1006, Fig. 6, ¶67 of Proctor Decl.

Pet at 7-8

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Waylett (Ex. 1006) Prior Art Overview - Case No. IPR2023-00529

Referring to FIG. **2**, preferably the CBTS **114** is a complete stand-alone Network-In-a-Box (NIB),

* * *

In one aspect the invention is directed to a communication system for providing voice and data communication between a public network and a number of UEs.

Ex. 1006, 8:7-8, 2:25-27; ¶68 of Proctor Decl.

Accordingly, there is a need for an inexpensive communication system and method of operating the same, that are capable of providing voice and high speed data communication to users in communities hitherto un-served or under served by conventional communication systems. There is a further need for a communication system and method of operating the same that can be quickly and inexpensively scaled up to provide service to increasing numbers of users.

Ex. 1006, 2:3-11; ¶68 of Proctor Decl.

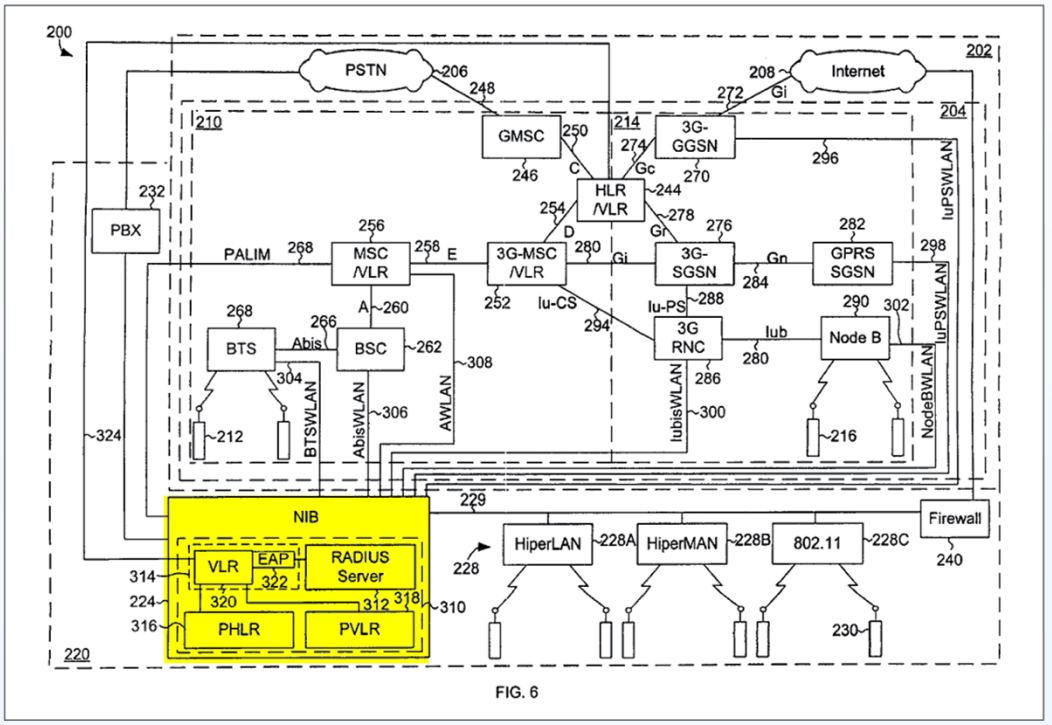


FIG. 6

Ex. 1006, Fig. 6; ¶67 of Proctor Decl.

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Mauer (Ex. 1005) Overview - Case No. IPR2023-00529

MSC **40** also has access to a visitor location register (VLR) **42**. VLR **42** stores data records for mobile stations, such as multi-mode mobile station **16**, that are being served by MSC **40**. A data record stored in VLR **42**

Ex. 1005, 6:18-44; ¶71 of Proctor Decl.

WWAN **14** may also include a home location register (HLR) **44** that stores a data record for multi-mode mobile station **16**. The data record stored in HLR **44** for multi-mode mobile station **16** may identify multi-mode mobile station **16**,

Ex. 1005, 6:18-44; ¶71 of Proctor Decl.

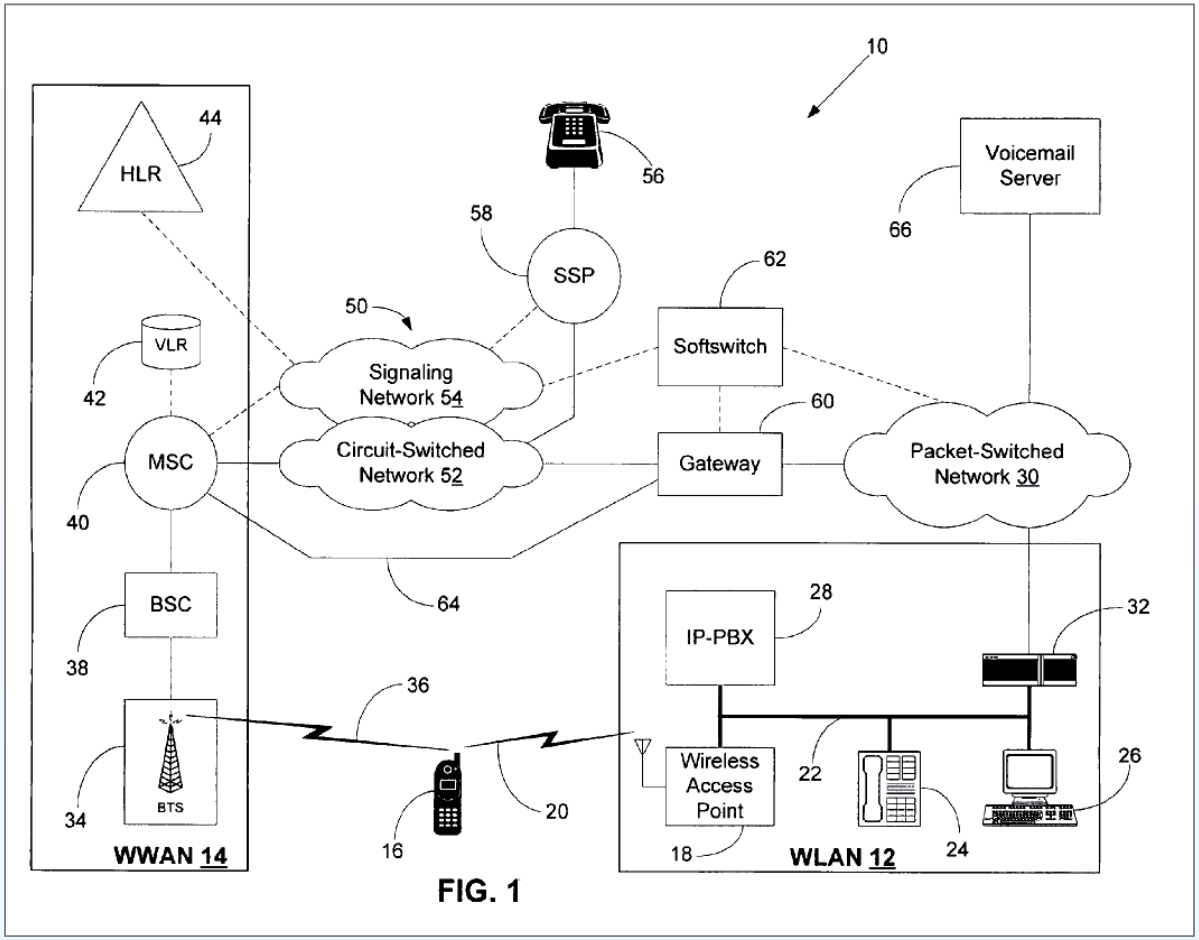


FIG. 1

Ex. 1005, Fig. 1

Pet at 10, 9

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Mauer (Ex. 1005) Prior Art Overview - Case No. IPR2023-00529

PSTN **50** may also be connected to various landline telephony endpoints, exemplified in FIG. **1** by landline telephone **56**. More particularly, landline telephone **56** may be connected to a switching system, such as service switching point (SSP) **58**, which, in turn, may have a bearer connection to circuit-switched network **52** and a signaling connection to signaling network **54**.

Ex. 1005, 7:55-62; ¶71 of Proctor Decl.

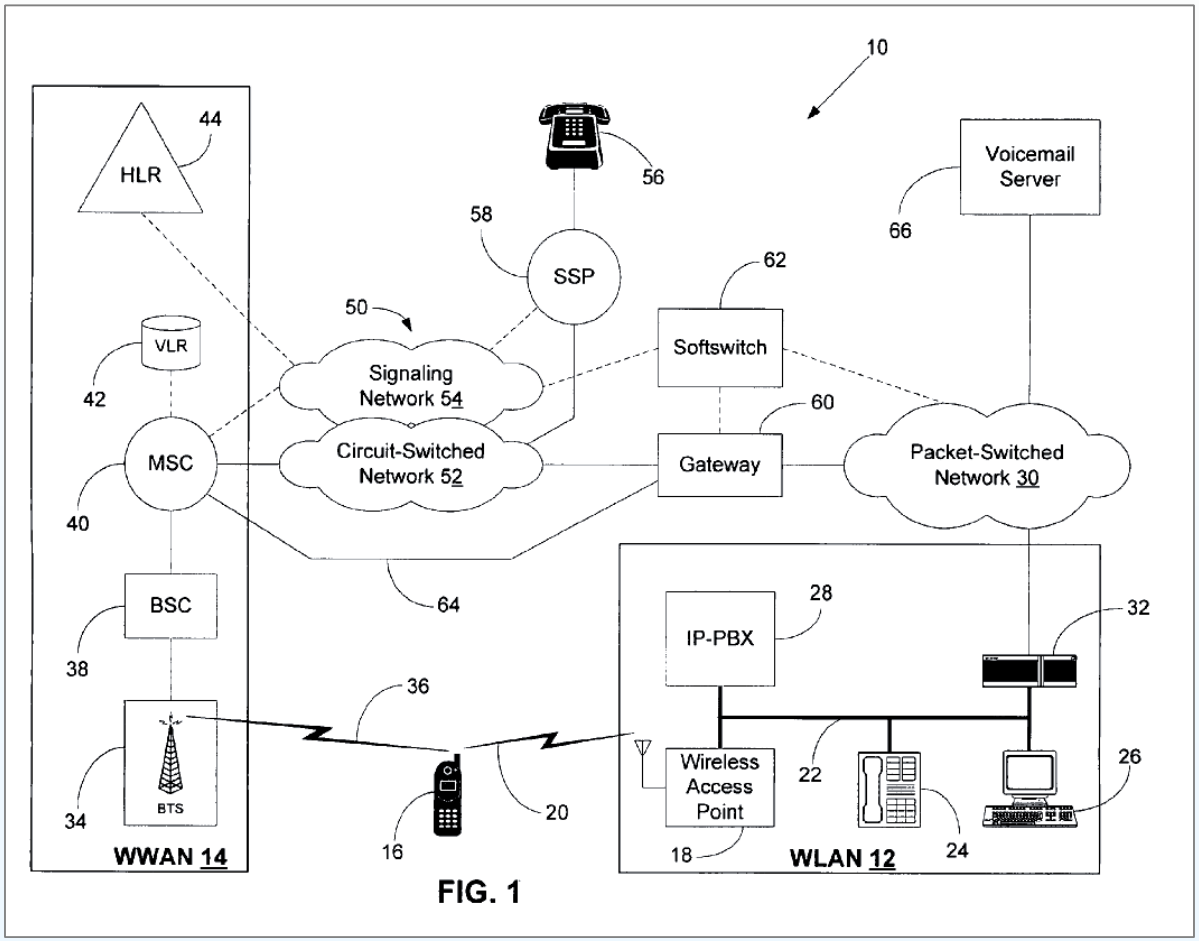


FIG. 1

Ex. 1005, Fig. 1

Pet at 9, 10

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

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Challenged ‘988 Patent Overview - Case No. IPR2023-00531

Current telephone systems are expensive to deploy. For example, a typical cellular system that includes a mobile switching center (MSC), a base station controller (BSC), and a home location register/visitor location register (HLR/VLR) can cost over $2.0 million. Moreover, such a system may require a minimum of ten thousand users in order to be economically viable. In many rural areas, the population is not large enough to support the installation of such a system. Further, in many cases, the conditions in which the equipment (e.g., the MSC, BSC, and HLR/VLR) are to be operated are extremely harsh and environmentally prohibitive. An alternative to such a cellular system can include a wired system, but the costs associated with deploying and maintaining land lines are too high for certain rural areas.

Ex. 1001, 1:37-51

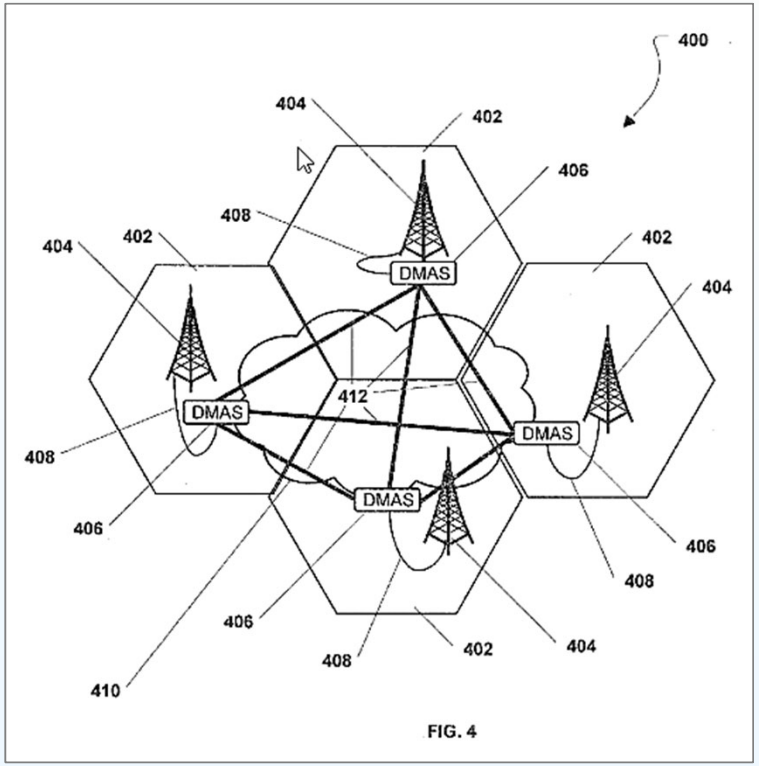


FIG. 4

Ex. 1001, Fig. 4

Pet at 3-4

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Challenged ‘988 Patent Overview - Case No. IPR2023-00531

In deploying telephone systems in such situations, a further concern is how to expand an existing telephone system or implement a new phone system capable of operating with existing telephone systems. For example, it may be desirable to allow communications with users serviced by existing public switched telephone network (PSTN) services, Voice over Internet Protocol (VoIP) systems, wireless communications systems, and other systems. Providing compatibility between these systems presents a challenge in itself. Moreover, because some of these systems may be deployed in rural or other remote areas, providing a medium through which newly deployed systems can communicate with one another presents a concern.

Ex. 1001, 1:52-65

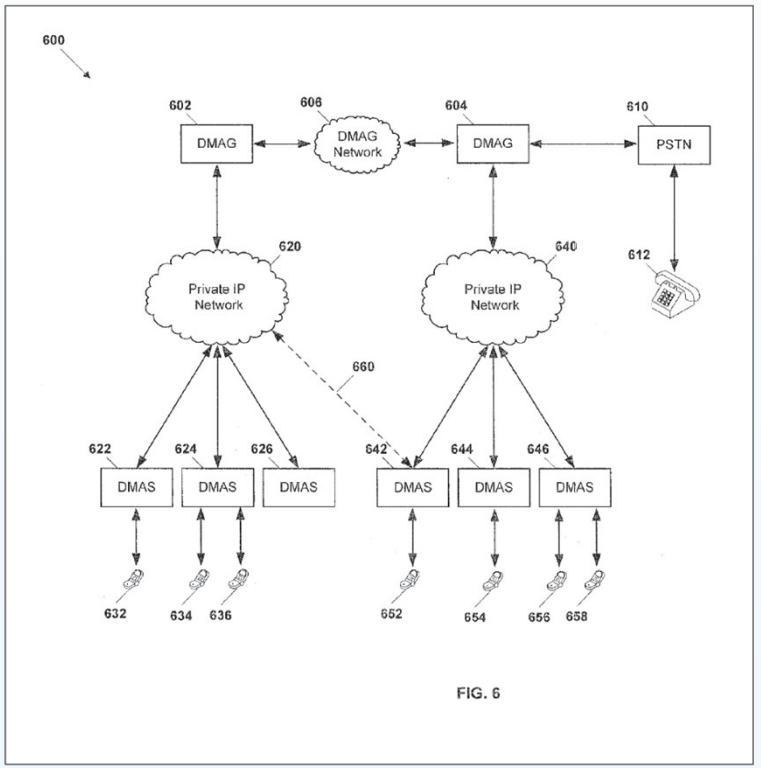


FIG. 6

Ex. 1001, Fig. 6

Pet at 3-4

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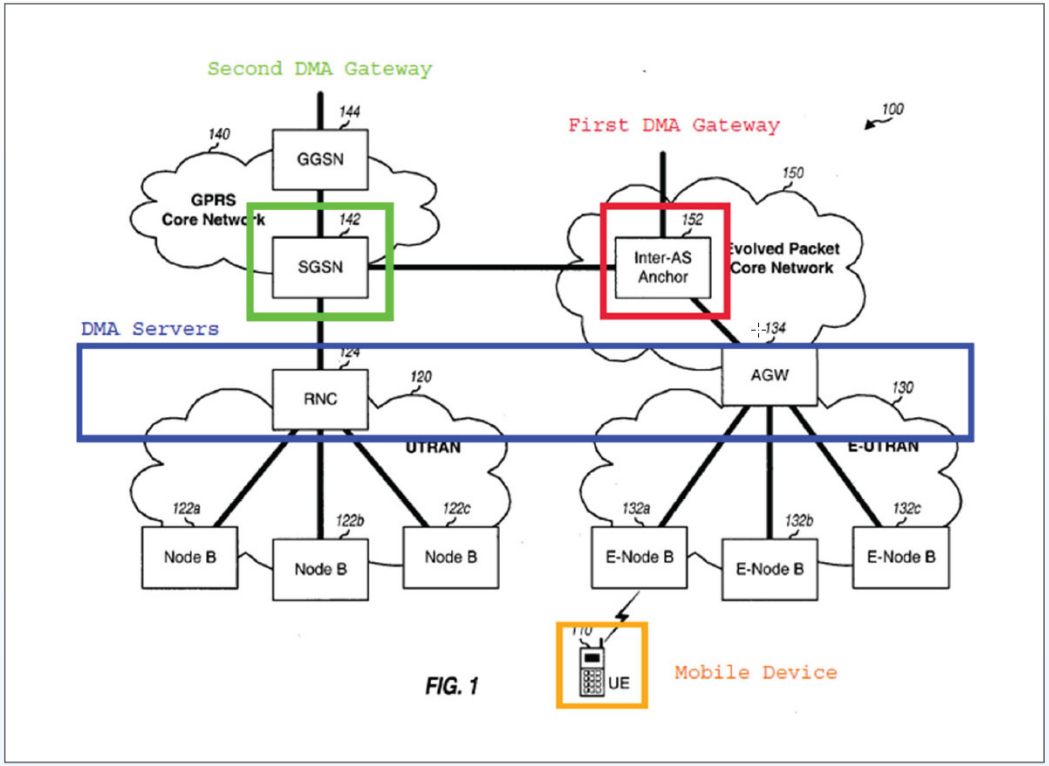
Flore (Ex. 1005) Prior Art Overview - Case No. IPR2023-00531

E-Node Bs 132 provide radio communication for UEs within their coverage and may perform radio resource management. AGW 134 provides control for E-Node Bs 132.

Ex. 1005 at ¶27

Evolved Packet Core network 150 includes an Inter Access System Anchor (IASA) 152[.] … Inter-AS Anchor 152 interfaces with AGW 134 and also with SGSN 142 in GPRS core network 140. Inter-AS Anchor 152 provides interoperability between E-UTRAN 130 and UTRAN 120 and GPRS core network 140. Inter-AS Anchor 152 may communicate with SGSN 142 via a Gn interface, which is a legacy interface between SGSNs and GGSNs within a GPRS core network. The use of the Gn interface allows SGSN 142 to communicate with Inter-AS Anchor 152 in the same manner as with another SGSN, which minimizes impact to legacy networks 120 and 140 to interoperate with new networks 130 and 150.

Ex. 1005 at ¶29



Ex. 1005, Fig. 1 (annotated); ¶81 of Proctor Decl.

Pet at 9, 11

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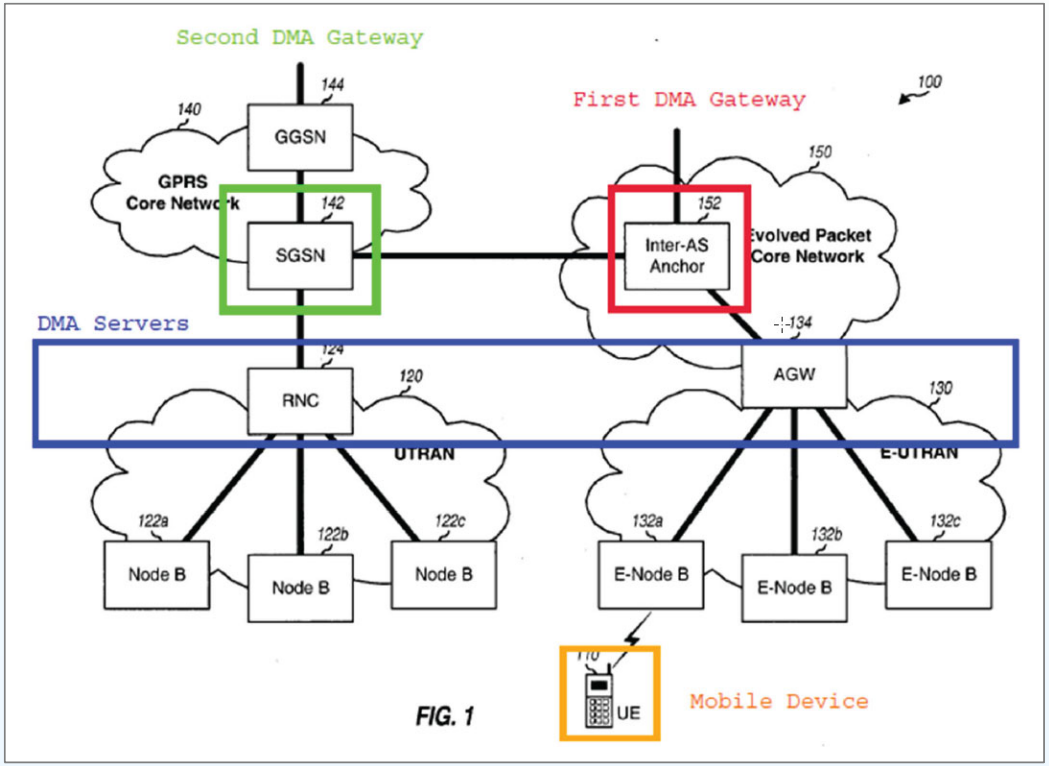
Flore (Ex. 1005) Prior Art Overview - Case No. IPR2023-00531

GPRS core network 140 includes a Serving GPRS Support Node (SGSN) 142 coupled to a Gateway GPRS Support Node (GGSN) 144. SGSN 142 facilitates exchanges of packets between RANs and GGSN 144 and also performs mobility management for UEs.

Ex. 1005 at ¶28

In procedure 400 [involving handover of UE 110 from E-UTRAN 130 to UTRAN 120], [Access Gateway] AGW 134 is considered as a source [Radio Network Controller] RNC, Inter-AS Anchor 152 behaves as a source SGSN, RNC142 is a target RNC, and SGSN 142 is a target SGSN of the handover.

Ex. 1005 at ¶41



Ex. 1005, Fig. 1 (annotated); ¶81 of Proctor Decl.

Pet at 10, 11, 24

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

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CLAIM CONSTRUCTION DISPUTES

Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent)

Petitioners' Proposed Construction	Patent Owner's Proposed Construction
Plain and Ordinary Meaning	"a network architecture where DMA systems have distributed call-routing functionality and are connected with other DMA systems through peer-to-peer connections (i.e., without connecting through a hierarchical network hub architecture)"

POR at 19

Pet Reply at 1-12

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent)

What is claimed is:

1. A method, comprising:

receiving, at a first distributed mobile architecture (DMA) system of a DMA network, a call from a first mobile subscriber to a second mobile subscriber, wherein the DMA network includes at least the first DMA system and a second DMA system;

determining whether the second mobile subscriber is located within a first wireless coverage area of the DMA network that is associated with the first DMA system based on information stored at a home location register (HLR) of the first DMA system and a visitor location register (VLR) of the first DMA system;

when the second mobile subscriber is located within the first wireless coverage area, connecting the call to the second mobile subscriber via the first DMA system;

when the second mobile subscriber is not located within the first wireless coverage area, determining whether the second mobile subscriber is located within a second wireless coverage area of the DMA network that is associated with the second DMA system based on information stored at a community location register (CLR) associated with the second DMA system, wherein the CLR associated with the second DMA system is stored at the first DMA system; and

when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex.1001, claim 1

Pet at 11-18

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent)

Lemko's proposed construction includes two requirements: that a DMA system:

(1) is connected with other DMA systems through peer-to-peer connections and

(2) has distributed call-routing functionality.

POR at 19

Lemko improperly imports limitations from the specification

***TalexMedical, LLC v. Becon Med. Ltd.*, No. 2021-2069, 2022 WL 2898934 at *6 (Fed. Cir. July 22, 2022)**

"The Board's construction improperly narrowed the scope of the claims by importing a directional limitation based on embodiments described in the specification. Absent limiting language, we do not import aspects from the written description into the claims."

Pet Reply at 2

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – No Express Definition

Ex. 1022, Cooklev Depo. Tr. at 16:5-13

Q. Can we agree that the '414 patent does not provide an express definition of the term "DMA"?

A. Well, I should say that I don't have the -- I don't have memorized -- have memorized the patent.

But I think that just, having said that, based on my recollection, I think you are correct that maybe this doesn't precisely say or gives a definition of what this term means. But it talks about it enough that one could understand this term.

***Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012)**

"Absent disclaimer or lexicography, the plain meaning of the claim controls."

Pet -529 Reply at 2; Pet -531 Reply at 1

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – Mere Embodiment Language

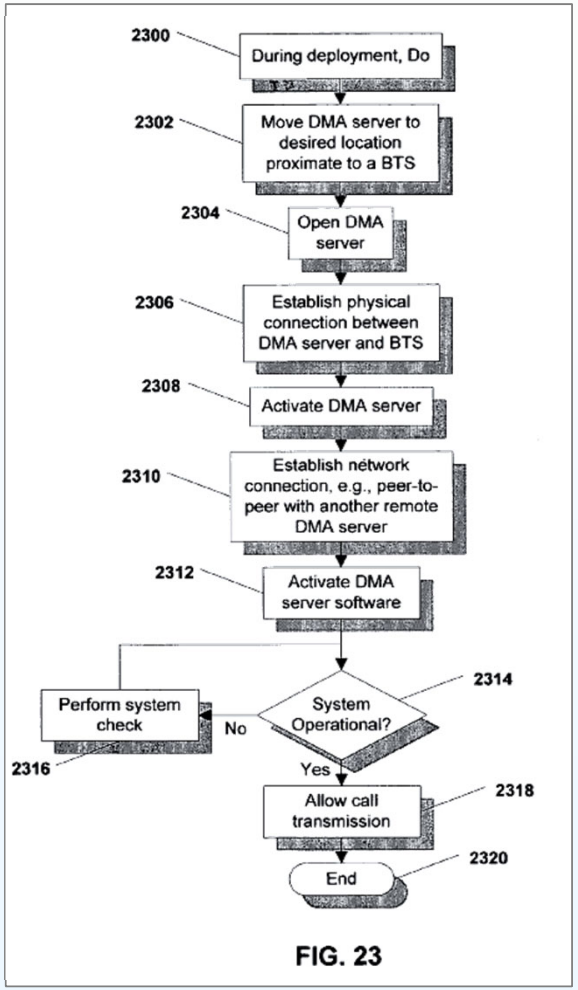
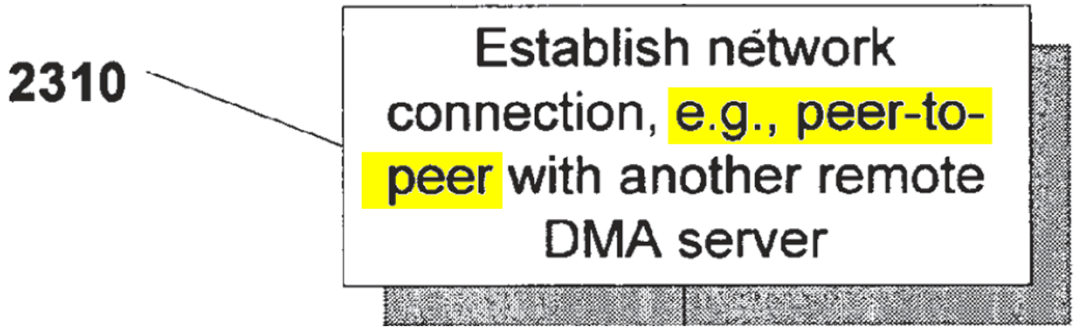


FIG. 23

Ex.1001, Fig 23; Pet Reply at 2-3

> Referring to FIG. **1**, a non-limiting, exemplary embodiment of a distributed and associative telecommunications system is illustrated and is generally designated **100**.

Ex.1001, 4:15-17; Pet Reply at 2



Ex.1001, Fig 23 (block 2310); Pet Reply at 2-3

Pet Reply at 2-3

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – Claim Differentiation

What is claimed is:

1. A method, comprising:

receiving, at a first distributed mobile architecture (DMA) system of a DMA network, a call from a first mobile subscriber to a second mobile subscriber, wherein the DMA network includes at least the first DMA system and a second DMA system;

determining whether the second mobile subscriber is located within a first wireless coverage area of the DMA network that is associated with the first DMA system based on information stored at a home location register (HLR) of the first DMA system and a visitor location register (VLR) of the first DMA system;

when the second mobile subscriber is located within the first wireless coverage area, connecting the call to the second mobile subscriber via the first DMA system;

when the second mobile subscriber is not located within the first wireless coverage area, determining whether the second mobile subscriber is located within a second wireless coverage area of the DMA network that is associated with the second DMA system based on information stored at a community location register (CLR) associated with the second DMA system, wherein the CLR associated with the second DMA system is stored at the first DMA system; and

when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Pet Reply at 3

As illustrated in FIG. **1**, each DMA **106** is interconnected with the other DMAs **106** via an Internet protocol network **110**. As such, there exists a peer-to-peer connection **112** between each DMA **106** in the system **100**. The DMAs **106**

3. The method of claim **1**, further comprising:

connecting the call via an Internet Protocol (IP) peer-to-peer connection between the first DMA system and the second DMA system when the second mobile subscriber is located within the second wireless coverage area.

Ex.1001, claims 1 and 3 and 4:30-31

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – Lemko's 988 Patent

When deployed in a network, such as illustrated in FIG. **4**, embodiments of DMA servers are configured to handle the handing off of communications when, for example, a mobile device passes from a coverage site **402** (FIG. **4**) covered serviced by one DMA server **406** to another coverage site **402** serviced by another DMA server **406**. As previously described, the DMA servers **406** participate in an IP network **410** through which the communications are routed between the DMA servers **406**. However, in not all cases will the DMA servers **406** be able to participate as peers in an IP network **410**. For example, if one or more of the coverage sites **402** are in rural locations or other locations remote from other coverage sites **402**, there may not be access to the IP network **410** in the remote coverage sites **402**. Accordingly, embodiments of the present disclosure describe DMA gateways to enable DMA servers to communicate with one another when one or more of the DMA servers cannot participate directly in the IP network. In addition, embodiments of the DMA gateways also enable legacy networks and devices participating in the legacy networks to communicate with devices serviced by one or more of the DMA servers as further described below.

Pet Reply at 3 (citing IPR2023-00531 Paper 8 at 13 (quoting '988 patent at 9:12-13)

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent) – Plain Meaning Applies

A. "Distributed Mobile Architecture (DMA)" is Distributed with Call-Routing Functionality Located on DMA Systems

The term "distributed mobile architecture (DMA)" should be construed consistent with the plain meaning of its words, which require a mobile architecture with distributed functionality, instead of centralized functionality and hierarchal organization. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction")

POR at 20

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

It is this distributed nature of the DMA network that allows DMA systems to seamlessly route messages among one another without having to traverse a centralized switching hub, like an MSC or SGSN:

> As illustrated in FIG. 1, ***each DMA 106 is interconnected with the other DMAs 106 via an Internet protocol network 110***. As such, there exists a peer-to-peer connection 112 between each DMA 106 in the system 100. The DMAs 106 can handle telephony traffic that is communicated at each antenna 104. For example, ***the DMAs 106 can switch and route calls received via each antenna 104***. Additionally, ***the DMAs 106 can hand-off calls to each other as mobile communication devices move around and between the cellular coverage sites 102***. The DMAs 106 can communicate with each other via the IP network 110 and can further transmit calls to each other via the IP network 110.

POR at 21-22

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

FIG. **8** depicts a method of establishing communication via a first distributed mobile architecture (DMA) and a second DMA. Beginning at block **800**, the first DMA registers a first mobile subscriber within a home location register (HLR) of the first DMA. At block **802**, the second DMA registers a second mobile subscriber within the home location register (HLR) of the second DMA. Thereafter, at block **804**, the first DMA pre-fetches the home location register (HLR) information from the second DMA and stores it within a second community location register (CLR) at the first DMA. In a particular embodiment, the first DMA and the second DMA can be linked to each other via an IP network.

'414 patent at 10:35-46

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

Continuing to block **2410**, the second DMA is activated. At block **2412**, a network connection is established between the second DMA and another remote DMA. In a particular embodiment, the network connection is a peer-to-peer IP connection between the DMAs. Further, in a particular embodiment, the peer-to-peer connection is established via a private IP network. At block **2414**, DMA software within the second DMA is activated.

'414 patent at 16:51-58

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

DMAs **106**. Additionally, user data stored in a database, e.g., a home locator resource (HLR) or a visitor locator resource (VLR), can be distributed equally and fully among all of the DMAs **106**. It can also be appreciated that new cellular coverage sites can be easily added to the system **100** as the demand for users increases. Specifically, a DMA can be deployed, connected to an antenna, connected to the IP network, and activated to provide cellular coverage in a new area.

'414 patent at 4:56-60

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

As depicted in FIG. **3**, the DMA **106** can include a mobile switching center (MSC) module **306** and a base station controller (BSC) module **308** embedded within the computer readable medium **300**. In an exemplary, non-limiting embodiment, the MSC module **306** can include a gatekeeper (GK) **310** that is connected to several gateways. For example, a circuit gateway (CGW) **312** can be connected to the GK **310** and can provide connectivity to an integrated services digital network/public switched telephone network (ISDN/PSTN) interface **314**. The CGW **312** can provide a circuit switched to packet data conversion. In an exemplary, non-limiting embodiment, the PSTN portion of the ISDN/PSTN interface **314** can be an inter-office interface that uses the Bellcore industry standard ISDN user part (ISUP) signaling on a signaling system seven (SS7) link set. Moreover, the voice trunks on this interface can be timeslots on a T1 connection. Inbound and outbound voice calls can be supported on the ISDN portion of the ISDN/PSTN interface **314**.

'414 patent at 6:20-37

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

FIG. **4** depicts a plurality of DMAs. Particularly, FIG. **4** depicts a first DMA **400**, a second DMA **402**, and a third DMA **404**. FIG. **4** indicates that, in general, each DMA **400** includes a visitor location register (VLR), a home location register (HLR), and at least one community location register (CLR). In a particular embodiment, the VLR, HLR, and the CLR within each DMA **400**, **402**, **404** are part of an AAA module within each DMA **400**, **402**, **404**. For example, the HLR, VLR, and CLR may be within the AAA module **328** of the exemplary DMA of FIG. **3**.

'414 patent at 7:60-8:2

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

Within the distributed and associative communications system **100**, the controlling logic can be distributed and decentralized. Moreover, the wireless coverage provided by the disclosed system **100** is self-healing and redundant. In other words, due to the interconnectivity via the IP network **110**, if one or more of the DMAs **106** loses power, fails, or is otherwise inoperable, telephony traffic handled by the inoperable DMA **106** can re-routed to one of the remaining operable DMAs **106**. Additionally, user data stored in a database, e.g., a home locator resource (HLR) or a visitor locator resource (VLR), can be distributed equally and fully among all of the DMAs **106**. It can also be appreciated that new cellular coverage sites can be easily added to the system **100** as the demand for users increases. Specifically, a DMA can be deployed, connected to an antenna, connected to the IP network, and activated to provide cellular coverage in a new area.

'414 patent at 4:45-60

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

'414 Patent, 4:28-40, 17:47-49 ("control logic within the DMAs can be distributed and associated"), 10:44-46 (describing DMA systems "linked to each other via an IP network"), 16:55-57 (discussing a "peer-to-peer connection is established"), 4:58-60 (discussing how a new DMA system and its coverage can be "easily added to the system"), 6:20-23 (discussing implementing functionality including call routing in software located at the DMA systems), 7:60-8:2 (same), 4:53-56 (describing the HLR and VLR are "distributed equally and fully among all the DMAs"), 5:37-54 (discussing routing a call between two UEs between different DMA systems in the same DMA network locally without the need to traverse expensive backhaul connections), 5:62-6:4 (discussing routing calls to a mobile subscriber outside of the DMA network by making available an interface from a peer DMA system). Cooklev Decl., ¶57.

POR at 22

Further, in a particular embodiment, the first mobile subscriber **210** of the first DMA **202** can be connected locally to the second mobile subscriber **210** of the first DMA **202** after locating the second mobile subscriber **210** within the a home location register (HLR) within the first DMA **202**. Additionally, the first or second mobile subscriber **210**, **212** of the first DMA **202** can be connected to the first or second mobile subscriber **212**, **214** of the second DMA **204** after locating the first or second mobile subscriber **212**, **214** of the second DMA **204** within a second community location register (CLR) associated with the second DMA **202** that is stored within the first DMA **202**. Moreover, the first or second mobile subscriber **210**, **212** of the first DMA **202** can be connected to the first or second mobile subscriber **216**, **218** of the third DMA **206** after locating the first or second mobile subscriber **216**, **218** of the third DMA **206** within a third community location register (CLR) associated with the third DMA **206** that is stored within the first DMA **202**.

'414 patent at 5:37-54

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

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POR at 22

In another particular embodiment, calls can be made from a mobile subscriber to an external destination, i.e., external to the DMA network, vie the MSC interface **220**, the VoIP interface **222**, or the ISDN interface **224**. A user can create a preferred hierarchy of interfaces to make calls external to the DMA network. As such, a user can indicate that all calls made from a mobile subscriber to an external device are to be established via the VoIP interface **222**. If the VoIP interface **222** is unavailable, a second preferred interface can be used to establish the external call.

'414 patent at 5:62-6:4

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Patent Owner's "Call Routing Functionality" Argument IPR2023-00529 ('414 Patent)

Driving home the distinction between the claimed DMA and conventional, hierarchal network topologies is that the DMA network is self-healing and redundant, which depends on its distributed architecture that allows individual DMA systems to make routing decisions:

'414 Patent, 4:47-60. The distributed nature of the DMA means that there are no centralized points of vulnerability as there are in conventional hierarchal networks. Cooklev Decl., ¶58 (citing Ex. 2030, Tanenbaum, 55, '414 Patent, 17:53-55). The distributed mobile architecture, therefore, is distributed because it has no center or hub (like a centralized MSC or SGSN) and because each DMA system routes calls directly to other DMA systems in the DMA network. Cooklev Decl., ¶58 (citing '414 Patent, 4:14-47, 6:20-37; Ex. 2010; Ex. 2009), ¶¶41-42.

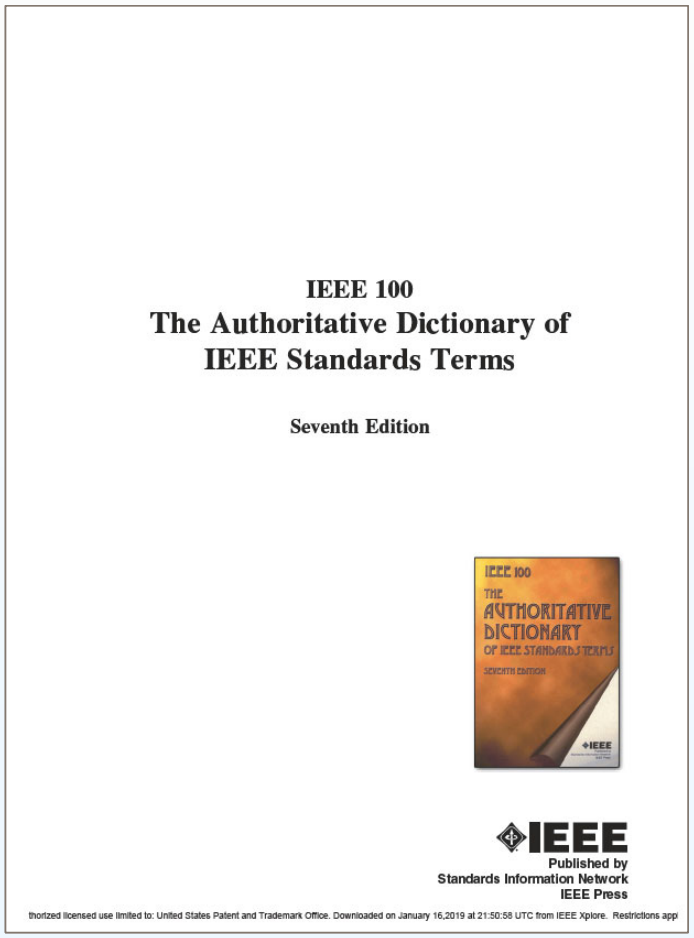
POR at 22-23

Further, one or more of the illustrated systems can provide IP transport between distributed elements, e.g., DMAs. Packet back-haul from BTS to RAN can be provided. Further, the control logic within the DMAs can be distributed and associated. Associated systems can be redundant, self-healing, self-organizing, and scalable. Distributed systems can be "snap-together," i.e., a DMA can be linked to a previously deployed DMA in order to broaden, or otherwise extend, cellular coverage. Further, distributed systems can be decentralized to avoid single points of failure.

'414 patent at 17:45-54

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Board's Dictionary Definitions (Ex 3002)


IEEE 100
The Authoritative Dictionary of IEEE Standards Terms

Seventh Edition

IEEE 100 THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS SEVENTH EDITION IEEE

IEEE
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Standards Information Network
IEEE Press

thorized licensed use limited to: United States Patent and Trademark Office. Downloaded on January 16,2019 at 21:50:58 UTC from IEEE Xplore. Restrictions appl

- **distributed architecture:**
  A computer architecture characterized by its suitability for distributed processing.

- **distributed processing:**

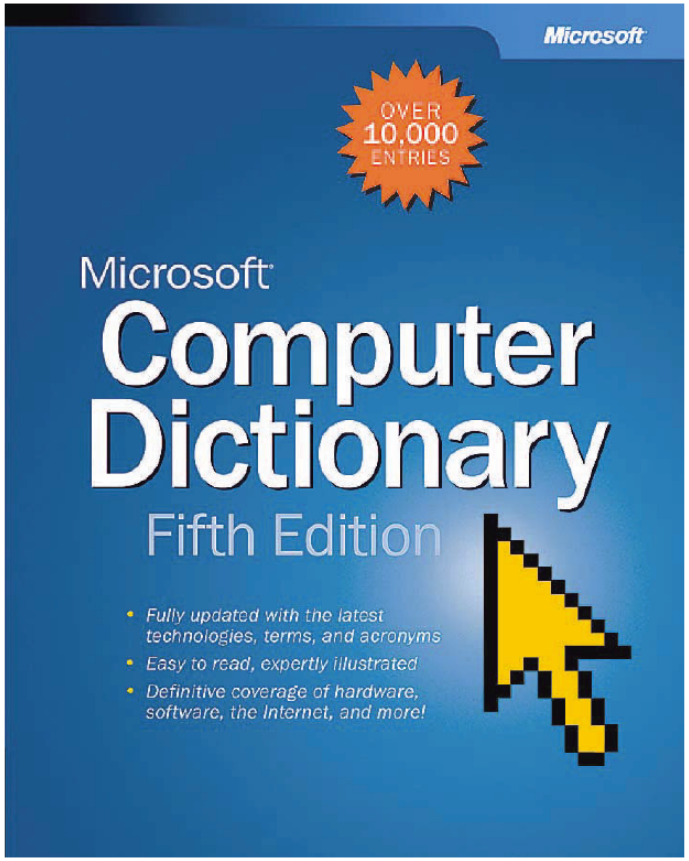
  1) (supervisory control, data acquisition, and automatic control) A design in which data is processed by more than one processor.

  2) A design in which all data is not processed in one processor. Multiple processors in the master station or in the remote stations, or both, share the functions.

Ex. 3002 at 327-328

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Board's Dictionary Definitions (Ex 3003)



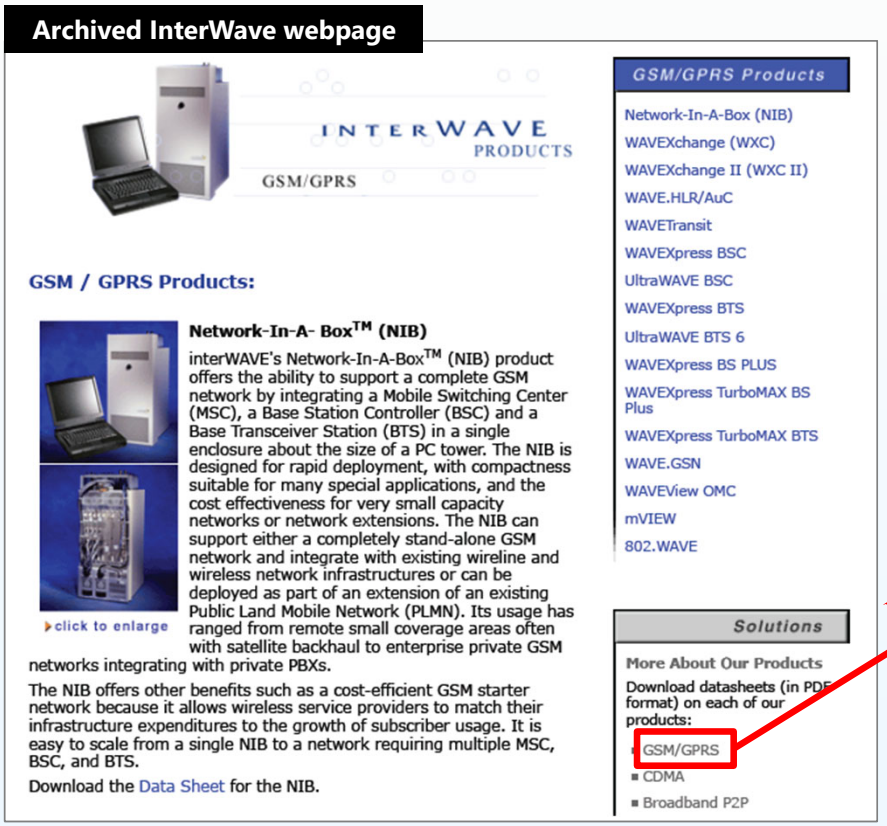
distributed processing:
A form of information processing in which work is performed by separate computers linked through a communications network. Distributed processing is usually categorized as either plain distributed processing or true distributed processing. Plain distributed processing shares the workload among computers that can communicate with one another. True distributed processing has separate computers perform different tasks in such a way that their combined work can contribute to a larger goal. The latter type of processing requires a highly structured environment that allows hardware and software to communicate, share resources, and exchange information freely.

Ex. 3003 at 168

Microsoft - Exhibit 1015
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Waylett's Distributed Mobile Architecture

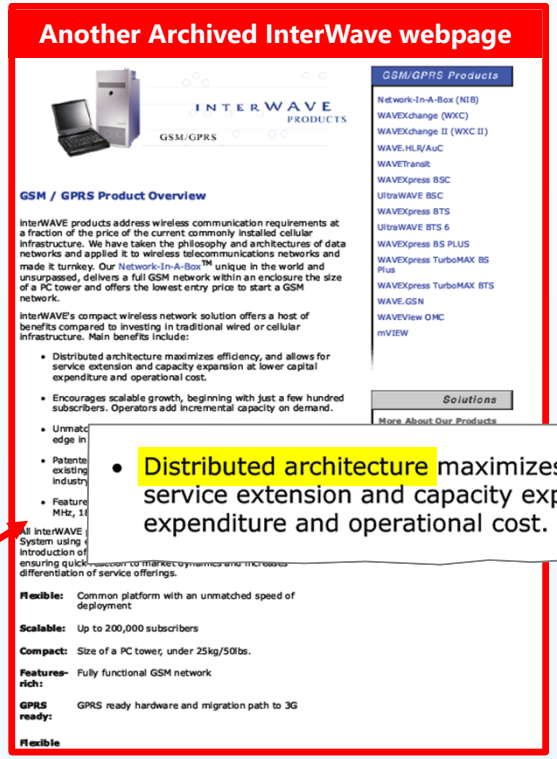
Archived InterWave webpage



PO's Exhibit (Ex. 2012)

Linked Webpage

Another Archived InterWave webpage



Petitioner's Exhibit (Ex. 1020)

Pet -529 Reply at 6, see also *id.* at fn 1

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – "Distributed"

FIG. 1 is a diagram of a distributed and associative communication system;

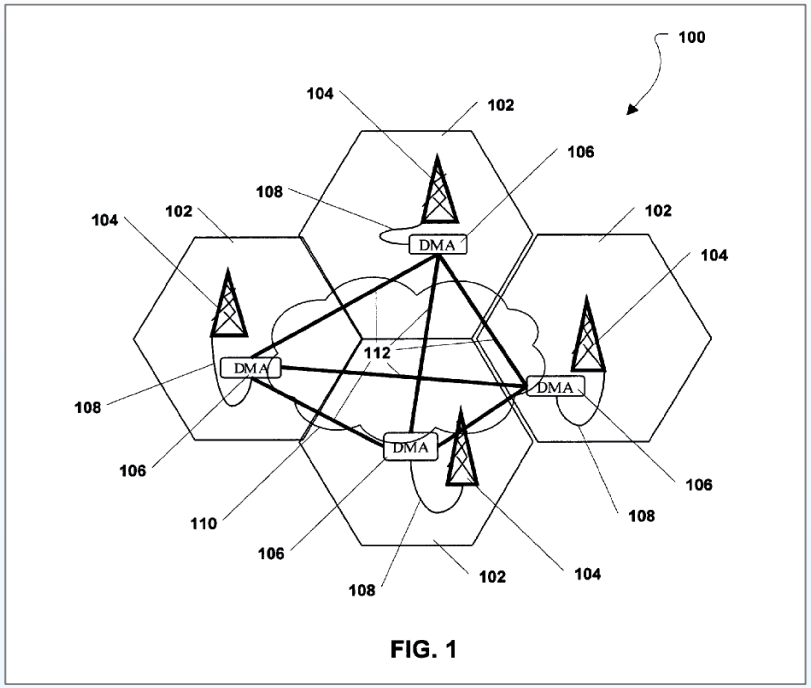


FIG. 1

Ex. 1001, Fig. 1 and 1:59-60

Pet Reply at 1-2

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – "Distributed"

Ex. 2026, Proctor Depo. Tr. at 71:19-72:4

> And so in doing -- in considering the term distributed mobile architecture, I considered the patent specification and all the disclosures within it. Mobile architecture speaks for itself in terms of it has got to be an architecture that addresses mobile devices, and then distributed means that something has got to be in multiple places.

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00531 ('988 Patent) – "Distributed"

Ex. 2027, Proctor Depo. Tr. at 13:22-14:10 (Petitioners' Expert)

Q. So the first requirement was that you said something needs to be distributed. What did you mean by that?

A. Well, so the term distributed means that you have something that is part of a broader network or intended to be part of a broader network.

Q. What is that understanding of distributed based on?

A. The word distributed, the plain and ordinary meaning of the word distributed.

Ex. 1014, Cooklev Depo. Tr. at 27:16-28:17 (Patent Owner's Expert)

Q. In your opinion, the distributed mobile architecture requires DMA server nodes to be distributed throughout the architecture?

MR. PRICE: Objection.

A. What does it mean in your question the DMA server nodes to be distributed in the architecture? To be physically in different places? Is that what -- or what does it mean?

Q. We can go with that. To have different locations. So with that understanding, in your opinion, does the distributed mobile architecture that is claimed require DMA server nodes to be distributed throughout the architecture?

A. Well, first, I think that the -- that the language gets confusing because of the word "distributed throughout the architecture." And you are -- it seems to me, you're using the term distributed throughout the architecture to indicate that these DMA servers are just distinct. But yes, they are the -- if the DMA servers, they are distinct servers. So that's what -- I think the fact that they are distinct is -- I mean, that's pretty obvious.

Pet Reply at 2

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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00529 ('414 Patent) – "Distributed"

With the configuration of structure described above, the present disclosure provides a flexible telecommunications device, i.e., a DMA, that is distributive and associative, i.e., it can operate stand-alone or seamlessly within an existing cellular or other network. Moreover, the DMA can be integrated with virtually any third party base station. The DMA can operate with multiple air interfaces including CDMA IS-95, CDMA 1X, CDMA EVDO, GSM, GPRS, W-CDMA, 802.11 (Wi-fi), 802.16 (Wi-fi), etc. Further, the DMA can provide integrated prepaid billing, OAMP, network management, and AAA functionality. The DMA can include a Java based user interface and feature configuration system. Also, the DMA can provide real time call metering, call detail record (CDR) generation, and real time call provisioning. The DMA may be implemented in a relatively small footprint and has a relatively low power requirement. Further, the DMA may be implemented using inexpensive and widely available computer equipment.

Further, one or more of the illustrated systems can provide IP transport between distributed elements, e.g., DMAs. Packet back-haul from BTS to RAN can be provided. Further, the control logic within the DMAs can be distributed and associated. Associated systems can be redundant, self-healing, self-organizing, and scalable. Distributed systems can be "snap-together," i.e., a DMA can be linked to a previously deployed DMA in order to broaden, or otherwise extend, cellular coverage. Further, distributed systems can be decentralized to avoid single points of failure.

Ex. 1001 17:6-24 and 17:45-54

Claim Construction Dispute: "Distributed Mobile Architecture (DMA)"
IPR2023-00531 ('988 Patent)

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

storing the communications information in a home DMA register of the first DMA gateway;

receiving a communication at the first DMA gateway for a target device indicated by the communications information to be served by the second DMA gateway; and

routing the communication from the first DMA gateway to the target device by relaying the communication from the first DMA gateway to the second DMA gateway via the DMA gateway communications network.

Ex.1001, claim 1

Pet at 11-18

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Microsoft v. Lemko- IPR2023-00531
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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)"
IPR2023-00531 ('988 Patent)

Petitioners' Proposed Construction	Patent Owner's Proposed Construction
Plain and Ordinary Meaning	"(1) a network architecture where DMA servers have distributed call-routing functionality and (2) are connected with other DMA servers through peer-to-peer connections (*i.e.* without connecting through a hierarchical, network-hub architecture), **and (3) that is not a legacy communications network."**

POR at 18

Pet Reply at 1, *see also* Pet Reply at 1-13

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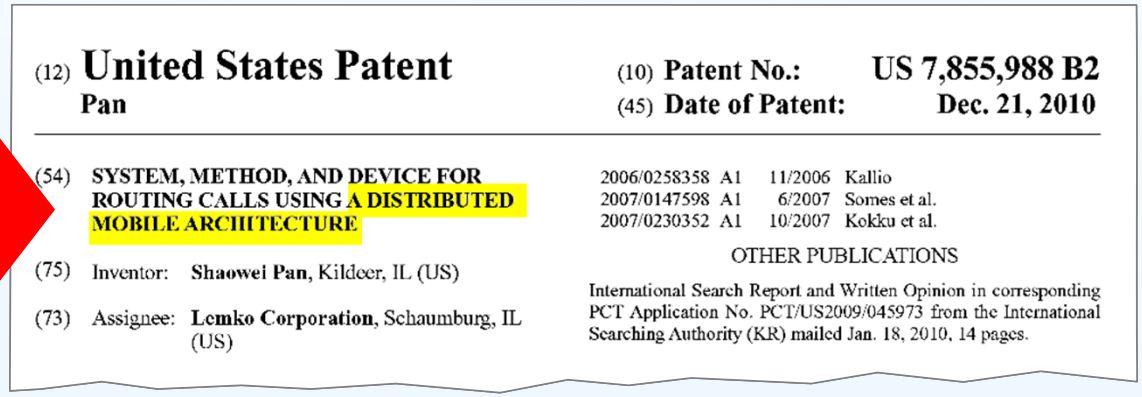
Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00531 ('988 Patent)

"The term 'distributed mobile architecture' should be construed consistent with the plain meaning of its words. . ."

POR at 18

Lemko admits "DMA" term should get plain and ordinary meaning

Except for the title of the '988 patent, the terms "distributed mobile architecture" or "DMA" are never even used in isolation — only as prefixes



(12) **United States Patent**
Pan

(10) **Patent No.: US 7,855,988 B2**
(45) **Date of Patent: Dec. 21, 2010**

(54) **SYSTEM, METHOD, AND DEVICE FOR ROUTING CALLS USING A DISTRIBUTED MOBILE ARCHITECTURE**

(75) Inventor: **Shaowei Pan**, Kildeer, IL (US)

(73) Assignee: **Lemko Corporation**, Schaumburg, IL (US)

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International Search Report and Written Opinion in corresponding PCT Application No. PCT/US2009/045973 from the International Searching Authority (KR) mailed Jan. 18, 2010, 14 pages.

Ex 1001 at Cover

Pet Reply at 1, 5

Microsoft - Exhibit 1015
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Claim Construction Dispute: "Distributed Mobile Architecture (DMA)" IPR2023-00531 ('988 Patent)

Lemko's proposed construction includes three requirements:

(1) DMA servers have distributed call-routing functionality

(2) DMA servers are connected with other DMA servers through peer-to-peer connections (i.e. without connecting through a hierarchical, network-hub architecture)and

(3) a DMA is not a legacy communications network.

POR at 18

***Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012)**

"Absent disclaimer or lexicography, the plain meaning of the claim controls."

Pet Reply at 1, *see also* Pet Reply at 1-13

Mr. Proctor's position is consistent with the specification's description of embodiments IPR2023-00531 ('988 Patent)

- Figure 4 depicts DMAs 406, antennas 404, and coverage sites 402 distributed in different locations

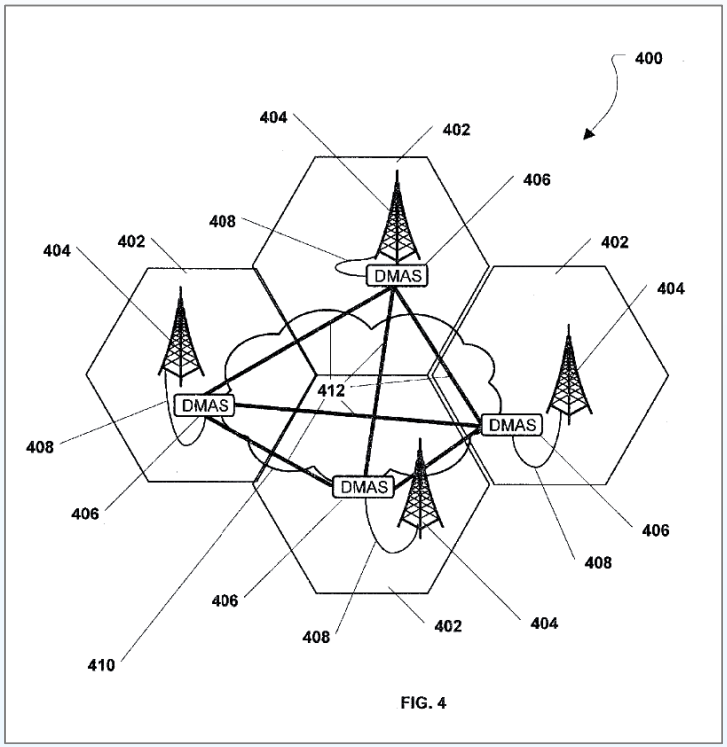


FIG. 4

Ex.1001, Fig 4

> FIG. **4** is a diagram of a particular illustrative embodiment of a distributed and associative communications system;

Ex.1001, 2:19-20

> FIG. **4** illustrates a non-limiting, exemplary embodiment of a distributive and associated telecommunications system generally designated **400**.

Ex.1001, 6:31-33

Pet Reply at 2, 6

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Challenged Claim 1
IPR2023-00531 ('988 Patent)

Lemko's construction is unsupported by the claims

What is claimed is:
1. A method, comprising:
receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;
storing the communications information in a home DMA register of the first DMA gateway;
receiving a communication at the first DMA gateway for a target device indicated by the communications information to be served by the second DMA gateway; and
routing the communication from the first DMA gateway to the target device by relaying the communication from the first DMA gateway to the second DMA gateway via the DMA gateway communications network.

Ex.1001, claim 1

i. Claims alternatively require "DMA server" or "a legacy communications network."
   i. Lemko's proposed construction further limits only "DMA server"
ii. No requirement of "DMA system" in claims
iii. No requirement that multiple DMA servers are connected through "peer-to-peer connections"
iv. No requirement of "distributed call-routing functionality" on DMA servers

Pet at 11-18, Pet Reply at 2-4

Microsoft - Exhibit 1015
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Board's Institution Decision Correctly Rejected Lemko's Construction IPR2023-00531 ('988 Patent)

Board's Institution Decision

Patent Owner's Proposed Construction For "Distributed Mobile Architecture (DMA)"

"(1) a network architecture where DMA servers have distributed call-routing functionality and (2) are connected with other DMA servers through peer-to-peer connections (*i.e.* without connecting through a hierarchical, network-hub architecture), and (3) that is not a legacy communications network."

POR at 18

We are unpersuaded that Petitioner was required to establish a construction for "DMA infrastructure" or "DMA network." These phrases do not appear in the claim. Nor is it clear what these phrases are referring to. The '988 patent specification does not disclose the phrase "DMA infrastructure" and, although the phrase "the DMA network" is disclosed, it is used to refer to the particular arrangements shown in Figures 11–13, which arrangements the claims are not limited to. Ex. 1001, claim 1, 17:2, 40.

Paper 8 at 11

Pet Reply at 11, see also Pet Reply at 1-11

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Board's Institution Decision Correctly Rejected Lemko's Construction IPR2023-00531 ('988 Patent)

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

storing the communications information in a home DMA register of the first DMA gateway;

receiving a communication at the first DMA gateway for a target device indicated by the communications information to be served by the second DMA gateway; and

routing the communication from the first DMA gateway to the target device by relaying the communication from the first DMA gateway to the second DMA gateway via the DMA gateway communications network.

Ex.1001, claim 1

Board's Institution Decision

We are unpersuaded that Petitioner was required to establish a construction for "DMA infrastructure" or "DMA network." These phrases do not appear in the claim. Nor is it clear what these phrases are referring to. The '988 patent specification does not disclose the phrase "DMA infrastructure" and, although the phrase "the DMA network" is disclosed, it is used to refer to the particular arrangements shown in Figures 11–13, which arrangements the claims are not limited to. Ex. 1001, claim 1, 17:2, 40.

Paper 8 at 11

Pet at 11-18, Pet Reply at 11

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Board's Institution Decision Correctly Rejected Lemko's Construction IPR2023-00531 ('988 Patent)

Board's Institution Decision

Patent Owner's Proposed Construction

"(1) a network architecture where DMA servers have distributed call-routing functionality and (2) are connected with other DMA servers through peer-to-peer connections (*i.e.* without connecting through a hierarchical, network-hub architecture), and (3) that is not a legacy communications network."

POR at 18

At this time, we decline to adopt a construction of the claim term "DMA server" that would limit its scope to include a P2P connection with other DMA servers.

The claims do not include a limitation calling for the "DMA server" to be connected to other DMA servers via a P2P connection. There is a single mention of "a DMA server" in the claim and its scope is not limited so as to be connected to other DMA servers via a P2P connection. See, e.g., Ex. 1001, claim 1[b]: "a DMA server."

Paper 8 at 12

Pet Reply at 1, see also Pet Reply at 1-11

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Board's Institution Decision Correctly Rejected Lemko's Construction IPR2023-00531 ('988 Patent)

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

storing the communications information in a home DMA register of the first DMA gateway;

receiving a communication at the first DMA gateway for a target device indicated by the communications information to be served by the second DMA gateway; and

routing the communication from the first DMA gateway to the target device by relaying the communication from the first DMA gateway to the second DMA gateway via the DMA gateway communications network.

Ex.1001, claim 1

Board's Institution Decision

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The claims do not include a limitation calling for the "DMA server" to be connected to other DMA servers via a P2P connection. There is a single mention of "a DMA server" in the claim and its scope is not limited so as to be connected to other DMA servers via a P2P connection. See, e.g., Ex. 1001, claim 1[b]: "a DMA server."

Paper 8 at 12

Pet Reply at 1, Pet at 11-18

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Challenged Claim 1
IPR2023-00531 ('988 Patent)

Challenged Claims support a broader reading of "DMA"

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

storing the communications information in a home DMA register of the first DMA gateway;

receiving a communication at the first DMA gateway for a target device indicated by the communications information to be served by the second DMA gateway; and

routing the communication from the first DMA gateway to the target device by relaying the communication from the first DMA gateway to the second DMA gateway via the DMA gateway communications network.

Ex.1001, claim 1

***Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012)**

A patentee "is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope."

Pet at 11-18, Pet Reply at 4

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Microsoft v. Lemko- IPR2023-00531
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Lemko's Construction improperly imports limitations into the claims IPR2023-00531 ('988 Patent)

- Federal Circuit warned against importing embodiments from the specification into the claims

***Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005)**

"[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments"

***TalexMedical, LLC v. Becon Med. Ltd.*, No. 2021-2069, 2022 WL 2898934**

"The Board's construction improperly narrowed the scope of the claims by importing a … limitation based on embodiments described in the specification"

Pet Reply at 7, 5

Microsoft - Exhibit 1015
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Specification's description of embodiments
IPR2023-00531 ('988 Patent)

Lemko's relied-upon citations from the specification use *permissive*, rather than definitional, language

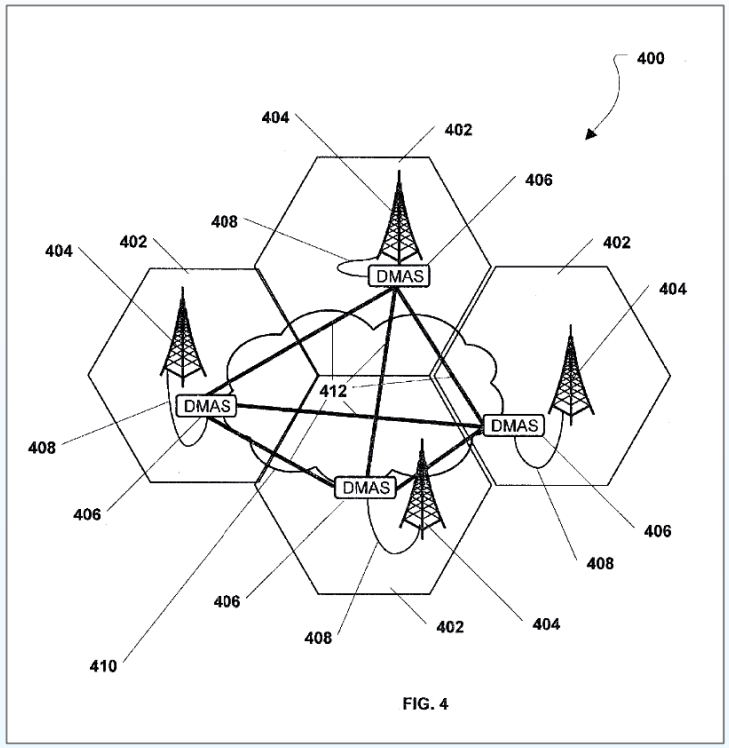


FIG. 4

Ex.1001, Fig 4

FIG. **4** is a diagram of a particular illustrative embodiment of a distributed and associative communications system;

Ex.1001, 2:19-20

FIG. **4** illustrates a non-limiting, exemplary embodiment of a distributive and associated telecommunications system generally designated **400**.

Ex.1001, 6:31-33

For example, the DMA servers **406** can switch and route calls received via each antenna **404**.

Ex.1001, 6:52-53

Pet Reply at 2, 6

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Lemko's relied-upon citations from the specification use *permissive*, not definitional, language IPR2023-00531 ('988 Patent)

- Federal Circuit's direction when the patent refers to drawings as *exemplary embodiments*

Skedco, Inc. v. Strategic Operations, Inc., 685 Fed. Appx. 956 at 960 (Fed. Cir. 2017)

"This guidance is especially apt here because the patent refers to the drawings … as 'exemplary embodiment[s].'"

Pet Reply at 6

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Lemko's negative limitation regarding the "DMA network" is irrelevant and incorrect IPR2023-00531 ('988 Patent)

Lemko's proposed construction includes three requirements:

(1) DMA servers have distributed call-routing functionality

(2) DMA servers are connected with other DMA servers through peer-to-peer connections (i.e. without connecting through a hierarchical, network-hub architecture)and

(3) a DMA is not a legacy communications network.

No support for the negative limitation in the Specification

POR at 19

***Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003)**

Negative limitations must find support either in "the words of the claim" or through an "express disclaimer or independent lexicography in the written description that would justify adding that negative limitation"

Pet Reply at 11, 3

Microsoft - Exhibit 1015
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Lemko's arguments re "DMA networks" excluding "legacy networks" is irrelevant and incorrect IPR2023-00531 ('988 Patent)

A POSITA reading the '988 Patent understands that the '988 Patent distinguishes the inventive DMA from a host of different "existing" systems, which the '988 Patent calls "legacy communications networks." …These legacy networks include "existing public switched telephone network (PSTN) services, Voice over Internet Protocol (VoIP) systems, wireless communications systems, and other systems." … What all of these legacy networks have in common is that they are not private peer-to-peer networks, like the DMA networks of the '988 Patent.

Ex. 2021 (Cooklev Decl.) at 74

Dr. Cooklev's testimony that—legacy networks are not peer-to-peer, and DMA networks are peer-to-peer, and therefore "DMA network" must exclude a "legacy network" is irrelevant

The "***claims*** distinguish distributed mobile architecture (DMA) ***networks*** from these legacy communications networks."

"Thus ***every claim*** distinguishes ***DMA networks*** from legacy communication networks."

Pet Reply at 11; POR at 26-27

Lemko's reasoning is incorrect

Pet Reply at 12-13

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Lemko's rebuttals in its POR and Sur-reply IPR2023-00531 ('988 Patent)

- Lemko admits that DMA servers do not require a peer-to-peer connection, and instead can communicate via DMA Gateways

> However, the '988 Patent describes two different scenarios. Where the ***DMA servers are able to connect as peers*** with an existing DMA network, they do so … When ***a new DMA server cannot join an existing DMA network***, a DMA gateway connects the new DMA server to the existing DMA network (and/or one or more legacy networks) via a DMA gateway network.

POR at 23-24 (citing Ex 1001, 9:12-14)

- Lemko does not dispute that two DMA servers may communicate using an intervening DMA gateway

> Accordingly, ***if DMAS 622 could not join DMA network 640 as a peer, the '988 Patent discloses connecting the server to DMA gateway 602*** so that it could still communicate with UEs registered with DMA network 640.

POR at 23-24 (citing Ex1001, 9:12-14)

Pet Reply at 9-10

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CASE NO. IPR2023-00529 DISPUTES ('414 PATENT)

IPR2023-00529 (U.S. Pat. No. 7,653,414)
Challenged Claims and Grounds

Claims	Basis	Reference(s)
1–8	Pre-AIA 35 USC §103	Mauer, Waylett
11–16 and 21	Pre-AIA 35 USC §103	Waylett, Mauer

Paper 11 (institution decision) at 11

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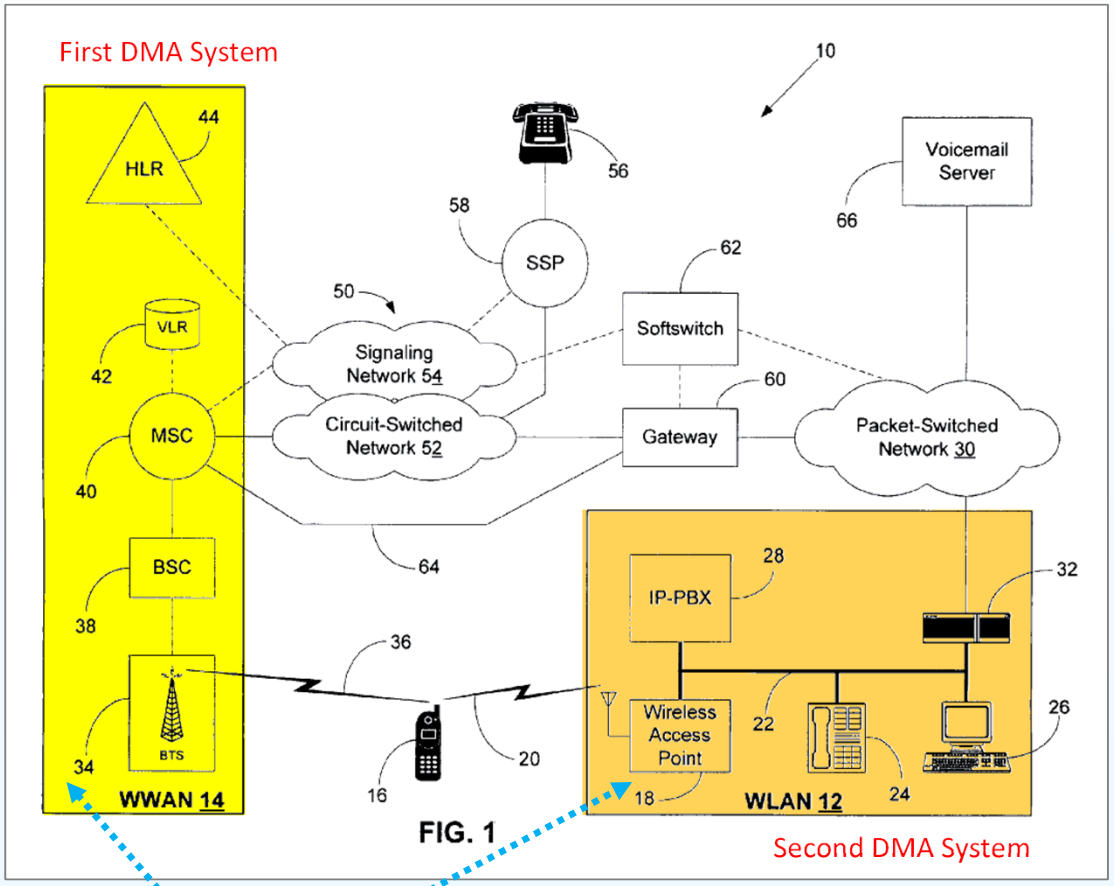
Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- **"DMA" Terms: "DMA system" and "DMA network"**
- "destination preference register"
- Voicemail server is located *outside* the DMA network
- No requirement that the claimed preferred call path is destined for the "second mobile subscriber"
- An inaccessible mobile subscriber is *outside* of the claimed coverage areas
- "community location register"
- "computer readable medium"
- Lemko failed to Show Any Evidence of Secondary Considerations of Non-Obviousness
- Lemko failed to rebut Petitioners' sufficient rationales to combine Mauer and Waylett
- Procedural Dispute
  - Petitioner's argument that Patent Owner's Exhibit (Ex. 1020) discloses a NIB using a "distributed architecture" is not untimely

Microsoft - Exhibit 1015
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Resulting Mauer/Waylett Combination satisfies the claimed limitations

A POSITA would have modified Mauer's network architecture to include Waylett's NIB in each of Mauer's WWAN and WLAN resulting in at least two DMA systems



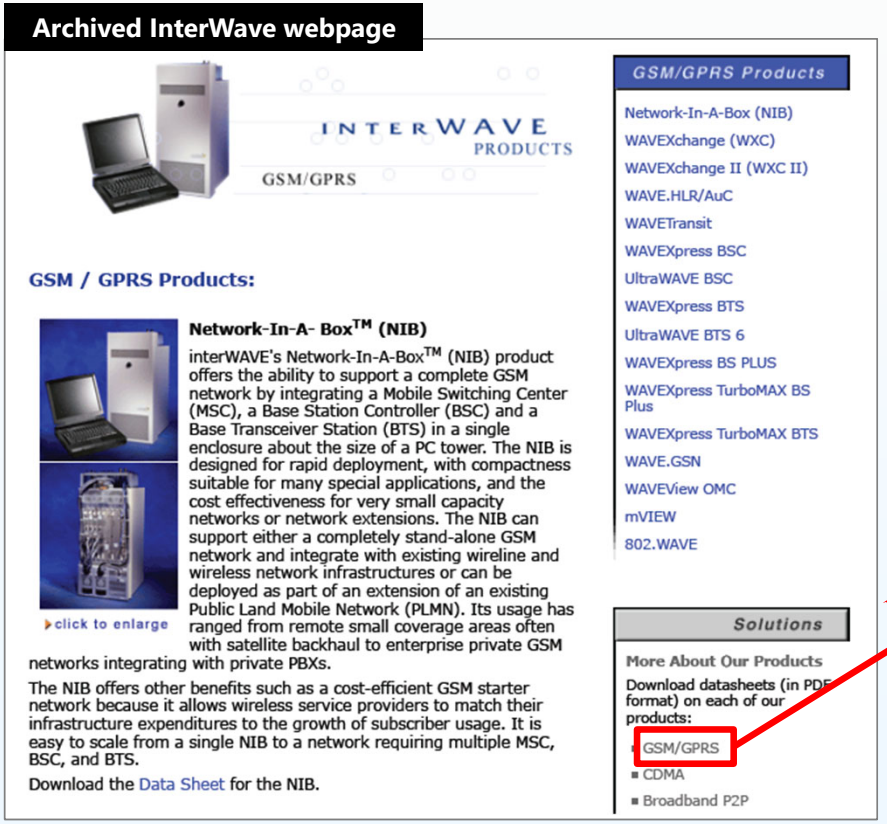
Ex 1005, Fig. 1 (annotated); ¶ 76 of Proctor Decl.

Pet Reply at 4; Pet. at 14, 21

Microsoft - Exhibit 1015
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Waylett's NIB in the combined system satisfies the "distributed" of the DMA server

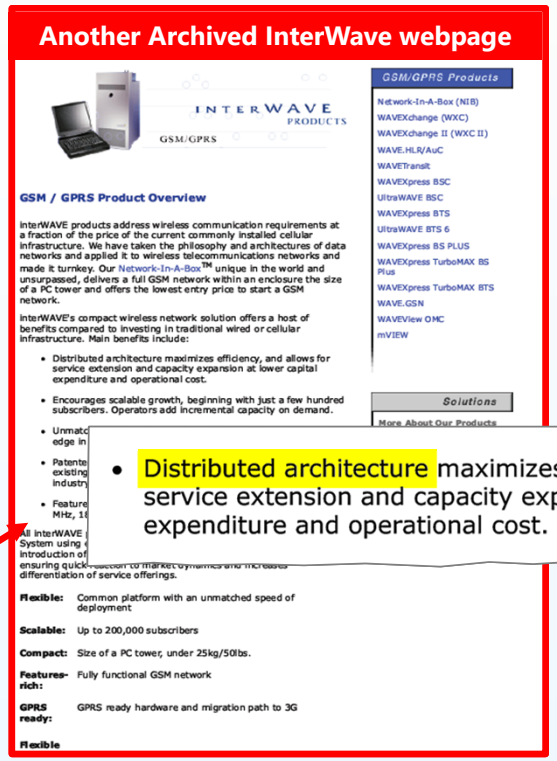
Archived InterWave webpage



PO's Exhibit (Ex. 2012)

Linked Webpage

Another Archived InterWave webpage



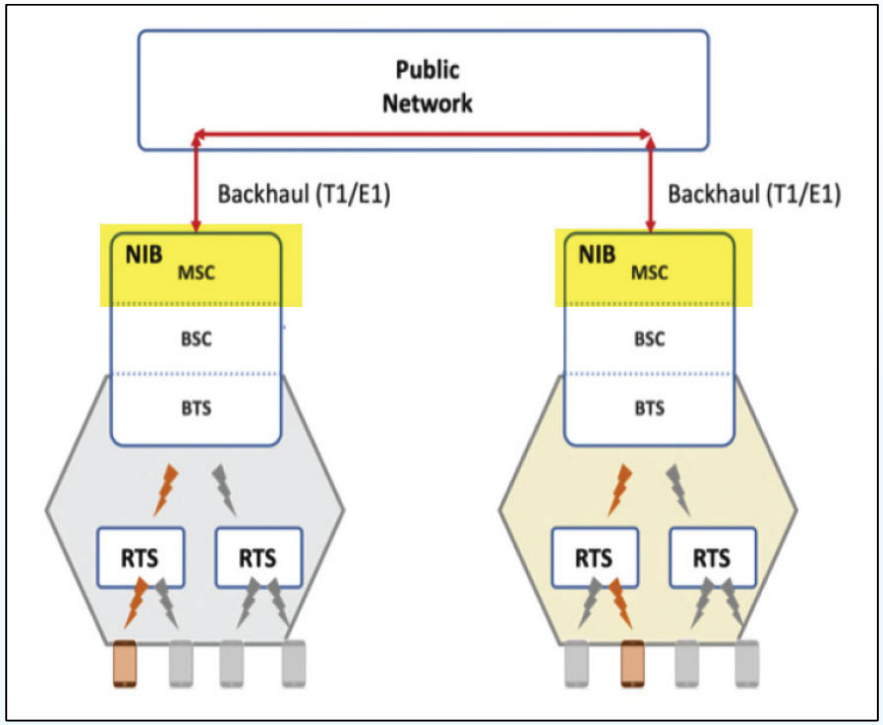
Petitioner's Exhibit (Ex. 1020)

Pet Reply at 6, see also *id.* at fn 1

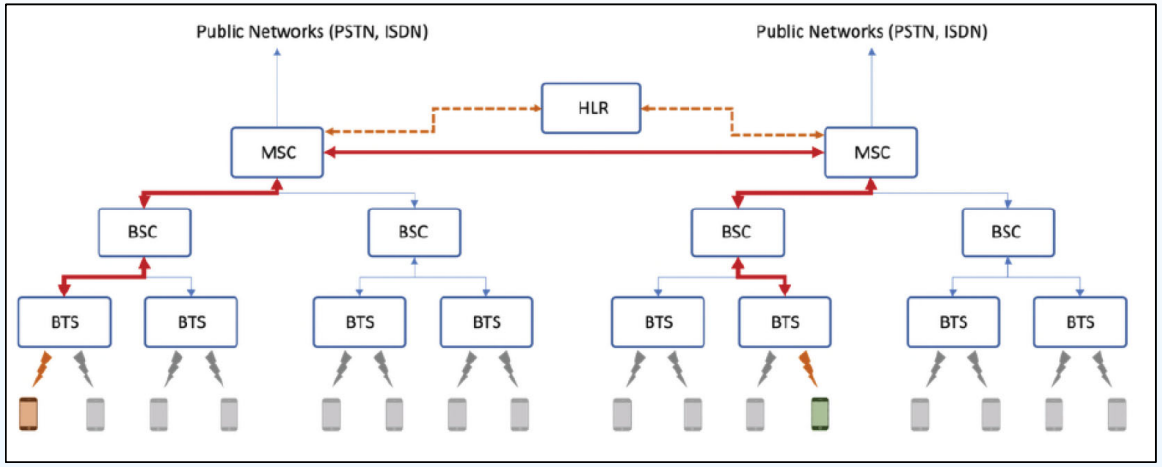
Microsoft - Exhibit 1015
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Mauer/Waylett combination discloses both a "DMA system" and "DMA network" under plain and ordinary meaning.

- Lemko's illustration of Waylett's NIB network (*see* figure below left) confirms that Waylett uses a "distributed architecture" that implements MSC functionality in NIBs at different locations rather than using centralized MSCs:



Ex. 2021 at ¶83 (Annotated); Pet Reply at 7



Ex. 2021 at ¶33; Pet Reply at 7

Pet Reply at 7

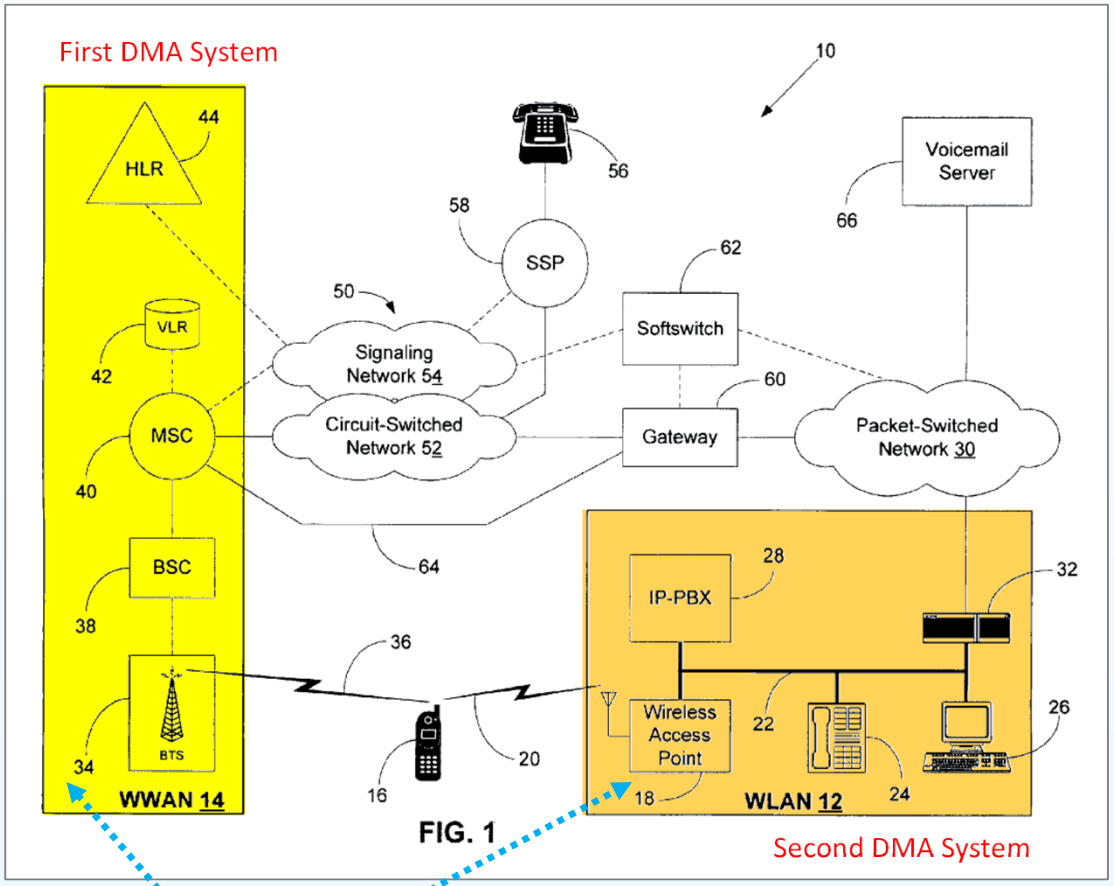
Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Mauer/Waylett combination discloses both a "DMA system" and "DMA network" under Patent Owner's construction

> Additionally, the RADIUS server **312** receives accounting packets or call detail records (CDRs) generated by the different access points **228**A, **228**B, **228**C, and forwards these accounting packets to a billing server (not shown) through a RADIUS proxy interface (not shown) to bill telecommunications charges to the appropriate parties.

EX 1006, 14:16-22

A POSITA would have understood that call detail records for the RADIUS server 312 demonstrate that the NIB 224 *routes voice calls*.



Ex 1005, Fig. 1 (annotated); Pet at 21

Pet at 21, 69

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Lemko's rebuttals in its POR and Sur-reply are meritless

Lemko's arguments in Sur-reply

> Applying that principle to this case, DMA should be construed consistently with its description in the specification as having distributed call-routing functionality, being connected through peer-to-peer connections, and being different from hierarchical legacy networks. POR, 20-34.

Sur-reply (paper 29) at 12

Lemko's DMA construction in POR

> a network architecture where DMA systems have distributed call-routing functionality and are connected with other DMA systems through peer-to-peer connections (i.e., without connecting through a hierarchical network hub architecture).

POR at 19

> [2] This construction is consistent with the one Lemko proposes for the same term in unrelated but co-pending IPR2023-00531, concerning Lemko's U.S. Patent No. 7,855,988. The proposed construction in that case includes a further limitation that the DMA not be a legacy communications network, based on additional statements in that patent's specification and claims. That additional limitation is not relevant to the grounds asserted in this IPR.

POR at 20

Microsoft - Exhibit 1015
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Lemko's rebuttals in its POR and Sur-reply are meritless

Centralized MSCs authenticate callers and route calls to other users (referred to as "UEs" by convention). Cooklev Decl., ¶34; Ex. 2031. When a user (UE shown

PO Resp. at 6

PBX **232** for communicating with PBX telephones **234**. In one embodiment, the private cellular network **222** includes at least one WAVEXchange™ (WXC) or a Network-In-A-Box™ (NIB **224**) commercially available from interWAVE Communications Inc., of Menlo Park, Calif. A WXC generally includes a MSC, a built-in VLR/HLR. The NIB **224** includes a MSC, a BSC and a BTS in a single enclosure. The

Ex. 1006, 9:36-42

Pet Reply at 8, 9, n.1, Pet at 69-70

Microsoft - Exhibit 1015
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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
- "destination preference register"
- Voicemail server is located *outside* the DMA network
- No requirement that the claimed preferred call path is destined for the "second mobile subscriber"
- An inaccessible mobile subscriber is *outside* of the claimed coverage areas
- "community location register"
- "computer readable medium"
- Lemko failed to Show Any Evidence of Secondary Considerations of Non-Obviousness
- Lemko failed to rebut Petitioners' sufficient rationales to combine Mauer and Waylett
- Procedural Dispute
  - Petitioner's argument that Patent Owner's Exhibit (Ex. 1020) discloses a NIB using a "distributed architecture" is not untimely

Microsoft - Exhibit 1015
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Petition explains that the DPR in the Mauer/Waylett combination includes information pertaining to a voicemail server

when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex. 1001, Claim 1

when the second mobile subscriber is not located within any of the first wireless coverage area, the second wireless coverage area, and the third wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex. 1001, Claim 8

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11

DPR stores the preferred call path used to used to route the call outside of the DMA network

120. Based on the above disclosures, a POSA would have understood that the "alternate communication option," such as voicemail server 66, serves as "*a preferred call path to route the call*." Such a person would have recognized that voicemail server 66 (shown with a red box) would be outside the two DMA networks of Mauer, as modified:

122. It is my opinion that it would have been obvious for a POSA to modify Mauer to store information used to "*route the call outside of the DMA network*" in "*a destination preference register (DPR)*" that is "*stored at the first DMA system.*" Mauer does not expressly disclose using "*information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.*" But a POSA would have understood that this feature would have been obvious. As I explained above, Mauer discloses performing the claimed determination: determining "*when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area*" and "*determining a preferred call path to route the call outside of the DMA network.*"

Proctor Decl., ¶¶ 120, 122

Pet at 36-40, see also *id.* at 39, 40

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The "DPR" limitation in claims 1 and 8

when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

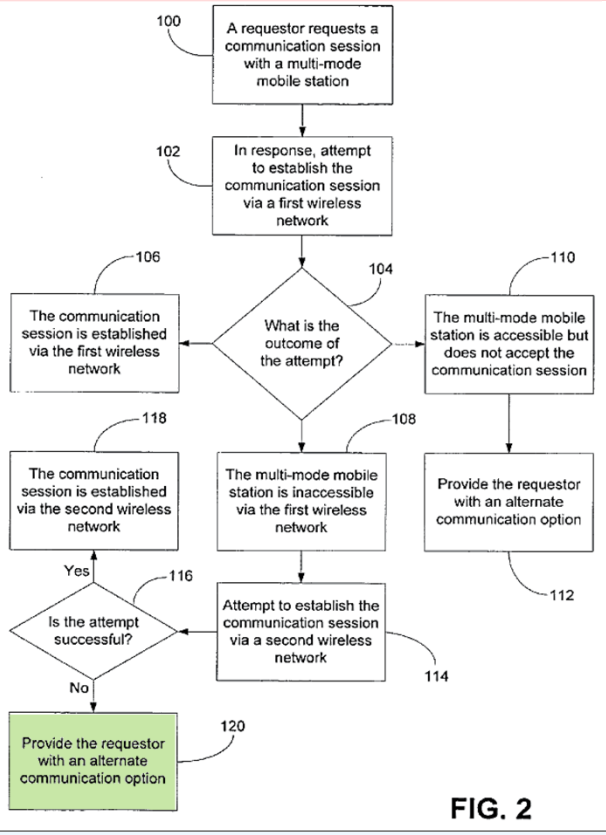
Ex. 1001, Claim 1

when the second mobile subscriber is not located within any of the first wireless coverage area, the second wireless coverage area, and the third wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex. 1001, Claim 8

DPR stores the preferred call path used to used to route the call outside of the DMA network

Performed by softswitch



Ex. 1005, Fig. 2; Pet at 38

Pet. at 37-39; Pet Reply at 10-18

Microsoft - Exhibit 1015
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The "DPR" limitation in claim 11

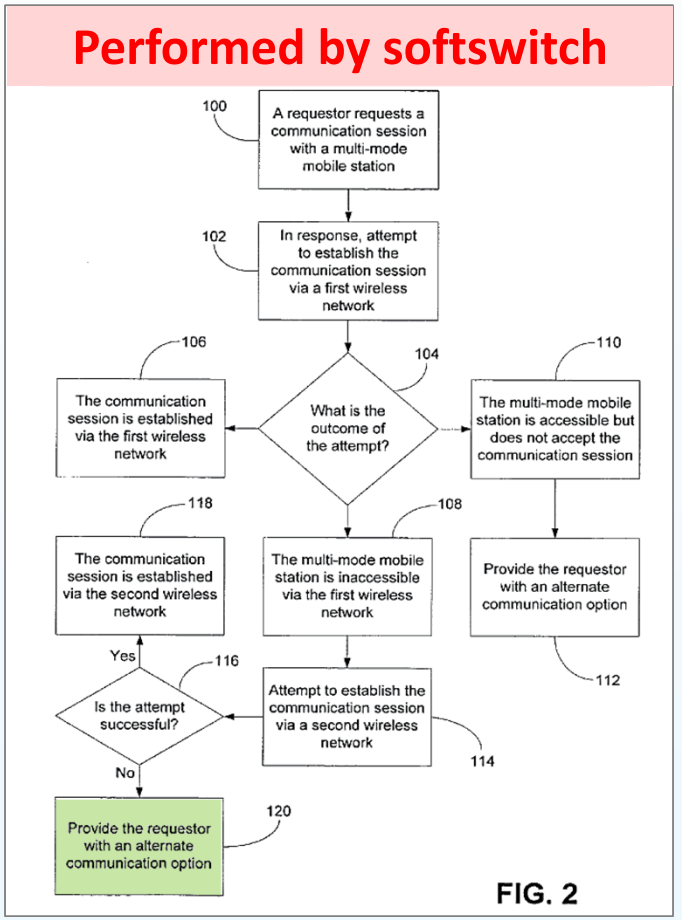
a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

a call routing component embedded within the computer readable storage medium, the call routing component comprising processor executable instructions to route the call via a particular preferred call path of the one or more preferred call paths stored at the DPR when the AAA module determines that the call is directed to a destination device that is outside of the DMA network.

Ex. 1001, Claim 11

DPR stores the preferred call path used to used to route the call outside of the DMA network

Performed by softswitch



Ex. 1005, Fig. 2; Pet at 38

Pet. at 37-39; Pet Reply at 10-18

Microsoft - Exhibit 1015
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Softswitch in the Mauer/Waylett combination uses SIP (a P2P protocol)

Third, another promising area is the CDMA and GSM networks' upgrade paths to the future mobile 802.16e specification. One of the vendors recently acquired by Alvarion, interWave, offers a similar solution, "network-in-a-box," which collapses the functionality of all three — a softswitch, base station controller, and mobile switching center elements — into a single rack for GSM applications. This provides a turnkey solution for carriers, and will be valuable in markets in which budgets are tight, especially rural or developing regions where populations may be sparse and carriers small.

Ex. 1018 at 4; Pet at 15

For example, if the first wireless network is a WLAN, the first notification message might be a Session Initiation Protocol (SIP) Invite message.

Ex. 1005, 3:59-61; Pet at 44

Session Initiation Protocol (SIP) is an Internet Engineering Task Force (IETF) peer-to-peer, signaling protocol.

Ex. 1015, 1:17-20; Pet at 44

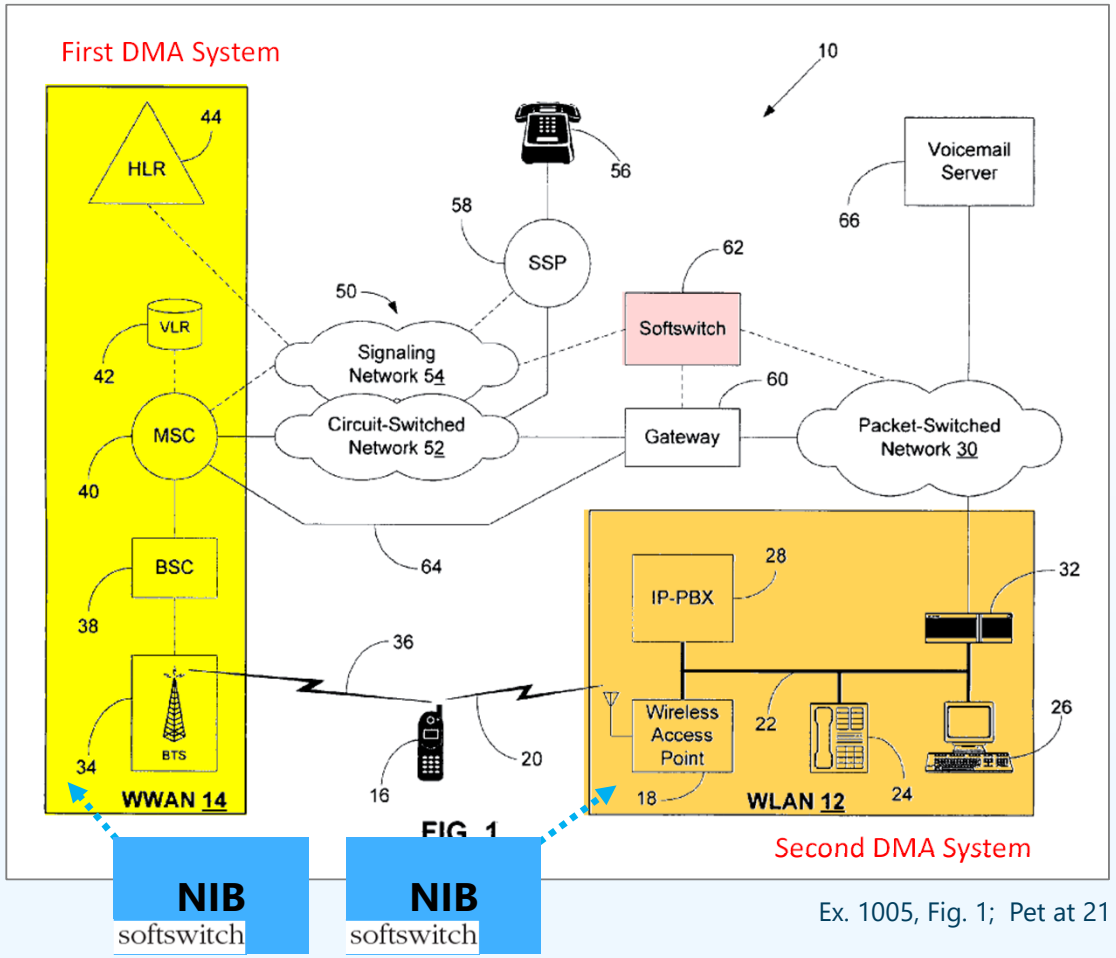


FIG. 1

Ex. 1005, Fig. 1; Pet at 21

Pet at 15, 44, 21

Microsoft - Exhibit 1015
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Petition sufficiently explains why the Mauer/Waylett combination would use information stored in a DPR at a DMA system

Mr. Proctor provides four reasons why a POSA would be motivated to store information pertaining to Mauer's voicemail server in a DPR at a DMA server:

1) Information about the voicemail server would be the type of information needed to be shared across multiple DMA systems in case any DMA failed (i.e., provide redundancy);

2) Storing the address of voicemail server in each DMA server would be consistent with the GSM standard in both Mauer and Waylett;

3) Waylett discloses storing *similar* types of information in registers, such as a VLR, pVLR, and pHLR. Thus, storing address information of Mauer's voicemail server would have been obvious to a POSA; and

4) It would include using a known element (i.e., a register) to perform the same function (i.e., storing contact information for another device) and yielding expected results (i.e., capability of accessing that information for use to communicate with the voicemail server)

Proctor Decl., ¶¶ 125-128

Pet at 41-42

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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
- "destination preference register"
- Voicemail server is located *outside* the DMA network
- No requirement that the claimed preferred call path is destined for the "second mobile subscriber"
- An inaccessible mobile subscriber is *outside* of the claimed coverage areas
- "community location register"
- "computer readable medium"
- Lemko failed to Show Any Evidence of Secondary Considerations of Non-Obviousness
- Lemko failed to rebut Petitioners' sufficient rationales to combine Mauer and Waylett
- Procedural Dispute
  - Petitioner's argument that Patent Owner's Exhibit (Ex. 1020) discloses a NIB using a "distributed architecture" is not untimely

Microsoft - Exhibit 1015
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Petition explains that voicemail server 66 is external to the WWAN 14 and WLAN 12

Mauer and Waylett render this limitation obvious. EX 1003, ¶¶ 130-131. Mauer teaches that if the multi-mode mobile station is found to be "inaccessible" via the first or second wireless network (the "first" and "second wireless coverage area[s]"), "then the requestor may be provided with an … option … to leave a voice message on a voicemail system, e.g., voicemail server 66." EX 1005, 10:17–20, 10:54-61; *see also* Figure 2. Mauer also discloses "establish[ing] a call to voicemail server," which is "*the preferred call path*." EX 1005, 8:33-34; Fig. 1. Further, Mauer's Figure 1 shows that voicemail server 66 is external to its WWAN 14 and WLAN 12 (*i.e.*, "*outside of the DMA network*"); *see id.* A POSITA would therefore have understood that Mauer discloses "*routing the call outside of the DMA network via the preferred call path*." EX 1003, ¶ 131. Accordingly, a POSITA would have recognized that the voicemail server would be the "*preferred call path*" for "*routing the call outside of the DMA network*" whenever "*the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area.*" *Id.*, ¶¶ 130-131.

Pet at 43

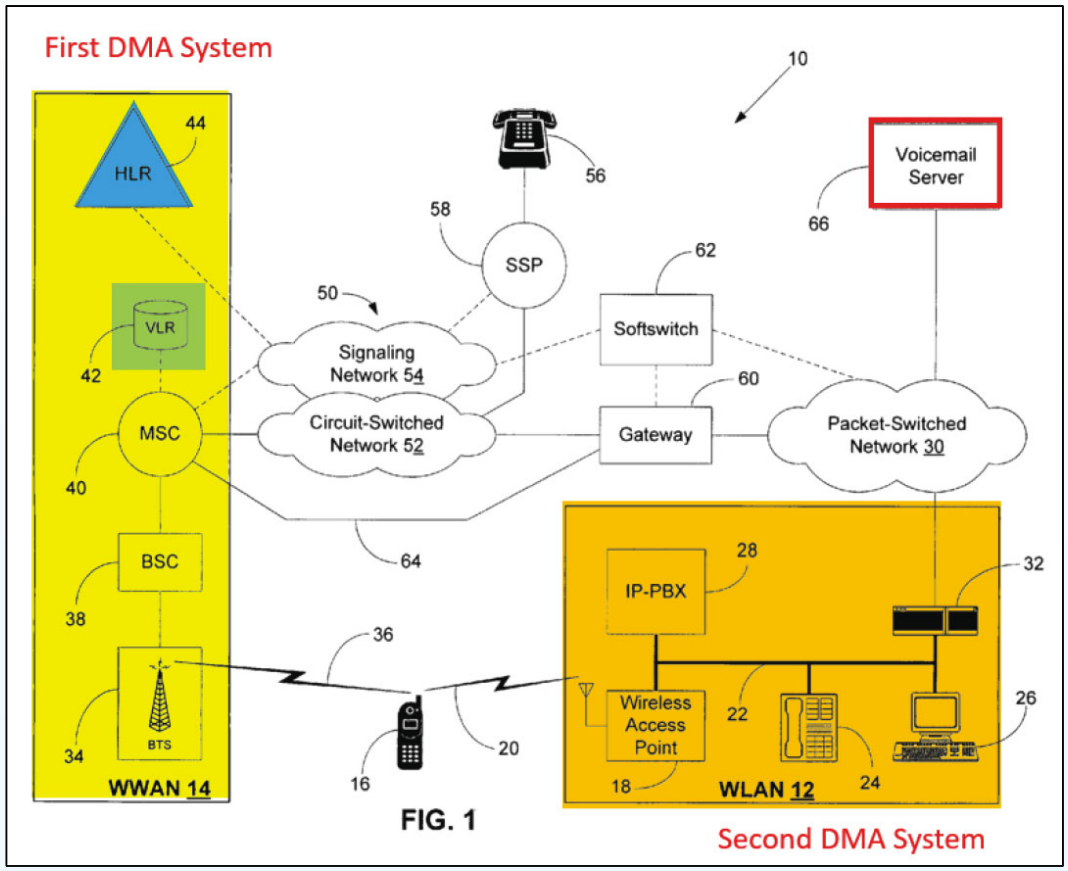


FIG. 1

Proctor Decl., Fig. 1 at ¶ 120

Pet at 43, 39

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Resulting combination renders obvious that the voicemail server is external to the claimed DMA network

- Mr. Proctor explained that Mauer's voicemail server 66 is *external* to the claimed DMA network

120. Based on the above disclosures, a POSA would have understood that the "alternate communication option," such as voicemail server 66, serves as "*a preferred call path to route the call.*" Such a person would have recognized that voicemail server 66 (shown with a red box) would be outside the two DMA networks of Mauer, as modified:

Proctor Decl., ¶ 120

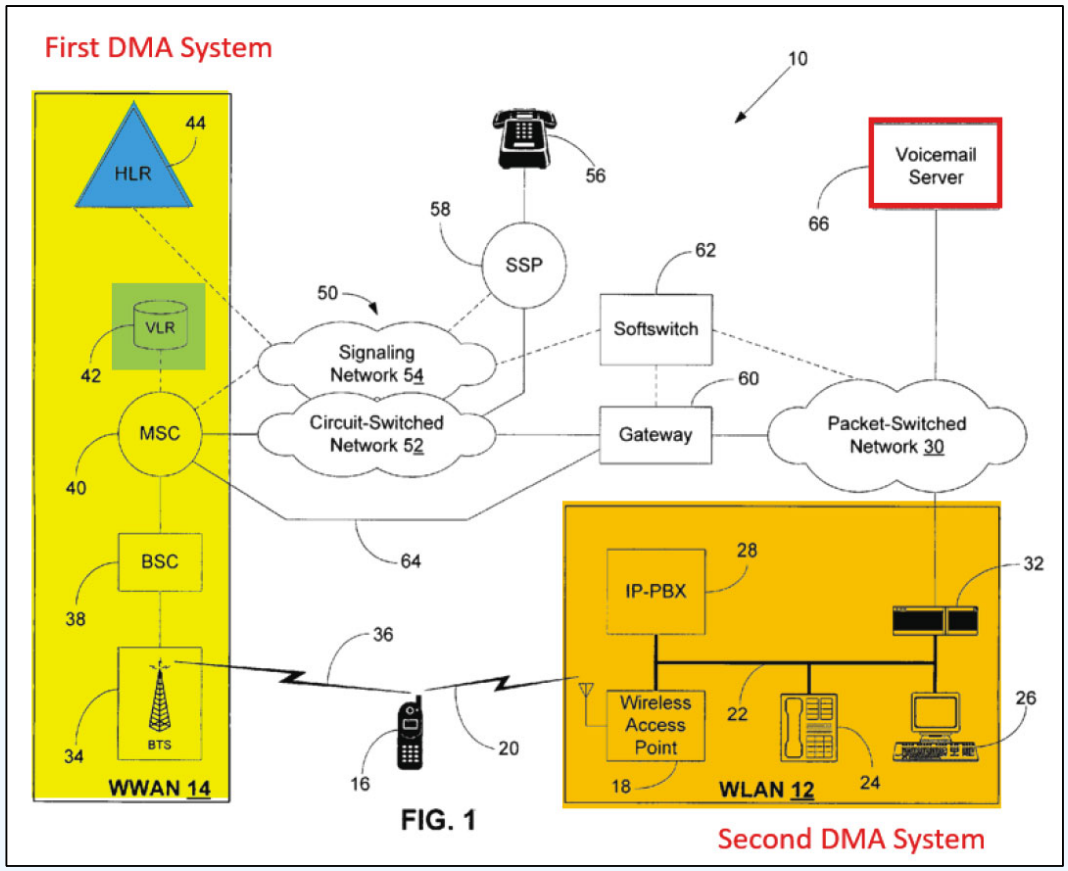


FIG. 1

Proctor Decl., Fig. 1 at ¶ 120

Pet at 39

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Microsoft - Exhibit 1015
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MSFT's expert Mr. Proctor confirmed that the voicemail server is located outside of the DMA network in Mauer/Waylett architecture

Ex. 2026, 68:8-18

Q So the network connectivity between them meaning signaling network 54, circuit-switched network 52, softswitched 62, gateway 60, packet-switched network 30, voicemail server 66, is it everything except for the telephone or which elements are not part of the DMA network in your opinion?

MR. RUECKHEIM: Object to the form.

A Well, I don't think the voicemail server would be part of the DMA network. That would be external to it.

Pet Reply at 13

Microsoft - Exhibit 1015
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Mr. Proctor confirmed that the voicemail server is located outside of the DMA network in Mauer/Waylett architecture

Ex. 2026, 114:6-115:11

Q And what is your position on what the call is that is routed outside of the DMA network?

A So Mauer discloses that associated with Figure 2 that if the attempt to establish the communication session via the second wireless network is not successful to provide the requester with an alternative communication option 120. And in paragraph 119 I explain that Mauer discloses, it could, for example, allow the requester to leave a voice message on a voicemail system, voicemail server 66 to send a message to a multi-mobile station as an instant messenger SMS or other type -- types of alternative communications could also be provided. And as I discussed earlier, voicemail server 66 is not part of the DMA network, because not everything in Figure 1 is part of the DMA network as one of ordinary skill in the art would recognize mobile device 16 and fixed telephone 56 are also not part of the DMA network. And voicemail server is not – voicemail server 66 is not part of the DMAs or the intervening network.

Pet Reply at 13

Microsoft - Exhibit 1015
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Lemko's challenges to the Petition's DPR mappings are meritless

- Lemko attacks Mauer individually rather than the Mauer/Waylett combination that includes the voicemail server outside the DMA network.

***Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1049-1051 (Fed. Cir. 2019)**

"The question here is whether the combination of [prior art references] Reddy and Hornbacker discloses this limitation."

Pet Reply at 10

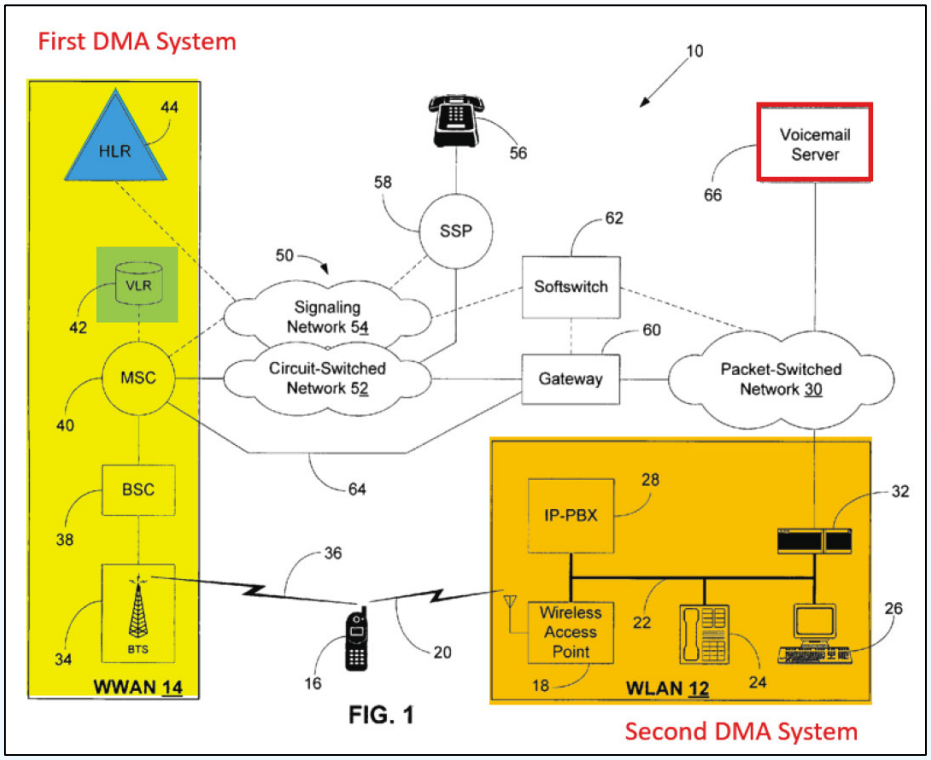
Microsoft - Exhibit 1015
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Lemko's challenges to the Petition's DPR mappings are meritless

- Dr. Cooklev admits that the voicemail server 66 is external

Q. Okay. I think you are saying the WLAN 12 is formed by this component wireless access point 18, and the other components that are identified in this box that surrounds wireless access point 18, parts 22, 24, 28, 32, and 26?

A. Well, 18, of course. But I think the wireless local area network in Figure 18 is between the phone 16 and the access point 18. Those two devices are the only two devices that have a wireless local area networking capability that are shown.



Proctor Decl., Fig. 1 at ¶ 120

Pet Reply at 14

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
- "destination preference register"
- Voicemail server is located *outside* the DMA network
- No requirement that the claimed preferred call path is destined for the "second mobile subscriber"
- An inaccessible mobile subscriber is *outside* of the claimed coverage areas
- "community location register"
- "computer readable medium"
- Lemko failed to Show Any Evidence of Secondary Considerations of Non-Obviousness
- Lemko failed to rebut Petitioners' sufficient rationales to combine Mauer and Waylett
- Procedural Dispute
  - Petitioner's argument that Patent Owner's Exhibit (Ex. 1020) discloses a NIB using a "distributed architecture" is not untimely

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The "preferred call path outside of the DMA network" limitation in claims 1, 8, and 11

when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex. 1001, Claim 1

when the second mobile subscriber is not located within any of the first wireless coverage area, the second wireless coverage area, and the third wireless coverage area, determining a preferred call path to route the call outside of the DMA network based on information stored at a destination preference register (DPR), wherein the DPR is stored at the first DMA system.

Ex. 1001, Claim 8

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11

Preferred Call Path Outside of the DMA network

The challenged claims do not require that the "preferred call path to route the call outside of the DMA network" is destined for the "*second mobile subscriber*."

Pet Reply at 15

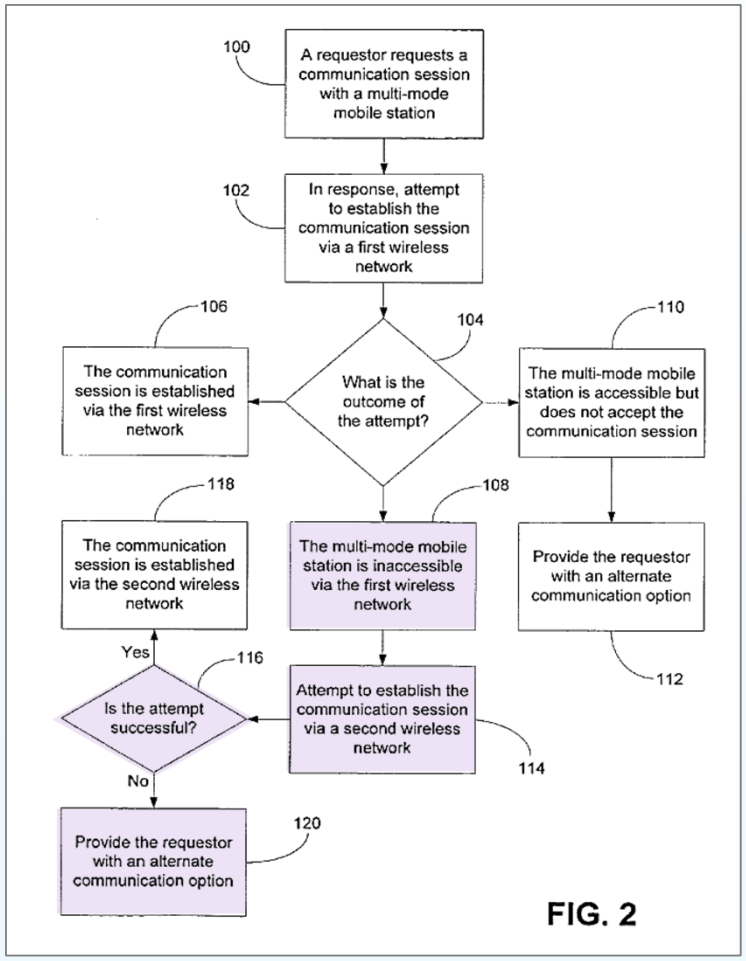
Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

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Microsoft - Exhibit 1015
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When "the mobile subscriber is not located within the first [and second] wireless coverage area[s]"



- A mobile subscriber that is inaccessible is *outside* of the coverage areas (e.g., WWAN 14 and WLAN 12)
- A communication session with the voicemail server 66 would be established whenever a mobile device is inaccessible

Pet at 38-39, see *id.*at 32-33

Ex. 1005, Fig. 2; Pet at 38

Microsoft - Exhibit 1015
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When "the mobile subscriber is not located within the first [and second] wireless coverage area[s]"

- A mobile subscriber that is inaccessible is *outside* of the coverage areas (e.g., WWAN 14 and WLAN 12)
- A communication session with the voicemail server 66 would be established whenever a mobile device is inaccessible

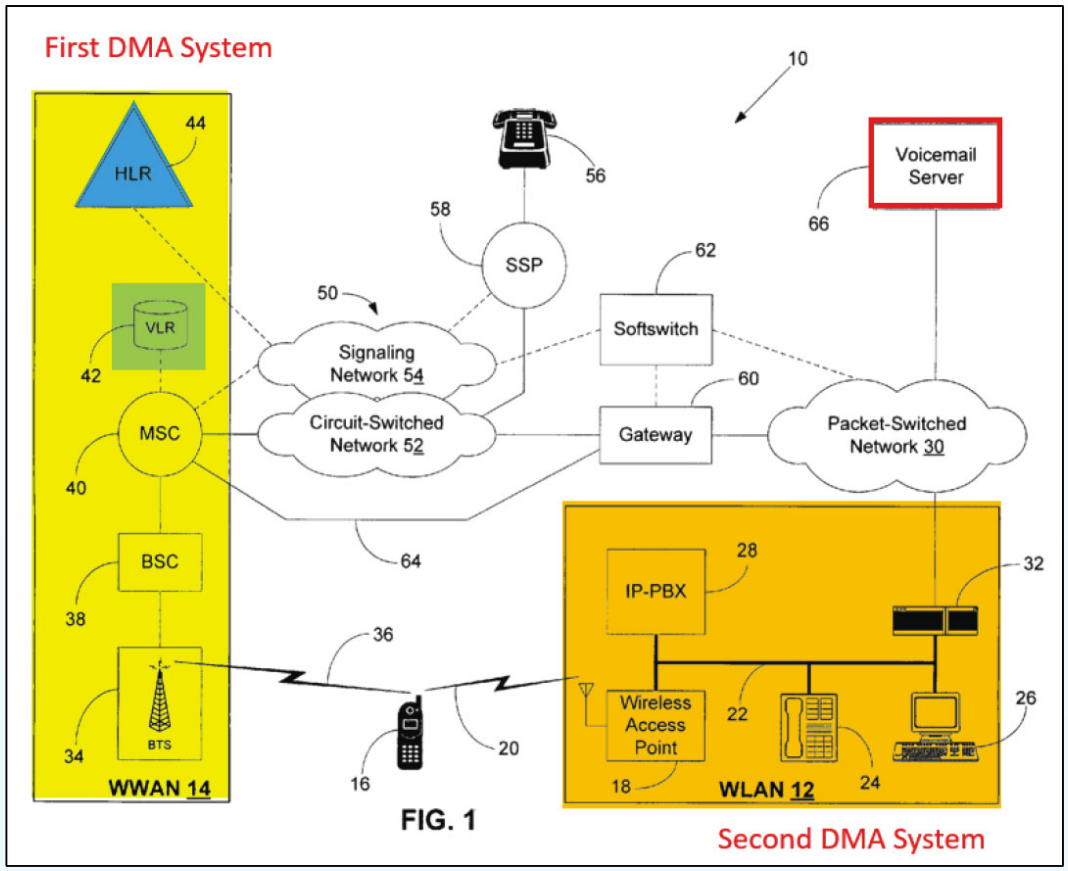


FIG. 1

Proctor Decl., Fig. 1 at ¶ 120

Pet at 38-39, see *id.*at 32-33

When "the mobile subscriber is not located within the first [and second] wireless coverage area[s]"

121. Such a person would have further understood that a communication session with the voicemail server 66 would be established whenever a mobile device is inaccessible to both WWAN 14 and WLAN 12, (*see* Ex. 1005, 9:32–55), as well as another WWAN when Mauer is modified above, *see* § V.C(1)c. Accordingly, a POSA would have recognized that the voicemail server would be the "*preferred call path to route the call outside of the DMA network*" whenever "*the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area.*"

Proctor Decl., ¶121

Pet at 39-40

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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
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Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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The "CLR" limitation in claims 1, 8, and 11

when the second mobile subscriber is not located within the first wireless coverage area, determining whether the second mobile subscriber is located within a second wireless coverage area of the DMA network that is associated with the second DMA system based on information stored at a community location register (CLR) associated with the second DMA system, wherein the CLR associated with the second DMA system is stored at the first DMA system; and

Ex. 1001, Claim 1

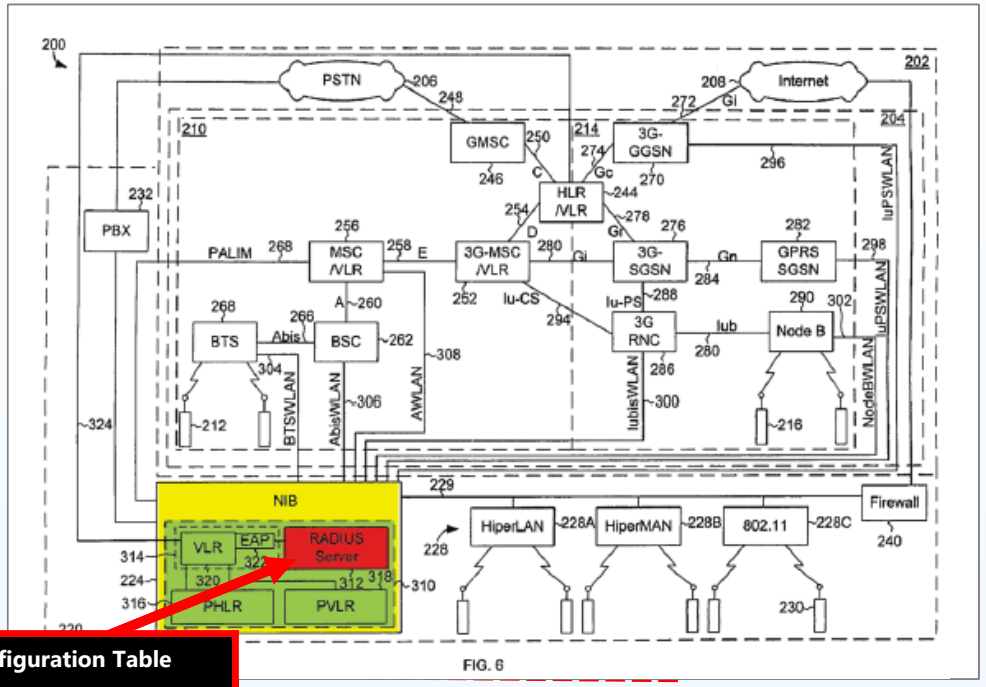
when the second mobile subscriber is not located within the first wireless coverage area and is not located within the second wireless coverage area, determining whether the second mobile subscriber is located within a third wireless coverage area of the DMA network that is associated with the third DMA system based on information stored at a CLR associated with the third DMA system, wherein the CLR associated with the third DMA system is stored at the first DMA system; and

Ex. 1001, Claim 8

a community location register (CLR) that stores information associated with a second HLR of a second DMA system, wherein the second HLR stores information associated with one or more mobile subscriber devices that are registered with the second DMA system; and

Ex. 1001, Claim 11

CLR



Ex. 1006, Fig. 6; ¶190 of Proctor Decl.

Waylett's Configuration Table	
IMSI for Subscriber 1	HLR for Subscriber 1
IMSI for Subscriber 2	HLR for Subscriber 2
IMSI for Subscriber 3	HLR for Subscriber 3

Pet at 66

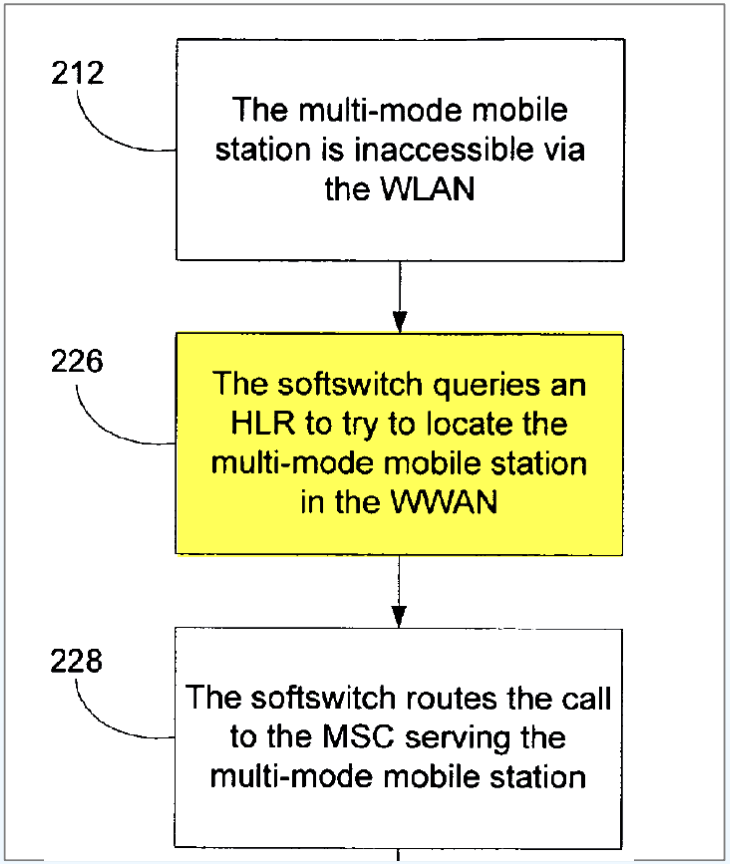
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Microsoft - Exhibit 1015
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Mauer's HLR is used to locate a mobile station in a coverage area

FIG. **5** illustrates the continuation of the process of FIG. **3**, for the case that multi-mode mobile station **16** is inaccessible via WLAN **12**, as indicated by block **212**. Having found that multi-mode mobile **16** is not accessible by WLAN **12**, soft-switch **62** may try to locate multi-mode mobile station **16** in WWAN **14** by querying HLR **44**, as indicated by block **226**. Softswitch **62** may also cancel the SIP INVITE, e.g., by transmitting a SIP CANCEL message to the last known address of multi-mode mobile station **16**.

Ex. 1005, 13:4-12



Ex. 1005, Fig. 5

Pet. Reply at 20-21

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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

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- Procedural Dispute
  - Petitioner's argument that Patent Owner's Exhibit (Ex. 1020) discloses a NIB using a "distributed architecture" is not untimely

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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The "computer readable medium" in claim 11

a computer readable storage medium within the housing, the computer readable storage medium comprising:

Ex. 1001, Claim 1

Communications, of Menlo Park, Calif. Generally, the CBTS **114** includes within a single enclosure **136**: (i) a power supply **138**; (ii) a number of plug-in-modules or cards **140**, including a number of radio frequency (RF) transceivers for communicating with the RTSs **118**; (iii) an RF combiner **142** for combining signals to and/or from the multiple transceivers; (iv) an RF power amplifier **144** for amplifying received and/or transmitted signals; and (v) an antenna **146**. Preferably, the cards **140** include at least one GSM/GPRS transceiver **148** capable of providing data communication between the public network **108** and the UEs **104** using GSM standard or technology. More preferably, the cards **140** also include at least one WLAN transceiver **150** capable of capable of providing data communication to the UEs **104** using an open standard protocol, such as the HIgh Performance Local Area Network (HiperLAN/1) standard, the HiperLAN/2 standard, or an Institute of Electrical and Electronics Engineers 802.11 (IEEE 802.11) standard.

Ex. 1006, 8:10-27

Pet at 61

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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The "computer readable medium" in claim 11

a computer readable storage medium within the housing, the computer readable storage medium comprising:

Ex. 1001, Claim 1

In one version of this embodiment, the identity module **238** includes subscriber identification and security information stored in a memory system (not shown) coupled to the NIB **224**.

Ex. 1006, 8:10-27

and security information. Ex. 1006, 10:45-48. Moreover, a POSA would have understood that processors necessarily include a "*computer readable storage medium*" to store the instructions operable on the processors. Accordingly, such a person would have understood that including a "*computer readable storage medium*" in the housing would be inherent.

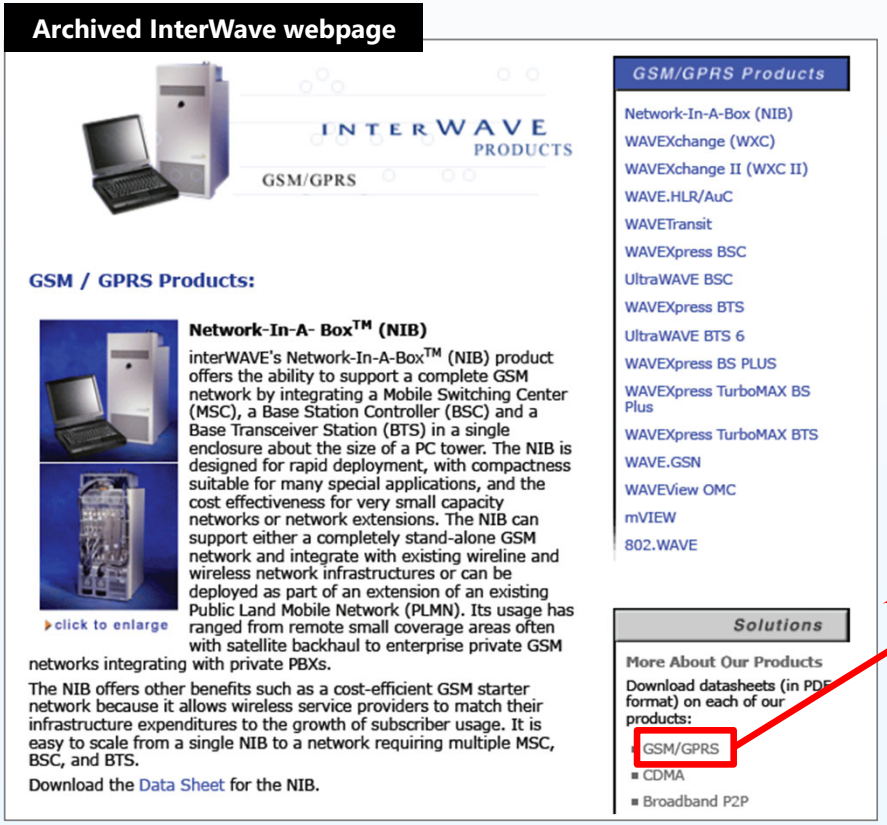
¶177 of Proctor Decl.

Pet at 61

Microsoft - Exhibit 1015
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Petitioners' Ex 1020 shows Waylett's NIB is implemented using a "software configuration"

Archived InterWave webpage



PO's Exhibit (Ex. 2012)

Linked Webpage

Another Archived InterWave webpage



Petitioner's Exhibit (Ex. 1020)

Pet Reply at 22,; see also Pet Reply at 6, fn 1

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Petitioners' Ex. 1020 is Extrinsic Evidence of Inherency

***Hospira, Inc. v. Fresenius Kabi USA, LLC*, 946 F.3d 1322, 1329 (Fed. Cir. 2020)**

"Extrinsic evidence can be used to demonstrate what is 'necessarily present' in a prior art embodiment even if the extrinsic evidence is not itself prior art."

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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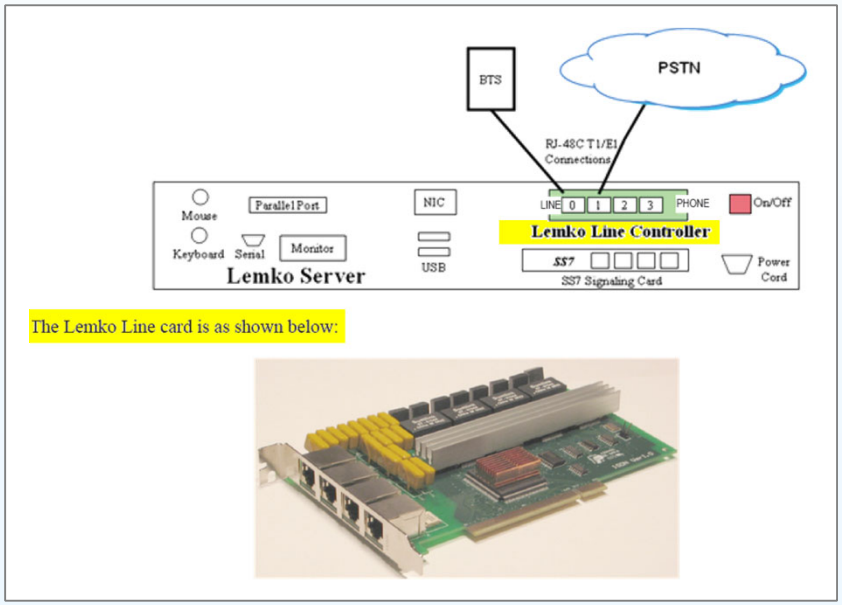
Lemko's rebuttals in its POR and Sur-reply

- Lemko does not appear to contest that Waylett discloses MSC, BSC, or CDR functionality but only that Waylett's implementation uses network cards, which are not a "computer readable medium."
  - Mr. Proctor explains that network (module) cards include both processors and locally stored instructions to operate such processors.
  - Lemko's own evidence of Node1 product that allegedly practices the invention makes use of network cards

5.1.2 **Lemko Line Controller Card, LLC**

The Lemko Line Controller Card is required to provide the BTS communications interface. Only 1 port is required for the Abis interface to the base station. The remaining ports can be used for terminating ISDN/PRI or ISUP bearer trunks on the Node1.

Ex. 2037 at 183



Ex. 2037 at 425

Pet Reply at 22

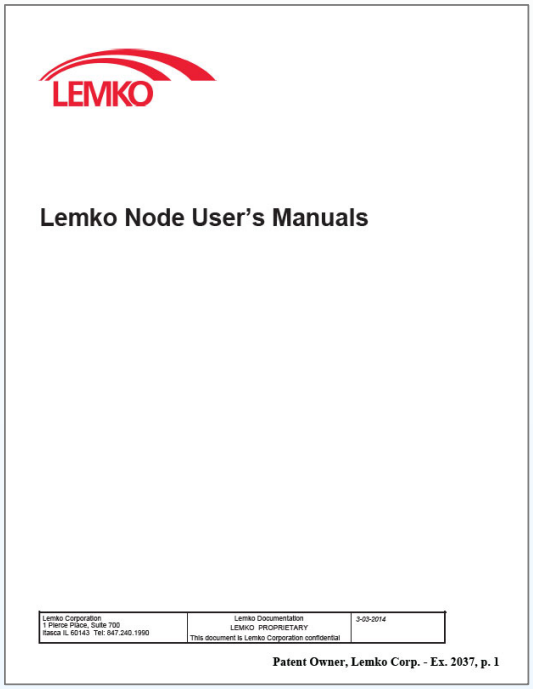
Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
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Microsoft - Exhibit 1015
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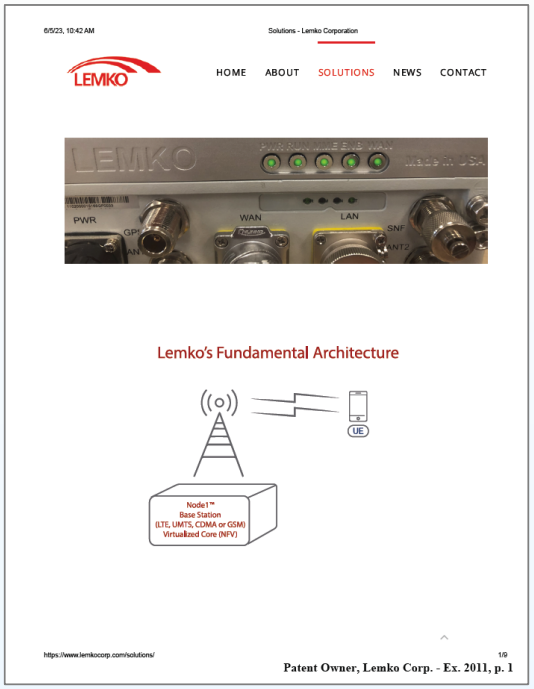
Lemko's evidence of secondary considerations lacks requisite nexus



Ex. 2037 at 1

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11



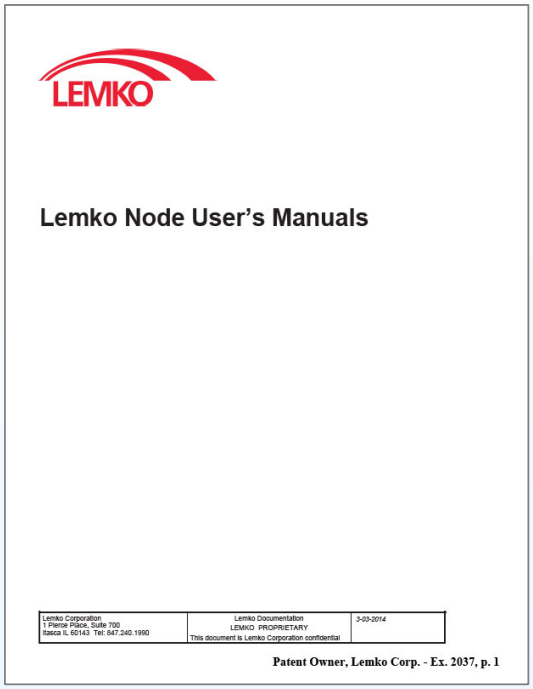
Ex. 2011 at 1

No disclosure of Destination Preference Register

Pet Reply at 23

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Lemko's evidence of secondary considerations lacks requisite nexus



Ex. 2037 at 1

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11

2.5 Mobility Management Database Operations

For self-contained Node1 networks, all the functionality of inter-system IS-41 and GSM MAP messaging is used to interconnect and provide full inter-Node1 communication over IP. A single Node1, or network of Node1s can serve as an MSC with complete MSC functionality distributed across all the Node1s in the wireless network. The functional elements that are supported by the Lemko cellular network and the cellular protocol suite include the following subscriber data functional components:

- Home Location Register - HLR
- Visitor Location Register - VLR
- Community Location Register - CLR

Ex. 2037 at 508

No disclosure of Destination Preference Register

Pet Reply at 23

Microsoft - Exhibit 1015
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Lemko's evidence of secondary considerations lacks requisite nexus

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11

Ex. 1022 at 80:3-21

Q. Okay. For the documents that you are alleging show that Lemko had a product that practiced the challenge claims, I have not seen any reference to a DPR or choosing a preferred call path where the user is not within certain wireless areas. And can you show me where you have identified those claim limitations in your report with respect to these user manuals?
A. A DPR, and what was the second?
Q. The claim limitations that require a preferred call path when the -- when the call -- well, just finding a preferred call path, that claim limitation, as a DPR.
MR. PRICE: Objection; form. Objection; foundation.
THE WITNESS: I did not -- I did not do a detailed mapping between the claims and this Lemko product to be able to give you an informed opinion right now.

Lemko's expert did not perform requisite analysis

Pet Reply at 24

Microsoft - Exhibit 1015
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Inventor's testimony cannot fix Lemko's nexus problem

a destination preference register (DPR) that stores one or more preferred call paths for calls to be routed outside of a DMA network that is accessible to the DMA system, wherein the DMA network includes at least the first DMA system and the second DMA system,

Ex. 1001, Claim 11

20. Lemko's Node1 includes functionality for specifying a preferred hierarchy of available interfaces to make calls external to the DMA network, corresponding to the destination preference register ("DPR") limitations of the Challenged Claims. Exhibit 2038 is an example of the DPR from commercially deployed Lemko's Node1s. It shows specified routes for different types of calls.

Ex. 2023 at ¶20

Pet Reply at 24

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Lemko's Node1 refers to its 3G Node1 product, while its secondary considerations evidence refers to its 4G Node1 product

Release 6.0

Lemko
Node1 Technical Description

The Lemko Node1 system is a compact packaging of the primary components of a cellular system. The Lemko Node1 system consists of the software functionality of a traditional MSC and SMS Service Center tightly coupled with a cellular Base Transceiver Station (BTS). The Node1 architecture leverages traditional circuit switched and IP based networks to provide a system architecture that efficiently utilizes current and emerging technologies. The Lemko Node1 offers a solution that supports the integration of circuit switched cellular network components with IP based networks as well as the wireless CDMA, GSM and UMTS technologies. ← **3G Technology**

The Node1 will provide full call processing control for cellular call originations and terminations. The Node1 supports both CDMA and GSM technologies. Access to the public network for roaming support as well as SS7 trunking requires the addition of a signaling gateway, the Lemko Node2. A simple Node1 network configuration is as shown below.

Ex. 2037 at 493

Lemko Corporation 1700 E. Golf Road Schaumburg IL 60173. Tel: 847.240.1990	Document Name: Release 6.0 Technical Description	04-04-2011
LEMKO PROPRIETARY This document is Lemko Corporation confidential		Rev: 06 / Page 1 of 40

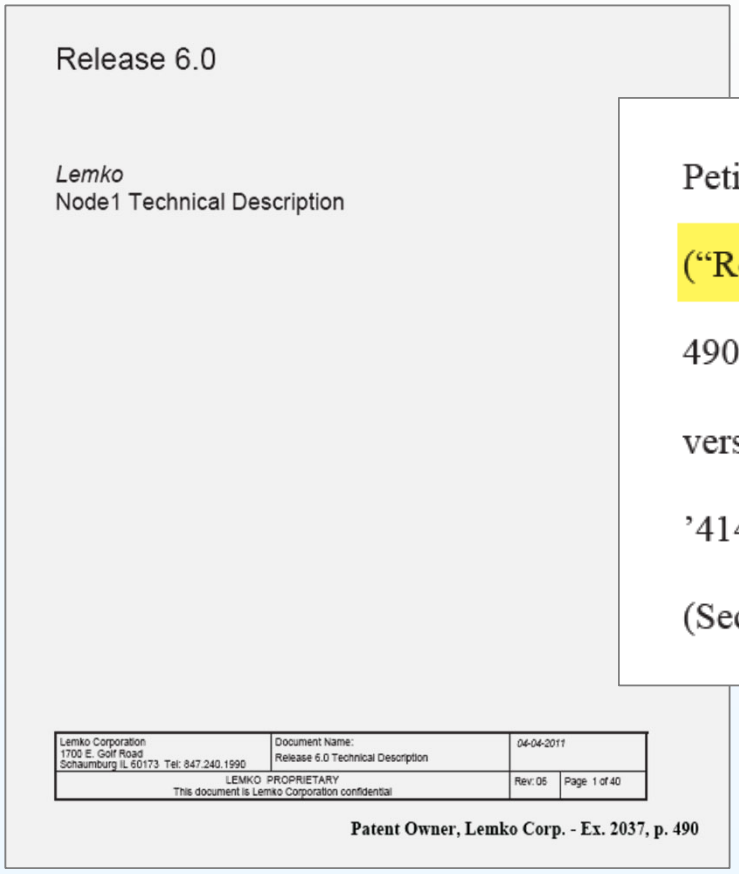
Patent Owner, Lemko Corp. - Ex. 2037, p. 490

Ex. 2037 at 490

Pet Reply at 25

Microsoft - Exhibit 1015
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Lemko admits Evidence of Secondary Consideration from its Analysis uses "earlier version" of user guide


Release 6.0

Lemko
Node1 Technical Description

Lemko Corporation 1700 E. Golf Road Schaumburg IL 60173 Tel: 847.240.1990	Document Name: Release 6.0 Technical Description	04-04-2011
LEMKO PROPRIETARY This document is Lemko Corporation confidential	Rev: 05	Page 1 of 40

Patent Owner, Lemko Corp. - Ex. 2037, p. 490

Ex. 2037 at 490

Petitioners ignore these disclosures and mistakenly refer to an earlier version ("Release 6.0") of the user guide found later in the omnibus document. Ex. 2037, 490. But even this older documentation shows that the Node1 product, in continuous versions 6.0 and 7.0 of the product, had CLR controlling logic that embodied the '414 Patent. *Compare* Ex. 2037, 52-53 (Section "3.7 CLR Overview") *with* 509 (Section "2.5.3 Community Location Register, CLR").

PO Sur-Reply at 29

Pet Reply at 25

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Lemko failed to rebut Petitioners' sufficient rationales to combine Mauer and Waylett

Petition provides three reasons why a POSITA would have combined Mauer and Waylett to arrive at the challenged claims:

1) the references each provide reasoning to make such a combination, such as Waylett's explanation that its NIB provides an inexpensive solution;
2) the combination would improve Mauer's distributed wireless network system by consolidating it into a single box, making it compact in design allowing for faster deployment; and
3) Waylett's NIB would help mitigate the shared concern of Mauer—that is, reaching a mobile station as it roams or moves outside of the service or coverage area.

Pet. at 15-16

Pet. at 15-16

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

- "DMA" Terms: "DMA system" and "DMA network"
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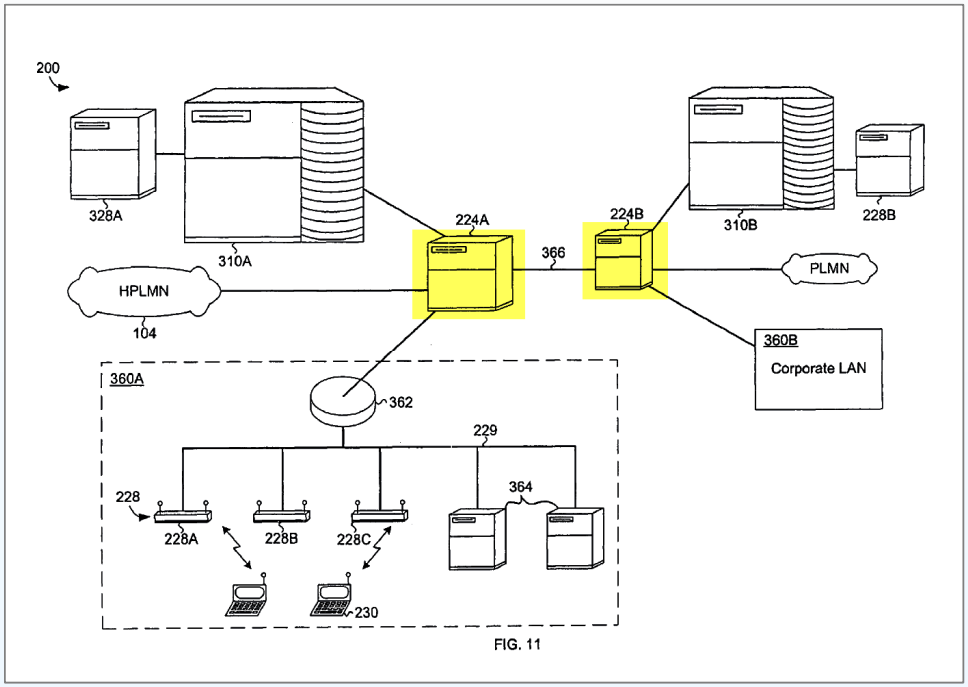
Patent Owner's Arguments Cannot be Reconciled with Waylett's Teachings about using multiple NIBs together in a network

FIG. **11** is a block diagram of an alternative embodiment of the communication system of FIG. **10**, having a number of RADIUS systems **310**A, **310**B or private HLRs and authentication servers **328**A, **328**B, and NIBs **224**A, **224**B, linked by a PWAN **366** for distributing HLR registration and authentication loads.

EX-1006, 17:7-12

Accordingly, there is a need for an inexpensive communication system and method of operating the same, that are capable of providing voice and high speed data communication to users in communities hitherto un-served or under served by conventional communication systems. There is a further need for a communication system and method of operating the same that can be quickly and inexpensively scaled up to provide service to increasing numbers of users.

Ex. 1006, 2:3-11; ¶68 of Proctor Decl.



EX-1006 at Fig. 11

Pet. Reply at 11-12

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Exhibit 1020 is proper reply evidence

- Petitioner's Exhibit (Ex. 1020) linked to Lemko's own exhibit (Ex. 2012) is proper reply evidence and not untimely

***Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 706-707 (Fed. Cir. 2020) (internal quotes omitted).**

As we have regularly held, the petitioner in an inter partes review proceeding may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner.

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Case No. IPR2023-00529 Disputes ('414 patent) Roadmap

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CASE NO. IPR2023-00531 DISPUTES ('988 PATENT)

IPR2023-00531 (U.S. Pat. No. 7,855,988)
Challenged Claims and Grounds

Claims	Basis	Reference
1, 3-9, and 20	Pre-AIA 35 USC §102	Flore

Paper 8 (institution decision) at 7

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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IPR2023-00531 (U.S. Pat. No. 7,855,988) Roadmap

- **"DMA gateway communications network"**
- "communications information for a communications network accessible by a second DMA gateway"
- "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network"
- "storing the communications information in a home DMA register of the first DMA gateway"
- Dependent Claims

Microsoft - Exhibit 1015
Microsoft v. Lemko- IPR2023-00531
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Flore discloses "DMA gateway," "DMA gateway communications network," and "home DMA register"

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

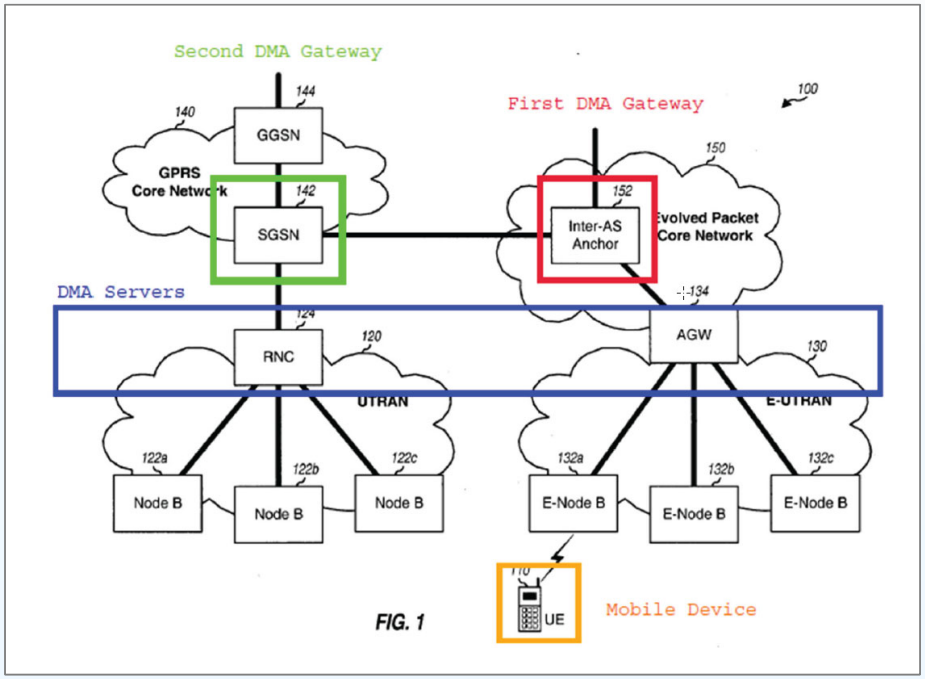
Ex.1001, claim 1

Inter-AS Anchor **152** communicates with SGSN **142** via the Gn interface and emulates (or appears as) another SGSN to SGSN **142**. This emulation allows SGSN **142** to treat the inter-system handover as an inter-SGSN handover, which is handover of a UE from one SGSN to another SGSN in the UTRAN.

Ex. 1005 at [0040] (cited, e.g., Pet at 12)

Thus a POSA would have understood that the SGSN (second DMA gateway) and Inter-AS Anchor 152 (first DMA gateway) **participate in a DMA gateway communications network.**

¶92 of Proctor Decl.



Ex. 1005, Fig. 1 (annotated); ¶81 of Proctor Decl.

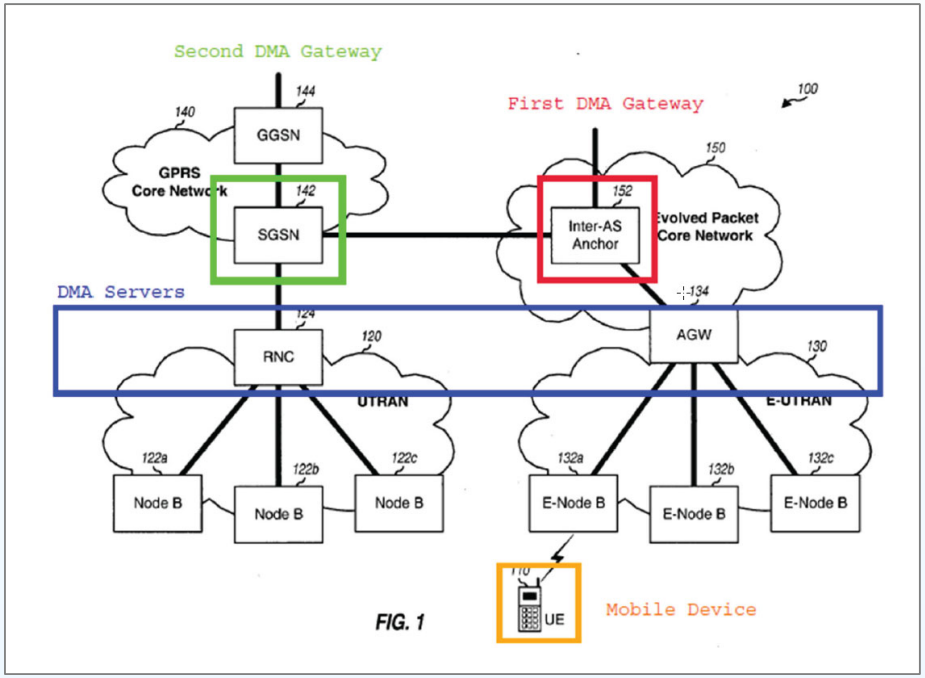
Pet at 10, 12, 14, 22; *see id.* 11-18

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Lemko falsely accuses Petitioners of "shifting their analysis"

[2] By shifting their analysis from the "RNC and AWG" to "one or more Node Bs" in Flore, Petitioners fails to "provide an understandable explanation of the element-by-element specifics of its unpatentability contentions, identifying supporting disclosures from the asserted prior art." *Nichia Corp. v. Document Sec. Sys., Inc.*, No. 2020-2261, 2022 WL 1218036, at *4 (Fed. Cir. Apr. 26, 2022) (the challenger "must provide an understandable explanation of the element-by-element specifics of its unpatentability contentions, identifying supporting disclosures from the asserted prior art.") (citing 35 U.S.C. § 312(a)(3)). This is an independent basis to reject Petitioners' ground.

POR at 33, fn2



Ex. 1005, Fig. 1 (annotated); ¶81 of Proctor Decl.

Pet Reply at 13 (fn 3), Pet at 11

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IPR2023-00531 (U.S. Pat. No. 7,855,988) Roadmap

- "DMA gateway communications network"
- "communications information for a communications network accessible by a second DMA gateway"
- "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network"
- "storing the communications information in a home DMA register of the first DMA gateway"
- Dependent Claims

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Flore identifies "communications information for a communications network accessible by a second DMA gateway."

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

Ex. 1001, Claim 1

The challenged claims do not require that the communications information identify a network accessible by a second gateway.

89. In particular, as part of step 11 shown in Fig. 4, Flore discloses that AGW 134 sends a "PDP context" to Inter-AS Anchor 152. Ex. 1005, [0046]. A "Packet Data Protocol (PDP) context… contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE 110 and Inter-AS Anchor 152), QoS profiles, and so on." Ex. 1005, [0046]. In response, the "Inter-AS Anchor 152 updates its PDP context fields for UE 110 so that **future packets for the UE are forwarded to SGSN 142** instead of AGW 134." *Id.*, emphasis added. Thus, a POSA would have understood that the PDP context includes the address of SGSN 142 as part of its routing information.

¶89 of Proctor Decl.

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11). Inter-AS Anchor **152** updates its PDP context fields for UE **110** so that future packets for the UE are forwarded to SGSN **142** instead of AGW **134**. Step 11 switches the user plane from AGW **134** to RNC **124**. In the first phase of the handover procedure and until the PDP context is updated in step 11, SGSN **142** communicates with Inter-AS Anchor **152**, which acts as a source SGSN to SGSN **142**. After the PDP context is updated, Inter-AS Anchor **152** acts as a GGSN to SGSN **142**.

EX-1005 at [0046]

Pet Reply at 15

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Flore identifies "communications information for a communications network accessible by a second DMA gateway."

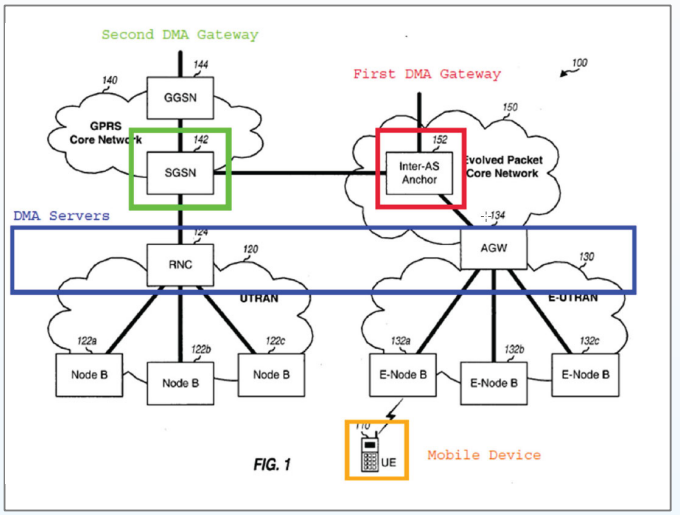
What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

Lemko admitted that the SGSN 142 identify is sent.

Ex. 1001, Claim 1



Ex. 1005, Fig. 1 (annotated); ¶81 of Proctor Decl.

A PDP context "contains various parameters such as routing information for IP packets." Pet. at 12. There is nothing in a PDP context that identifies any network ***accessible by*** a second gateway. At most, the PDP context identifies what Petitioners contend is the second DMA gateway (*i.e.* SGSN 142), so that when a UE moves from a 4G enabled cell site to a 3G cell site, "future packets for the UE are forwarded to SGSN 142 instead of AGW 134." Pet. at 12-13. No information about

¶POR at 36

Pet Reply at 15

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IPR2023-00531 (U.S. Pat. No. 7,855,988) Roadmap

- "DMA gateway communications network"
- "communications information for a communications network accessible by a second DMA gateway"
- "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network"
- "storing the communications information in a home DMA register of the first DMA gateway"
- Dependent Claims

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Flore identifies "Communications Information Indicating One or More Devices Accessible by One of a DMA Server and a Legacy Communications Network"

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

The challenged claims only require receiving communications information "indicating one or more devices accessible by one of a DMA server and a legacy communications network"

Ex. 1001, Claim 1

91. Flore discloses "the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network." The PDP context included in the message identified above contains *information identifying the UE 110* undergoing the handover process. *See, e.g.,* Ex. 1005, [0046] ("Packet Data Protocol (PDP) context… contains various parameters such as routing information for IP packets (e.g., the **IP addresses of UE 110** and Inter-AS Anchor 152), QoS profiles, and so on.") The UE 110 is accessible by one or more Node Bs and "legacy networks 120 and 140," and the message above is meant to facilitate handover from the E-UTRAN 130 and Evolved Packet Network Core network 150 to the legacy UTRAN 120 and GPRS core network 140. *Id.* [0029]. Thus a POSA would have understood that the message including the PDP context is a "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network."

¶ 91 of Proctor Decl.

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Flore identifies "Communications Information Indicating One or More Devices Accessible by One of a DMA Server and a Legacy Communications Network"

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

The challenged claims only require receiving communications information "indicating one or more devices accessible by one of a DMA server and a legacy communications network"

Ex. 1001, Claim 1

UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11).

Ex. 1005 at [0046]

The UE 110 is accessible by one or more Node Bs and "legacy networks 120 and 140," and the message above is meant to facilitate handover from the E-UTRAN 130 and Evolved Packet Network Core network 150 to the legacy UTRAN 120 and GPRS core network 140. *Id.* [0029]. Thus a POSA would have understood that the message including the PDP context is a "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network."

¶ 91 of Proctor Decl.

Pet at 13-14

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IPR2023-00531 (U.S. Pat. No. 7,855,988) Roadmap

- "DMA gateway communications network"
- "communications information for a communications network accessible by a second DMA gateway"
- "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network"
- "storing the communications information in a home DMA register of the first DMA gateway"
- Dependent Claims

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Flore discloses "storing the communications information in a home DMA register of the first DMA gateway"

What is claimed is:

1. A method, comprising:

receiving at a first distributed mobile architecture (DMA) gateway communications information for a communications network accessible by a second DMA gateway, the communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network, wherein the first DMA gateway and the second DMA gateway participate in a DMA gateway communications network;

storing the communications information in a home DMA register of the first DMA gateway;

The challenged claims do not require the "communications information" to include "HLR information" or "location register information for its own or any other networks."

Ex. 1001, Claim 1

3.4 Location register

To enable communication to a mobile station the network must know where this mobile station is located. This information is stored in a function named location register.

The location register is handled by four different entities.

- The Home Location Register (HLR).

The Home Location Register (HLR) is the location register to which a mobile subscriber is assigned for record purposes such as subscriber information.

- The Visitor Location Register (VLR).

The Visitor Location Register (VLR) is the location register for Circuit Switched (CS) services, other than the HLR, used by an MSC to retrieve information for, e.g. handling of calls to or from a roaming mobile station currently located in its area.

- The Serving GPRS Support Node (SGSN).

The location register function in the SGSN stores subscription information and location information for Packet Switched (PS) services for each subscriber registered in the SGSN.

The SGSN is needed only in a PLMN which supports GPRS.

- The Gateway GPRS Support Node (GGSN).

The location register function in the GGSN stores subscription information and routeing information (needed to tunnel packet data traffic destined for a GPRS MS to the SGSN where the MS is registered) for each subscriber for which the GGSN has at least one PDP context active.

Ex. 1006 at 13-14

Pet. 16; Pet Reply at 18

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Flore discloses "storing the communications information in a home DMA register of the first DMA gateway"

What is claimed is:
1. A method, comprising:
storing the communications information in a home DMA register of the first DMA gateway;

Ex. 1001, Claim 1

96. A POSA would have understood that a GGSN necessarily contains a location register. Flore also states "[t]he network entities in UTRAN 120 and GPRS core network 140 are described in 3GPP TS 23.002, entitled 'Network architecture,' March 2006." Id. at [0030]. The Technical Specification states: Thus a GGSN contains a "location register function" which "stores subscription information and routeing [sic] information … for each subscriber for which the GGSN has at least one PDP context active." This location register function is a "home DMA register." Similarly, because Inter-AS Anchor 152 emulates a GGSN, a POSA would have understood that also includes a location register function.

¶ 96 of Proctor Decl.

97. A POSA would likewise understand the Inter-AS Anchor's "PDP context fields for UE 110" are a "home DMA register" of the Inter-AS Anchor (**"first DMA gateway"**). Inter-AS Anchor 152 necessarily has a list of entries for the UEs it serves, such as UE 110. Thus, by updating the PDP Context information with the address of SGSN 142 instead of AGW 134, the Inter-AS Anchor stores the communications information included in the Update PDP Context Response message to its "home DMA register."

¶ 97 of Proctor Decl.

Pet at 15-16

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IPR2023-00531 (U.S. Pat. No. 7,855,988) Roadmap

- "DMA gateway communications network"
- "communications information for a communications network accessible by a second DMA gateway"
- "communications information indicating one or more devices accessible by one of a DMA server and a legacy communications network"
- "storing the communications information in a home DMA register of the first DMA gateway"
- Dependent Claims

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Flore discloses claim 7

7. The method of claim 1, further comprising, upon receiving the communications information, the first DMA gateway automatically sending at least a portion of the communications information to the second DMA gateway via the gateway communications network.

Ex. 1001, Claim 7

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11). Inter-AS Anchor **152** updates its PDP context fields for UE **110** so that future packets for the UE are forwarded to SGSN **142** instead of AGW **134**. Step 11 switches the user plane from AGW **134** to RNC **124**. In the first phase of the handover procedure and until the PDP context is updated in step 11, SGSN **142** communicates with Inter-AS Anchor **152**, which acts as a source SGSN to SGSN **142**. After the PDP context is updated, Inter-AS Anchor **152** acts as a GGSN to SGSN **142**.

Ex. 1005 at [0046]

Pet at 21

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Flore discloses claim 7

7. The method of claim 1, further comprising, upon receiving the communications information, the first DMA gateway automatically sending at least a portion of the communications information to the second DMA gateway via the gateway communications network.

Ex. 1001, Claim 7

117. The Update PDP Context Response message is sent across the Gn interface, which is a "gateway communications network." Ex. 1005, [0029] ("Inter-AS Anchor 152 may communicate with SGSN 142 via a Gn interface, which is a legacy interface between SGSNs and GGSNs within a GPRS core network."), [0040] ("Inter-AS Anchor 152 communicates with SGSN 142 via the Gn interface and emulates (or appears as) another SGSN to SGSN 142"), [0048] ("Inter-AS Anchor 152 communicates with SGSN 142 via the Gn interface and using messages described in 3GPP TS 29.060, entitled 'GPRS Tunnelling Protocol (GTP) across Gn and Gp interface,' June 2006").

¶117 of Proctor Decl.

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11). Inter-AS Anchor **152** updates its PDP context fields for UE **110** so that future packets for the UE are forwarded to SGSN **142** instead of AGW **134**. Step 11 switches the user plane from AGW **134** to RNC **124**. In the first phase of the handover procedure and until the PDP context is updated in step 11, SGSN **142** communicates with Inter-AS Anchor **152**, which acts as a source SGSN to SGSN **142**. After the PDP context is updated, Inter-AS Anchor **152** acts as a GGSN to SGSN **142**.

Ex. 1005 at [0046]

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Flore discloses claim 8

8. The method of claim **1**, further comprising, in response to receiving a query from the second DMA gateway for the communications information, the first DMA gateway sending at least a portion of the communications information to the second DMA gateway via the gateway communications network.

Ex. 1001, Claim 8

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11). Inter-AS Anchor **152** updates its PDP context fields for UE **110** so that future packets for the UE are forwarded to SGSN **142** instead of AGW **134**. Step 11 switches the user plane from AGW **134** to RNC **124**. In the first phase of the handover procedure and until the PDP context is updated in step 11, SGSN **142** communicates with Inter-AS Anchor **152**, which acts as a source SGSN to SGSN **142**. After the PDP context is updated, Inter-AS Anchor **152** acts as a GGSN to SGSN **142**.

Ex. 1005 at [0046]

Pet at 22

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Flore discloses claim 8

8. The method of claim **1**, further comprising, in response to receiving a query from the second DMA gateway for the communications information, the first DMA gateway sending at least a portion of the communications information to the second DMA gateway via the gateway communications network.

Ex. 1001, Claim 8

119. As I explained above, Flore discloses the limitations of claim 1. The additional limitations recited in claim 8 are also disclosed in Flore. Flore discloses this limitation. Flore discloses in paragraph 0046: "SGSN 142 sends an Update PDP Context Request message to Inter-AS Anchor 152." The SGSN ("second DMA gateway") thus sends a query for the PDP Context to the Inter-AS Anchor ("first DMA gateway). Flore further states "AGW 134 stores the PDP context for UE 110 during the call and, **in response to the request from SGSN 142,** forwards the PDP context to Inter-AS Anchor 152, **which forwards the information in an Update PDP Context response message to SGSN 142).**" Thus the first DMA gateway "sends… the communications information to the second DMA gateway." This message is sent via the Gn interface, and is therefore sent "via the gateway communications network" as discussed above.

¶119 of Proctor Decl.

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on. AGW **134** stores the PDP context for UE **110** during the call and, in response to the request from SGSN **142**, forwards the PDP context to Inter-AS Anchor **152**, which forwards the information in an Update PDP Context Response message to SGSN **142** (also step 11). Inter-AS Anchor **152** updates its PDP context fields for UE **110** so that future packets for the UE are forwarded to SGSN **142** instead of AGW **134**. Step 11 switches the user plane from AGW **134** to RNC **124**. In the first phase of the handover procedure and until the PDP context is updated in step 11, SGSN **142** communicates with Inter-AS Anchor **152**, which acts as a source SGSN to SGSN **142**. After the PDP context is updated, Inter-AS Anchor **152** acts as a GGSN to SGSN **142**.

Ex. 1005 at [0046]

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Flore discloses claim 9

- The Home Location Register (HLR).

The Home Location Register (HLR) is the location register to which a mobile subscriber is assigned for record purposes such as subscriber information.

¶ 121 of Proctor Decl. citing Ex. 1006 at 13

9. The method of claim **1**, wherein the communications information includes communications register data including at least one of:

a portion of a community location register;

a portion of home location register (HLR) data for the communications network; and

a portion of visitor location register (VLR) data for the communications network.

Ex. 1001, Claim 9

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on.

Ex. 1005 at [0046]

Pet at 23

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Flore discloses claim 9

9. The method of claim **1**, wherein the communications information includes communications register data including at least one of:

a portion of a community location register;

a portion of home location register (HLR) data for the communications network; and

a portion of visitor location register (VLR) data for the communications network.

Ex. 1001, Claim 9

[0046] After receiving the Relocation Complete message in step 9, SGSN **142** sends an Update PDP Context Request message to Inter-AS Anchor **152**, which forwards the request to AGW **134** (step 11). UE **110** may have established a call with E-UTRAN **130** by activating a Packet Data Protocol (PDP) context, which contains various parameters such as routing information for IP packets (e.g., the IP addresses of UE **110** and Inter-AS Anchor **152**), QoS profiles, and so on.

Ex. 1005 at [0046]

121. Flore discloses receiving PDP Context information from AGW 134 at Inter-AS Anchor 152. The PDP context contains information such as the IP address of the Inter-AS Anchor. Ex. 1005, [0046] ("Packet Data Protocol (PDP) context… contains various parameters such as routing information for IP packets (e.g., the **IP addresses of** UE 110 and **Inter-AS Anchor 152**), QoS profiles, and so on."). This information is a portion of Home Location Register (HLR) data for the communications network. 3GPP TS 23.002 states "the Home Location Register (HLR) is the location register to which a mobile subscriber is assigned for record purposes such as subscriber authentication." Ex. 1006 at 13. Because the Inter-AS Anchor is the acting GGSN for the subscriber (i.e., the location register for which it is assigned), the PDP context includes "communications register data including a portion of home location register (HLR) data for the communications network."

¶121 of Proctor Decl.

Pet at 23

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Flore discloses claim 20

20. The method of claim **1**, wherein the first DMA gateway receives the communications information from the second DMA gateway.

Ex. 1001, Claim 20

Flore explains that as part of step 11 shown in Fig. 4, AGW 134 sends a "PDP context" to Inter-AS Anchor 152. Ex. 1005, [0046]; Ex. 1003, ¶ 89. A

Pet at 12

Flore discloses this limitation. Ex. 1003, ¶¶ 123-124. Flore discloses that "the inter-system handover techniques may also be used for handover from a UTRAN to an E-UTRAN." Ex. 1005, [0053]. Flore further states, "[t]he message flow in FIG. 4 may be used for handover from the UTRAN to the E-UTRAN, albeit with AGW 134 in procedure 400 being replaced with a source RNC in the UTRAN, Inter-AS Anchor 152 being replaced by the old SGSN, target RNC 124 being replaced by AGW 134, and target SGSN 142 being replaced by Inter-AS Anchor 152." *Id.* Thus in step 11, instead of the AGW sending a PDP context to the Inter-AS Anchor, source RNC sends the PDP context for the UE 110 to the SGSN 142, and subsequently, instead of the Inter-AS Anchor sending the Update PDP Context Response message to SGSN, the SGSN (the "second DMA gateway") "forwards the information in an Update PDP Context Response message to" Inter-AS Anchor 152 (the "first DMA gateway"). Ex. 1005, [0046]. Ex. 1003, ¶ 123. Flore thus discloses this limitation.

Pet at 24

Pet Reply at 15

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Flore discloses claim 20 – Parties agree that the PDP context identifies other Gateway

20. The method of claim **1**, wherein the first DMA gateway receives the communications information from the second DMA gateway.

Ex. 1001, Claim 20

A PDP context "contains various parameters such as routing information for IP packets." Pet. at 12. There is nothing in a PDP context that identifies any network ***accessible by*** a second gateway. At most, the PDP context identifies what Petitioners contend is the second DMA gateway (*i.e.* SGSN 142), so that when a UE moves from a 4G enabled cell site to a 3G cell site, "future packets for the UE are forwarded to SGSN 142 instead of AGW 134." Pet. at 12-13. No information about

¶POR at 36

Pet Reply at 15

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MICROSOFT CORPORATION AND AFFIRMED NETWORKS, INC.,

PETITIONERS

V.

LEMKO CORPORATION,

PATENT OWNER

CASE NO. IPR2023-00529 (U.S. PAT. NO. 7,653,414)

CASE NO. IPR2023-00531 (U.S. PAT. NO. 7,855,988)

END OF DEMONSTRATIVES