



PTAB Oral Argument

July 11, 2024

**MICROSOFT CORPORATION and
AFFIRMED NETWORKS, INC.,**
PETITIONERS

v. **LEMKO CORPORATION**
PATENT OWNER

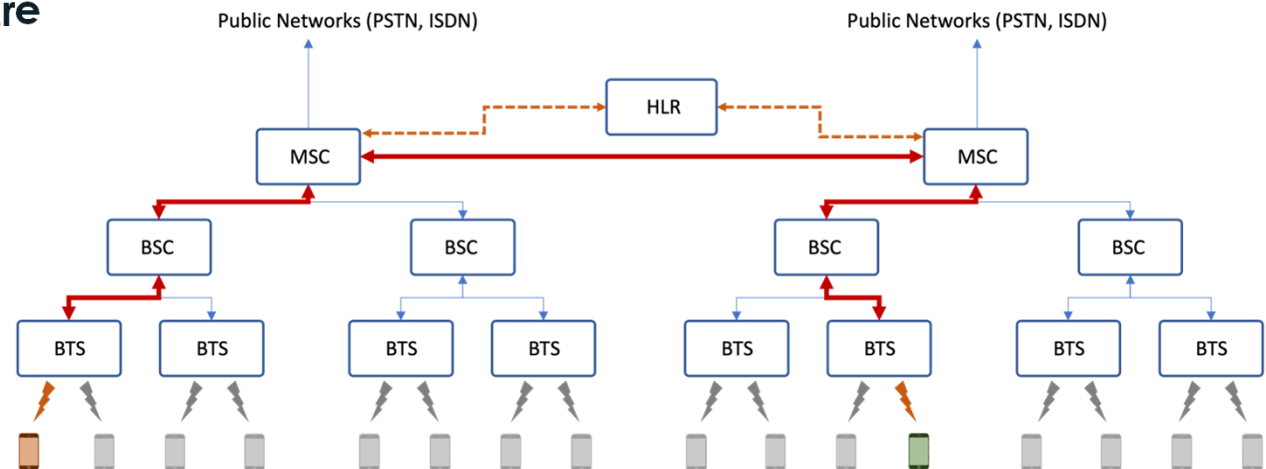
IPR2023-00531 (U.S. PAT NO. 7,855,988)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Technical Background

Conventional cellular network architecture:

- **Centralized**
- **Hierarchical**
- **Specialized-Hardware**
- **Expensive**



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POR at 2-8; Ex. 2021 at ¶35; Ex. 2022 at 4-5;
Ex. 2003; Ex. 2002 at 1-3; Ex. 2012 at 3

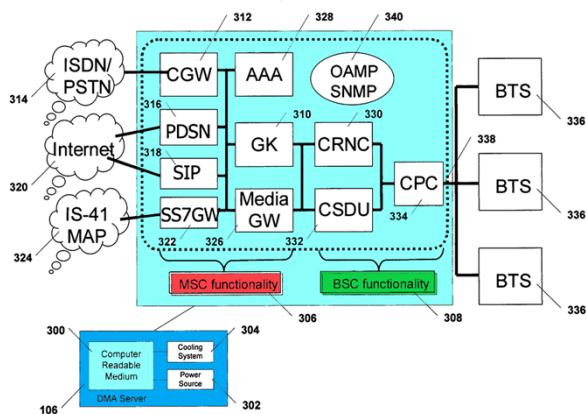
Acronyms / Glossary

MSC	Mobile switching center
BSC	Base station controller
BTS	Base transceiver station
HLR	Home location register
VLR	Visitor location register
UE	User Equipment (e.g., cellphone)
WWAN	Wireless wide area network
WLAN	Wireless local area network
NIB	Network-in-a-box

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'988 Patent: DMA Call Routing

- Peer-to-peer network of DMA nodes
- MSC/BSC controlling logic distributed amongst nodes



- Benefit: eliminate/reduce need for expensive centralized hubs and expensive backhaul connections

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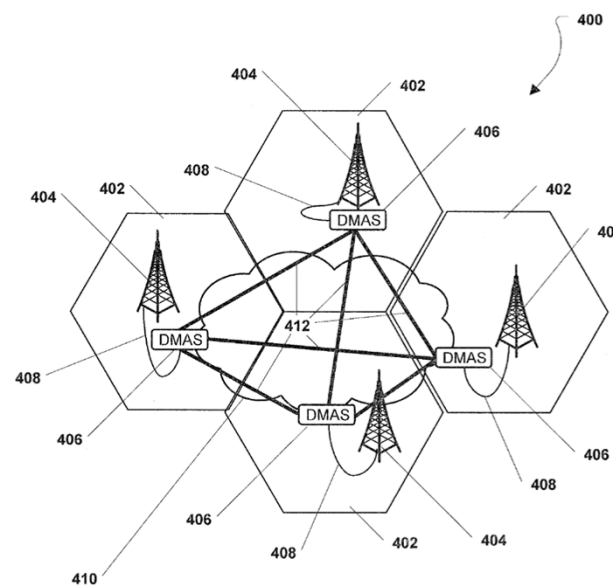
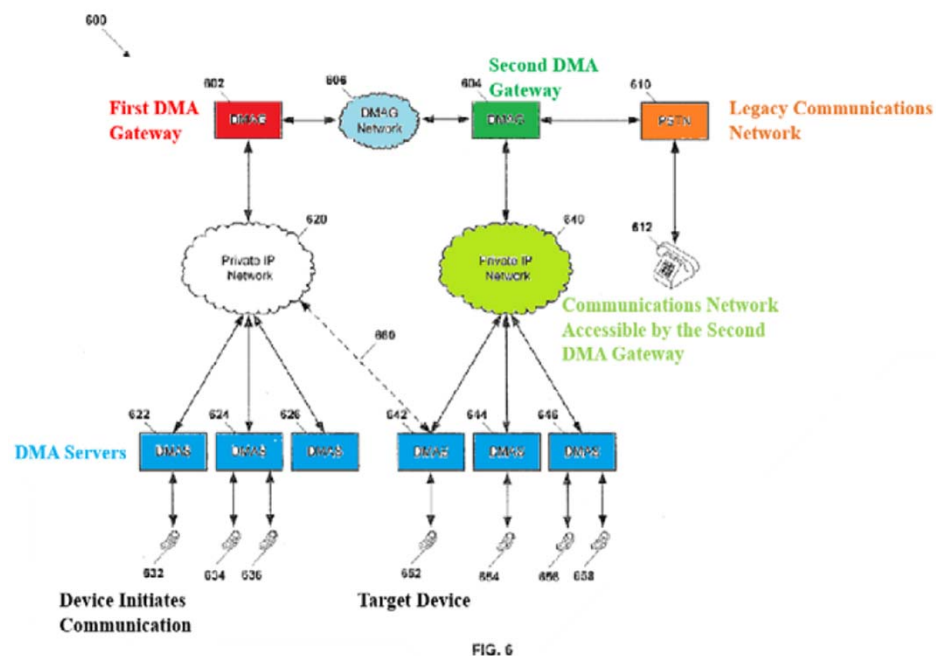


FIG. 4

POR at 8-11; '988 Pat, Fig. 4, 5 (annotated);
Ex. 2021 at ¶43-46

'988 Patent: DMA Call Routing

- The inventors created new technical features to allow user(s) of one DMA network described in '988 Patent to communicate with users of another DMA network or legacy network:
 - DMA gateway (DMAG)
 - DMAG network
 - Communications information
 - Home location register (HLR)
 - Visitor location register (VLR)



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POR at 11-14;
 '988 Pat 9:37-40, 3:15-26, 9:43-47, 10:53-66, 11:10-27,
 14:9-14, 15:14-37, Fig. 6 (annotated), Claim 1,
 Abstract

'988 Patent – Claim 1

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.

Flore (Ex. 1005)

- Flore is about techniques for handing over data service when a user device moves between two conventional cellular networks (“inter-system handoff”).
- Flore’s networks all rely on centralized and hierarchical network architecture.

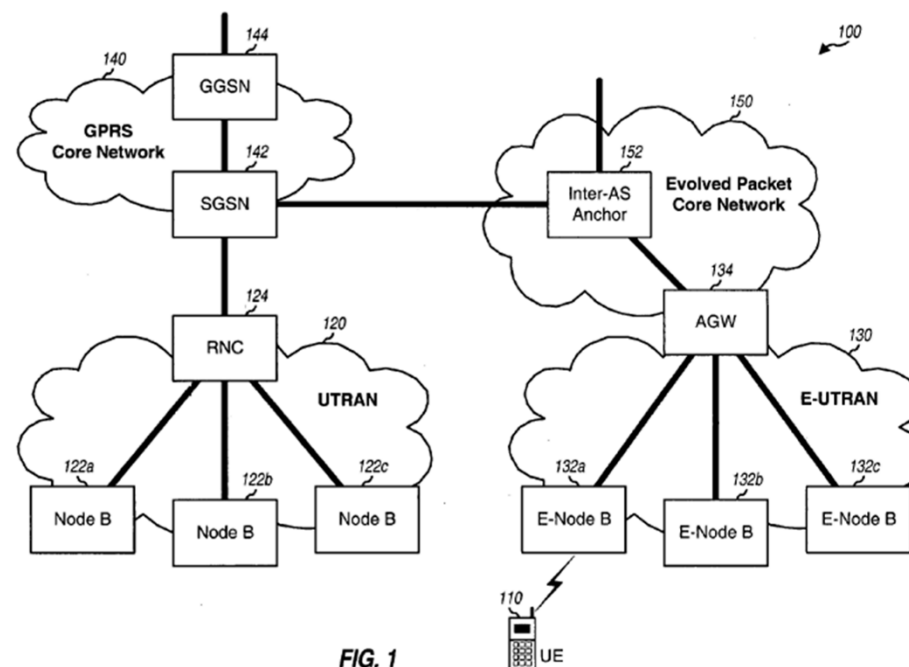
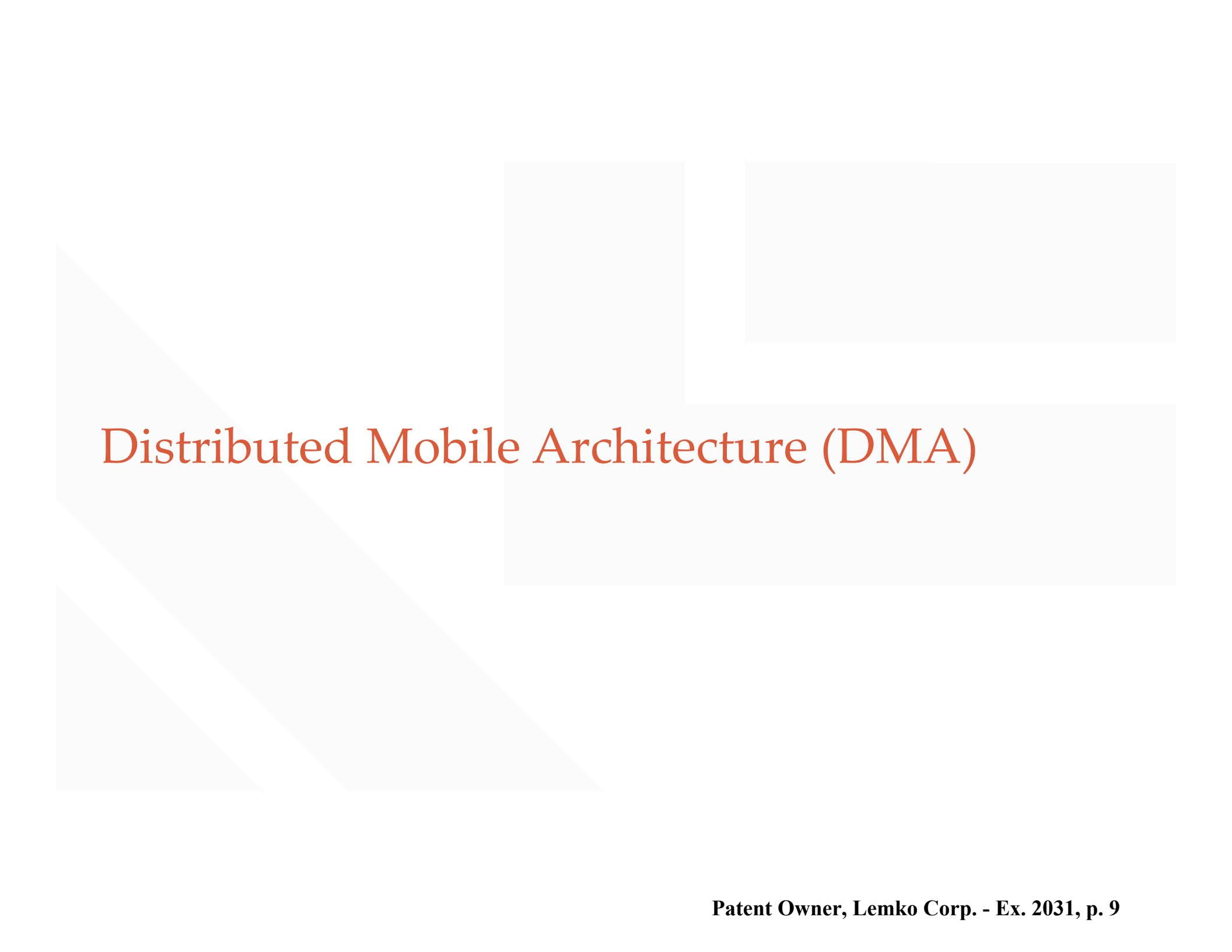


FIG. 1

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Why Challenged Claims Are Patentable Over Flore

1. No DMA server and no DMA gateway
2. No communications information
3. No communication register data
4. No disclosure of limitations of dependent claims



Distributed Mobile Architecture (DMA)

Claim Construction: DMA

“Distributed Mobile Architecture”

Lemko	Petitioners
“a network architecture where DMA servers have distributed call-routing functionality and are connected with other DMA servers through peer-to-peer connections (i.e., without connecting through a hierarchical network hub architecture) and that is not a legacy communications network.”	Plain and ordinary meaning of individual terms distributed - “something that is part of a broader network or intended to be part of a broader network” mobile - ? architecture - ?

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POR at 18-28; Sur-Reply at 10-22; Pet. Reply at 1-2

“DMA” Cannot Be Construed More Broadly Than Its Corresponding Disclosure

- Parties do not dispute that the claim term has **no plain meaning** in the art.
 - Petitioner’s lexicography and disclaimer arguments are thus misplaced.
- Petitioners’ proposed geographical dispersion construction ignores:
 - challenges associated with centralized call routing in legacy networks; and
 - ‘988 Patent’s solution of call routing via DMA servers using **peer-to-peer** connections.

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As illustrated in FIG. 4, **each DMA server 406 is interconnected with the other DMA servers 406** via an Internet protocol network 410. As such, there **exists a peer-to-peer connection 412 between each DMA server 406** in the system 400 For example, **the DMA servers can switch and route calls.**

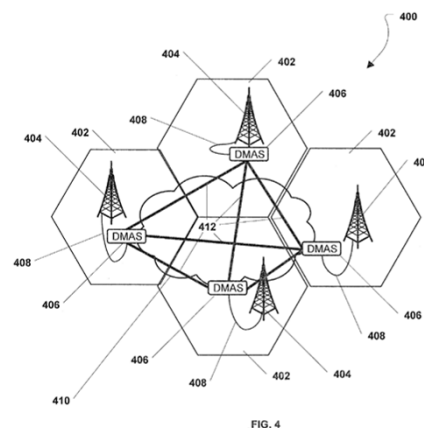


FIG. 4

POR at 18-25; Sur-Reply at 12-14;
‘988 Pat at 1:37-65, 4:1-19, 6:46-7:12, 9:36-11:27 Fig. 4

Petitioners' Construction Of "Distributed" Is Inconsistent With The Evidence

- Petitioners only support construction with expert's qualified statement explaining that his understanding of "distributed" refers to distributed *functionality* and *information*, **not geographical location of nodes**.
 - Specification does not describe DMA as being distributed **because** the DMA servers may be in different locations.
- Petitioners' proposed construction renders any network architecture, including legacy mobile network, a DMA.
 - Conflicts with specification explicitly defining DMA **in contrast** to a legacy network.

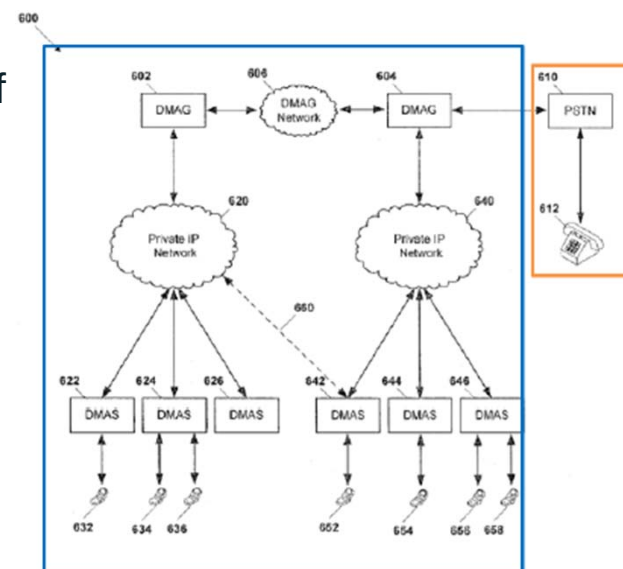


FIG. 6

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POR at 2-10, 25-28; Sur-Reply at 14-16;
'988 Pat at 1:37-64, 4:1-19, 6:46-7:12, 9:36-11:27, Fig. 6 (annotated)
Ex. 2027 at 14:11-15:4; Ex. 2026 at 74:19-22

The Specification Does Not Describe The Attributes Of A DMA Using Permissive Language

- DMA should be construed in view of description related to Fig. 4 as the only passage that describes what DMA is.
- Peer-to-peer connections between each DMA server are a **necessary characteristic** of the DMA.
 - The capabilities of the system **come from** connecting DMA servers in a **peer-to-peer** manner.
- Specification also clearly discloses possible departures from the system when it desires to do so.

not permissive

As illustrated in FIG. 4, each DMA server 406 is interconnected with the other DMA servers 406 via an Internet protocol network 410. As such, there exists a peer-to-peer connection 412 between each DMA server 406 in the system 400. As described in detail below, the DMA servers 406 can handle telephony traffic that is communicated at each antenna 404. For example, the DMA servers 406 can switch and route calls received via each antenna 404. Additionally, the DMA servers 406 can hand-off calls to each other as mobile communication devices move around and between the cellular coverage

age sites 402. The DMA servers 406 can communicate with each other via the IP network 410 and can further transmit calls to each other via the IP network 410. It should be

VS.

calls to each other via the IP network 410. It should be understood that more than four cellular coverage sites 402 can be included in the system and that the inclusion of only four cellular coverage sites 402 in FIG. 4 is merely for clarity and explanation purposes.

permissive

“DMA” Servers Are Connected Via Peer-to-Peer Connections

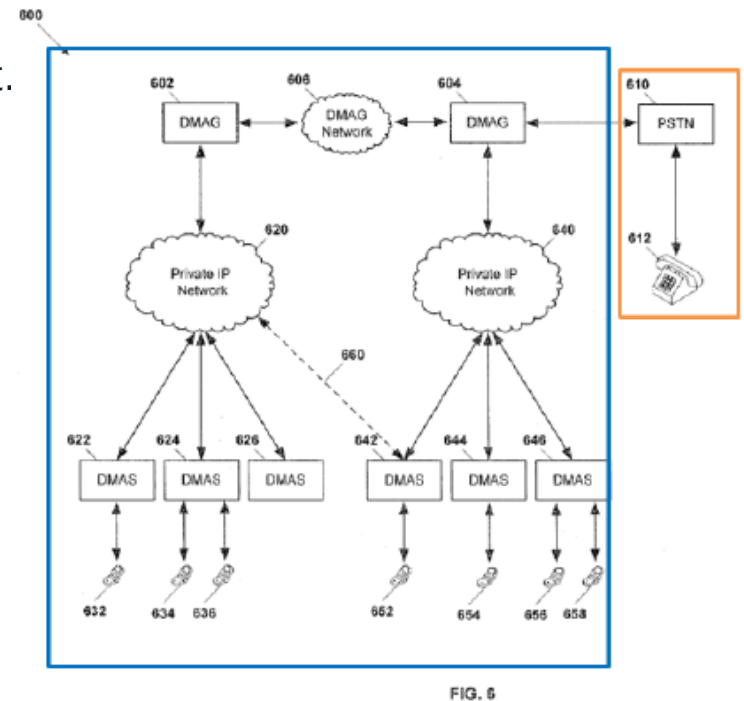
- There is no embodiment where DMA servers are not connected through peer-to-peer connections to other DMA servers ***within their DMA network***.
 - DMA servers connect as peers with an existing DMA network when they can.
 - When a new DMA server cannot join an existing DMA network, it is connected to another network by a DMA gateway.
 - This new DMA server is the initial node in a new DMA network, and any later DMA server seeking to join it connects to the initial DMA server as a peer.
- The use of the DMA gateway to provide additional connections outside of the DMA network does not change the fundamental property that DMA server within a DMA network communicate as peers.

“DMA” Is Not A “Legacy Communication Network”

- The ‘988 Patent treats DMA networks and legacy communication networks as separate and distinct.
 - “DMA” server, “DMA” gateways, and “DMA” gateway communications network all recited separately from “legacy communications network”.
- Specification:
 - “legacy communication network” = serviced by a central MSC.
 - “distributed mobile architecture” = MSC functionality distributed amongst DMA servers.
- DMA itself refers to a network.

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POR at 25-28; Sur-Reply at 20-22;
‘988 Pat 1:37-64 Claims 1, 5, 22, 33, 42, Fig. 6 (annotated);
Ex. 2021 at 66, 74-75; Ex. 1014 at 57:2-6

Claim Construction: DMA

Proposed Construction

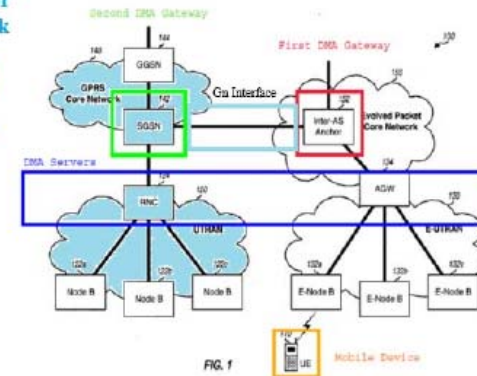
“a network architecture where DMA servers have distributed call-routing functionality and are connected with other DMA servers through peer-to-peer connections (i.e., without connecting through a hierarchical network hub architecture) and that is not a legacy communications network.”

Flore's "Legacy Networks" Do Not Satisfy The Claimed "Distributed Mobile Architecture" Structure

- Undisputed that Flore's 3G and 4G networks do not satisfy claimed "DMA" under Patent Owner's Construction
- Petitioners impermissibly mapped the same prior art elements to separately recited claim elements.
 - Petitioners claim that legacy structures are pieces of DMA architecture while also constituting claimed "legacy communications network" serviced by an MSC.

Flore's "Legacy Networks 120 and 140" Structure	The Claimed "Distributed Mobile Architecture" Structure
RNC 124 (of Legacy Network 120)	DMA Server (of the DMA Network Architecture)
SGSN 142 (of Legacy Network 140)	Second DMA Gateway (of the DMA Network Architecture)
Gn Interface (of Legacy Network 140)	DMA Gateway Communications Network (of the DMA Network Architecture)

Petitioner's Mapping of Flore's Legacy Network Architecture to the Claimed "Distributed Mobile Architecture" Network Architecture



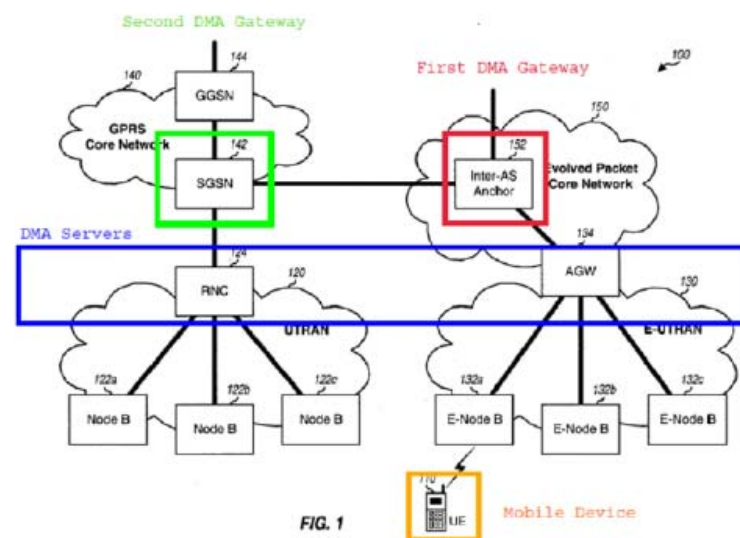
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POR at 14-17, 29-34; Sur-Reply at 22-24; Pet. Reply at 13;
Ex. 1005 at ¶9, 43

Flore Does Not Disclose “DMA Servers” Connected Via Peer-to-Peer Connections

- Alleged DMA servers – AGW and RC – lack the ability to communicate with other RNCs or AGWs as peers.
- In the alternative, Node Bs are not connected via peer-to-peer connections and do not have any call-routing capabilities.



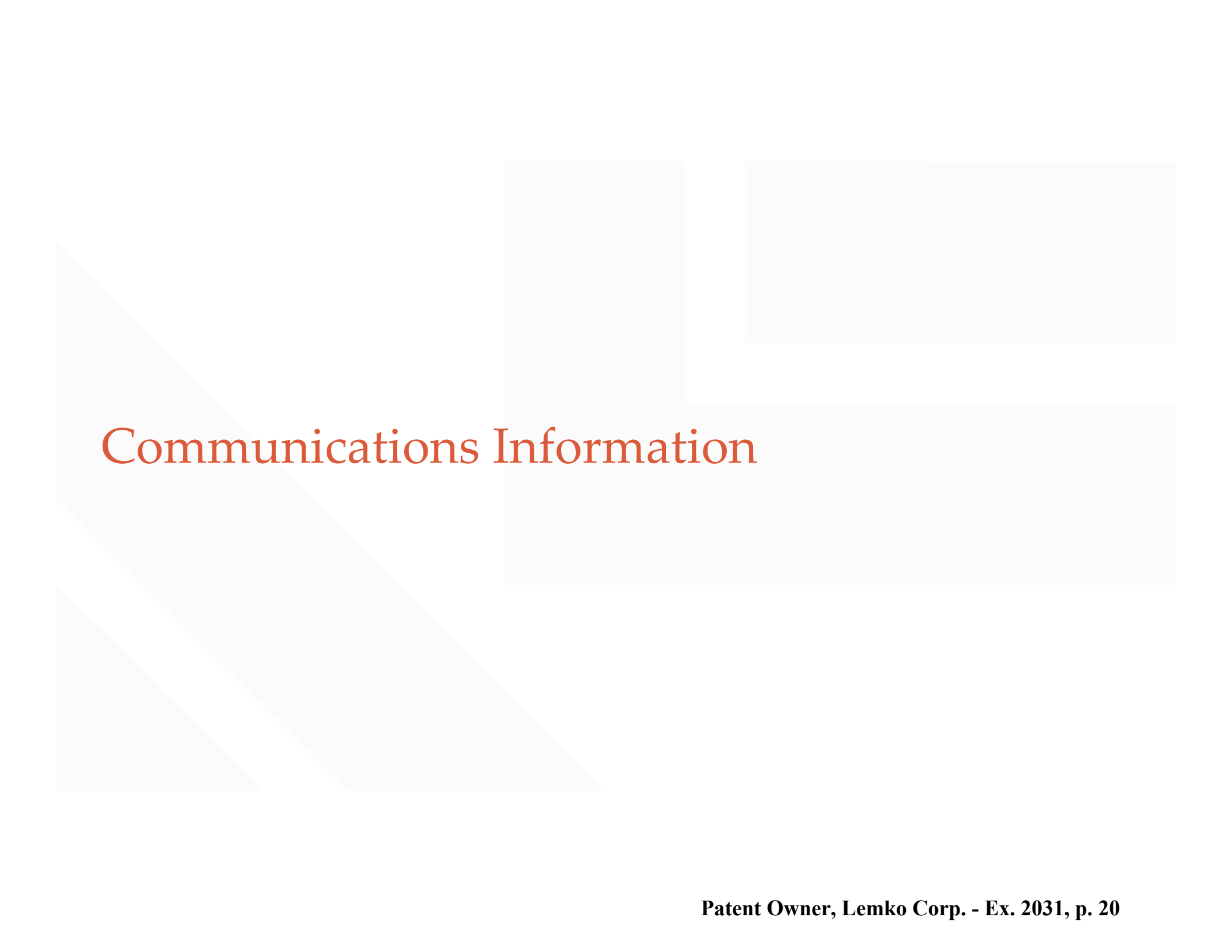
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POR at 31-33; Petition at 11;
Ex. 2021 at ¶84-85.

Flore Does Not Disclose A “DMA Gateway Communications Network”

- Flore’s Gn interface is simply a legacy interface, not a network itself.
- Inter-AS Anchor and SGSN connected via the Gn interface do not form a DMA gateway communications network.
 - Neither SGSN nor Inter-AS Anchor interface with a DMA network.
 - Petitioners admit SGSN is part of a legacy network.



Communications Information

Flore Fails To Disclose The Communications Information Limitation

- Claim 1:
 - “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...”
 - “storing the communications information in a home DMA register of the first DMA gateway...”
- Claim 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.”

Communications Information

- Facilitates communication between devices serviced by different networks.
- Indicates devices serviced by individual DMA gateways.
- Shared between gateways by exchanging register data describing the networks they service, describing devices as home devices or visitor devices.
 - Home devices = DMA gateway is the home gateway for the device.
 - Visitor devices = DMA gateway is the temporary gateway for the device.

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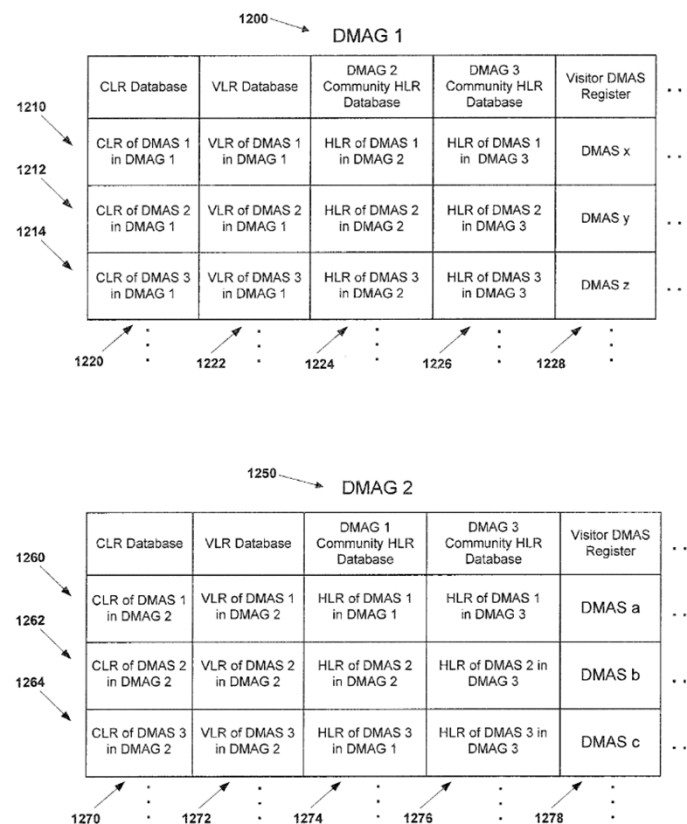


FIG. 12

POR at 13;
'988 Pat, Fig. 12, 3:4-7, 11:10-27, 14:9-11, 15:14-28.

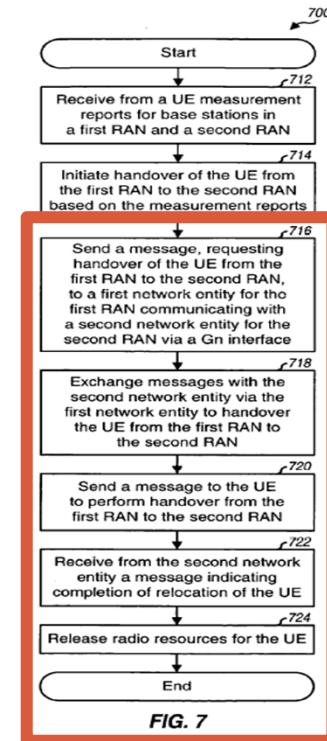
Flore Fails To Disclose The Communications Information Limitation

Flore does not disclose:

1. communications information for a *device* accessible by a second DMA gateway;
2. communications information for a *communications network* accessible by a second DMA gateway; or
3. communications information *stored in a home DMA register*.

Flore's "Communication Information" Does Not Identify A Device Accessible By A Second DMA Gateway

- Petitioner admits that Flore's PDP context sent **before** device is handed over and device is still subscribed to alleged **first** network's DMAS.
 - Device cannot be accessed by alleged **second** DMAG until handover complete.
- Flore's PDP context, then, identifies a device accessible by Flore's alleged **first** DMAS accessible via the alleged **first** DMAG at the time update PDP context message is sent.
- So, Flore's communication information does not "identify a device accessible by a communications network accessible by the second DMA gateway."



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POR at 37; Sur-Reply at 4-6;
Ex. 1005 at Fig. 7, ¶46, ¶57-58; Ex. 2021 at ¶95-96.

Flore's "Communication Information" Does Not Identify A Communications Network Accessible By A Second DMA Gateway

- PDP Context does not identify *any* network **accessible by** a second gateway.
 - Claimed "communications information for a communications network" refers to portion of **register information** stored in DMAG **identifying communications network and devices served by it**.
- Flore at most describes receiving the identity of the alleged second DMAG, which does not identify the *network* served by the alleged second DMAG; further, it is not sent to the alleged first DMAG.
- Thus, Flore's communication information does not identify a communications network accessible by a second DMAG.

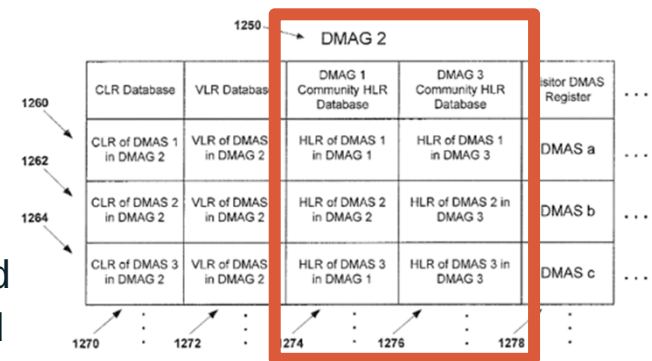


FIG. 12

POR at 12-14, 36-37; Sur-Reply at 6-8;
 Ex. 1005 at Fig. 12, Claim 1, 11:2-27, 13:66-14:2, 14:6-9, 15:14-35, 17:29-31, 17:63-18:8;
 Ex. 2021 at ¶94.

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Flore's "Communication Information" Is Not Stored In A Home DMA Register

- Claims require that communications information includes **location register information** (not necessarily HLR data) because it is stored in a location register.
- Petitioners admit that PDP context is (1) **not** stored in the HLR and (2) does **not** include location register information.
 - Stored in *GGSN* register, which does not store location register info for any networks.
 - At GGSN, PDP context stores only device address and SGSN served by GGSN.
 - Thus, a POSITA would not understand that a PDP context is a home DMA register because home DMA registers include more than a list of device identities.
- Thus, Flore's communication information is not stored in a home DMA register.

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POR at 38-40; Sur-Reply at 9-10;
Ex. 1005 at Claim 9, 3:4-7, 11:10-27, 14:9-11, 15:14-28;
Ex. 1006 at 13-14; Ex. 2021 at ¶¶97-102.



Communications Register Data

Flore's PDP Context Is Not Communications Register Data

- Claim 9: “communications register data” including “location register [] data” of the HLR, VLR, and/or CLR registers.
- Petitioners concede that Flore’s PDP context does not include “communications register data” because it is not stored in the HLR.
 - Because it is undisputed that the PDP context is not location register information, the PDP Context does not include “a portion of . . . **location register**” data of any of the recited registers.
 - The PDP Context does not *store part* of the location register data – thus, Flore cannot anticipate Dependent Claim 9.

Remaining Dependent Claims

Flore Does Not Disclose Limitations In Claims 7 & 8

- Flore does not disclose:
 - Claim 7: “the first DMA gateway automatically sending at least a portion of the communications information to the second DMA gateway via the gateway communications network.”
 - Claim 8: “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.”
- PDP context messages are sent **before** the handover is complete, meaning it does not identify a UE device accessible via the alleged second DMA gateway.
- Further, no elements in the Update PDP Context Response message indicate the UE device at all.

Flore Does Not Disclose Limitations In Claim 20

- Flore does not disclose:
 - Claim 20: “the first DMA gateway receives the communications information from the second DMA gateway.”
- By Inter-AS Anchor receiving the PDP context from ADW and forwarding it to SGSN, Petitioners advance a theory in which the ***alleged second DMA gateway*** receives the alleged communications information ***from the alleged second DMA***.
- However, for purposes of claim 20, Petitioners contend that SGSN (the alleged second DMA gateway) provides the PDP context message to Inter-AS Anchor (the alleged first DMA gateway).
- Petitioners cannot shift their position while maintaining their original position to satisfy other claims.