Raemis™
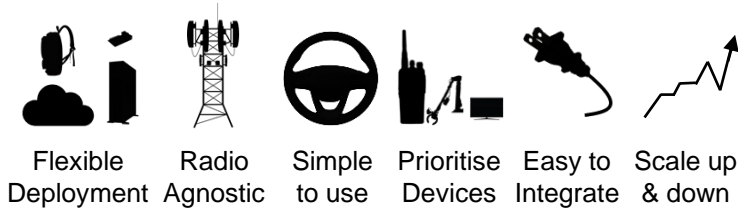## More than just a network core

Druid's LTE and 4G cellular solutions are built on our **Raemis™** technology platform, which is comprised of a 3GPP compliant 4G/5G core, RestAPI and additional functionality.

Flexible Deployment	Radio Agnostic	Simple to use	Prioritise Devices	Easy to Integrate	Scale up & down

3GPP to the Core

The Raemis™ technology platform implements all the 3GPP LTE components and features, with an easy migration path to 5G.

Private Cellular Network
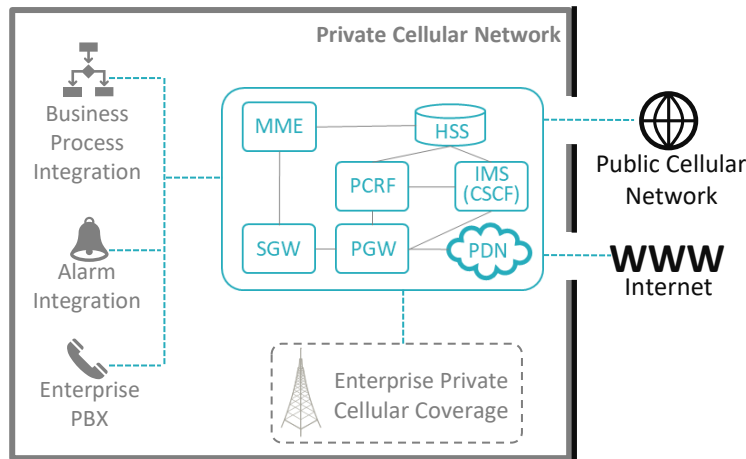
UE IP Address Assignment and DHCP

For UEs to connect to an enterprise network, they must have an IP address. Raemis™ supports IPv4 by default; IPv6 support is available. You can have UE IP addresses assigned in the following ways:

- From an address pool: When creating the PDN, you can reserve a range of local IP addresses specifically for users. When a user device connects to the PDN, the user receives the next available address from the IP address range.
- Dynamically from a DHCP server: The enterprise DHCP server automatically assigns the user an IP address. Each UE, through the Raemis platform, becomes another device on the enterprise network.

Raemis™ PCN Main Features

- Private Core Network Dashboard.
- Easy installation and enhanced integration with enterprise LANs.
- Performance and scalability (for both scale up and scale down).
- Resilience and redundancy options.
- An open RESTful API with full access to the Raemis™ platform.
- Enterprise slicing enabling dedicated security and Quality of Service (QoS) per user group.
- Real-time System Monitoring.
- UE MAC Mapping.
- Group Management and Network Management.
- PBX Integration.
- Cells Management with ACS Integration System Management.
- Admin User with GUI, Expert Mode and Edit permissions.
- Alarm Monitoring, Troubleshooting and Emergency Call.
- Setup Ethernet integration like Wi-Fi (private 4G radio network with seamless mobility).
- User Equipment (UE) IP address assignment using the Dynamic Host Configuration Protocol (DHCP).

Enhanced Integration with Enterprise LANs

For most IT managers, integrating a 4G network (which is a layer 3 network by design) with an enterprise network (which is primarily a layer 2 network) can provide complexity and challenges. Raemis™ provides enhanced integration with enterprise LANs with the following features:

- A private 4G radio network with seamless mobility
- Multiple network packet switching
- Traffic separation
- Quality of Service (QoS) per user group
- Access control per user or user group

Network Access Control

The Raemis™ administrator decides which network each UE attaches to, providing greater control over network access. UEs do not need configuration or reconfiguration when the network changes and it avoids the need for users to attempt to change their UE configuration.
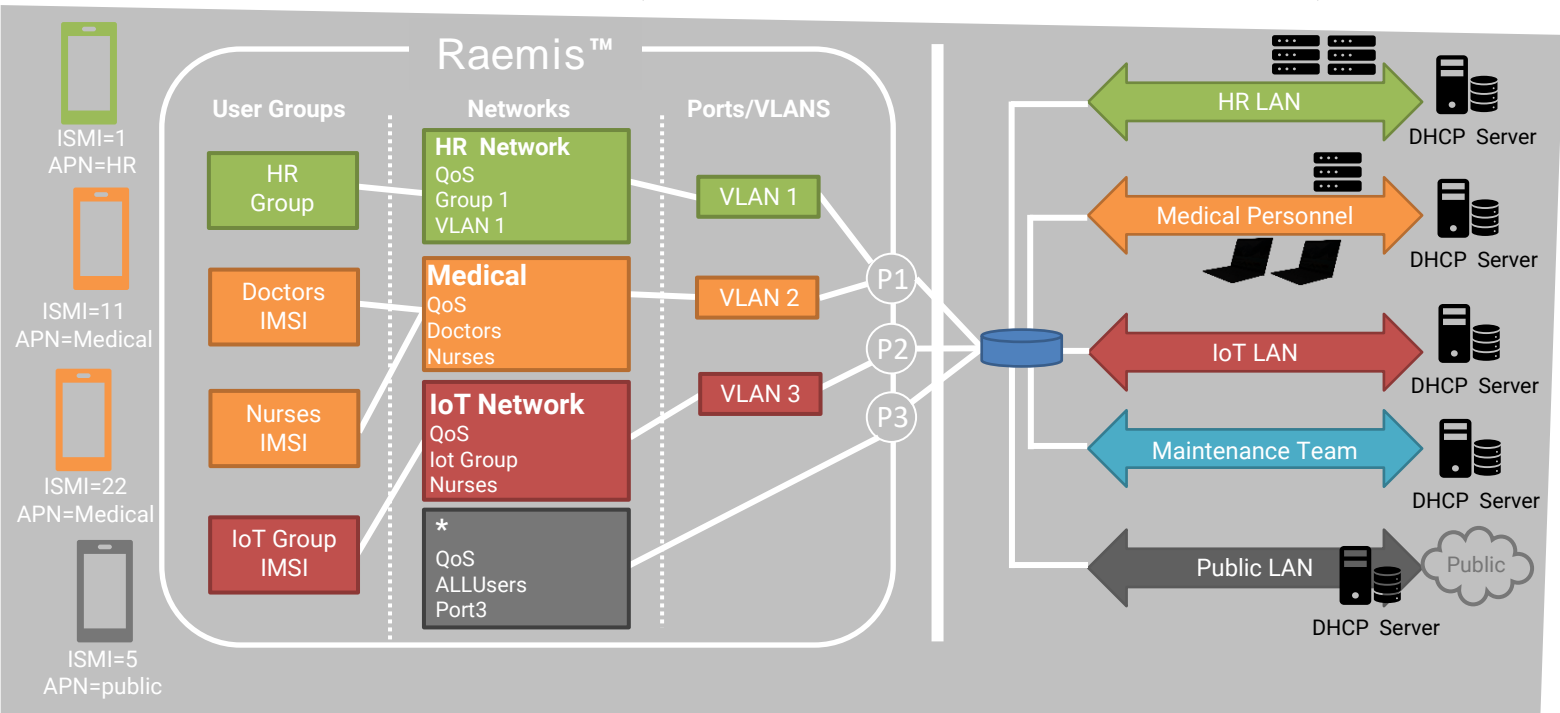
Distributed Architecture & MEC

Raemis™ 4G and 5G supports distributed architectures which can be deployed in cloud native environments with central management of multiple edge sites. This enables your network to benefit from the Raemis™ MEC and redundancy capabilities.

Enterprise Slicing

Security & Traffic Separation, Load Balancing, and Configurable QoS

The Raemis administrator can create multiple Packet Data Networks (PDNs). The Raemis PDN logical network can be associated with an enterprise VLAN (or the physical network port on the server or a VM).

Raemis™

ISMI=1
APN=HR

ISMI=11
APN=Medical

ISMI=22
APN=Medical

ISMI=5
APN=public

User Groups
- HR Group
- Doctors IMSI
- Nurses IMSI
- IoT Group IMSI

Networks
- **HR Network** QoS Group 1 VLAN 1
- **Medical** QoS Doctors Nurses
- **IoT Network** QoS Iot Group Nurses
- * QoS ALLUsers Port3

Ports/VLANS
- VLAN 1
- VLAN 2
- VLAN 3

P1 P2 P3

HR LAN — DHCP Server
Medical Personnel — DHCP Server
IoT LAN — DHCP Server
Maintenance Team — DHCP Server
Public LAN — DHCP Server — Public

PDNs enable the following functions:

- **Security and Traffic Separation :** In Raemis, you organise users in logical groups, for example by function (doctors, nurses, and so on) or department (sales, human resources, and so on) or any other logical grouping. You then assign that group to the PDN best suited to support that group's needs.
- **Load balancing:** For performance reasons and to avoid traffic bottlenecks, you can use PDNs to spread the network traffic load across the different enterprise VLANs.
- **Quality of Service (QoS) allocation:** You can create PDNs that provide different QoS levels on the 4G network (not the enterprise network) and easily control user access to those PDNs.

The Raemis™ GUI

The Raemis™ GUI uses the Raemis™ RestAPI to access the core software and 3GPP components of the network, hiding the complexity of the 3GPP network, enabling an Enterprise's IT manager to perform complex tasks in a few clicks.

The Raemis GUI facilitates three levels of customisation:
- White labelling: Replacing the Raemis brand logo and product name.
- Extension Apps: Adding a new panel to the GUI.
- New GUI. Replacing the existing GUI with a customer-developed GUI.

The Raemis™ API

The Raemis™ platform exposes a powerful RESTful API that enables application developers to build on top of Raemis or integrate external applications with the Raemis platform. Druid developed the Raemis™ PCN GUI using the same RESTful API that is available to application developers. Any feature, data, or action that currently available in the Raemis™ GUI is also available using the RESTful API.

Scalability

- The Raemis™ platform works for organizations of any size, from small businesses to large enterprises.
- During the commissioning phase, Raemis is configured for the number of eNodeB devices (from 1 to 1000) and provisioned users (from 1 to 50,000).
- The Raemis platform can scale down to a single eNodeB device and a handful of users all in a single VM that has a small computing and memory footprint.

User Types

User Type	Non-GBR Data	GBR Data	Unlimited through put	Handover Possible
Real Time	Yes	Yes	Yes	Yes
Data Only	Yes	No	Yes	Yes
IOT	Yes	No	No*	Yes
FWA	Yes	No	Yes	CR

GBR - Guaranteed Bit Rate | CR – Cell Reselection | *12 kbs