

Les spécificités des réseaux privés destinés aux producteurs d'électricité



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Druid

Alliance 5G Industrielle Event Presentation from Druid Software



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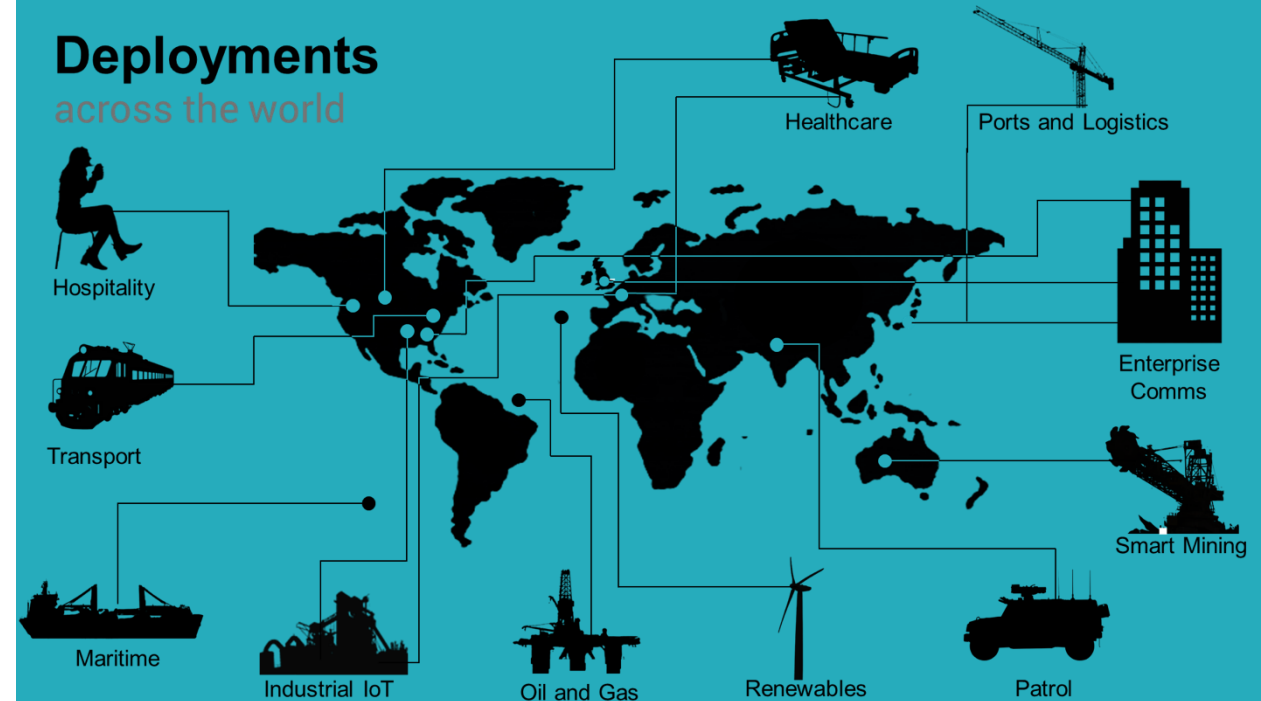


<https://www.druidsoftware.com>

About Druid Software

- Global leader in providing specialized cellular solutions to a range of markets
- HQ in Dublin, Ireland. Support centers around the world in US, Netherlands, India & Japan.
- 25 years' experience encompassing generations of cellular technology
- Incorporated in France
- ANSSI Certification in progress

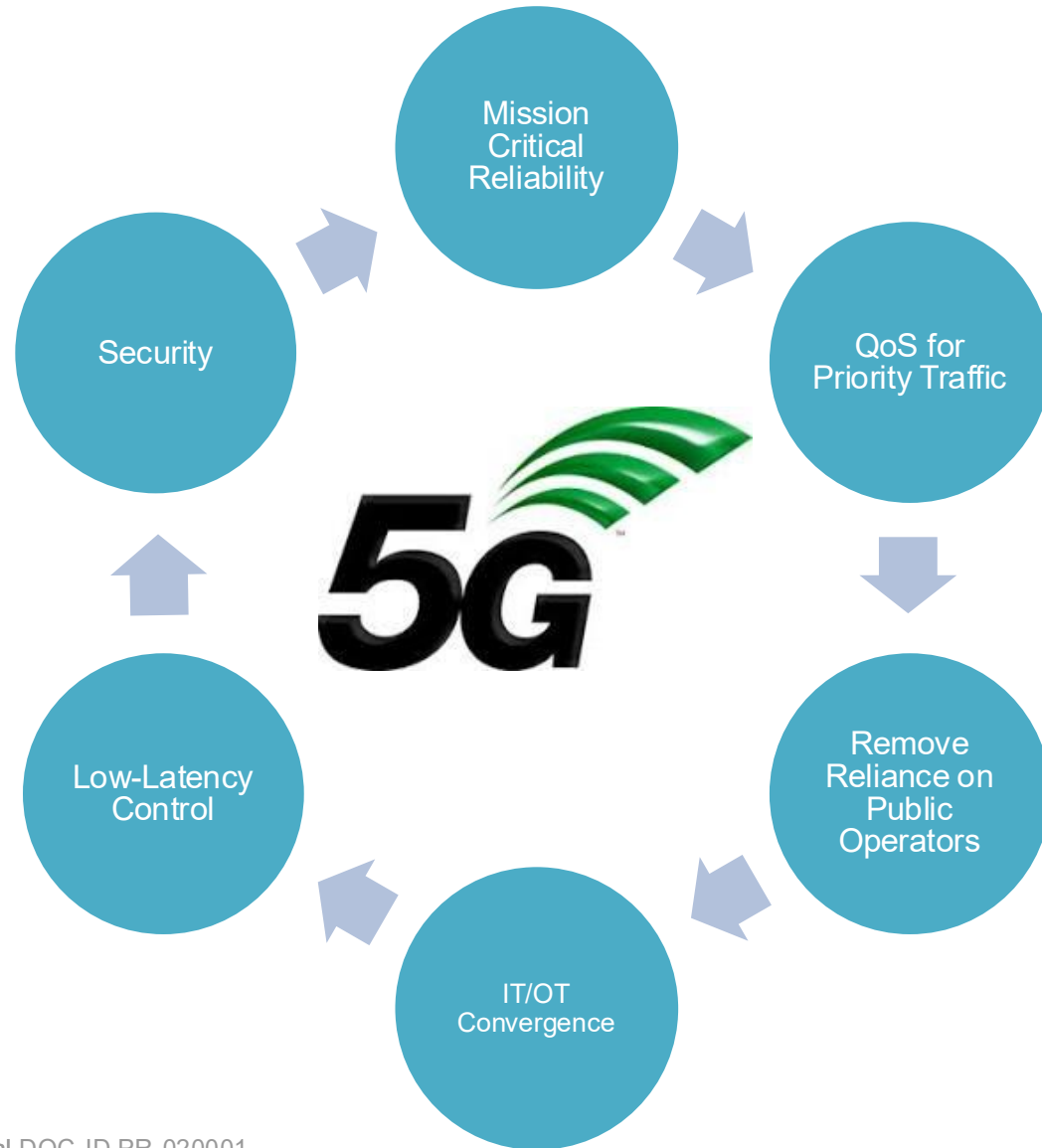
Deployments across the world



The image shows two utility workers in a power plant. They are wearing yellow hard hats, safety glasses, and high-visibility orange safety vests over dark jackets. The worker on the left is looking towards the right, while the worker on the right is talking on a mobile phone. The background features industrial structures, including pipes and large windows, with a warm, golden light source on the right side of the frame.

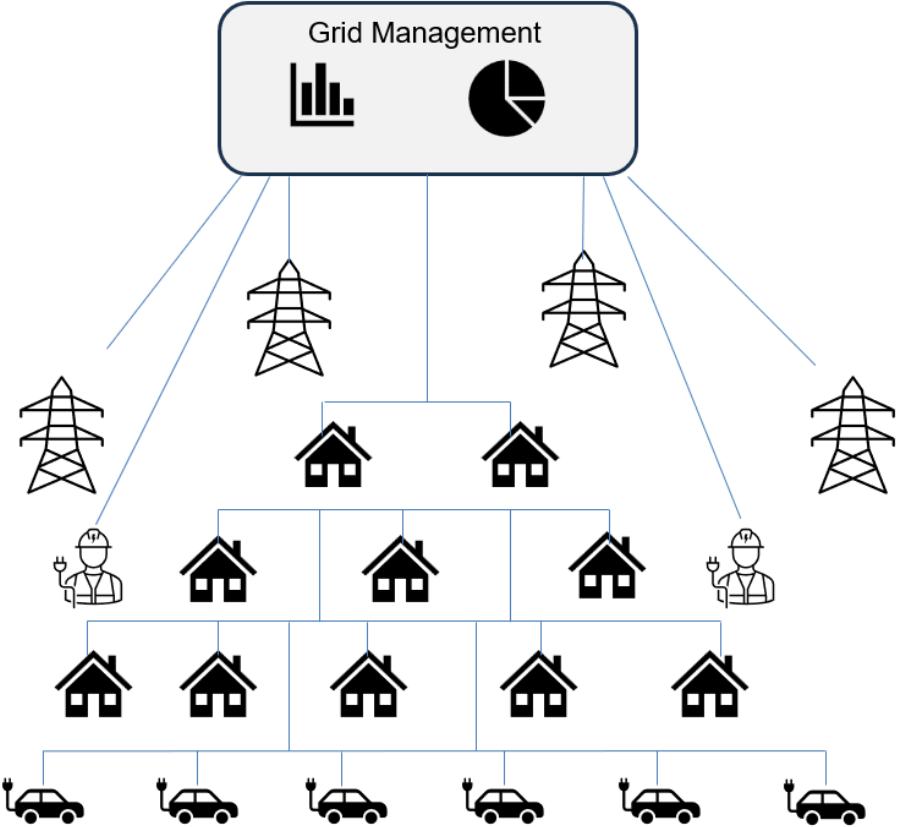
Market Requirements from Utility Customers

Why Our Utility Customers are Demanding Private 5G Solutions

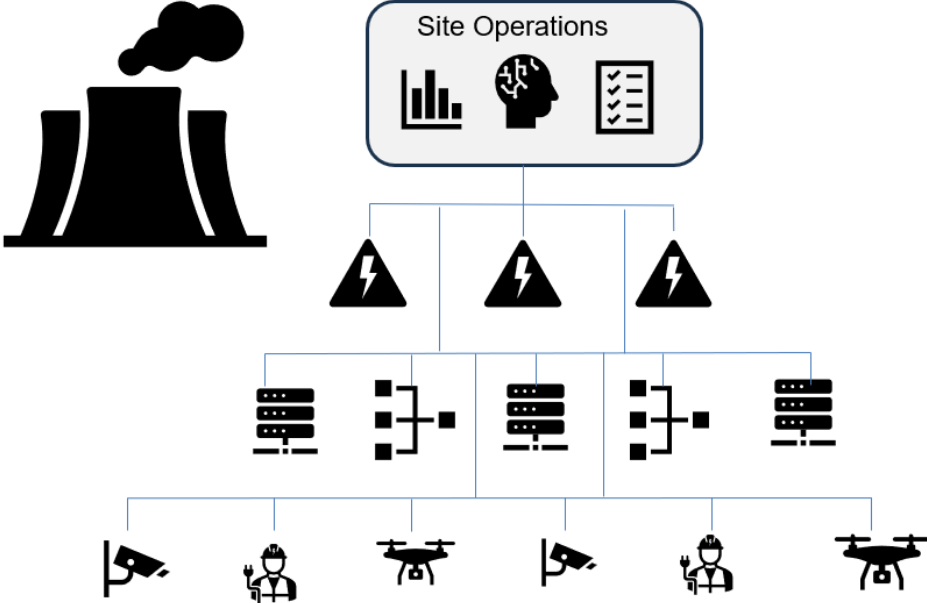


2 Distinct Wireless Solutions Required for Utilities

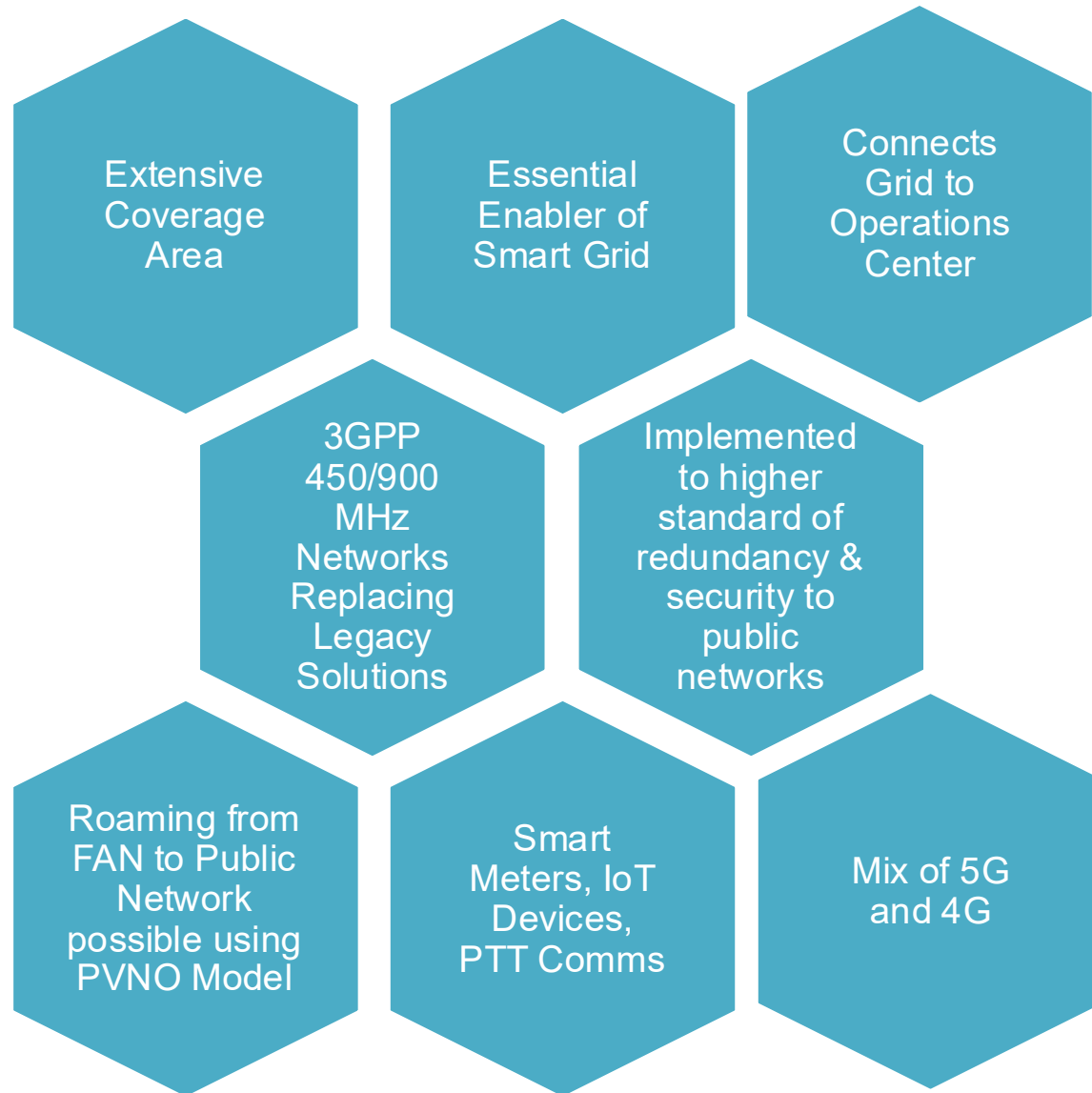
Field Area Network



Critical Site Network



Field Area Networks (FAN) - Characteristics



Critical Site Networks - Characteristics



Defined Coverage Area

Poorly Serviced by Public Networks

Essential for Site Operations

High Bandwidth & Low Latency Required

Utility may need multiple networks at different sites

Real Time Control of SCADA devices

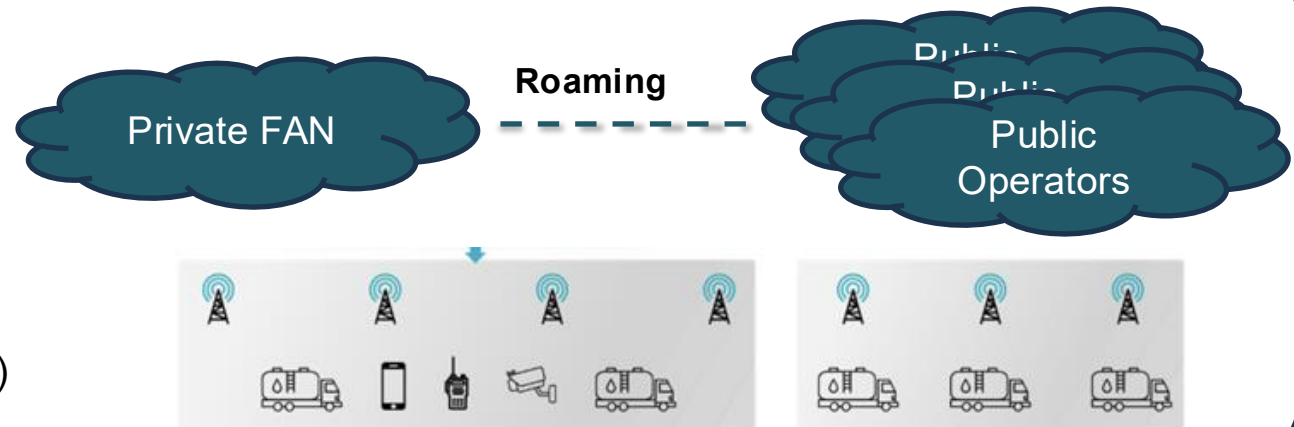
Site Security & Monitoring

Typically 5G Based

Coverage Requirements

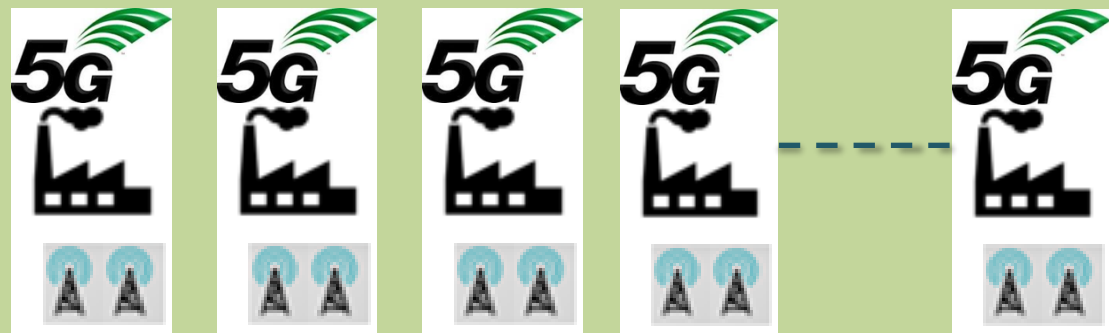
Macro Level

- Single Field Area Network (FAN) covering service area for Mobile Workforce & Millions of connected devices
- NB-IoT and LTE-M
- Private coverage augmented by public operator coverage via Roaming/MVNO model
- Strong security requirements (CNI)
- Mostly LTE-based (450/900Mhz)



Critical Site Level

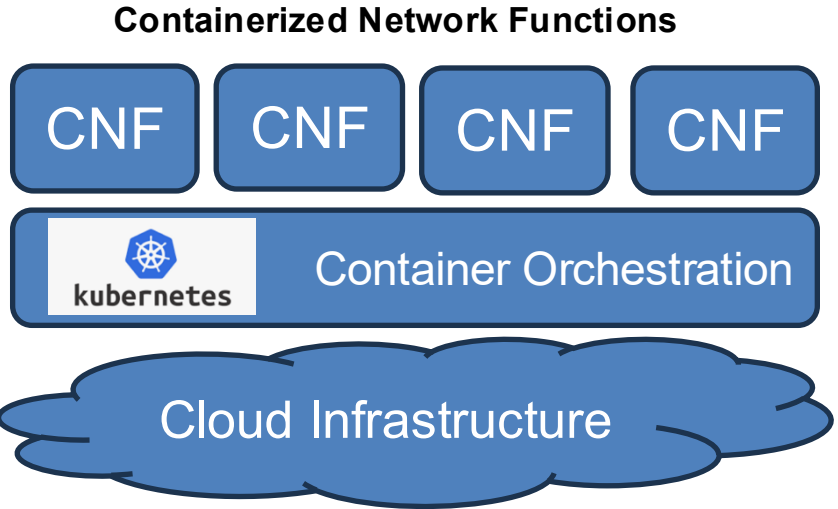
- Large number of autonomous networks functioning independently of each other and the FAN.
- Low-latency control over SCADA devices at power stations etc.
- Deterministic performance
- Mix of high- and low-bandwidth applications
- Private 5G essential



Technical Implementation (Core Network Architectures)

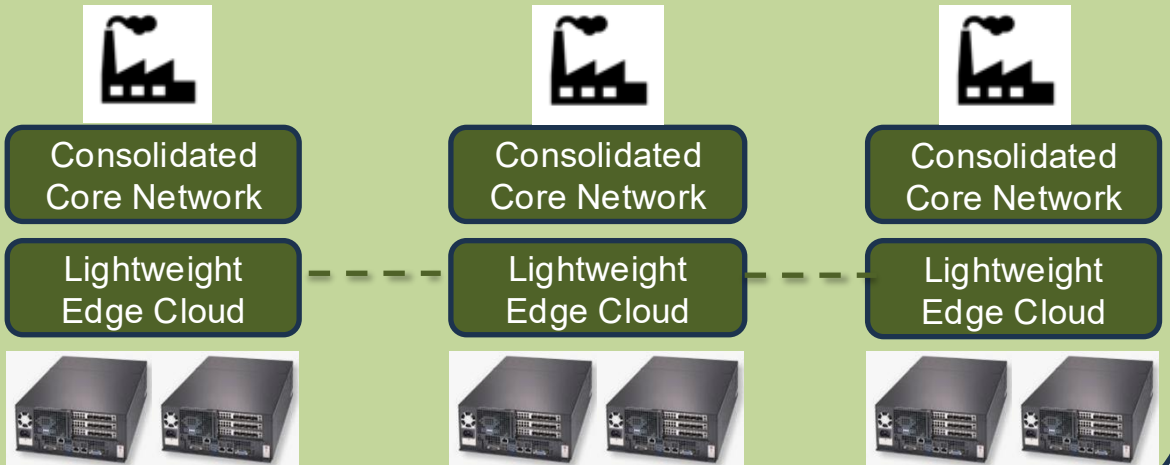
Macro Level

- Cloud-Native Large Scale 4G/5G Core Network deployed in Geo-Redundant Datacentres
- Public or Private Cloud Based
- Integrated with Public Operators and other Private Networks via standard roaming and interconnect agreements
- Integrated with wide set of Grid Management, Billing and other Applications



Critical Site Level

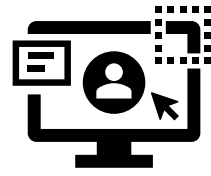
- Highly-available Private 5G network deployed on robust edge servers for resilience and local performance
- Local Private RAN for indoor & outdoor coverage
- Integrated with central management applications but capable of fully autonomous operations



Unified Management of Macro Level & Critical Site Level Networks



Mission Critical Communications



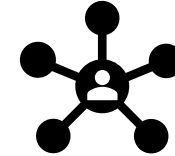
Network Management



Analytics



Grid Management



Provisioning & Access Rights



Location & Asset Tracking

Unified Operations

Containerized Network Functions

CNF

CNF

CNF

CNF



Container Orchestration

Cloud Infrastructure

Macro Level



Consolidated Core Network

Lightweight Edge Cloud



Critical Site Level



Consolidated Core Network

Lightweight Edge Cloud



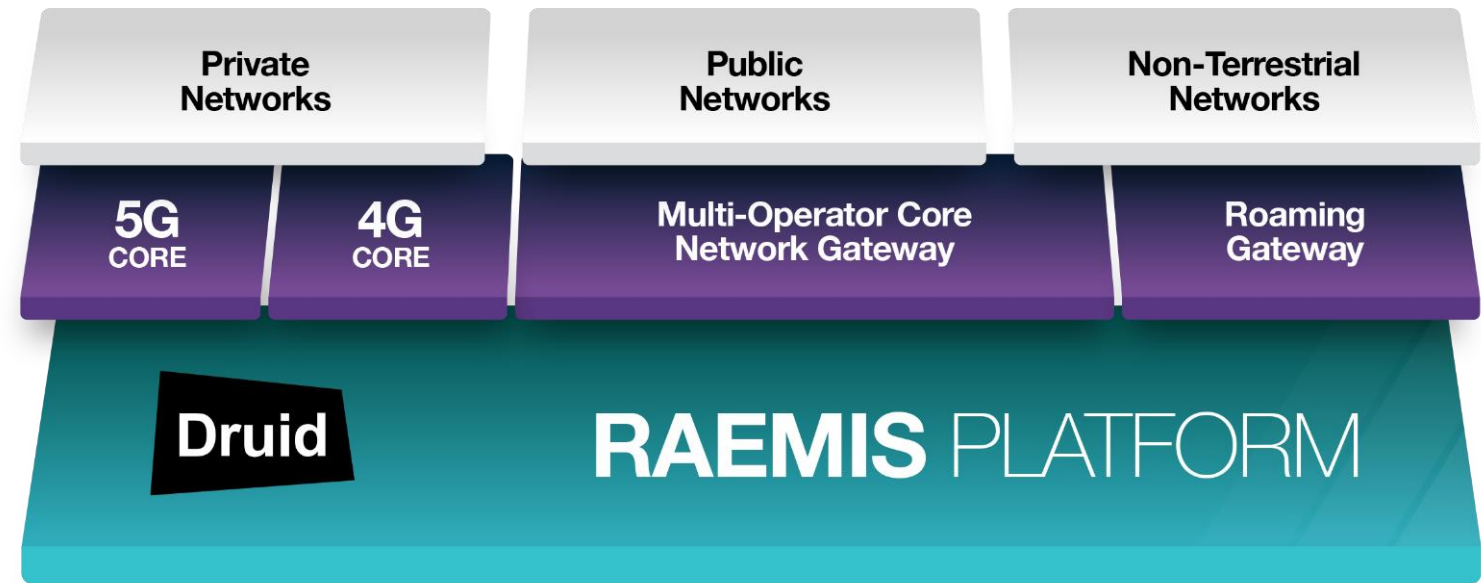
Druid



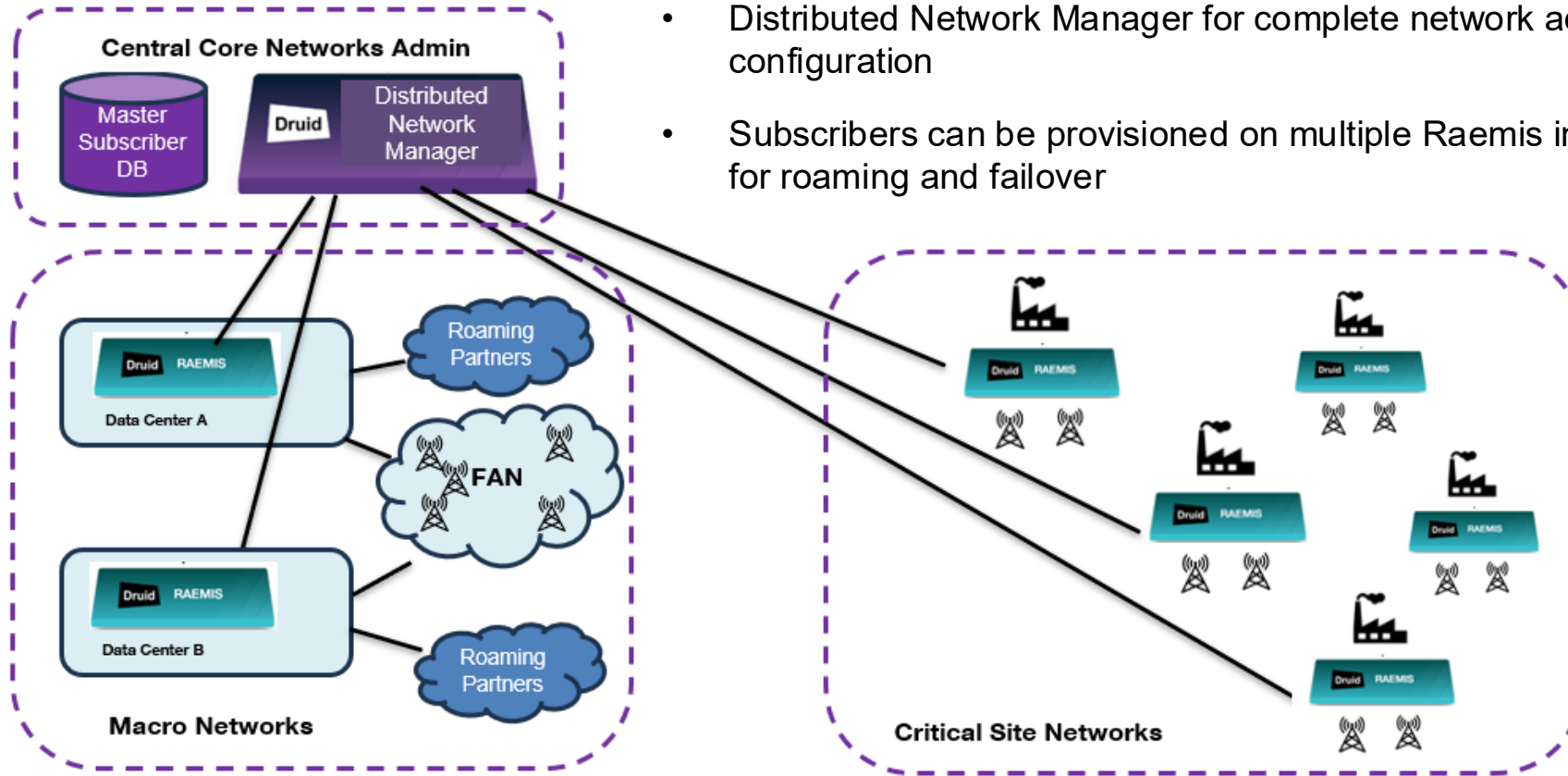
Private 5G for Utilities Solutions from Druid Software

Druid's Solution - Raemis Cellular Core Networking Platform

- Druid's Solutions for Private Networks for Utilities built on our **Raemis** platform
- Used to implement private, public and non-terrestrial core networks
- Multi-generational, supporting 5G & 4G on the same core network
- Can be deployed in different architectures for different use cases (FAN & Critical Sites)



Our Reference Architecture for Utilities



- Distributed Network Manager for complete network administration and configuration
- Subscribers can be provisioned on multiple Raemis instances as required for roaming and failover

- On-prem Raemis installations provides full autonomy and guarantees of local services
- Redundant HA configurations supported
- Range of server sizes supported for different sized networks, including highly-portable NIB configurations

- Cloud Native Raemis implementations at core Geo-Redundant Datacentres supporting macro level FAN and MVNO roaming to public networks
- Both sites synchronized for redundancy & failover

Reference Deployments of Raemis in the Utility Industry

- In partnership with Hughes, we are delivering a FAN based on 4G (450Mhz) to COPEL in Brazil
 - Provides connectivity to Distribution Automation & Advanced Metering Infrastructure to COPEL's operation center
 - Mix of Cat-M and NB-IoT devices
 - https://www.linkedin.com/posts/druid-software__alta-utilities-activity-7440457540049498112-3Q9K/
- Critical Site Private 5G Networks for Power Stations & Hydro-Dams in US
 - Initial project provides Critical Site coverage at 5 locations, with 2 central core networks. Planned to grow to cover 50 locations
 - Main use case is Video Monitoring of water outflows and other infrastructure
- Roaming solution for US utility permitting roaming between private networks and from private to public network

Q&A



Thank You