



NEARBY
COMPUTING

Druid



Enterprise Connectivity: The Power of 5G Private Networks and Edge Computing

Nearby Computing and Druid for rapid innovation in 5G private networks

Use cases: slice orchestration, video analytics, & MCPTT
Automation, Orchestration & Management at your fingertips

Introduction / Background Private Networks (PN)

Private networks are dedicated cellular networks that lie outside of public networks and mainly address the need for greater security and bandwidth for business use. Consequently, only devices that are authorized and part of a private network are permitted to establish a connection to the network. Private networks deliver superior performance across various aspects, for example higher performance in data management capacity, quality of service, reliability, security, latency, and flexibility of coverage.

Private networks are strongly recommended to segregate end-user devices from public networks, minimizing risks associated with sensitive data exposure. This security measure is crucial when handling personal data, intellectual property, or sensitive information. Applications like video analytics and critical communications thrive in this secure environment, capitalizing on enhanced protection and controlled access offered by private networks for optimal performance and data integrity.

Deploying a private network involves several **goals** related to infrastructure, security, regulatory compliance, and operational aspects:

1. The Network Infrastructure: 5G introduces a cloud-native and software-defined network architecture, which requires significant changes to the existing core network infrastructure. Transitioning to a virtualized and containerized network environment can be complex and costly.

2. Security: 5G networks introduce new security challenges due to the increased attack surface, virtualization, and the use of network functions in the cloud. Ensuring the security and privacy of 5G networks is a critical concern.

3. Bandwidth: some use cases, as video analytics, need to ensure seamless data transmission and real-time analysis for video feeds without compromising other network services' performance or security Network slicing is crucial for a video

analytics use case as it allows the creation of a dedicated slice tailored to meet specific bandwidth, latency, and reliability requirements, ensuring optimal performance for high-resolution video processing and analysis.

4. Interoperability: Integrating 5G networks with existing 4G and other legacy networks is crucial for a smooth transition. Combining various hardware and software components from various vendors while ensuring seamless interoperability and compatibility must be faced using different protocols.

5. The Scalability Challenge: seamlessly managing up to thousands of instances of the same application that will be running in cloudlets globally, as easily as managing one single instance in the cloud, with similar OPEX.

The joint solution

As the requirement for private networks grows, the complexity of these solutions requires specific tools to manage and automate the various infrastructures, network functions and applications. To make a viable solution, a robust and easy-to-use private cloud-native core needs to be paired with a flexible and scalable solution that can orchestrate everything from a single site all the way to a widely distributed network, preferably from a single interface.

This document illustrates how to implement a PN for mission-critical use such as Video Analytics and Mission-Critical-Push-to-Talk ,with Raemis™, Druid's 5G core, & NearbyOne automation platform.

Druid's Raemis™ 5G core network platform

Raemis™ is a set of cellular software assets optimised for business-critical use cases. The platform harnesses 5G, 4G, 3G, 2G and Wifi radios from any vendor to implement standalone cellular core network solutions. It also integrates with mobile network operators using standard interfaces giving access to all of the radio resources of these operators. The Raemis™ platform adheres to 3GPP standards and stands out for its flexibility, slicing capabilities, interoperability, and simplified deployment and testing options, making it a compelling choice for private network deployments.

The automation platform, NearbyOne

Can deploy Druid's core in different environments, from any hyperscaler infrastructure to private clouds and even on-premises, ensuring a fully streamlined Day-0 deployment and automated lifecycle management, saving up to 90% of operation time and minimizing operation costs. In addition, NearbyOne can orchestrate Druid's core slicing allowing multiple network slices to be created on top of a common physical infrastructure. Each slice can be allocated based on the specific needs of the applications, use case, or customer. Furthermore, thanks to the automation, services on the MPN can be exposed, or not, to specific slices automatically. That is, when a new slice is added, the orchestrator will ensure to expose all those services bound to all slices plus those bound to the new slice. Finally, Druid's core, UPF, and slices can all be managed from the same dashboard used to manage services and infrastructure; providing a single-pane of glass to manage the entire MPN.

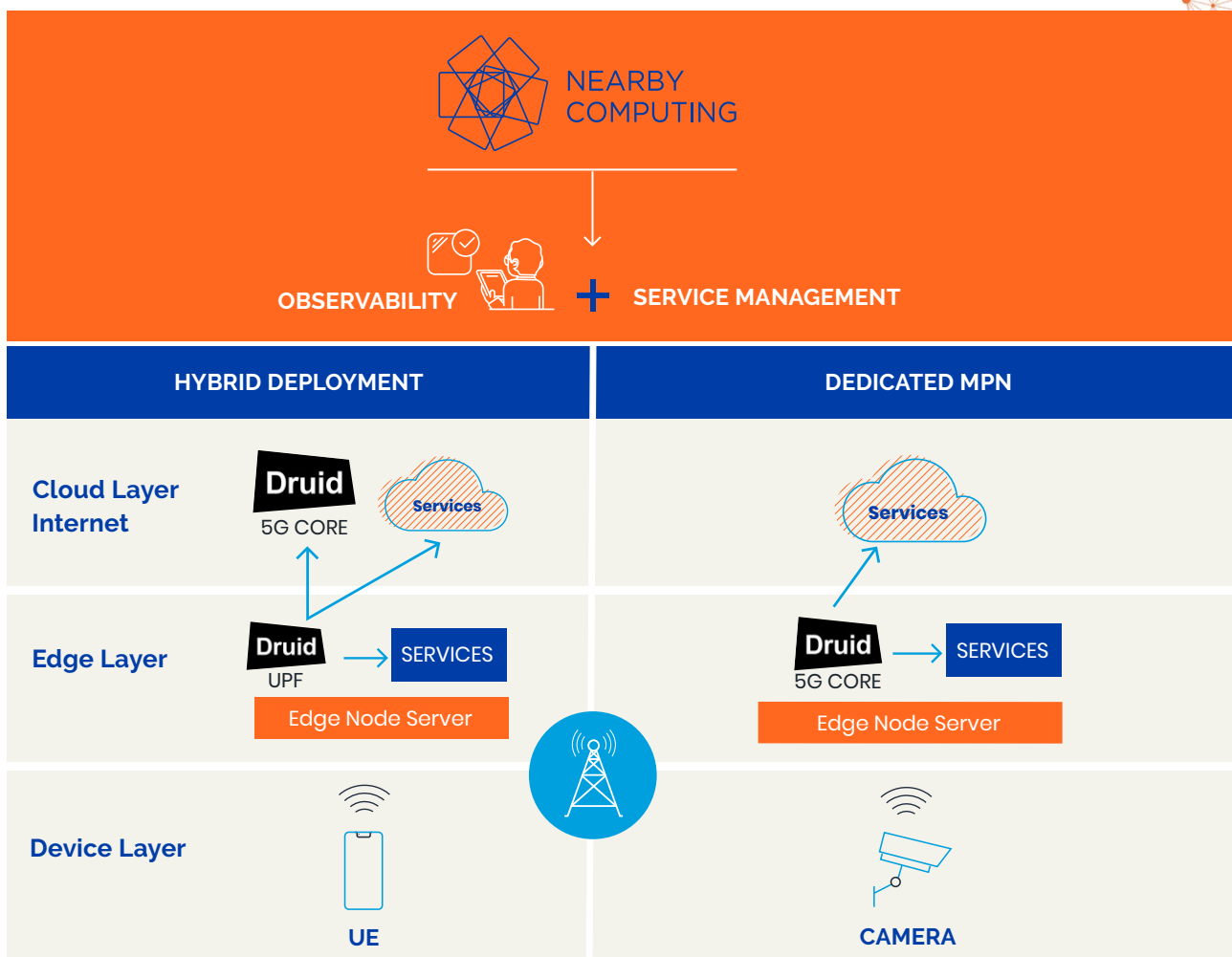
Value proposition

The joint solution provides the most complete, flexible, cost-effective and reliable 5G private connectivity, giving access in minutes to edge computing app management.

By deploying Druid's 5G Core with NearbyOne, costs can be slashed by a significant percentage. Automation done by NearbyOne allows tasks to be completed within minutes, cutting the required manpower in half. The collaboration between these two companies offers numerous advantages for end-users. Druid's highly streamlined Day-0 deployment, coupled with automated lifecycle management facilitated by the joint solutions, results in up to a 90% reduction in operation time. This efficient partnership not only reduces costs but also ensures swift and automated processes for deploying and managing the 5G Core, benefitting end-users immensely. Eventually, enterprises get the most out of their private 5G network without issues in a timely manner.

Accordingly, enterprises willing to deploy private connectivity and services at their production sites will have access to the most powerful and reliable yet compact Private 5G solution, deployed in minutes instead of weeks, and will gain immediate access to managed Edge Computing applications.

Solution Architecture



Features description

The solution can be deployed with Red Hat or any other Container Platform Management.

NearbyOne is a multi-cloud, multi-site, multi-platform management ability across all the tiers of the network.

- Manage the infrastructure, the network functions, and services from a single-pane of glass.
- Rich marketplace with a pre-existing catalog of integrated applications and Druid's solutions available out of the box.
- Possibility to "bring-your-own-vendor" and onboard them using the open onboarding framework.
- Service Applications intent driven orchestration: such to automatize overall solution deployment dependently from the specific service applications KPIs and needs.
- Distributed telemetry, log, and tracing collection from multiple sites.
- Vendor agnostic and integrated support for hyperscalers, VMware vSphere and vCD, Red Hat Advanced Cluster Management for Kubernetes, SUSE Rancher, Sylva, Wind River Studio Cloud Platform and more.

Druid's Raemis™ 5G core network:

- Intuitive Management Interface which makes installing and maintaining a private cellular network as easy as setting up Wifi. 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 IT manager to perform complex tasks in a few clicks.
- REST API integration enabling a myriad of value added applications to enhance the private cellular network.
- The Raemis 5GC is implemented in line with the 3GPP standards, supporting all features necessary to create private 5G networks, including its business process oriented APIs, management interface and enterprise slicing concept.
- The platform supports & goes a step further in bringing the slicing concept directly to Enterprise and Edge Private Networks. It enables management of these "enterprise slices" with an intuitive web interface that can be operated by any qualified IT technician.
- 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.
- Raemis 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.

Benefits

01

Immediate Access to Manage Edge Computing Applications

As the joint solution can be deployed in minutes instead of weeks.

02

High Flexibility

As the solution can be deployed in different environments and architectures, from any hyperscaler infrastructure to private clouds and even on-premises, centralized or distributed.

03

Scalability is Allowed

Customers can start with a light solution that can progressively grow up to thousands of connected devices in one or multiple locations.

04

Complete Observability Stack

That facilitates real-time monitoring, analysis, and management of data, applications, and infrastructure components. This combined solution supports efficient decision-making, proactive issue resolution, and optimization of resources within complex systems.

05

Tailored Usage of the Network by the Applications

Each app can secure connectivity and quality of service through slicing and other policies directly configured on Raemis.

06

Cost-effective

A fully streamlined Day-0 deployment and automated lifecycle management is ensured by the joint solutions saving up to 90% of operation time and minimizing costs.

Druid's Raemis™ is a compact yet extremely flexible 5G core solution that, from an automation and orchestration standpoint, allows a fast creation of blueprints tailored to the customer's specific needs. We are happy to partner with Druid as it enables Nearby to develop all the functions that enterprises perceive as differential.

Josep Martí
CEO at Nearby Computing

Nearby Computing serves as an important orchestration management partner for Druid, facilitating seamless integration for diverse applications. Their support for slice orchestration, video analytics, and mission-critical push-to-talk highlights their commitment to advancing innovative solutions for Enterprise communication and connectivity.

Liam Kenny
CEO at Druid Software



Druid

About Druid

Druid Software, founded in 2000 and headquartered in Ireland, is the **industry-leader in private cellular network technology**, and provides enterprise-focused core network platform to advance connectivity and enable simplified private network management.

For almost 25 years, customers and partners worldwide have chosen Raemis™ platform to connect applications, devices and radios benefiting from enhanced security, performance, and cost-efficiency.

The Raemis™ platform is in use today by ISPs and Enterprises for mission-critical environments all over the world. Druid's technology enables solutions in different areas including Enterprise Communications, IoT, Mobile Edge Computing, Neutral Host and Public Safety.

For more information, email enquiries@druidsoftware.com or please visit our website. To stay up to date with everything private networks follow us on our social media.



Bray Civic Centre
Main Street, Bray
Co. Wicklow
Rep of Ireland
A98 EIW9



About NearbyComputing

The company was founded in 2018 and operates globally from its headquarters in Barcelona, Spain as **global leader in Edge Orchestration**.

Nearby Computing has been Named a **2023 Gartner Cool Vendor in Edge Computing** and helps Telcos & Enterprise customers unleash the potential of Edge Computing through Orchestration and Automation of MEC and 5G.

NearbyOne is an orchestration platform that goes beyond market standards to manage all tiers of the network, from Cloud and Data Centre to Edge, from a single pane of glass. Using a cross-domain approach that is fully agnostic, NearbyOne manages hybrid networks at scale through domain-specific as well as comprehensive end-to-end orchestration. The solution covers all critical elements of deployment automation - from the initial Edge node provisioning to application on-boarding, to lifecycle management and LA monitoring.



C/Tuset 32, 2ª planta
08006 Barcelona
+34 936 550 050
info@nearbycomputing.com



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