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Future-Proof Tactical 4G/5G for Military Operations

To engage successful military operations in the field, ground personnel require enhanced situational awareness and coordination. Rapidly deployable communications systems can provide resilient and secure voice, high speed data, and high-quality video communications while meeting the military's operational needs.

Oracle offers a tactical 4G/5G solution—a portable and ruggedized, localized-in-field network using Oracle Roving Edge Infrastructure—that solves challenges often faced in military field operations. The Roving Edge Infrastructure hosts the Druid 4G/5G mobile core as well as mission-critical applications for military operations. The Druid mobile core is a 3GPP (3rd Generation Partnership Project) -compliant scalable solution. Hosted mission critical applications can include video streaming, target identification, mission-critical push to talk, battle management systems, or gunshot detection systems. This cutting-edge solution offers a high speed, low latency voice over new radio (VoNR), data and video communications. The validated interoperability of Druid Core with a multitude of 4G/5G Radios and legacy TETRA based private narrowband networks provides the freedom of choice for customers.

Consider a mission-critical target identification operation requiring a rapidly deployable communication system for coordination and providing real time streaming for enhanced situational awareness as shown in Figure 1. Oracle's integrated Tactical 4G/5G mobile solution deployed on a military vehicle becomes the keystone of communication, data processing, and coordination for the operation.

The drone swarm (1), equipped with high-resolution cameras, conducts aerial surveillance, and transmits live video footage to the 4G/5G radio (2) mounted on the military vehicle. The radio (2), provided by either the customer or by Oracle, establishes a high-bandwidth, low latency connection to the 4G/5G core (3) to transmit high-definition video. The transmitted video is then directed to the video processing and streaming server (4), enabling instant analysis using artificial intelligence algorithms. The processed video, which is available to view in the military vehicle, is distributed to both the remote command center (5) and highly mobile units (5), like an infantry squad or special operations team, which can view and interact with the video stream or data analysis using a device, like a ruggedized tablet.
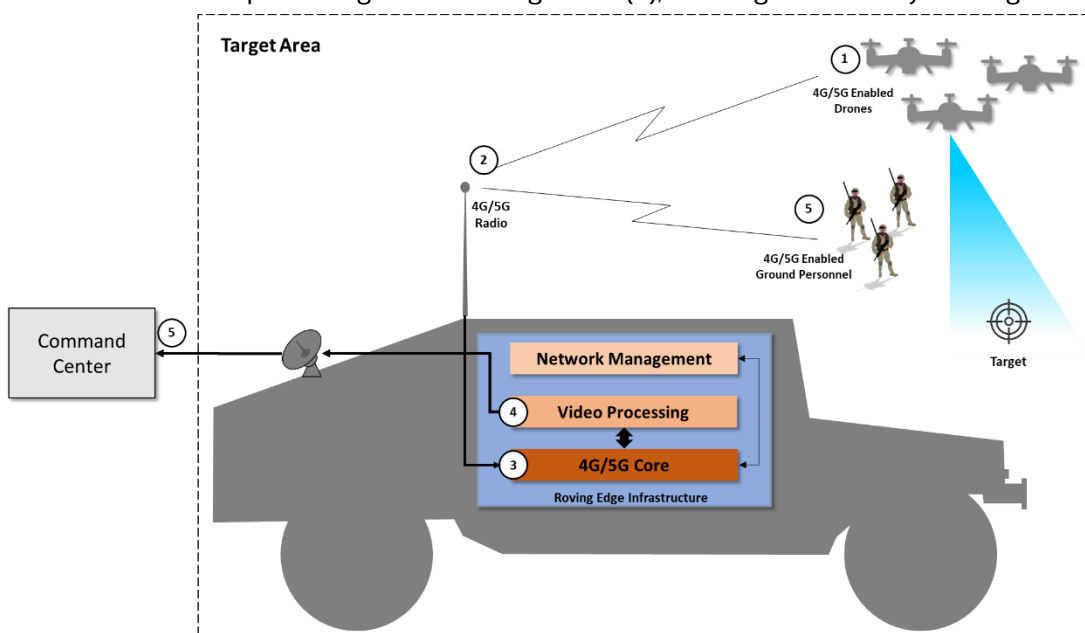

Figure 1 : Roving Edge Infrastructure enabled tactical 4G/5G solution.

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## Extend Cloud Capabilities to the Edge
Meet the demands of performance, reliability, and security.

Oracle Roving Edge Infrastructure is a cloud-integrated service that runs mission-critical, time-sensitive applications at the edge. Roving Edge provides an ecosystem of Oracle IaaS services deployed outside of the data center that allows you to run virtual machines from your cloud tenancy. This enables low latency processing closer to the point of data generation and ingestion, resulting in more timely insights into your data.

Oracle Roving Edge Infrastructure can independently store, collect, and process large datasets to accelerate tactical decision-making for today's modern missions even in the most remote and austere environments. Once deployed, customers can synchronize object storage between the edge nodes and cloud when a network connection is available.

What Druid 4G/5G Core Provides

Druid provides a 3GPP-compliant mobile core platform supporting 5G StandAlone, Non-StandAlone, and 4G with unique features designed specifically for mission critical communications. For example, the platform is differentiated by its ability to easily prioritize and "slice" devices, providing proven quality of service. Druid provides a scalable solution, enabling the setup of small or large tactical 5G networks as well as providing the flexibility to choose your own 4G/5G Radio vendor. Druid's technology enables solutions in different areas including Enterprise Communications, IoT, Mobile Edge Computing, Neutral Host, and Public Safety. Druid offers a complete standalone solution that includes management, provisioning and reporting in a single software platform. From power-up, the application can be operational in less than five minutes, and users can be configured and managed locally via an onboard GUI.
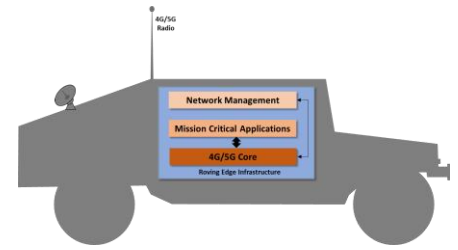
Oracle Roving Edge Infrastructure enabled Tactical 4G/5G offers portable connectivity quickly in remote and disconnected regions to provide reliable, low-latency, and secure end-to-end communications across devices in the field.

Key Benefits of Druid 4G/5GCore on Oracle Roving Edge

- Secure, ruggedized, portable, scalable, and easy-to-deploy platform
- On-demand Coverage with proven Quality of Service
- Unified customer experience across Oracle Cloud Infrastructure (OCI) and Oracle Roving Edge Infrastructure makes adoption, control, and management effortless
- Standalone 3GPP-compliant combined-4G/5G platform
- Ability to run time-sensitive, mission-critical applications such as video processing, battle management systems, and gunshot detection systems in locations typically lacking consistent network connectivity
- Low-latency intensive data processing and AI/ML capabilities at the edge, removing data upload bottlenecks and ensuring data sovereignty
- Cost-effective edge solution that extends OCI functionality for Oracle Cloud Infrastructure, and other applications to ensure consistency from cloud to edge
- Integrated management, reporting, and provisioning

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Solution Specification for Oracle's Tactical 4G/5G

Oracle Roving Edge Ultra

PHYSICAL SPECIFICATIONS

- 7.4" L x 6.3" W x 2" H, 3.75 lbs. (1.7 Kg).
- With battery pack - 7.4" L x 7.95" W x 2" H, 4.80 lbs. (2.18 kg)

ELECTRICAL / POWER

- 55 W / 9 - 36VDC
- Battery pack options
- Voyager 1+: 120 W power output with 65 Wh battery backup power

CPU

- Intel Xeon CPU D-1559 6230T @ 1.50Ghz
- 12 total cores (8 cores usable)

MEMORY

- 96 GB DDR4 (64 GB usable)

STORAGE

- 7.68 TB raw

NOISE LEVEL

- < 60 dB

NETWORK INTERFACE

- 2x 1 GbE (1 active)

SECURITY

- TPM, Trenchboot SecureBoot
- Physical Tamper Evidence
- Removable Ignition Key

COMPLIANCE

- FIPS 140-2 Level 2, MIL-STD-810H, MIL-STD-461F

OPERATING TEMPERATURE

-20 C to 50 C (-40 C to 85 C storage)

Druid 4G/5G Core Software

- 3GPP-compliant core network
- Supports 5G SA, NSA, and 4G
- Validated interoperability with over 30 Radio vendors
- RESTful APIs to access network functions
- Support for Integrated Access and Backhaul to daisy chain the Radios
- GPS independent positioning and eSIM support
- Network Slicing
- Supports data as well as VoLTE/VoNR
- NBIoT/LTE-M
- Non-Terrestrial Network (NTN) support

Radio

- Oracle Partner 4G/5G-Radio vendor OR customer's choice