Druid

SOLUTION BRIEF

Private Cellular Networks for the Defense Industry

Druid Software is a core network software company and a market leader in delivering highly scalable, low footprint 4G and 5G cellular network solutions.

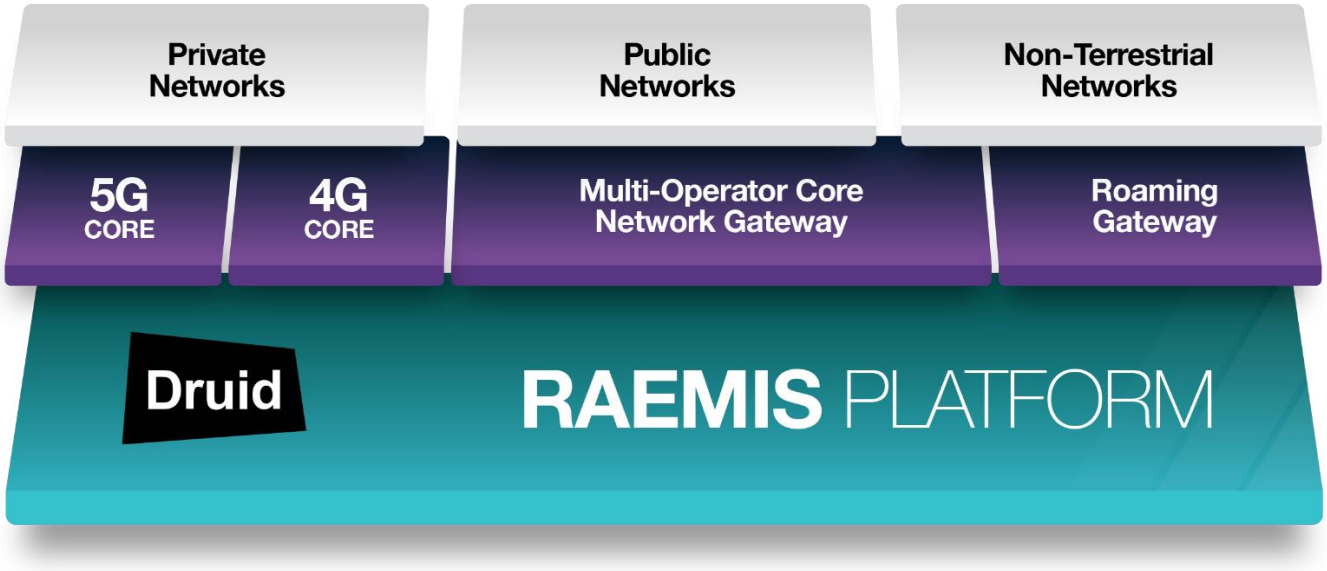
Established in 2000, Druid has built a strong track record in meeting the requirements of different market segments for robust, high-quality mobile core networks. Druid harnesses the power of 3GPP technology to build specialized core network solutions for diverse use cases.

This document describes how defense industry customers can take advantage of Druid's cellular technology to deploy rapidly configurable, highly resilient tactical private 4G/5G networks ensuring secure and always on connectivity in highly contested and communications-denied environments.

Raemis™ Platform

Raemis provides an ultra-efficient, highly scalable platform for a wide variety of cellular core network functions across multiple mobile network technologies.

It is a mature, field-tested platform that includes an extensive set of unique features specifically designed for use by mission-critical applications. With over 5,000 deployments, Raemis is one of the most widely used core network platforms in the market today.



Wireless Networks and Modern Defense Forces

In today's rapidly shifting operational landscape, reliable wireless communication is mission critical. Whether supporting forward-deployed troops, coordinating multinational joint exercises, or enabling real-time situational awareness, military operations' success reliant on secure, high-performance connectivity. Wired infrastructure can't keep pace with the mobility, unpredictability, and high-speed nature of tactical modern missions. Whilst wireless networks deliver the speed, flexibility, and resilience needed to operate across rugged terrain, urban conflict zones, or post-disaster environments. From live ISR feeds and MCX voice to autonomous systems tactical edge computing, wireless networks are the connective layer that binds the modern battlefield into a cohesive, responsive force.

To meet operational demands, modern defense communications networks must deliver:

- **Network Survivability in Contested Environments**
  Networks must remain operational under duress and withstand jamming, infrastructure failure, cyberattacks, and denied backhaul while ensuring continuity of mission-critical services.
- **Operational Flexibility**
  Systems must adapt quickly to shifting mission needs, whether supporting mobile command posts, humanitarian deployments, or autonomous platforms in austere locations.
- **Deterministic Performance**
  Ultra-reliable, low-latency connectivity is essential for applications like ISR, mission-critical voice, robotics, and C2 where timing, delivery, and quality cannot be compromised.
- **Zero trust End-to-End Security**
  All communications must be encrypted, access-controlled, and hardened against interception, spoofing, or cyber intrusion—aligned with zero-trust principles and military-grade security protocols.
- **Simplified, Scalable Management**
  Operators must be able to deploy, configure, monitor, and update networks with minimal manual intervention even across distributed or denied environments through centralized or remote management platforms.

Areas where the modern military depends on quality wireless connectivity varies. These include real-time C4ISR coordination between command centres and deployed forces, continuous situational awareness through drone (UAVs) and sensor feeds, and secure control of autonomous and unmanned systems (UGVs) in contested environments. Wireless networks also support logistics and personnel tracking, ensuring assets move efficiently across the battlespace. As wireless becomes foundational, it also becomes a target demanding cybersecurity and electronic warfare resilience. Finally, in multinational and joint operations, interoperability is essential, making secure, standards-based wireless communication a strategic necessity for coalition success. Yet, with these advantages comes increased dependency including new risks. The loss or compromised of connectivity can disrupt or halt operations entirely.

Private 5G and the Defense Industry

The various requirements of the defense industry for secure, reliable and mobile wireless communications are particularly well suited to a Private 5G solution. Private 5G networks use the latest 3GPP specifications to implement completely private and secure, high-bandwidth, low-latency networks that are ideal for military uses. As such networks are based on industry standards, they allow interoperability between different devices, and military users can exploit a rich ecosystem of available equipment. Standards compliance also ensures ease of communication with other forces and divisions when conducting joint operations.

Some of the ways Private 5G can support mission-critical communications, autonomous systems and real-time situational awareness for military are highlighted below:

Enhancing Strategic Deterrence and Defense Readiness

Private 5G enables constant, secure connectivity across dispersed bases and operational units. It supports persistent monitoring, mobile command centers, and rapid response to evolving threats via high-throughput, low-latency communications. This enhances the visibility and responsiveness of strategic deterrence postures.

Supporting Multi-Domain Operations

In joint forces scenarios, Private 5G facilitates interoperable communications across land, sea, air, space and cyber domains, and ensures resilient connectivity for coordinated operations involving manned and unmanned systems.

C4ISR Capabilities

5G supports the real-time transmission of high-resolution imagery, sensor data and video fields from drones, satellites, and battlefield sensors. Private 5G networks provide the secure and reliable high-quality connectivity needed for seamless integration with AI-based analytics, enabling faster decision making and superior situational awareness.

Force Projection and Mobility

Private 5G networks can be rapidly deployed in forward operating bases and mobile command posts. The small cell architecture and MEC capabilities allow low-latency processing close to the edge, supporting dynamic mission requirements and real-time tactical adjustments.

Key Features of Raemis for Military Applications

Druid's Raemis™ platform delivers fully standalone 4G or 5G core networks that are easy-to-manage and built for tactical flexibility. Its distributed packet core architecture is mobile, resilient, portable, and interoperable with a wide range of radios. Designed for efficiency, Raemis™ can run on compact, man-portable servers, small enough to be carried in backpacks or onboard light vehicles. The platform has been extensively tested with a wide variety of third-party equipment and networks, ensuring interoperability and easy integration into existing or coalition systems with REST API as needed.

Rapid Deployability & Edge Autonomy

Raemis can be easily installed at remote sites and provisioned and commissioned in a matter of minutes supporting fast moving operations. Designed for ease of use, it does not require specialized 3GPP or telecom expertise. Each core networks operate independently in disconnected, contested or infrastructure-denied environments.

Distributed Network Management (DNM)

Raemis™ supports a distributed architecture whereby multiple standalone & independent 5G networks can be deployed on separate servers. These networks are centrally managed, provisioned & monitored through a single DNM interface. Using DNM, operators can easily update & audit the network remotely & securely. This architecture is ideal for a military organization where different units require dedicated networks while still enabling interworking, roaming and centralize oversight.

IMS Capabilities

Raemis has an inbuilt IMS layer, supporting high-quality voice services. It can be integrated via standard interfaces to MCX platforms supporting dedicated Mission Critical Push To talk, Data, video applications and other features.

Network Slicing

Raemis Network Slicing capabilities mean that a private network can be sub-divided into separate slices, each offering service levels required for specific tasks. Video connections to drones can be configured over high-bandwidth slices, while secure voice communications can be carried via real-time links.

Scalable Capacity

Raemis can be used to provide private cellular service for different numbers of users and can be scaled for use in situations ranging from large military bases or warships down to small units of active service personnel in the field.

Built-in Survivability & Redundancy

Raemis™ architecture is redundant and survivable by design. Multiple cores can be deployed across units or vehicles to manage the mobile network, providing overlapping coverage and seamless failover should a primary core be destroyed. If a primary core is destroyed, users experience no interruption in network availability.

Non-3GPP Access Gateway

Raemis supports the AGF, N3IWF, TWIF and TWAN gateways that allow legacy, non-3GPP equipment to connect to a common 5G core, essential for interworking with legacy devices in the field.

How Raemis Aids Compliance with NATO Standards

NATO's STANAG is a set of standards that define common military standards agreed between NATO member countries. These standards ensure interoperability between equipment and procedures used by NATO armed forces and are essential to joint operations undertaken by the organization.

As a fully standardized 3GPP core network, with proven interoperability with a wide range of third-party equipment, Druid's Raemis™ platform helps military organizations comply with the STANAG standards, allowing for smooth interworking with equipment and devices used by allied forces during exercises and active service deployments.

Defence Strategy Area	Relevant NATO Compliance Requirements	Enabling Raemis™ Features
Strategic Deterrence and Defence Readiness	NATO Strategic Concept; MC 400/4 – Military Implementation of the NATO Strategic Concept	Low-latency, high-reliability communications; high availability infrastructure
C4ISR	STANAG 4586, STANAG 4607, STANAG 5527; NATO Federated Mission Networking (FMN)	Enhanced bandwidth; real-time data exchange; network slicing for secure data channels
Multi-Domain Operations	STANAG 4671, NATO Joint Air Power Strategy, NATO Space Policy, NATO Cyber Defence Pledge	Ultra-reliable low latency communications (URLLC); seamless device interoperability
Force Projection and Mobility	NATO Deployment Readiness Criteria, NATO Movement and Transportation Doctrine	Rapid deployment capabilities; MEC for local data processing
Logistics and Sustainment	NATO Codification System, STANAG 4119, NATO Logistics Handbook	IoT integration; predictive maintenance; real-time asset tracking
Training and Simulation	NATO Individual and Collective Training Policy, STANAG 2193	Low-latency, high-throughput connections for VR/AR simulations
Cybersecurity and Information Assurance	NATO Information Assurance Policy, STANAG 4774/4778	Network slicing; encrypted communications; zero-trust architectures
Welfare of Defence Personnel	NATO Framework for Defence Personnel Strategy; NATO Mental Health and Operational Stress Control Guidelines	High-speed access to telemedicine and education; smart base connectivity

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About Druid

Druid software is a core cellular network software company based in Ireland. Druid was established in 2000 and has evolved to become one of the global leaders in Private Cellular Solutions.

Enterprise Communications
Druid's solution is to deliver business critical mobile communications services in combination with leading-edge user devices.

Internet of Things
Cellular technology is used to connect a myriad of mobile or remote autonomous devices to business applications.

Mobile Edge Computing
Druid have been implementing mobile edge computing solutions for over a decade now.

Public Safety
Cellular technology is the future for public safety communications with 4G LTE & 5G technology positioned to take dominance.

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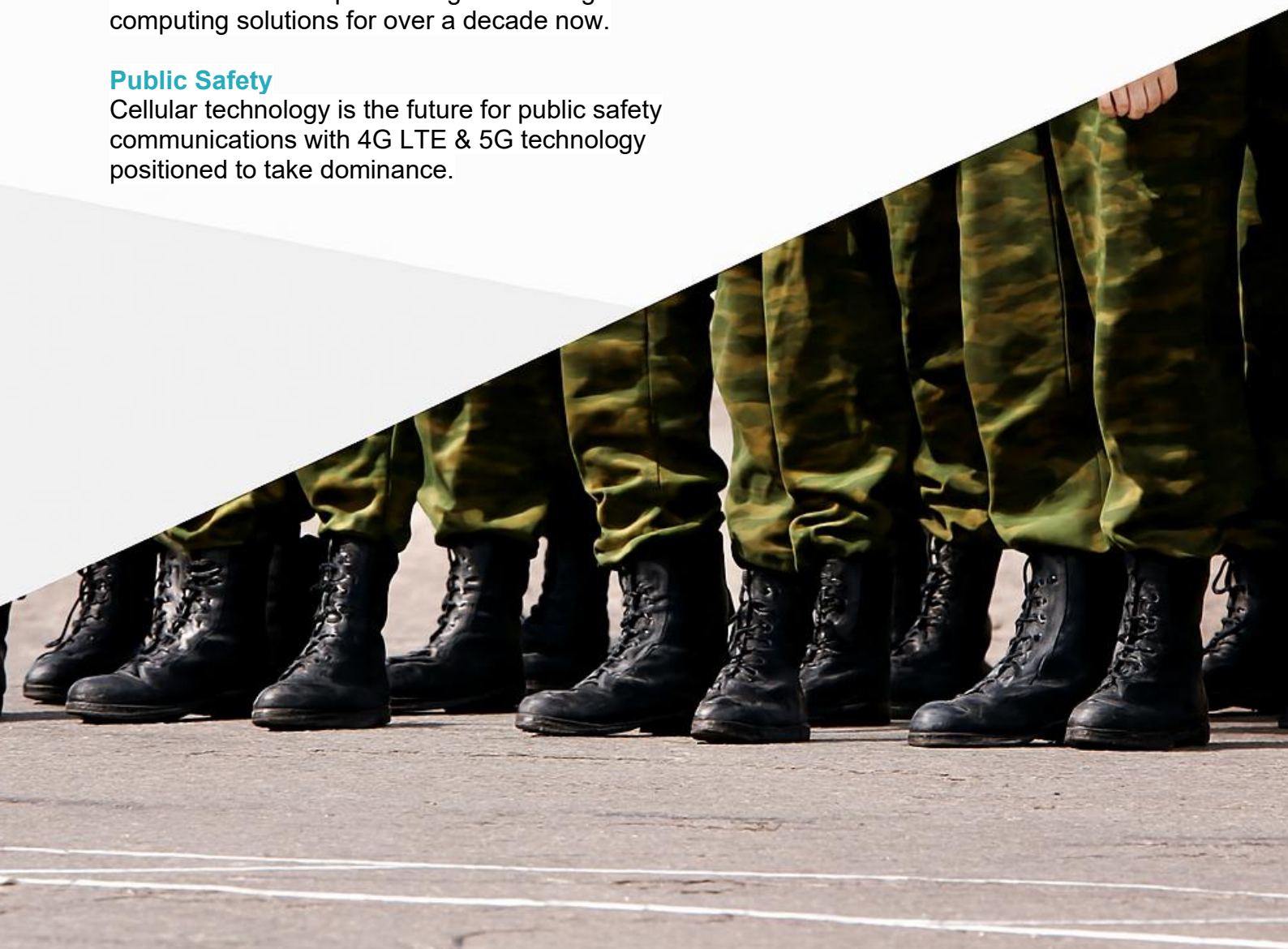
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