



Mobile broadband operational networks for defense

Use case

Leverage mission-critical LTE, to securely and reliably equip forces in the field with new data, video and sensor-based services that will provide information superiority.

The bedrock of network-centric warfare is a military-grade communications network that transports mission-critical voice, video, operational weaponry data and IT traffic during military missions as well as for daily operations. To achieve this, legacy voice-centric operational networks must be complemented by mobile broadband communications that provides ubiquitous and simultaneous real-time data/voice/video services, which ultimately shorten time to act or react.

This use case describes how Nokia can help you leverage the newest LTE technology capabilities and innovative services to improve situational awareness.

Challenges

Drones, video surveillance of border, shore, or camp, broadband communications for land or maritime convoys, geo-location services, body-worn cameras, bio vital signs monitoring or military-base hi-speed remote internet access, are a few examples of new applications that can help military forces perform their missions more efficiently and safely. Although, current operational and tactical networks provide very reliable and secure voice services, they cannot respond to the demand for these new critical communications applications because of their inherent limitations:

- **Narrowband data capabilities in the range of 10s of kb/s:** This is by far the main limitation of legacy networks that seriously limits the number of new services these networks can support. At a time when military forces are looking for real-time data and video services to improve their operations this is a major hurdle.
- **Closed and expensive systems:** Existing communications systems for defense are often bespoke and proprietary. As a consequence, they allow no or very low economy of scale, offer a much more restricted ecosystem of devices and applications compared to LTE technology, have limited interoperability capabilities for joint-forces operations, and are very costly to maintain and evolve.

Given the limitations, it is no surprise that the military community is looking at LTE as a technology of choice for broadband data and video communications during operations. There are a multitude of use cases where LTE mission-critical, commercial off-the-shelf (COTS) technology can be used to deliver superior services for military applications, without necessarily needing the stringent requirements of battlefield/tactical equipment.

How we help you

Leveraging both our market leading engagement in LTE for public safety, and the latest innovations from the commercial LTE market, we provide end-to-end mission-critical LTE network and compact LTE systems, that can address the different needs of military organizations. From multimedia communications for a military camps, land or maritime convoys, to power border or coast surveillance, we have cost-optimized solutions to deliver reliable mobile broadband data communications.

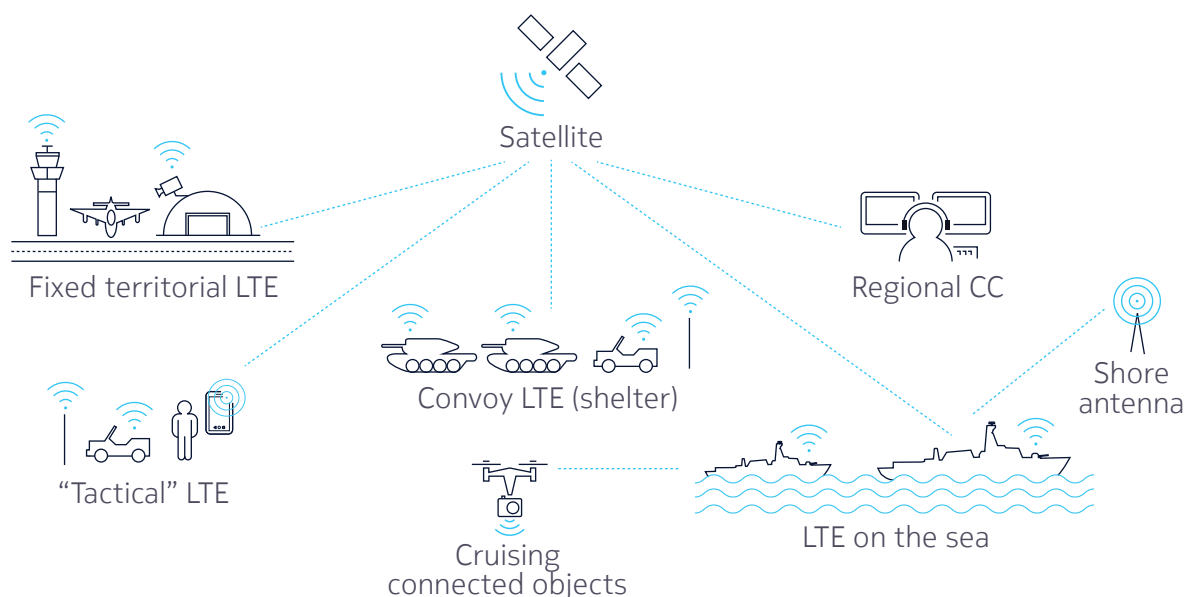
How our approach changes the game

With our end-to-end approach, the deployment and operation of broadband communications solutions is greatly simplified, while essential military network attributes are preserved:

- **Complete product portfolio:** In addition to end-to-end LTE networks, we offer a family of rapidly deployable LTE systems that can be used to quickly establish or extend coverage where needed, with various form factors to match the multitude of use cases (backpack, rack or vehicle mounted).
- **Network and service resiliency:** With appropriate redundancy of network equipment and power supplies and support of specific network topologies and features that enhance end-to-end network resiliency, our solution is designed to meet mission-critical, military grade service availability.

- **Traffic and user prioritization:** Nokia ensures prioritization of critical communications users based on 3GPP standardized mission-critical, and provides all mechanisms to optimize end-to-end traffic prioritization and quality of service (QoS).
- **Network security:** We provide multi-layered security and certified encryption solutions. This keeps critical information and soldiers safe. Additional military-grade security solutions can easily be added to comply with the most stringent cyber-security requirements.
- **New applications enablement:** We enable deployment of new applications for military forces to fully leverage the capabilities of an LTE network in three main domains: Mission critical communications, video, and the Internet of Things (IoT). This provides the foundation for the development of new military services that will enhance situational awareness.
- **Cost effectiveness and simplicity:** Based on market leading COTS-based LTE products, our tightly integrated end-to-end portfolio, combined with our associated professional services offer both simplified network deployment and operations. Our deployable LTE systems offer specific user interfaces that enable easy operations by non-telco personnel.

Figure 1. LTE allows defense organizations to improve situational awareness



Why our approach is different

- **A trusted partner:** 330+ references in LTE, 30+ in defense, an end-to-end approach which enables you to deploy your mobile broadband network with confidence.
- **The secured choice:** At the forefront of 3GPP standardization of mission-critical specific features, we offer best-in-class network resiliency through a high availability architecture, design expertise and security hardened communications.
- **Mobile broadband everywhere:** A family of deployable systems with embedded applications that can be deployed everywhere.

How you benefit

- Enhanced situational awareness for soldiers who will fully benefit from high-speed, data-centric applications for more efficient and safer operations.
- Mission critical network resiliency with LTE communications networks that provide a high-level of reliability and security.
- Reduced total cost of ownership with CoTS equipment based on standard LTE technology.

Let us help you

Nokia is committed to helping defense organizations leverage mission-critical broadband communication technologies to unleash the full potential of network-centric warfare. Through our end-to-end CoTS solutions and services, we deliver mission-critical, secure, broadband IP communications solutions that provide defense organizations with information superiority.

For more information about Nokia solutions for defense, visit <https://networks.nokia.com/defense>.

About Nokia

We create the technology to connect the world. Powered by the research and innovation of Nokia Bell Labs, we serve communications service providers, governments, large enterprises and consumers, with the industry's most complete, end-to-end portfolio of products, services and licensing.

From the enabling infrastructure for 5G and the Internet of Things, to emerging applications in virtual reality and digital health, we are shaping the future of technology to transform the human experience.

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