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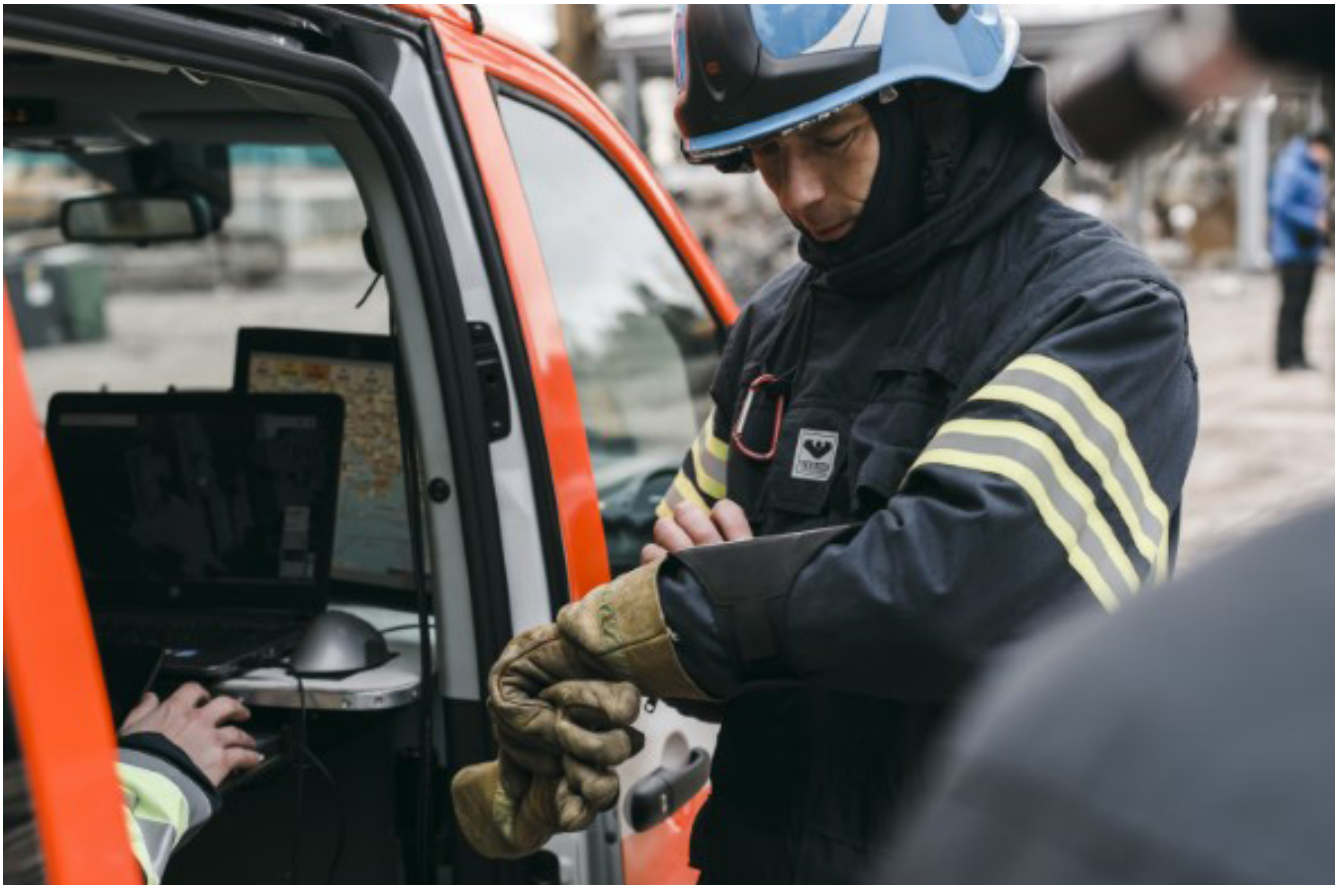

Enhance first responders' situational awareness with mobile broadband

Use case

Evolve to public safety LTE to securely and reliably provide new data, video and IoT services that will enhance first responders' situational awareness, efficiency and safety.

The latest digital applications, devices and sensors bring with them great opportunities to improve the situational awareness of first responders and thus the way they operate. But to benefit from these innovations you need a mobile broadband data infrastructure that is secure and resilient to deliver mission-critical services.

This use case describes how Nokia can help you evolve to a public safety LTE network that will deliver these innovative services to first responders, and bring them the benefits of mission-critical-grade network and service availability.

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Challenges

Drones, body cameras, surveillance through CCTV cameras or any type of "sensor", instant remote access to databases and real time analysis, geo-location services, and monitoring of bio-vital signs are a few examples of new applications that could help public safety teams perform their missions more efficiently and safely. Unfortunately, current land mobile radio (LMR)/private mobile radio (PMR) networks, although they provide very reliable mission-critical voice services, cannot respond to the demand for these new critical communications applications, and are facing the following limitations:

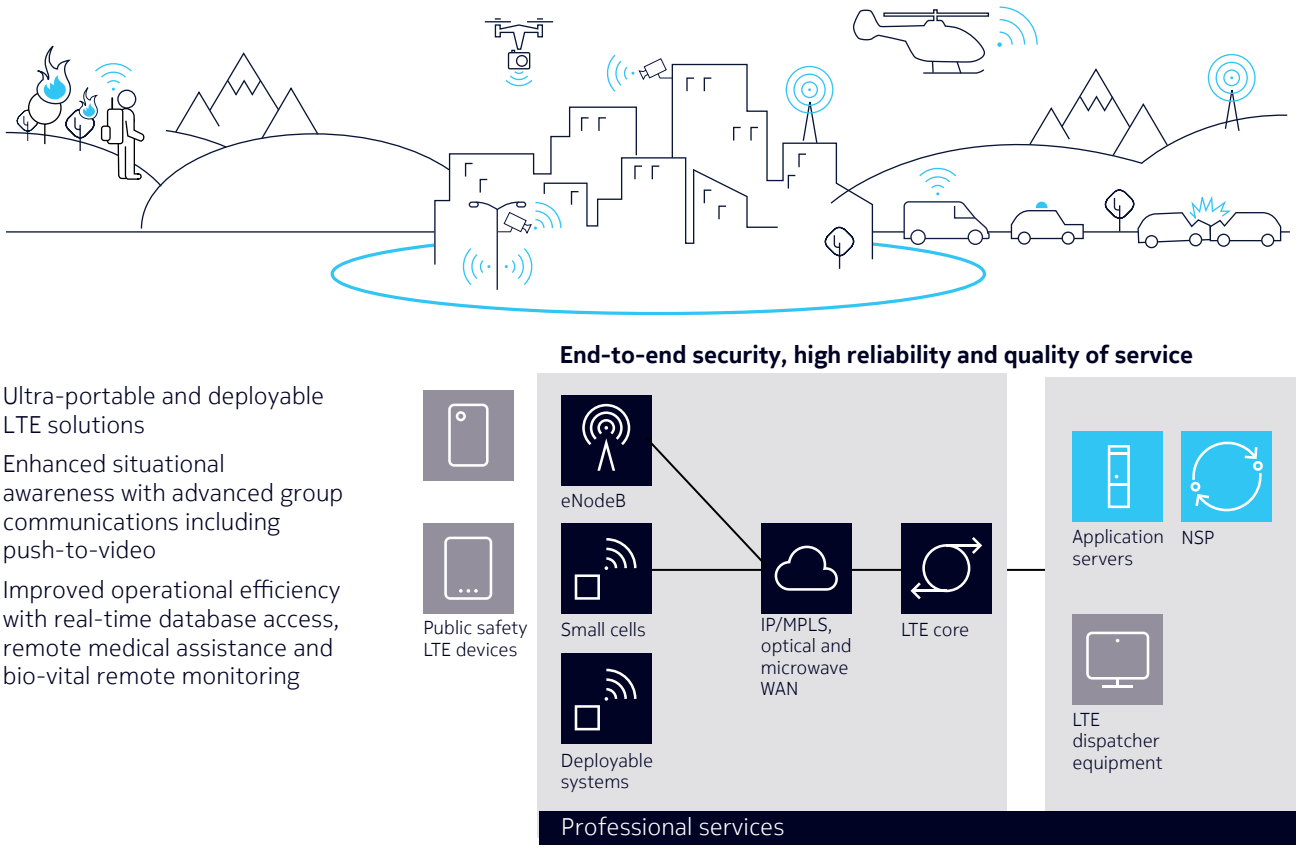
- **Narrowband data capabilities:** The limited range of tens of kilobits per second is by far the biggest drawback of legacy networks and seriously hampers the number of new services these networks can support at a time where the public safety community is looking to take advantage of the latest digital technologies to improve their operations.
- **Limited interoperability:** As dramatically demonstrated on September 11th, legacy networks do not allow easy interoperability between different teams operating in the same theatre of operation.
- **Closed ecosystem:** P25 or TETRA/TETRAPOL are standards used by a limited community with often proprietary applications/implementations. This limits the economy of scale and access to a broad and innovative ecosystem of devices and applications compared to what the LTE technology can offer.
- **Multiple siloed networks:** Currently these needs to be deployed for the different services and agencies. This means increased operational and maintenance costs and limits the capacity to invest in innovations.

To address these issues the public safety community selected LTE as their technology of choice for provision of broadband, interoperable voice, data and video communication services.

How we help you

Moving to LTE may seem like a technology leap for public safety agencies. At Nokia, we have a long history of innovation in both public safety and wireless broadband communications, where we have been at the forefront of developing and deploying the latest technologies. It gives us a unique understanding of both mission-critical requirements and how to evolve wireless networks. Therefore, our approach combines an end-to-end, standards-based, state of the art LTE solution tailored for mission-critical needs with a comprehensive services portfolio to ensure the best planning and implementation of your transition to LTE for public safety.

Figure 1. Public safety LTE allows improvement in public safety officers' situational awareness



- Ultra-portable and deployable LTE solutions
- Enhanced situational awareness with advanced group communications including push-to-video
- Improved operational efficiency with real-time database access, remote medical assistance and bio-vital remote monitoring

How our approach changes the game

With our ViTrust end-to-end public safety LTE solution, you can quickly see the benefits of mission-critical broadband communications and delivery of new innovative video or data-based services (e.g. multimedia group communications) to public safety agencies.

Our end-to-end approach addresses the biggest challenges associated with deployment of mission-critical broadband communications:

- **Deployment model flexibility:** LTE allows choice and the capability to evolve between various models, ranging from using existing mobile network operators (MNOs) to deploying a dedicated network. We can help you assess the different models and we have solutions for quick deployment of your preference.
- **Network and service resiliency:** With appropriate redundancy of network equipment and power supplies, support of specific network topologies and features that enhance network resiliency, our solution is designed to meet mission-critical-grade service availability.
- **Traffic and user prioritization:** Nokia ensures prioritization of critical communications based on 3GPP standardized QoS Class Identifiers (QCIs), and provides a mechanism to optimize end-to-end traffic prioritization and quality of service.
- **Network security:** We provide end-to-end security and encryption for the complete network including devices and applications to keep the information and the users safe.

- **Coverage:** Nokia offers reliable radio networks for indoor and outdoor locations. Additional capacity and temporary coverage can be provided with our compact LTE solutions in case of disaster recovery and emergency situations.
- **Backhaul modernization:** Mobile broadband requires a complete modernization of the backhaul network. Our end-to-end backhaul solution enables a smooth service evolution, delivers secure communications and offers investment protection.
- **New applications enablement:** We enable deployment of new applications for first responders, fully leveraging the capabilities of the LTE network in three main domains: mission-critical group communications, video and public safety Internet of Things.

Why our approach is different

- **A trusted partner:** With Nokia's 340+ references in LTE and 110+ in public safety, you can rely on one transformation partner for end-to-end public safety evolution to LTE, including localized managed services capabilities available globally.
- **The secured choice:** At the forefront of 3GPP standardization of public safety specific features, we offer best-in-class network resiliency through high-availability architecture and design expertise, security-hardened public safety communications including devices.
- **At the forefront of innovation:** Nokia offers a family of deployable and compact solutions, voice and video group communications on LTE networks and prototypes to use HD video on drones (Nokia Saving Lives) and bio-vital monitoring.

How you benefit

- **Enhanced situational awareness:** First responders will be able to fully benefit from broadband, data-centric applications for improved and safer operations.
- **Mission-critical network resiliency:** A broadband communications network that provides the reliability and security expected by the public safety community.
- **Fast adoption of mobile broadband:** Whatever your deployment model, we can help you get started quickly and scale when needed.

Let us help you

Nokia is committed to helping public safety operators and agencies safely embrace mission-critical broadband communications to enhance the way first responders operate today. Through our ViTrust end-to-end public safety solutions and services, we provide mission-critical broadband communications to improve situational awareness, efficiency and safety.

Contact us to learn how our ViTrust public safety products and solutions can help you increase first responders' situational awareness and safety.

For more information on our solutions for public safety, visit https://networks.nokia.com/public-safety.

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.

Connect with our sales team

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