PRIVATE NETWORK 5G

SOLUTIONS FOR THE NEW CRITICAL AND SMART INDUSTRY



NORTHCOM

WHEN COMMUNICATION MATTERS

5G SOLUTION FOR OKG IN OSKARSHAMN

NORTHCOM, TOGETHER WITH ATHONET/HPE, HAS DELIVERED A 5G SOLUTION TO OKG IN OSKARSHAMN, SWEDEN'S LARGEST NUCLEAR POWER PLANT.



Foto: OKG

OKG chose a system solution that ensures a high level of safety and the ability to tailor performance to their specific needs.

The nuclear power industry demands exceptionally high levels of safety and reliability. Private 5G offers robust security, enabling advanced encryption and strict access control—factors crucial for protecting critical infrastructure and sensitive data.
A Private 5G network offers high availability and can be designed to ensure continuous operation, which is vital in the nuclear sector.

5G provides real-time data capabilities; sensors and monitoring equipment can transmit data to control rooms with low latency, enabling rapid decision-making when necessary.

Private 5G also enables the use of advanced robots and automated systems for the maintenance and inspection of hazardous or hard-to-reach areas, thereby enhancing personnel safety. In such environments, operators can remotely control equipment using 5G.

Regarding emergency communications Private 5G can establish reliable channels in situations where public infrastructure might be overloaded or unavailable. Combined with low latency, Private 5G facilitates faster, more coordinated crisis responses by enabling real-time communication and data transfer.

Private 5G offers a flexible, scalable solution adaptable to future requirements, such as smart factories and advanced automation systems. This allows the nuclear industry to grow and evolve without the need for short-term investments in new network technologies.

We thank OKG for trusting Northcom for their critical communications.

- A powerful, high-speed network offers great opportunities.....



Private 5G is the logical choice when it comes to implementing a private network.

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NORTHCOM AS SYSTEM INTEGRATOR



NORTHCOM AS YOUR PARTNER

In collaboration with a range of suppliers, we are proud to present premium Private 5G/LTE wireless solutions and groundbreaking network technology that enable mission critical communication for a safer, more connected society across the Nordic region.

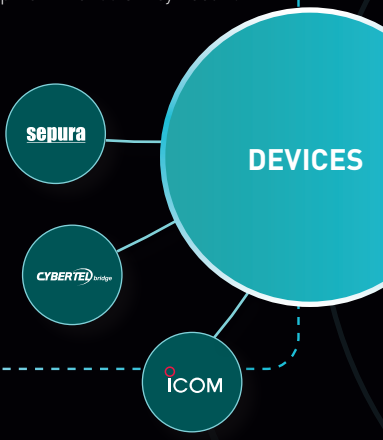
By leveraging scalable and future-proof Industry 4.0 advancements, such as 4G LTE and 5G RAN technology, we are committed to exceeding our customers' expectations and leading the way in digital transformation.

Our joint solutions not only facilitate seamless connectivity and efficient operations but also provide our customers with a competitive edge in their respective industries.

By prioritizing innovation and adaptability, we ensure that our solutions remain at the forefront of the ever-evolving technological landscape, empowering businesses to thrive in an increasingly digital world.

DEVICES

Northcom helps you select and integrate devices that fit your operations—from rugged handhelds with accessories to routers and industrial equipment. We verify network compatibility and configure connectivity and communication applications, giving your teams and equipment the tools they need to stay connected.





INTERFACE TO TETRA

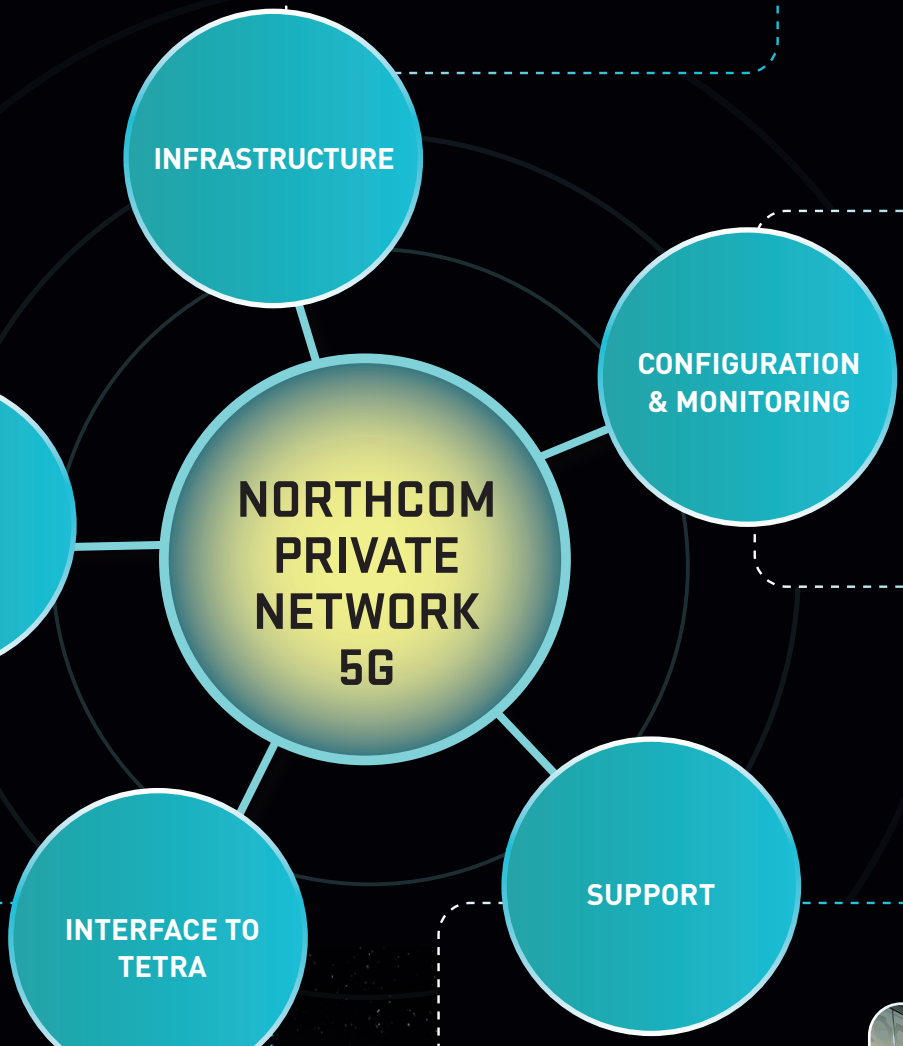
Northcom integrates your existing TETRA system with broadband communication services, enabling group communication across supported platforms. This helps you retain the value of your current radio investment while introducing new capabilities and supporting a gradual transition based on your operational needs.

INFRASTRUCTURE

Northcom designs and deploys your Private 5G infrastructure based on your coverage, capacity, functionalities and security requirements. We select and integrate the core, radio and transport network, manage installation and testing, and connect the solution to your existing IT and operational systems.







CONFIGURATION AND MONITORING

Northcom configures and monitors your network through integrated management tools and dashboards. We track availability, performance and equipment health, using alarms and reports to identify issues early. This gives you operational visibility and helps maintain the service levels your business requires.

SUPPORT

Northcom provides ongoing maintenance, troubleshooting and incident response to keep your network running. With support options including 24/7 NOC services and agreed service levels, you gain a single point of contact to coordinate technical support.



DESIGNED TO **SUPPORT CRITICAL OPERATIONS**



OFFSHORE OIL & GAS

Reliable connectivity for worker safety, remote inspections, predictive maintenance, video monitoring, and autonomous operations.



UTILITIES

Secure, wide-area communications for smart grids, substations, field personnel, sensors, and critical infrastructure control.



HOSPITALS

Provide secure mobility for clinical devices, staff communications, asset tracking, telemedicine, and emergency services.



CORRECTIONAL CENTERS

Enable secure staff communications, video surveillance, body cameras, access control, tracking, and emergency response.



MINING

Enables autonomous machinery, remote operations, worker tracking, safety monitoring, predictive maintenance, and reliable communications in challenging environments.



WAREHOUSES & LOGISTICS

Connects robots, automated vehicles, scanners, cameras, and tracking systems to improve inventory accuracy, efficiency, and operational visibility.



WIND PARK

Connect turbines, drones, sensors, and maintenance teams for remote monitoring, fault detection, and predictive maintenance.



MANUFACTURING

Support connected machinery, robots, automated vehicles, quality inspection, and real-time production monitoring.



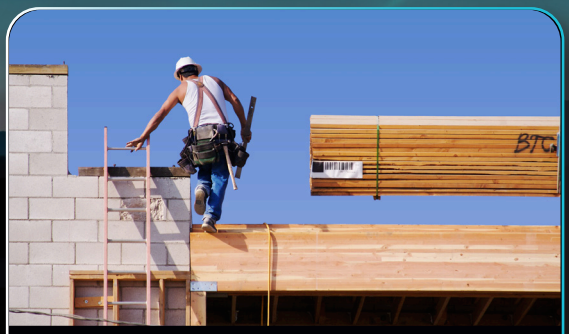
AIRPORTS

Connect operational teams, vehicles, baggage systems, security cameras, maintenance equipment, and passenger services.



HARBOURS/PORTS

Support connected cranes, autonomous vehicles, cargo tracking, surveillance, worker communications, and terminal automation.



CONSTRUCTION

Provides flexible site connectivity for workers, machinery, drones, cameras, sensors, and digital tools, improving safety, coordination, and project productivity.



SPORT EVENTS & CONSERTS

Provides a stable private network dedicated for event's critical operations, Security, Payments, Emergency and Staff Communications.

TAKE CONTROL AND SECURE YOUR CRITICAL PROCESSES WITH PRIVATE NETWORK 5G

WHAT IS A PRIVATE NETWORK 5G/LTE?

A private mobile network works like a commercial mobile network but allows you to tailor coverage, capacity, security and service priorities to your operational needs.
This provides reliable connectivity for activities ranging from everyday staff communications to automation, video monitoring, equipment control, and other critical applications.

OWNING VS SHARING

A network own and controlled by you

A dedicated mobile network is built for a specific organization, site, or enterprise. This offers flexibility to customise the network to your own requirements, rather than relying solely on an operator's shared public network.
It can be 5G, LTE or both to meet industry-specific needs, including those for voice communications, data ownership and business critical applications



PRIVATE 5G VS. PUBLIC 5G

Feature	Private 5G	Public 5G
Ownership	Enterprise or organization	Mobile network operator (MNO)
Users	Authorized enterprise devices only	General public subscribers
Coverage	Specific site, defined by user	Wide-area regional or national coverage
Performance	Predictable, dedicated resources	Shared resources; performance varies with network load
Security	Greater control over authentication, traffic, and data	Standard operator-managed security
Latency and QoS	Low latency and QoS consistent for critical applications	Generally low, but can fluctuate with congestion
Availability	Redundancy and resilience	Depending on Operator

PURPOSE OF A PRIVATE NETWORK 5G/LTE

YOUR NETWORK, YOUR RULES: BUSINESS VALUE

1. Corporate security and data sovereignty

- Have complete access control and how it is used
- Enterprise-controlled network access
- SIM/eSIM-based authentication
- End-to-end encrypted communications
- Local processing of sensitive production data
- Compliance with industry and regulatory requirements

Ideal for:

- Defence manufacturing
- Pharmaceuticals
- Critical infrastructure
- Automotive production
- Energy and utilities



2. Mission-critical operations - ultra-reliable connectivity

- Consistent low latency for industrial control
- High network availability (Redundancy and Resilience)
- Predictable Quality of Service (QoS)
- Support for safety-critical operations

Ideal for:

- Robot coordination
- SCADA systems
- PLC communications
- Emergency shutdown systems
- Autonomous mobile robots



3. Safety critical voice and team comms (MCx/PTT)

- Instant Push-to-Talk communications
- Group calling for operational teams
- Priority and pre-emption for emergency communications
- Secure, encrypted voice services
- Multimedia communication (voice, video, messaging)
- Coverage across large campuses and industrial sites
- Integration of voice and operational data on a single network

Ideal for:

- Mining
- Oil & Gas
- Airports
- Ports
- Public Safety
- Transportation
- Health



3GPP STANDARD COMPLIANT

Compliance with 3GPP standards support interoperability with compatible equipment and services from different vendors.
One Stop Shop – Simplify your Private 5G deployment with a single integration partner.
Why add complexity to your 5G System with multiple vendors?
Northcom has prepared a One Stop Shop solution for you.

REDUNDANCY AND RESILIENCE

Private 5G can be designed to maintain critical communications during equipment failures, power outages or loss of external connectivity. Redundant core functions, resilient transport links, overlapping radio coverage and backup power help reduce single points of failure. With locally hosted network functions and applications, essential on-site services can continue during external disruptions. The level of resilience is tailored to your operational requirements with local or geo redundancy.

PRIVATE NETWORK 5G
ARCHITECTURE OVERVIEW

For simplification Private Networks are commonly divided as CORE and RAN. The CORE is central part of a Private Network that controls and manages the network. The Radio Access Network (RAN) are the antennas and base stations that connect device to a Private Network over radio waves.

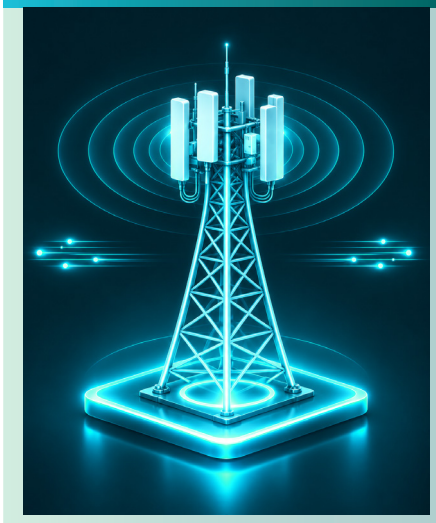
THE **CORE** FUNCTIONS



User and data control

- 5G core functions
- Subscriber & SIM management
- Policy control and security
- Traffic steering and analytics

THE **RAN** FUNCTIONS



Base stations, radios and antennas

- Radio coverage
- Connection management
- Resources management
- Mobility management

USER **EQUIPMENT**



Smart devices

- User centric
- IoT/sensors
- Robots/automated veichles
- Applications

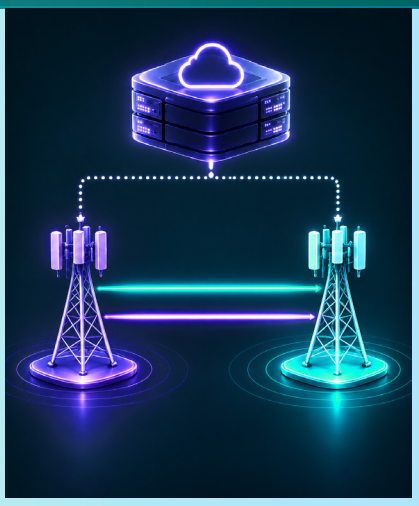
COMMON DEPLOYMENTS

There are available different types and flavors of deployments that range from the latest technology 5G to the well-known LTE technology and combination of both.



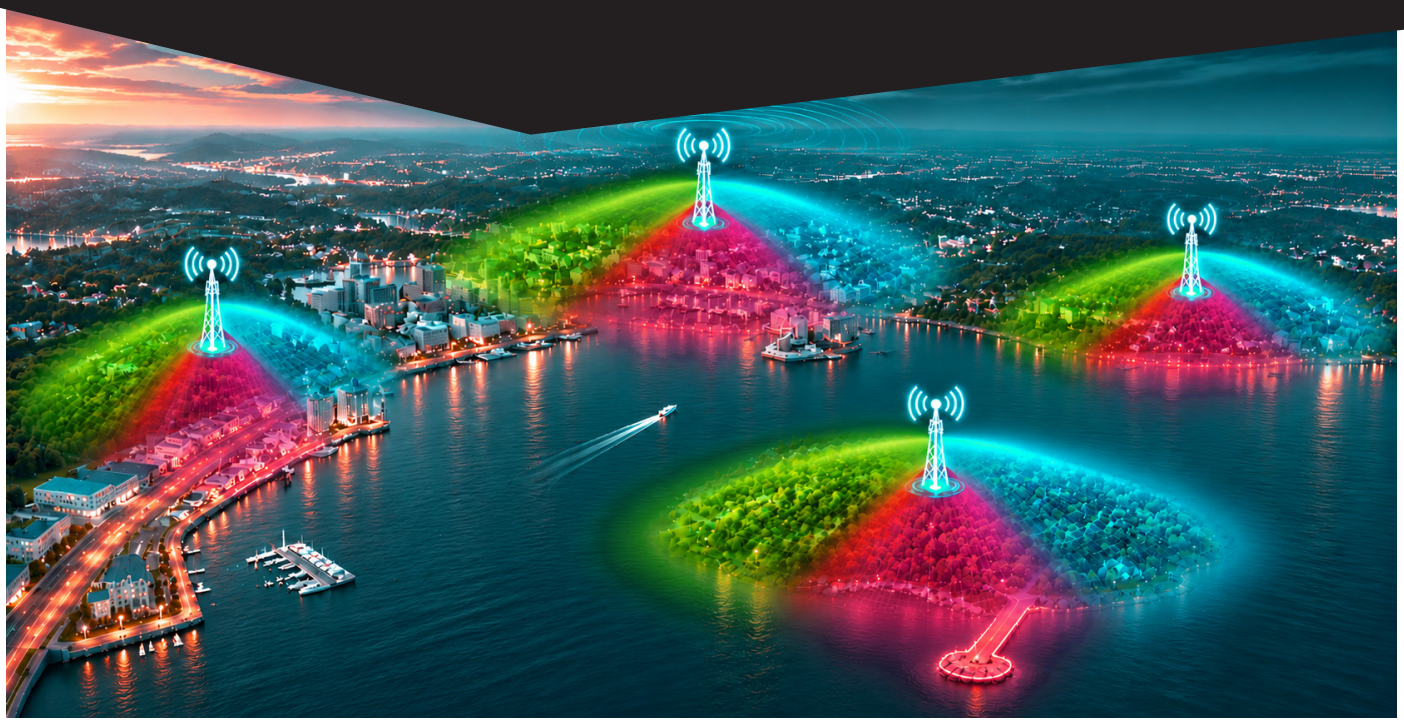
Stand Alone 5G only

A pure full 5G network system



Non-Stand Alone 5G with LTE anchor

A partial 5G network system using LTE as Anchor



OUTDOOR RADIOS

Outdoor radios are weather-hardened radio units or integrated active antenna systems mounted on towers, rooftops, poles, or street furniture to cover large areas.

OUTDOOR COVERAGE

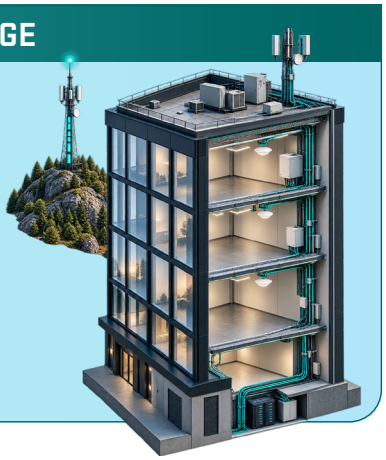
Normally one to three sectors per radio base station (gNB), to have about a 360 degrees coverage.
Multiple radio base stations can be deployed to cover all needed target areas for example, 5 radio base stations with 3 antenna sectors each, that could cover 1,5 to 3,5 km depending on conditions.

INDOOR RADIOS

Designed to provide cellular coverage inside buildings, where walls and low- emissivity glass attenuate outdoor signals, improve coverage in enclosed spaces such as buildings or factories where outdoor radios cannot cover.
Normal indoor typically serve one localized area such a big hall, office auditorium or opened factory wing.
Distributed indoor radios use digital hub that connects through fiber/ethernet to multiple indoor radio units, improving coverage in smaller and more difficult to reach areas than with un normal indoor radio.

INDOOR COVERAGE

One radio base station with multiple distributed antennas/sectors, throughout the buildings floors for improved indoor coverage.



RADIO FOR DIFFERENT DEMANDS

Macro radio

For large coverage and high traffic demand.



Small radio

For targeted coverage and local traffic demand.



Micro/indoor Radio

Indoor localized coverage.



NORTHCOMS'S FULL STACK PARTNER

HPE CORE SOLUTION

We chose HPE private network solution because HPE facilitates to start small and expand as you grow with a scalable system that combines 5G and LTE into one Core, that supports a wide variety of radios from different vendors with possibility to integrate to critical communication and API applications so that you can experience a proven carrier-grade architecture and security.

HPE provides a scalable private mobile network platform that combines LTE and 5G core capabilities in one system. Organisations can start with a focused deployment and expand coverage and capacity as their needs grow. Built on proven carrier-grade architecture and security, the platform supports compatible radios from multiple vendors, integration with critical communication services, and APIs for connecting applications and management systems.

HIGHLIGHTS

- Scalable deployment from 50 to 500 000
- 4G/5G — One core for 4G & 5G
- RAN vendor agnostic
- Value-addes critical communications apps
- Open API extensibility
- IT Security

NETWORK MONITORING SYSTEM (NMS)



Quickly assess status and view key statistics for subscribers, networks, and data traffic.

Expanded views provide deeper insight into network statistics and trends over time. The network set up wizard is adapted to be similar as computer networks, lets you manage your Private 5G network in a matter of minutes. Role-based access control makes it easy to assign roles and permissions for single or multitenant users.

SIMPLE AND CUSTOMIZABLE - CHOOSE WHAT YOU REQUIRE

HPE aruba networking

HPE Private 5G combines standards-based technology with flexible deployment options. An integrated solution or a modular approach using compatible components from different vendors gives you the flexibility to build around your operational requirements and existing investments. Northcom helps you select and integrate the components you need. You retain control of your network while choosing which parts of deployment, management and support you want us to handle.



DIGITIZATION

Latest standard

The core provides essential 5G core network functionality, including subscriber and SIM management, policy control, and security. It enables intelligent traffic steering and analytics to optimize network performance and operational efficiency. Designed for flexibility and scalability, the core is also ready for integration and interworking with Mission Critical Services (MCx).

IOT

Interconnect and orchestrate

Unlock IoT potential with Private 5G by enabling real-time device monitoring, high-speed, low-latency connectivity and seamless data exchange to boost efficiency and accelerate digital transformation.

AI

Leverage Ai power

Leverage AI applications with secure real-time data processing, intelligent automation, predictive maintenance, and AI-powered analytics. This can help optimize operations, improve productivity, and accelerate innovation across industries and critical environments.

PRIVATE 5G BACKED BY BROADER AI EXPERTISE



HPE brings together Private 5G, enterprise networking and AI infrastructure expertise across its networking portfolio, AI already helps IT teams identify issues, investigate root causes and recommend corrective actions. This broader expertise makes HPE a strong technology partner for organisations looking to develop Private 5G as part of a wider enterprise network and long-term AI strategy.

NORTHCOMS'S TACTICAL DEPLOYMENT PARTNER

APEIROON TACTICAL SOLUTION

Best decentralized solution

We chose Apeiroon for its innovative and compact, rapidly deployable Private 4G/5G solutions that integrate radio, core and mission-critical applications, enabling secure connectivity for demanding industrial and tactical operations, even where fixed infrastructure is unavailable.

Apeiroon is an innovative telecommunications company developing compact, rapidly deployable Private 4G/5G network
A really unique full decentralized solution that encloses radio, core network, edge computing and mission-critical applications into secure, rugged, all-in-one systems.

HIGHLIGHTS

- European manufacturer
- 4G/5G — 4G & 5G product range (for tactical or critical networks
- IT/OT Security for military and critical infrastructure
- Decentralized / Federated / Distributed
- Open API extensibility
- User friendly, simplified GUI

DECENTRALIZED BY DESIGN. RESILIENT BY NATURE.

Each node is a complete network. Together, they become a connected ecosystem.
Roadwave's architecture delivers a decentralized approach to Private 5G, eliminating dependence on centralized infrastructure.
Each Apeiroon node integrates essential 5G network functions, enabling autonomous voice, data, and application services, even in isolated environments.
By transforming vehicles, mobile platforms, and remote sites into independent 5G communication bubbles, Apeiroon ensures resilient connectivity and operational continuity. Through dynamic federation, these autonomous nodes can also interconnect, extending communications across distributed locations without compromising their independence.
The result is a rapidly deployable, scalable, and sovereign 5G solution designed for emergency services, public safety, and mission-critical industries.



BUT NOT JUST CRITICAL...

- Modern industries are in need of higher operation requirements, with this smart industries can meet with Private 5G networks the strict demands for high availability QCIs and resilience needed for your daily operations.



RELIABLE CONNECTIVITY ON THE GO



SAME HARDWARE FOR DIFFERENT APPLICATIONS



STANDARD RAN (APEIROON R100X)

- All-in-one RAN 4G or 5G
- 4x4 MIMO
- 5W-40W output PWR
- B28, B68 and N77, N78, N68, others
- NW slicing and 3GPP QoS
- IP 65



TAKTICAL 4G/5G BOX (ROADWAVE RW1KX)

- All-In-One 4G/ 5G portable solution (RAN & core)
- Core, IMS and MCx can run on embedded MEC capabilities
- Federation / Meshing
- start in less than 3 minutes
- Ultra high performance: 4x 5W
- RRU extension possible
- MIL-STD-810H and IP67
- Dimension: 10l
- Weight: 10kg



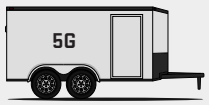
TAKTICAL BACKPACK (BACKPACK B100X)

- As per Standard RAN and tactical 4G/5G Box
- Core, IMS and MCx can run on embedded MEC capability
- Hot swap batteries
- Federation / Meshing



TAKTICAL MOBILE RACK (CUBE C100X)

- As per Standard RAN
- Scalable amount
- Core, IMS and MCx can run on embedded MEC capability
- 3 sector setup possible 3x4x10W
- Hot swap batteries
- Federation / Meshing



TAKTICAL TRAILER (CUBE INSIDE)

- As per Standard RAN
- Scalable amount
- Core, IMS and MCx can run on embedded MEC capability
- Hot swap batteries
- Federation / Meshing
- Several backhaul option incl. VSAT / Leo

THE RIGHT **DEVICE** FOR THE **RIGHT JOB**

ALL POWER UP BY YOUR PRIVATE NETWORK 5G



LAPTOPS

- Lenovo
- Panasonic



RUGGES PHONES

- Ascom
- Zebra
- Ruggear
- Crosscall
- Bittium
- Sonim



TABLETS

- Ecom
- Zebra
- Samsung



SMART PHONES

- Samsung
- Apple
- HTC
- Xiaomi



HYBRID

- Motorola
- Sepura
- Hytera
- Cybertel



GLASSES/LENSES

- Hololense
- Apple Glass



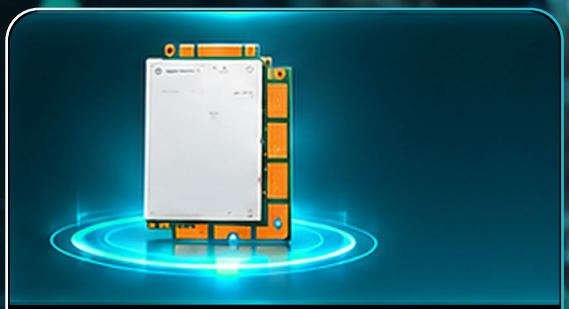
MODULES/STICKS

- Quectel
- Qualcomm
- Sierra Wireless
- SIMCom
- Telit



CAMERA/CCTV

- Axis
- Eufy
- HikVision



BRANCH SPECIFIC DEVICES

- Medical
- Transport
- Industry



BRIDGES

- HPE
- Peplink
- Teltonika
- General
- Electric
- Cradlepoint



SCANNERS RFID

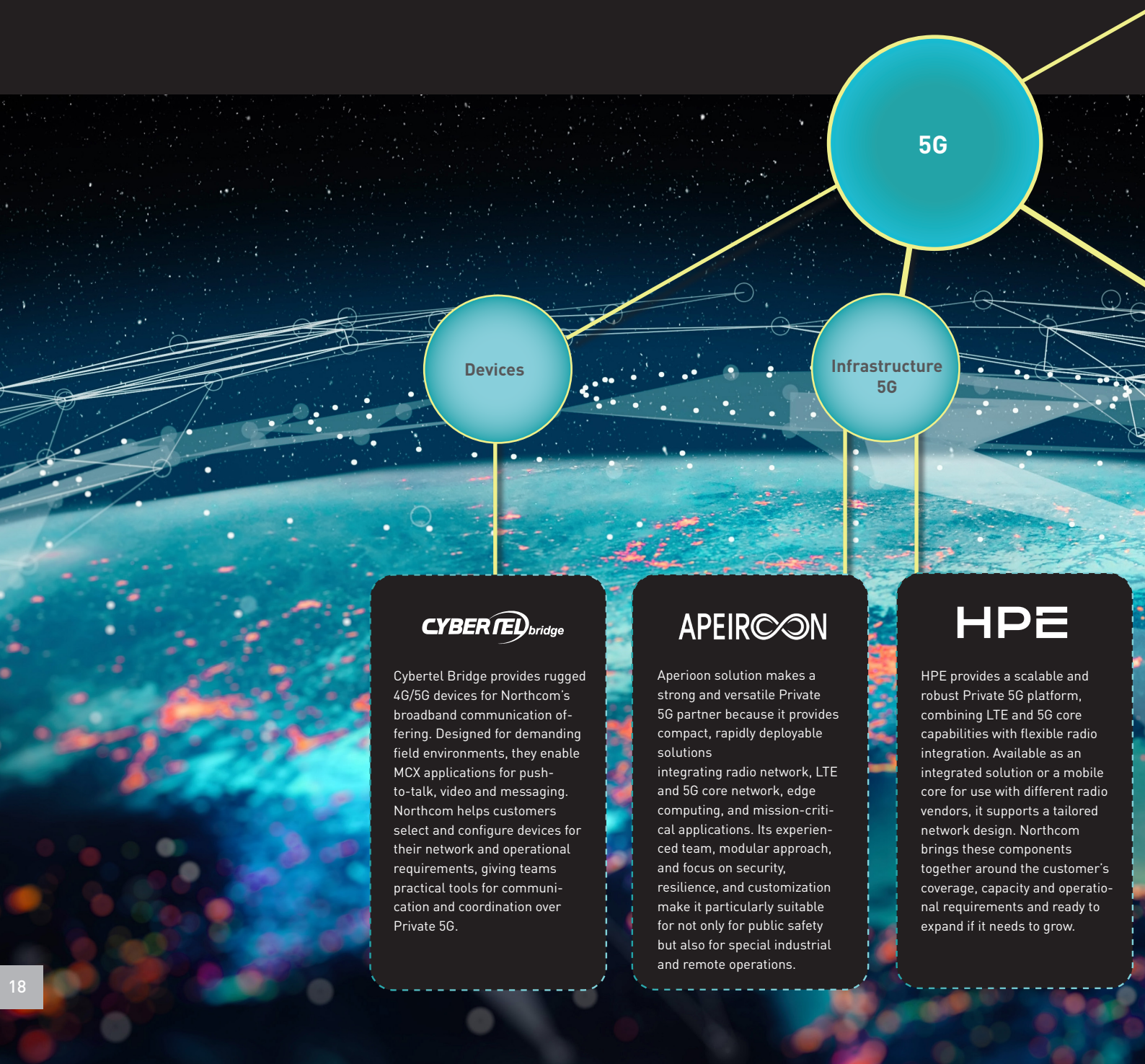
- Zebra
- Honywell
- Datalogic
- Brady



IOT & SMART DEVICES

- Sensors
- Meters
- Screwdrivers

BROADBAND AND NARROWBAND INTEGRATION



CYBERTEL bridge

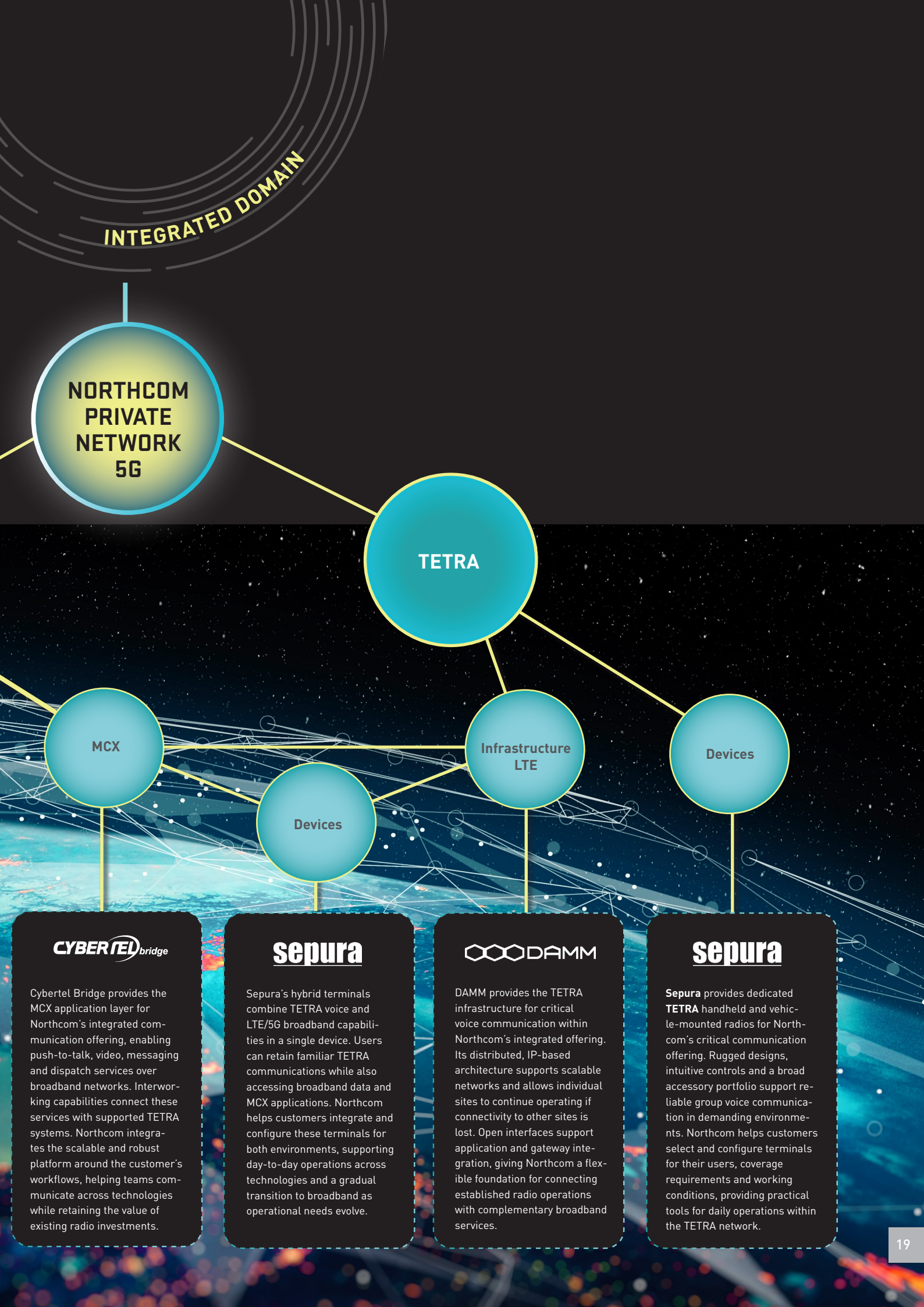
Cybertel Bridge provides rugged 4G/5G devices for Northcom's broadband communication offering. Designed for demanding field environments, they enable MCX applications for push-to-talk, video and messaging. Northcom helps customers select and configure devices for their network and operational requirements, giving teams practical tools for communication and coordination over Private 5G.

APEIROON

Aperioon solution makes a strong and versatile Private 5G partner because it provides compact, rapidly deployable solutions integrating radio network, LTE and 5G core network, edge computing, and mission-critical applications. Its experienced team, modular approach, and focus on security, resilience, and customization make it particularly suitable for not only for public safety but also for special industrial and remote operations.

HPE

HPE provides a scalable and robust Private 5G platform, combining LTE and 5G core capabilities with flexible radio integration. Available as an integrated solution or a mobile core for use with different radio vendors, it supports a tailored network design. Northcom brings these components together around the customer's coverage, capacity and operational requirements and ready to expand if it needs to grow.



CYBERTEL bridge

Cybertel Bridge provides the MCX application layer for Northcom's integrated communication offering, enabling push-to-talk, video, messaging and dispatch services over broadband networks. Interworking capabilities connect these services with supported TETRA systems. Northcom integrates the scalable and robust platform around the customer's workflows, helping teams communicate across technologies while retaining the value of existing radio investments.

sepura

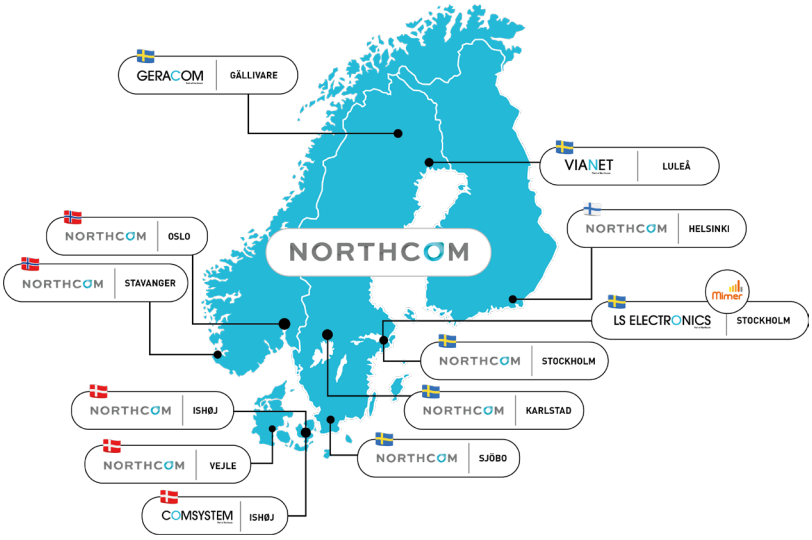
Sepura's hybrid terminals combine TETRA voice and LTE/5G broadband capabilities in a single device. Users can retain familiar TETRA communications while also accessing broadband data and MCX applications. Northcom helps customers integrate and configure these terminals for both environments, supporting day-to-day operations across technologies and a gradual transition to broadband as operational needs evolve.

DAMM

DAMM provides the TETRA infrastructure for critical voice communication within Northcom's integrated offering. Its distributed, IP-based architecture supports scalable networks and allows individual sites to continue operating if connectivity to other sites is lost. Open interfaces support application and gateway integration, giving Northcom a flexible foundation for connecting established radio operations with complementary broadband services.

sepura

Sepura provides dedicated **TETRA** handheld and vehicle-mounted radios for Northcom's critical communication offering. Rugged designs, intuitive controls and a broad accessory portfolio support reliable group voice communication in demanding environments. Northcom helps customers select and configure terminals for their users, coverage requirements and working conditions, providing practical tools for daily operations within the TETRA network.



Northcom is one of Northern Europe's leading players in critical communications, headquartered in Oslo. The group maintains a comprehensive partner network across Sweden, Norway, Denmark, and Finland, alongside exclusive partnerships in Iceland and the Baltic states—offering great flexibility for those operating across borders.

In a world of constantly evolving communication technology, we provide solutions that always work. We have evolved from analog radio communications to building complex digital solutions based on TETRA, DMR, IP/LTE, and integrated systems. Furthermore, we are a strong player in wireless communication via LTE/5G and mobile SD-WAN routers.

We recognize that these are the solutions the market demands today. While we boast a strong product portfolio, the most valuable asset we offer our customers is our expertise. We are innovative and technology-driven, dedicated to creating a sense of security in our customers' daily operations.

Northcom works closely with leading suppliers—including Sepura, Peplink, 3M Peltor, Damm, Amphenol Procom, Phonak, and the Japanese company Icom (for which we also serve as the exclusive distributor in our region). This close collaboration grants us access to excellent product support and valuable market feedback.

Consequently, we are responsible for—and perform—services such as warranty support for Icom and Sepura. This gives us specialized expertise in our products, enabling us to provide a superior level of customer support backed by deep technical knowledge. We are proud of our four ISO certifications (9001, 14001, 27001, 45001), which ensure the highest standards in quality, environmental management, information security, and the work environment. In addition, we offer our own range of accessories, ProEquip, tailored to meet Nordic requirements.

Our goal is to deliver solutions that work seamlessly. Communication shouldn't be something you have to think about—it should simply work. Always.

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NORTHCOM
WHEN COMMUNICATION MATTERS

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