Federal Ministry of the Interior, Austria

Ensuring public safety with a TETRA radio communication system

NOKIA

To improve communications for Austria's emergency services, the nation's Federal Ministry of the Interior (BMI) decided to deploy a nationwide TETRA network. It created a public-private partnership, commissioning Tetron to implement the digital radio system and selecting Nokia to deploy and operate the network.

> "With Tetron's solution for a TETRA digital radio network and Nokia's work as end-to-end integrator, Austria's emergency services can communicate seamlessly with each other, enhancing the safety of the general public."
>
> Peter Skorsch
>
> Head of Technical Department and
>
> General Program Manager, Austrian BMI

The Austrian BMI's perspective

Challenges

To improve the communications of its emergency services, the Austrian government wanted to create a single network to serve its fire brigades, rescue services and police. The Austrian Federal Ministry of the Interior (BMI) therefore launched a European-wide tender for a solution that would:

- Improve coordination and efficiency, replacing the emergency services' various legacy networks with a single, unified network that implements standard technologies and enables close interoperation between public safety organizations.

- Add new functions to improve operations.

- Enhance reliability and security, with high system redundancy, and encryption to prevent eavesdropping.

Austria's BMI decided to deploy a TETRA digital radio network, creating a public-private partnership with Tetron (a consortium between Motorola and Nokia) to build and deploy the network.

Solution

Under the terms of the partnership, Tetron is deploying a nationwide TETRA network for Austria's emergency services, based on off-the-shelf equipment from Motorola. Nokia has turnkey responsibility for network rollout, including 1,250 above ground sites and 60 sites in Vienna's subway system.

As end-to-end integrator, Nokia will maintain the network for 25 years. The main project phases are:

- Network deployment (5 years): network design, planning and rollout; site acquisition and construction; installation of TETRA base stations and switches; design and delivery of mobile sites.

- Network maintenance (for 25 years after completion): Level 1 and 2 maintenance 24/7; interface to Level 3 support; hardware and software upgrades; support for field operations and performance analysis.

> "The Tetron project to deploy a new digital radio network for Austria's public safety organizations is a prime example of a successful public–private partnership. Nokia is proud of its role as end-to-end integrator for this important initiative."

Marco Trefanitz,
Nokia General Project Manager

Benefits

- Faster emergency response time: With improved interoperation between public safety organizations, average response time for emergencies has significantly decreased.

- Rapid implementation: Meeting tight deadlines, Tetron has rolled out network segments in record time: 6 weeks for the World University Games in Tyrol, and 3 months for the Vienna subway system (in time for the EU presidency).

- Cross-border communications: TETRA digital radio will provide full interoperability between different manufacturers' equipment, as well as seamless cross-border communications, for multi-force, multi-national operations.

About the Austrian BMI

- Austria's Federal Ministry of the Interior (BMI) commissioned Tetron, a public-private partnership (PPP), to implement and operate Austria's digital radio network for its public safety organizations.

- Tetron is a private finance initiative jointly owned by Motorola (65 percent) and Nokia (35 percent).

Next steps

Following successful deployment in Vienna and Tyrol, the system is being expanded to cover Styria and lower Austria, with nationwide coverage targeted for 2010.

Nokia's perspective

Customer requirements

Austria's Federal Ministry of the Interior (BMI) required a highly reliable, multi-regional Terrestrial Trunked Radio (TETRA) communications network for its emergency service organizations, and created the Tetron consortium to do the job. Under this partnership, Nokia is assigned to deploy, integrate and maintain the network nationwide, using certified Motorola TETRA equipment as essential building blocks.

Our methodology

To ensure that the large-scale, complex TETRA network is successfully deployed without impacting emergency services, Nokia has taken a phased approach.

- Pilot project: To replicate a full-scale emergency services network, a pilot project was rolled out in the Tyrol region, enabling Nokia and Tetron to install, test and validate all interfaces and subsystems; upgrade technology as needed; simulate anomalies to find the best solutions; and evaluate a variety of products for each subsystem, to help Tetron choose the products best suited to its needs.

- Region-by-region deployment: The solution is being rolled out in separate phases in each of nine regions.

Delivery challenges

- Mountainous terrain: The TETRA network has been specifically designed to maintain coverage in Austria's mountainous terrain and uses built-in GPS (Global Positioning System) to ensure that assistance can be summoned rapidly and guided to the response site.

- Environmental issues: In mountainous areas such as the Tyrol, conservation of wildlife and vegetation is important. Project staff members are required to undergo environmental training to ensure that respect for the environment is an integral part of their daily work.

- Compliance with European regulations: For this project, interoperability with neighboring countries is mandatory. TETRA radio is an open digital standard defined by the European Telecommunications Standards Institute (ETSI).

- Communication: To facilitate communications with Tetron and other contractors, Nokia named a General Project Manager as its sole interface. The project manager is responsible for consolidating all customer questions and comments, and for communicating internally with Nokia personnel and third-party stakeholders.

The added value

Governments are increasingly favoring the creation of public-private partnerships (PPP) to finance, build and maintain public equipment and services, to support government missions over the long term. In this case, Nokia worked closely with the Austrian Federal Ministry of the Interior (BMI), establishing Tetron as the private partner responsible for building and deploying Austria's emergency services network.

The business solution

- Nokia is deploying and maintaining a digital radio network for Austria's public safety organizations, including its fire brigades, rescue services and police. The highly reliable, secure network service features very high redundancy, and will, in the future, enable cross-border communications with Austria's neighbors.

- The project is being executed as a public-private partnership (PPP), in which Tetron, a consortium of Motorola and Nokia, is the private partner, and Austria's Federal Ministry of the Interior (BMI) is the public partner.

- The network implements TETRA (Terrestrial Trunked Radio) technology, a private mobile radio (PMR) standard for digital voice and data communications, which ensures interoperability between different manufacturers' equipment. TETRA equipment and handsets are intrinsically safe and are designed to work in hazardous environments such as fires and accident scenes. The network provides ubiquitous coverage in outdoor, and underground environments, guaranteeing full access and full capacity nationwide.

The technical solution

End-to-end TETRA network

- Motorola IP standard TETRA equipment

- Over 1,000 MTS and E BTS (MBTS) TETRA base stations

- 60 base stations for the Vienna subway system

- 6 TETRA switches (MSO) + 1 fall-back switch

- Dispatch consoles

- Redundant configuration and data distribution servers

Nokia services

- Project management

- Procurement

- Engineering

- Integration

- Installation

- Support

- Network Operations Center

- Security Operations Center

- Network maintenance (24/7), including Level 1 and 2 support

- Network management system: Remedy, Netcool

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Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.