

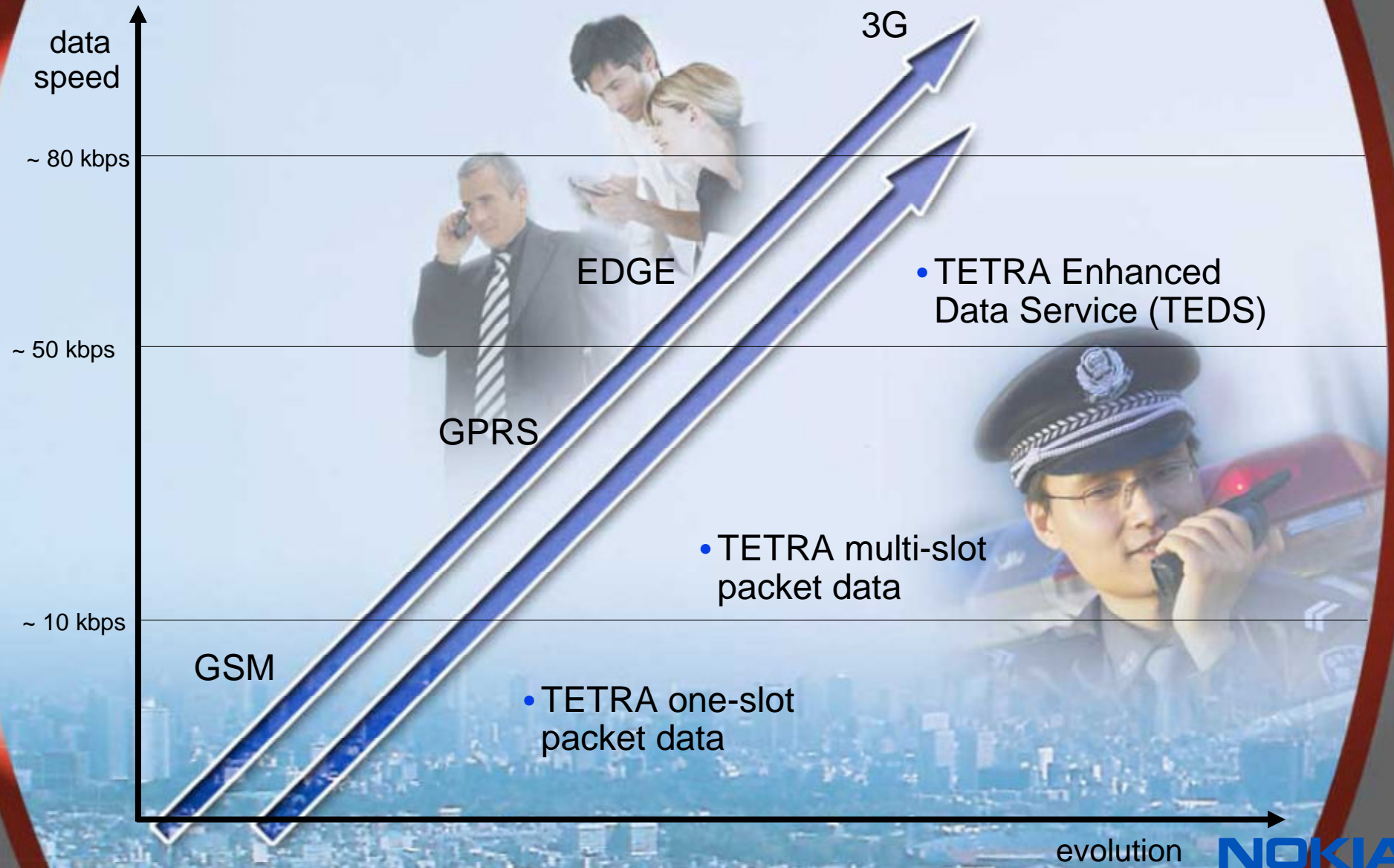
A photograph of Matti Peltola, a middle-aged man with glasses, wearing a dark suit and a red tie. He is smiling and holding a circuit board in his left hand. The background is a blurred indoor setting with some lights and a grid pattern.

Nokia high-speed data strategy for TETRA

Matti Peltola
Vice President, Nokia

NOKIA

Evolution of TETRA data speeds follows the mainstream



Evolution of TETRA data services



Video streaming
High-resolution images
Real-time applications
for command&control
Advanced location-
based applications
Multimedia databases
Identity management
Field command with
improved situational
awareness



Compressed video
Reporting
Telemedicine



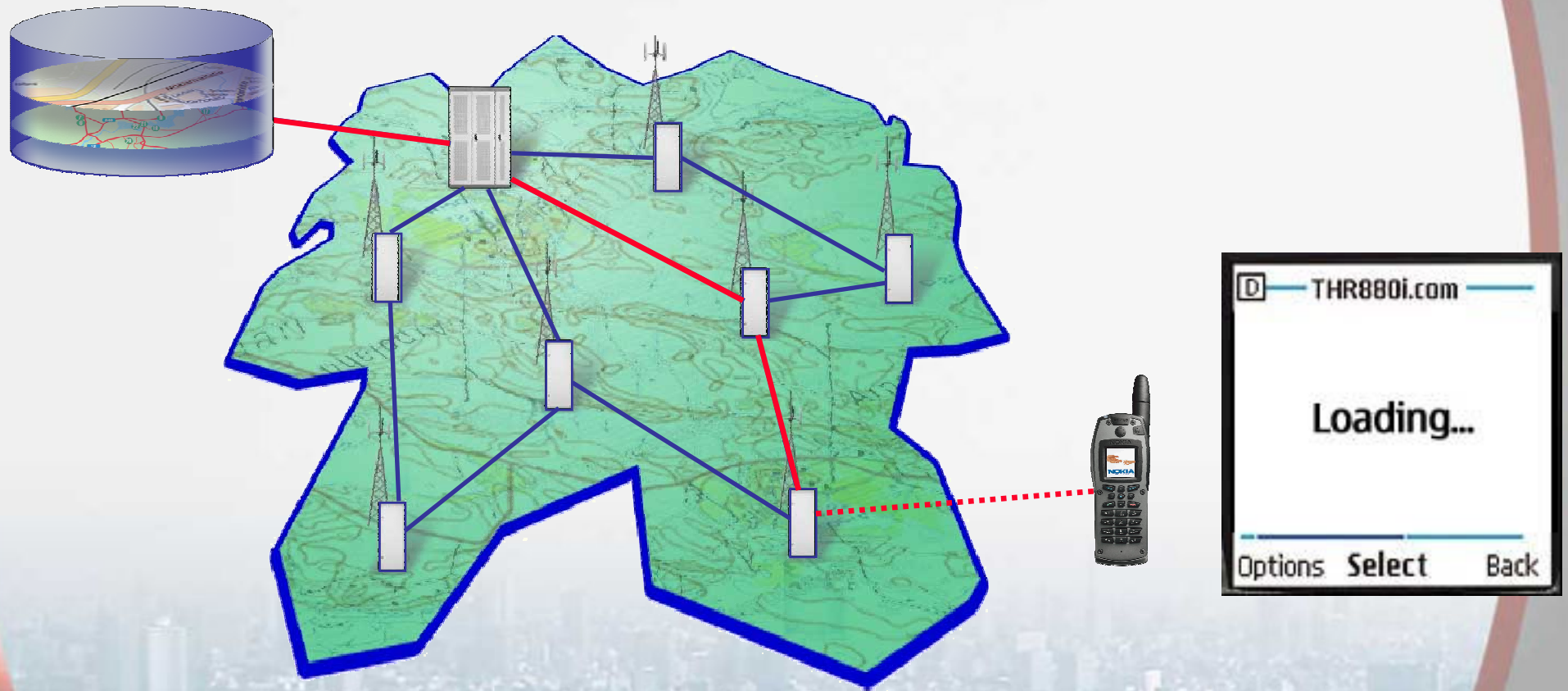
Compressed images
Database queries
WAP browsing of databases
WAP push alerts to field units
Location applications



Status messaging
Short Data Service (SDS)
Automatic Vehicle Location (AVL)
Telemetry

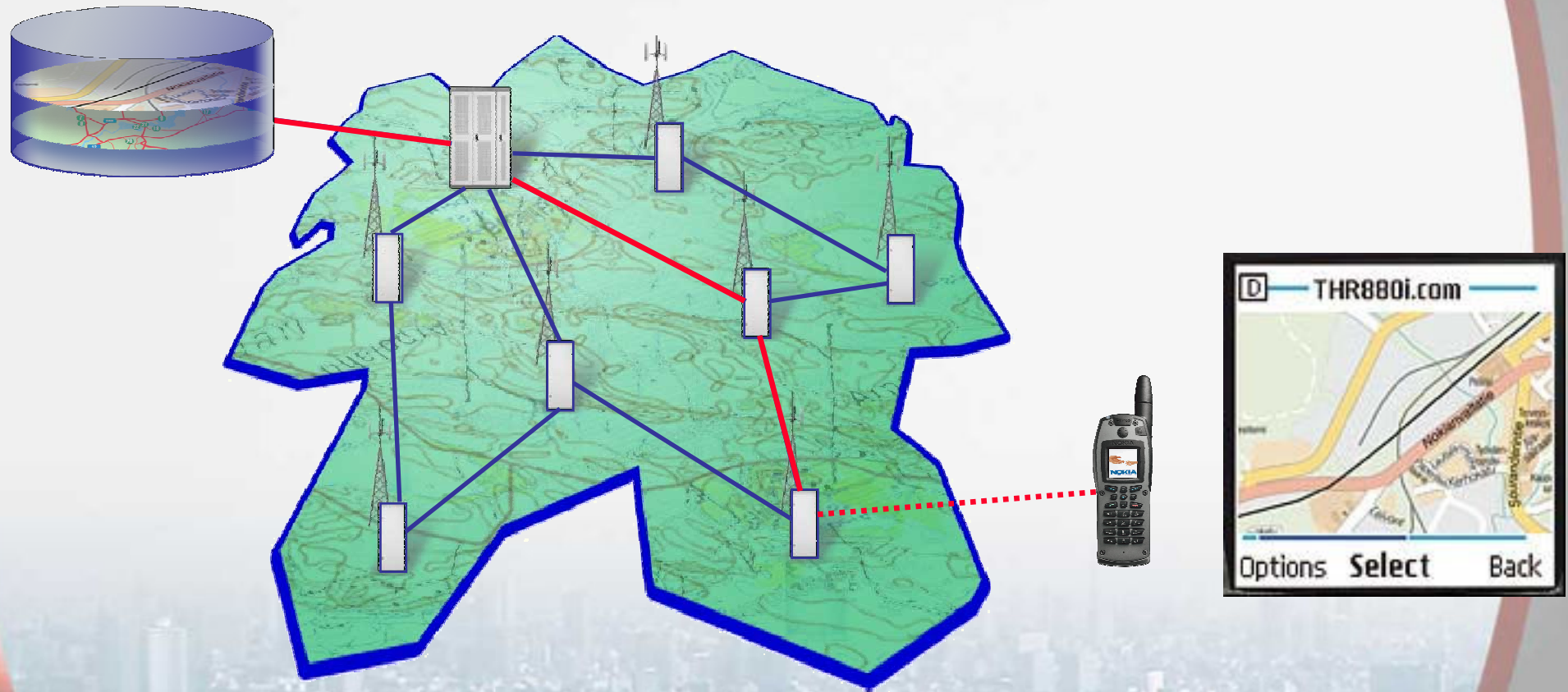
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Database query without high-speed data



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Database query without high-speed data



Nokia TB3 TETRA base station

Remote operation, maintenance,
and software download

High-speed data capability can be brought into
use without hardware upgrade

In addition

Revolutionary radio access solution brings
extreme coverage enhancements

Traditional TETRA
base station

57 km²



Standard site

Nokia TB3

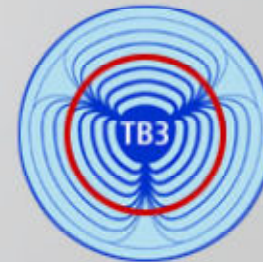
80 km²



3 dB improvement

Nokia TB3

137 km²



3.8dB
improvement

Nokia TB3

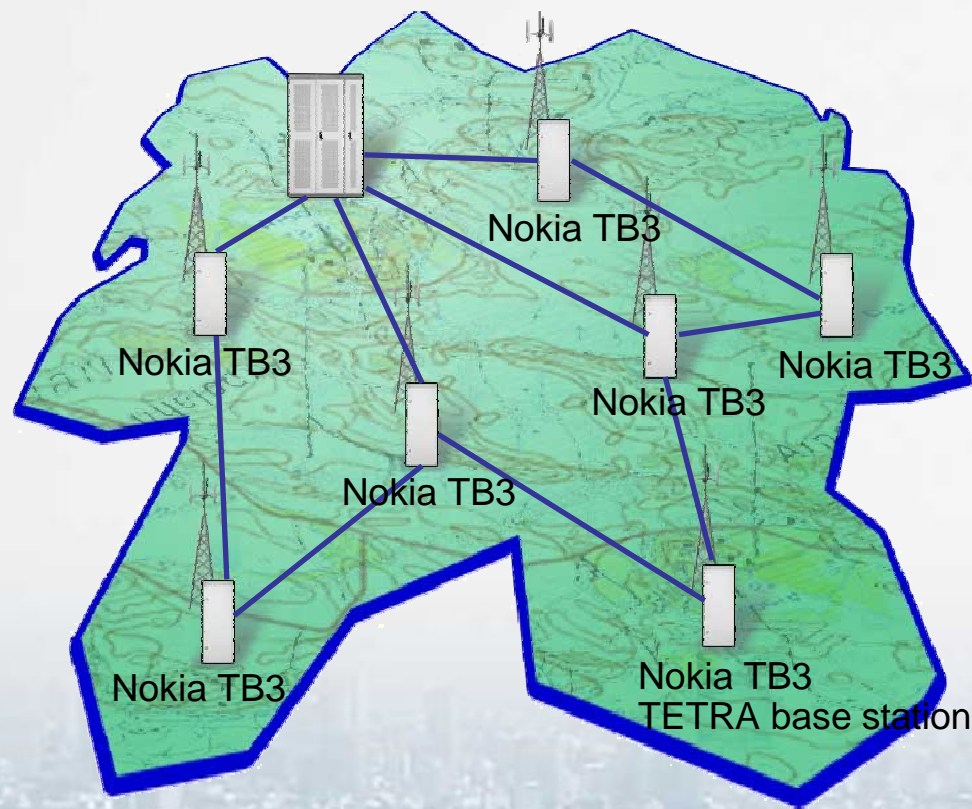
216 km²



5dB improvement

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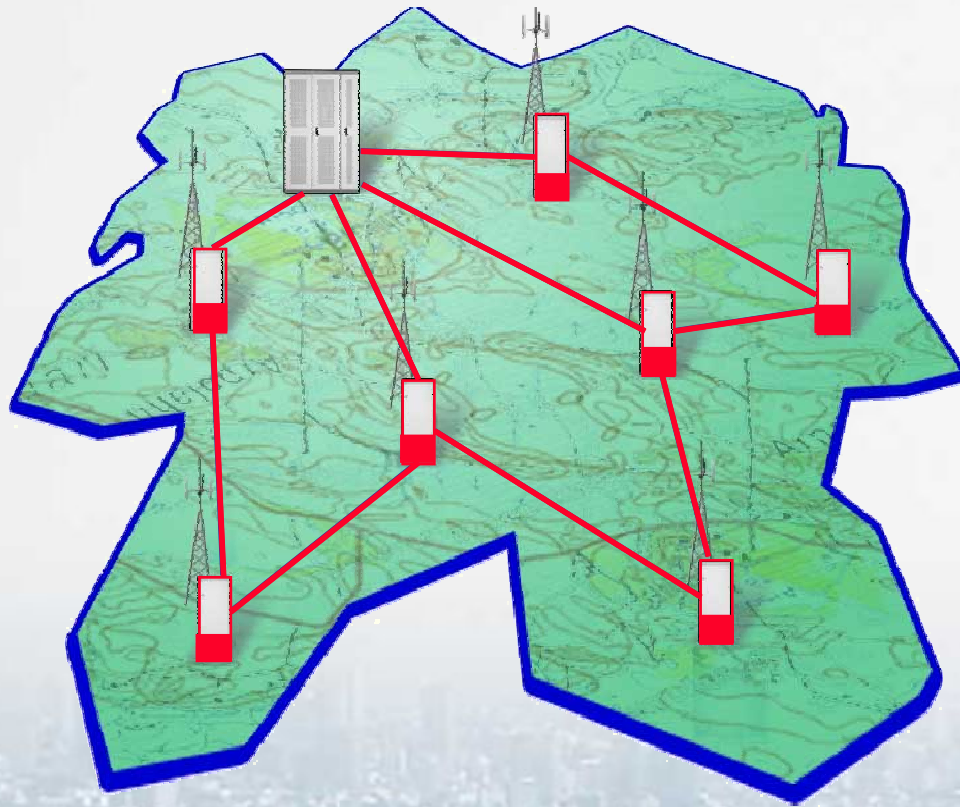
Nokia TETRA network ready for high-speed data



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High-speed data capability without hardware upgrade

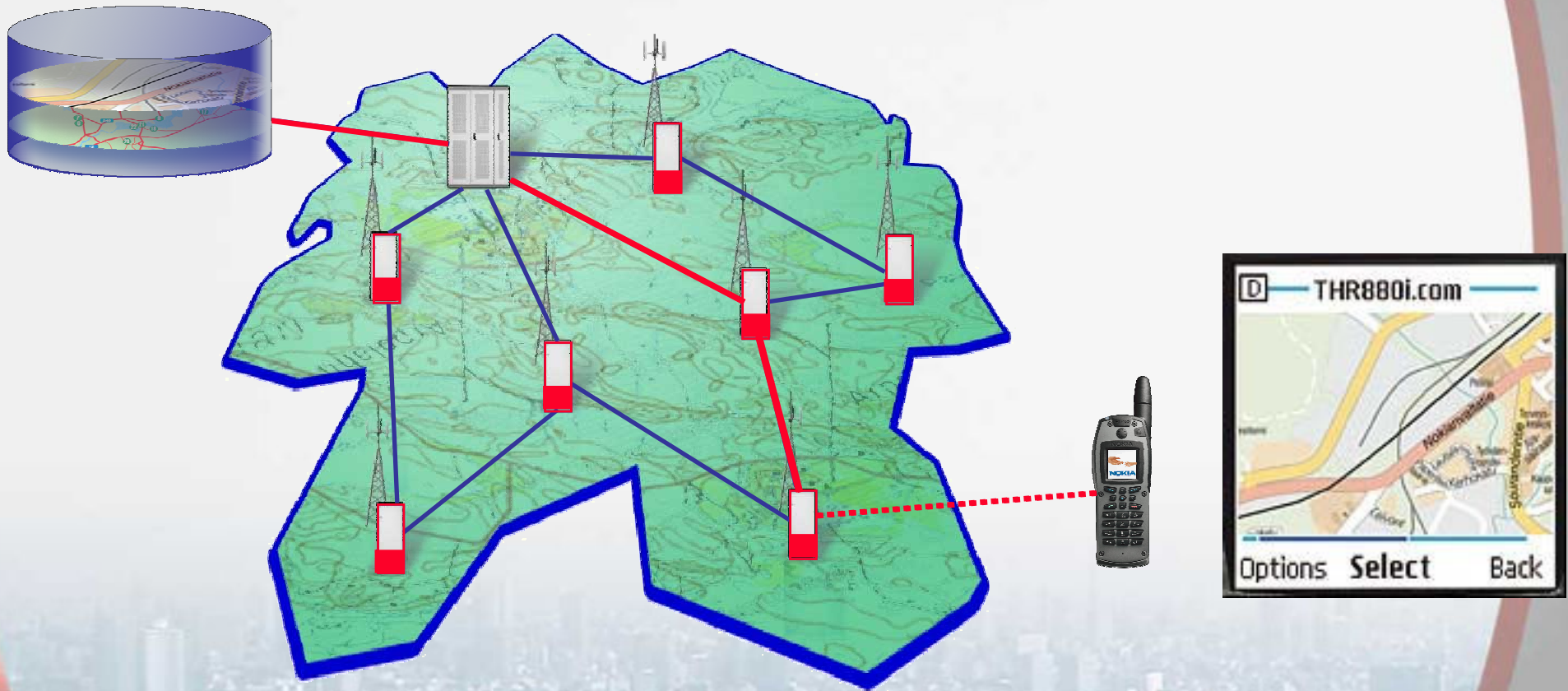
High speed data capability downloaded into Nokia TB3 TETRA base stations over a remote connection



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Database query with high-speed data capability

- 10 times faster than packet data means GPRS/EDGE-like user experience



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High-speed data will be vital

Field command
using multiple
real-time
applications



Instant high-
resolution image
transfer



Real-time video
streaming, video
monitoring



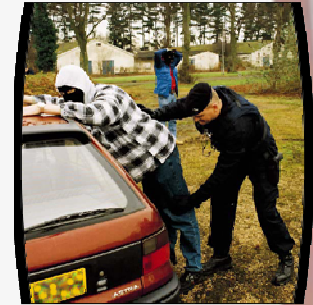
Advanced
location-based
applications



Multimedia
databases



Identity
management
applications



**SITUATION
AWARENESS**

**RAPID
INFORMATION
SHARING**

**INCREASED
OFFICER SAFETY**

**OPERATIONAL
EFFICIENCY**

FREE MOBILITY

**INCREASE
D
SECURITY**

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TETRA Enhanced Data Service

- TETRA Enhanced Data Service (TEDS) is an extension to the TETRA standard
- TEDS will complement the current TETRA services with higher data speeds
- Extremely spectrum-efficient
- Gracefully adapts its speed when necessary

25 kHz TETRA carrier / 4 voice channels
25/50kHz TEDS carrier / 1 data channel

100kHz 100kHz


Diagram illustrating a sequence of arrows: $\longleftrightarrow \leftarrow \rightarrow \longleftrightarrow \dots$

TETRA

TEDS25,TEDS 50.....,TETRA voice + slow data

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Nokia's high-speed data solution - Benefits

- 
- Improved officer safety, improved citizen safety
 - New applications improve field command and situational awareness
 - Today's investments are secured
 - Nokia TB3 TETRA base station supports high-speed data
 - No hardware upgrade required
 - Cost-efficiency and convenience of use
 - Same network and devices for voice and data

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A photograph of two naval officers in dark blue uniforms and white caps standing on the deck of a ship. The officer on the left is holding a camera, and the officer on the right is leaning on the white metal railing. The ship's hull is blue, and a red flag is visible on a mast in the background. The image is framed by a large, semi-transparent red circle.

Thank you!

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