



Future of TETRAPOL

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Secure Land Communications
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TETRAPOL Networks: an on going success story

Every day saving lives



Availability



Resiliency



Security



Special Operational Needs



Major Evolution Drivers

Improvement of operational results

Reduction of costs

- Leverage existing assets
- New applications (mobile office, mobile CAD, ...)
- New users fleets



Mission critical data still being defined,
operational use will dictate

Voice remains primary service

TETRAPOL Evolution

Modernization of current networks preparing path for Broadband PMR

.. and building blocks...

Broadband capabilities
(LTE400)

TDM to IP Migration
(new MBS)

Virtualization
PMR Core services

Terminals renewal
(new TPH900)



Migration to IP of TETRAPOL networks

Perpetuate current PMR Voice services (voice, AVL, data) and existing networks

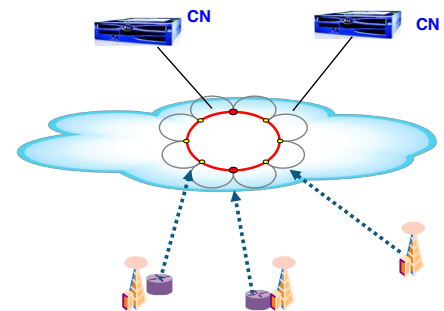
- Require regular modernization of infrastructures

Optimize Total Cost of Ownership of networks

- share resources with new fleets
- migration toward IP architecture
- leverage IT technology evolutions (multicore CPU, virtualization, ..)
- increase coverage / capacity / spectrum usage
- share infrastructure and management

Critical Services fully dedicated and controlled

- Warranty of national coverage (including rural zone)
- Warranty of availability and capacity
- Resiliency
- Security
- Direct mode



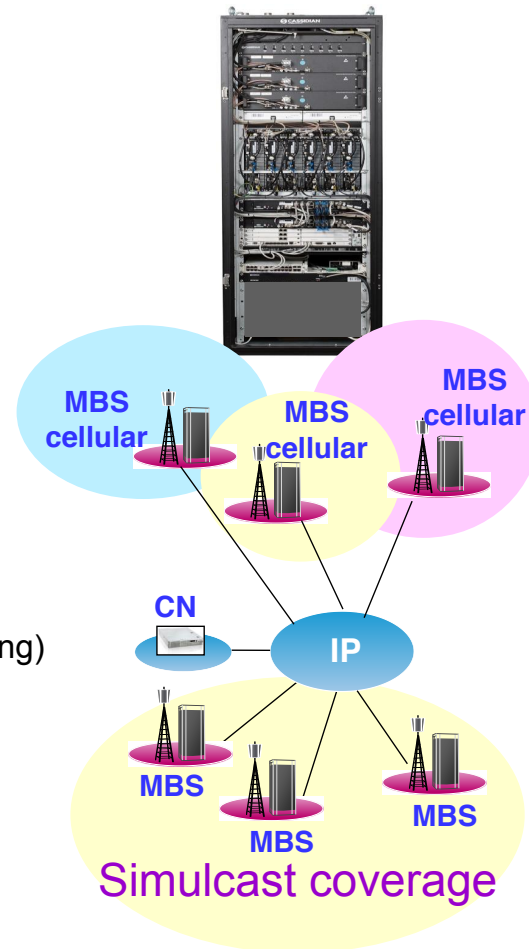
New Radio Base Station MBS

One Single Base Station for TETRAPOL IP and LTE400

- LTE channel bandwidth (1,4 / 3 / 5MHz)
- Up to 24 TETRAPOL channels
- Mixed configuration TETRAPOL / LTE 400
- TETRAPOL Simulcast

Key Benefits

- Frequency bands 380-430 and 410-470 MHz
- LTE 400/ 700 MHz Interoperability (Private or Commercial)
- Improvement of spectral efficiency (20 or 25 KHz Channel spacing)
- Flexibility of frequency programming (No cavity coupling)
- Simulcast configuration save frequencies
- OPEX Optimization



New Terminal : TPH900 ruggedized handheld

Product Highlights

- TETRAPOL 2W
- Frequency band 380-430 Mhz
- 12 hours autonomy 60/35/5 Std/Rx/Tx
- Compatible with 10W booster BIV Smart
- Loud audio
- GPS
- Bluetooth 2.1
- Vibra, man-down
- New MMI
- USB Programming & Flashing
- Latchable battery

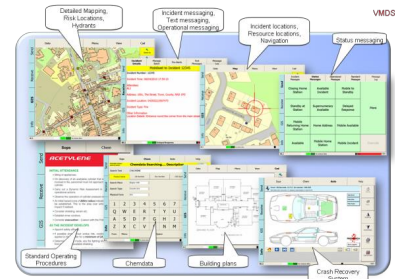
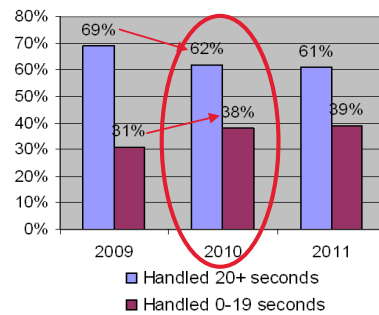


Tactical means : TETRAPOL IP & Satcom



Drivers of Professional Mobile Broadband

- Improved operational efficiency by leveraging ICT applications



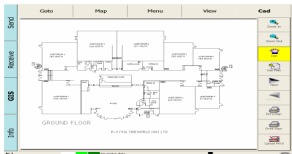
- Costs reduction



- Demand for improved safety

Mobile Command Application Portfolio - SafeCommand

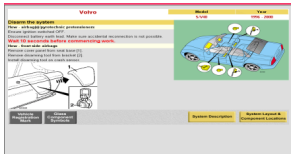




Building Plans

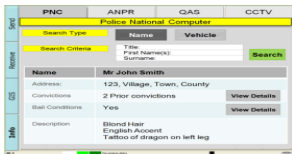


Chemical Information



Vehicle Information





Police Computer (PNC)

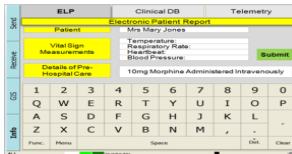


In Vehicle CCTV



Automatic Number Plate Recognition





Electronic Patient Report (ELP)

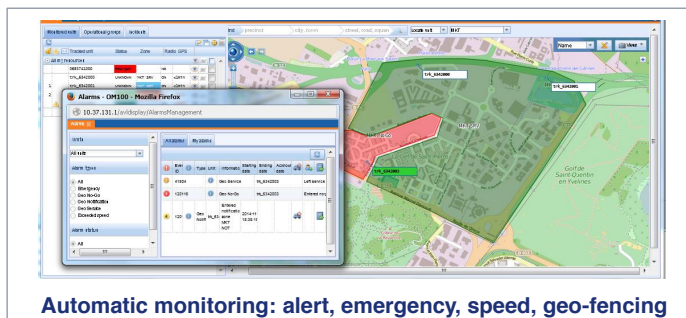
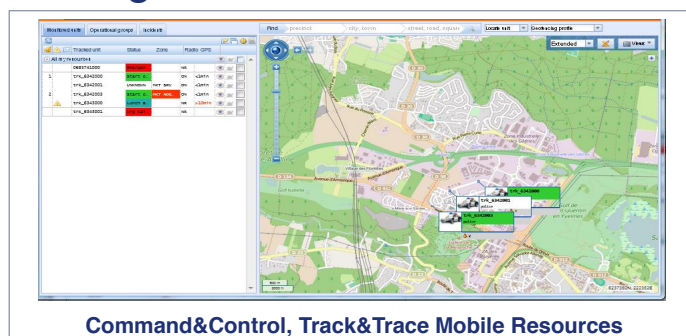


Telemetry



Clinical Database

Automatic Resource Management Multi-agencies-organizations/ Tactical Situation Awareness



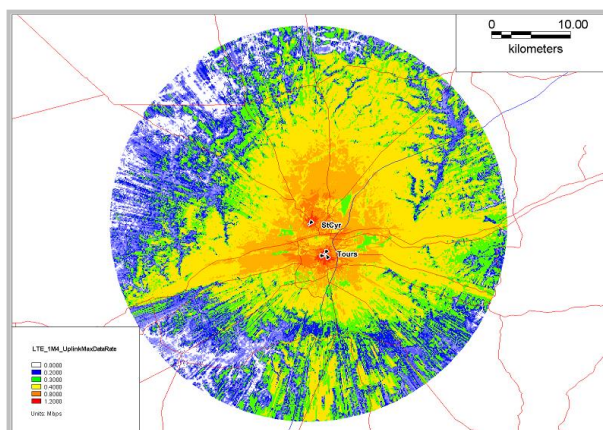
BB 400/450 MHz solution - High power benefit

Same Broad band coverage with video services than for a Narrow Band voice system thanks to:

- 5W Modem
- 90W eNodeB

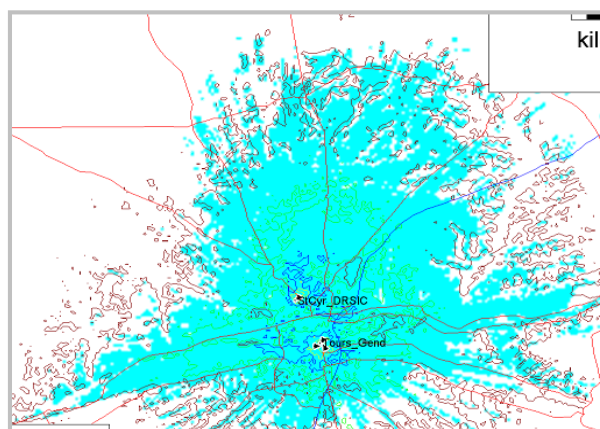
Decreases the TCO of the solution

LTE400 High Power
5W Modem in vehicle



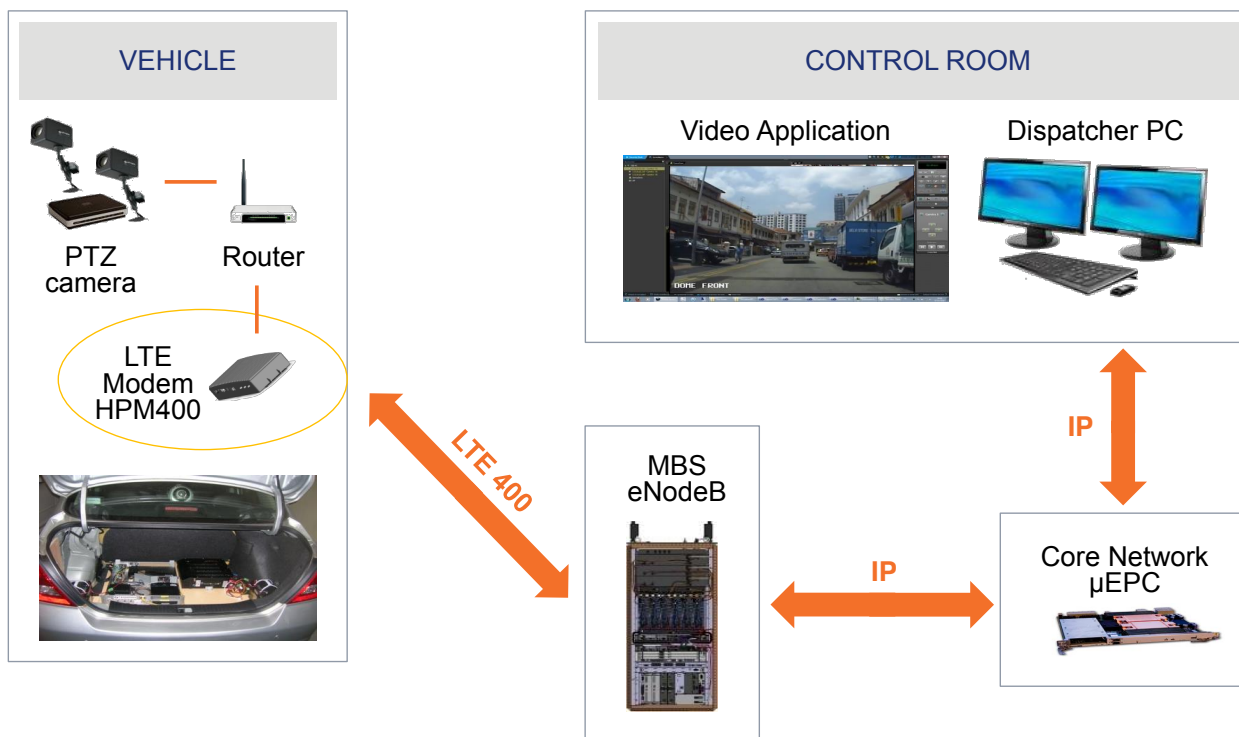
TETRAPOL Voice
10W mobile in vehicle

Theoretical uplink bandwidth



25 km range
proven through customer trial

Safe City Test Bed Singapore - BB400 Solution used



The first High-Power LTE modem in 400MHz frequency band

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Integration of Broadband into Tactical PMR systems



GERMANY
October-November 2013

LTE Integrated



- ✓ Partnership with Alcatel-Lucent
- ✓ LTE μ EPC from ALU leveraging virtualization of Carrier grade software
- ✓ 400 MHz Radio & system integration from Airbus

Broadband Integration into TETRAPOL PTN

Conclusions

- TETRAPOL is evolving toward a common PMR Broadband Standard
- Evolution of current assets brings value today and for the future
 - IP Migration, MBS Radio Base Station, PMR application
 - Efficient 400 MHz spectrum management
- Smooth introduction of mission critical data driven by value added applications
- Public Safety has special needs and requires special attention

