Heterogeneous Networks for European Public Safety

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CELTIC-Plus Event 2012 – Stockholm
22/02/2012
Communication Requirements of Public Safety Services

- **Public Safety Services**
  - Police, Fire brigades, Ambulances, Civil Protection

- **Communication Requirements**
  - Mission Critical Communication – Voice
  - Increased situational awareness
    - Video from incident site
    - Sensor information
    - Access to data and archives
  => More and more need for Broadband Communication
Challenge (1)

- **Voice Communication**
  - dedicated Networks
    - Analogue
    - TETRA
    - TETRAPOL

- **Broadband Communication**
  - no dedicated broadband Networks for public safety services available
    - dedicated spectrum not decided yet (availability earliest 2020)
  - Other options
    - public broadband networks
    - Fast deployable broadband networks
Heterogeneity in radio networks

- PMR (TETRAPOL, TETRA) – for voice
- GSM/UMTS/HSDPA/(LTE)
- SatCom (e.g. ASTRA2Connect)
- WiMAX, WiFi
- Fast deployable network solutions
- Ad hoc Wireless Sensor Networks

Heterogeneity in services

- Several Crisis Centres (EWFM, ARIGON+, Portal)
- Several Tactical applications (mobile clients, phone clients, PMR group call application)
- Intelligent Video Analytics
- Location based services
- Dynamic Information Sharing
Five demonstrations executed (Four public with users)
- Mid-term review, Mai 2010
- User workshop Nozay, November 2010
- User workshop Luxembourg, March 2011
- Transport Scenario demonstration, Madrid, November 2011
- Final Demonstration, Elancourt, November 2011

Two different scenario were used:
- The cooperative terrorist scenario, integrating nearly all components realised in one solution
- The Transport Scenario, Madrid, integrating selected components into a scenario defined and supported by the Consortium Regional Transport of Madrid
HNPS Project Achievements (2)

✓ Integration of communication networks
  ✓ Fixed radio networks
    ✓ TETRAPOL – national PMR for public security
    ✓ TETRA – private PMR,
    ✓ WiFi – exterior et interior – with localisation service.
    ✓ WiMAX – wide band 4G radio network private
    ✓ UMTS – wide band 3G radio network public
    ✓ SatCom – Long distance connection with backhaul
  ✓ Fast deployable networks
    ✓ WiMAX – wide band network limited to the ’intervention site
    ✓ Wireless Meshed Network (WMN) – deployed in areas where other networks unavailable e.g. basements – connected to the WAN via WiMAX and
    ✓ Wireless Meshed Network (WMN) – deployed in areas where other networks unavailable e.g. basements – connected to the TETRAPOL IP network through a gateway
    ✓ Wireless Sensor Network (WSN) – deployed on demand to connect sensors – may use the WMN or WiMAX
Applications and Solutions integrated

- Video and Imaging
  - video analytics (UPM)
  - Thermal Imaging (NGARO)
- Headquarter applications
  - Command Control Centre – VOMATEC ARIGON PLUS in combination with HITEC middleware
  - HITEC Web Portal
- Mobile Units
  - HITEC middleware
  - HITEC tactical client
- Intervention Teams
  - Cassidian TETRAPOL Client via Voice over IP

Technological aspects

- Detailed security analysis and recommendations
- Self Configuration Management solutions
The HNPS Project

- Project Start: July 1\textsuperscript{st}, 2008
- Project End: December 31\textsuperscript{st}, 2011
- Duration 3.5 years
- €9.6 Mio Budget

- 15 Partners
  - Including major players of the Public Safety Market
  - Coming from five different countries
    - Spain (5)
    - France (4),
    - Luxembourg (4),
    - Germany (1) (self-funding),
    - Netherlands (1) (self-funding),
# HNPS Consortium

## Industry Players

- VOMATEC®
- SICE
- HTEC LUXEMBOURG
- THALES
- GOWEXC
- CASSIDIAN
- P&T LUXEMBOURG
- ROHILL
- Alcatel-Lucent
- Telefonica
- Lion Systems S.A.
- ngaro

## Government

- LE GOUVERNEMENT
  DU GRAND-DUCHÉ DE LUXEMBOURG
  Ministère d'Etat
  Centre de Communications du Gouvernement

## Research

- POLITÉCNICA
- EURECOM
Conclusion (1)

- **Positive Feedback received from users**
  - Approx 30 participants from the public safety user community in all demonstration
  - Main feedback:
    - A very relevant topic for public safety services today and in the near future
    - The demonstrations showed ways for future public safety communication

- **The input of the HNPS project is already and will be used as basis for several public safety solutions**
  - Emergency.lu
  - Alpine Search and Rescue (ALPSAR)
  - High interest for implementation of the Madrid Transport Scenario in Madrid

- **The partners and the associated users are satisfied by the results of the project and the very good collaboration between partners and users**
The HNPS project partners would like to thank

- The CELTIC office for their support
- The public authorities of
  - France
  - Luxembourg
  - Spain

- Active Supporting users
  - France
  - Luxembourg
  - Spain
Thank You

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