

The CHORIST rapidly deployable communication system (MODULE 3)



The CHORIST Rapidly Deployable Communication System (MODULE 3) integrates distributed communication infrastructures interoperable with existing narrowband Professional Mobile Radio (PMR) systems.

The seamless integration empowers the field rescue teams with modern all-IP applications, such as voice, video, file transfer and web browsing, with the least human intervention. The self-configuration features of the proposed solution enhance the efficiency and improve the safety users.

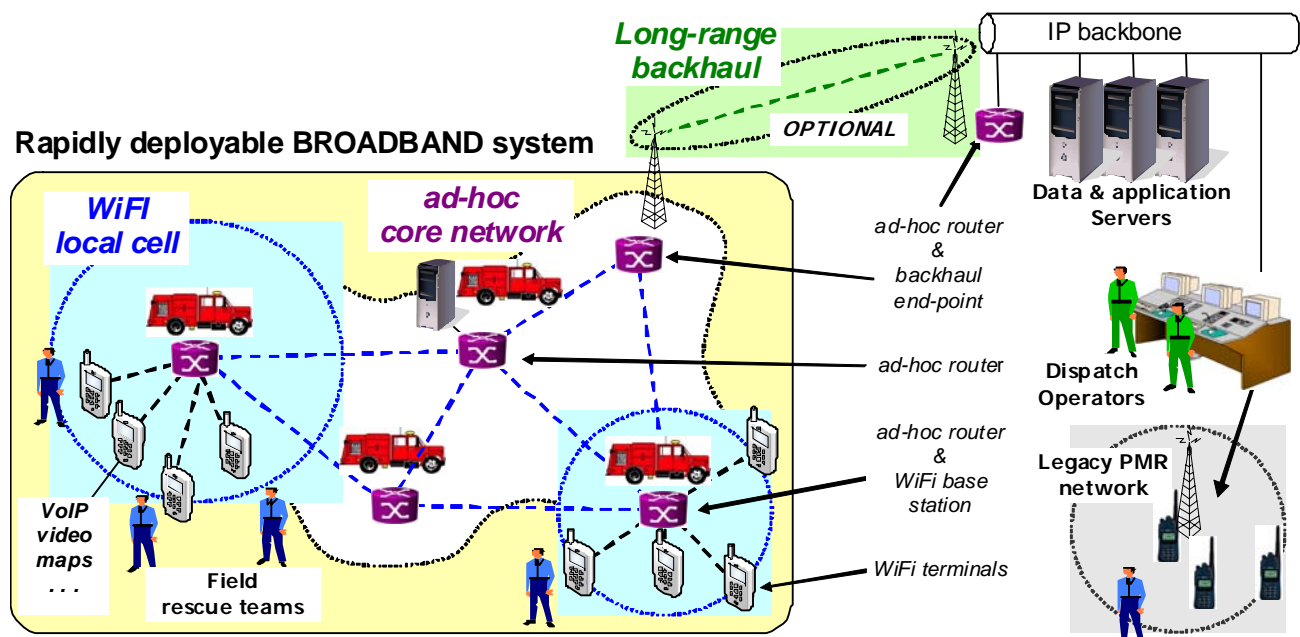
In addition to the narrowband PMR systems the MODULE 3 proposes:

- (1) an innovative rapidly deployable broadband PMR system, and
- (2) a standard TETRA TEDS wideband system including a base station and terminals.

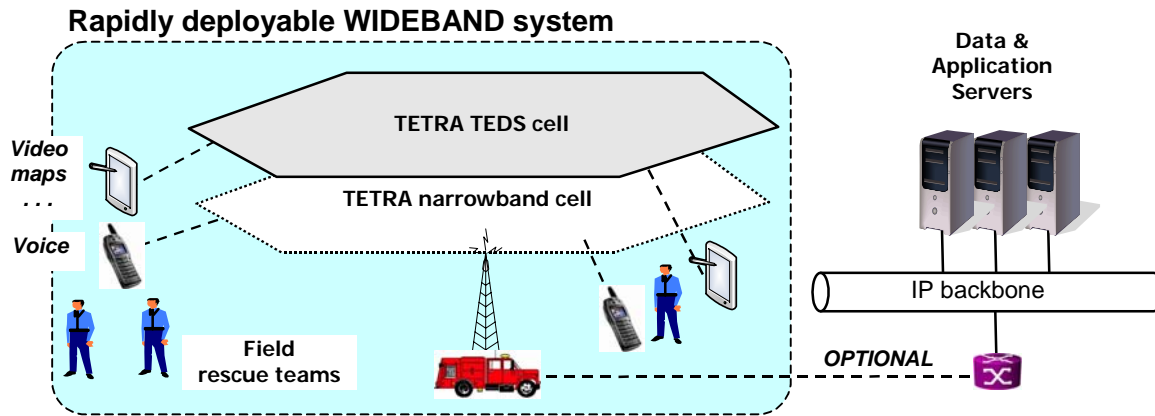
Broadband PMR system

The broadband PMR system comprises:

- Vehicular to pedestrian broadband cells. WiFi is proposed, as mobile WiMAX is not yet available.
- An innovative self-forming inter-vehicular IPv6 mobile broadband wireless core network:
 - Two-tier, rapidly deployable and auto-configurable core network, where dynamically-allocated cluster-heads (CHs) allocate the radio resources (MAC/PHY) to the first tier.
 - Flexible routing decisions based on traffic identification.
 - Negotiated Quality of Service (QoS), naturally managed by using the Class of Service field of labels.
 - Compatibility with security approaches (L3) as IP packets remain untouched inside the core network (e.g. with Virtual Private Networks -VPNs).
 - IPv6 unicast and multicast support.
- Voice over IP (VoIP) distributed Group Call application taking advantages of the IP multicast features. Connection with legacy PMR network is done through a patch by Dispatch Operators.
- A vehicular to infrastructure WiMAX off-the-shelf long-range backhaul



Wideband PMR system



A rapidly deployable single site TETRA/TEDS shelter is deployed in the case of large incidents.

Shelters are typically 'truck-rolls', containing a TETRA base station(s), technical, tactical management system, deployable mast, antennas and power supply.

When connected to a TETRA wide area infrastructure, a transmission link (radio relay, satellite, cable or broadband connection) is also part of the shelter. TETRA release 2 offers voice-based communication (individual calls, group calls, prioritization, emergency calls) and narrowband data functionality (short message service, status reporting).

TEDS offers wideband IP services with an variable bit rate utilizing adaptive modulation and coding schemes (mixture of 1/2 and 2/3 coding rates and 4/16/64QAM modulations)

Typical scenario

1. An industrial or a natural disaster occurs. The fire brigade, the police, the medical department, Civil Protection and the Civil Protection units are deployed all over the incident area. The telecommunication infrastructure is damaged and the different rescue teams are not able to communicate between each other.
2. The MODULE 3 allows rescue teams' activities by allowing them to remotely converse, receive instructions and transmit their feedback, both within the incident area and towards the control room. It provides the public safety users with two independent solutions:
 - a. The Broadband PMR system offers a gradual deployment:
 - i. The deployment starts with access points installed in patrol cars.
 - ii. Pedestrian emergency response users are connected to the cars over WiFi and get information from their mobile devices and PDAs.
 - iii. As more cars arrive on site, the deployable inter-vehicular infrastructure automatically self-configures, linking cars and pedestrians together.
 - b. The Wideband PMR system consists of a TEDS cell which can be deployed alone, or as an overlay to a TETRA cell.
3. The MODULE 3 can work either in stand-alone mode, or it can be connected to external servers and control rooms through a long-range backhaul.

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The 3 CHORIST modules

MODULE 1

MODULE 2

MODULE 3