

Deployable High capacity Gateway for emergency services

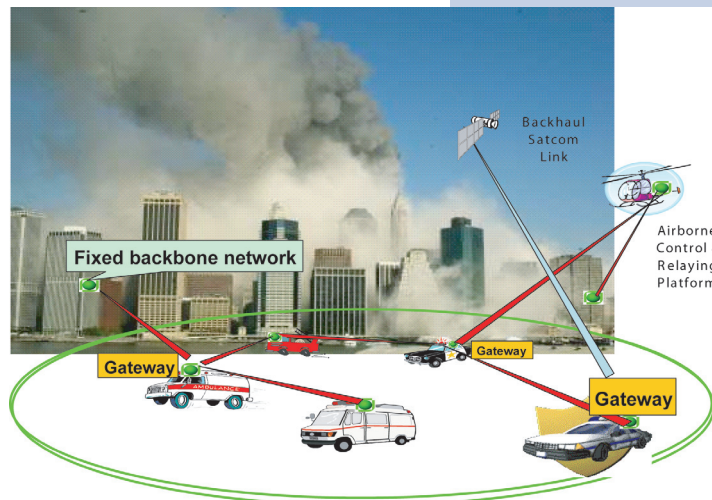
DeHiGate is a co-operative project involving European industries and universities. The overall objectives of DeHiGate are to demonstrate a secure broadband mobile wireless communication system for emergency services and develop additional units to augment the current systems. The foundation for the project is interaction with dedicated user communities, so the functional requirements for the overall architecture and for the gateway itself are based on their needs.

Main focus

Current systems allow near real-time situation awareness and low bandwidth communications. The time and space resolution of the situation awareness is directly related to the capacity of the network that reports and distributes updates. Current systems do not allow for real-time situation awareness due to bandwidth constraints. Increased capacity would allow real-time situation awareness to be achieved as well as image sharing (still or video), large data file transfer (maps, floor plans), etc. Personnel positioning and monitoring systems would also be achievable.

The project will develop a deployable high bandwidth gateway for emergency services accompanied with applications. The gateway will extend high capacity data communication through the use of existing radio technology, and it will be used in addition to the low bandwidth voice and data systems already deployed by the emergency services

The innovative aspects will be in terms of the applications, control, management and security for the communication resources and in the integration of ad hoc networks into the fixed networks. From a service perspective, the innovative aspects will be ability to



thoroughly demonstrate and pilot high capacity services for the emergency services.



DeHiGate

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Start Date: 1 June 2005

Completion date: 31 May 2008

Partners

Applica AS, Norway

Helsinki University of Technology, Finland

EADS, Finland

Iber-X, Spain

Suomen Erillisverkot (SEV) Ltd., Finland

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Project web site

www.celtic-initiative.org/projects/dehigate

Approach

The project will utilize and interact with other existing European projects within the emergency services, e.g. WIDENS and Oasis. Several of the project partners participate in one or more of these, and will extend the knowledgebase from these projects. The usability will be demonstrated with trials aimed at the user community.

Broadband radios are not intended to replace existing emergency radio terminals and instead provide additional capabilities. The main idea is to integrate the various technologies into a seamless communication network, and to manage the overall capability to the best possible usage. The selection of broadband radios is a pragmatic choice based on availability. As other technologies become available, these can be substituted. The main idea of the project remains the same, deploy gateways and use multi-hop radio technology around the deployed gateway to extend broadband coverage to the emergency units.

The overall architecture will be analysed and technology choice for the WAN side will be one aspect considered. The gateway should support multiple interfaces to take advantage of whatever communication infrastructure that is available. Use of multi band technologies should also be considered.

Emergency services cannot afford to use untested products. High capacity data is a completely new tool that will need a long time before the relevant usage will find its place into the emergency service organizations. Most likely, new capabilities will have to be reflected into new operational procedures, which is a process that cannot be rushed.

However, it will not take place unless there are sufficient enabling technologies for demonstrations and piloting. There must be a duality of piloting the network capability and developing applications that can utilize the bandwidth. The project therefore contains both activities.

Main results

The project will create deployable gateways that can extend high capacity data to emergency service personnel.

Features of the Gateway:

- Ability to select data path based on requirements and available capacity
- Ability to utilize all available communication services
- Extend multicast from the existing network to the high capacity network
- Automatic configuration of the equipment
- Definition of key applications using broadband technology

Additional output of the project:

- Documentation of relevant public safety user requirements and scenarios.
- System concept, protocols and algorithms optimised according to public safety user requirements and scenarios.
- Experience of field-testing and/or simulation of the use cases

Impact

The impact will be as an enabler for discovering new areas of usages and new user requirements. In the long run, it is a necessary step in the inevitable path away from current vertical homogenous systems towards the horizontal heterogeneous networks typically found on the Internet.

In summary:

- Development of new technologies (multi-standard systems for public safety)
- User requirements
- Standardization
- System integration

About CELTIC

CELTIC is a European research and development programme designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. CELTIC is the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 5 years, from 2004 to 2008

Cluster budget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from the telecommunications industry, universities, research institutes, and local authorities from 33 countries

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