



Communication Interoperability in Crises Management

FREESIC: Free Secure Interoperability Communications for Crisis Management:
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In this modern age with all its complexities and interactions emergency services and civil protections agencies across Europe are faced with growing challenges that require effective co-ordination and interoperability across several organisations when responding to and managing major incidents.

Interoperability barriers in relation to communication systems still exist at regional, national and European levels between Public Protection and Disaster Relief (PPDR) organizations; such barriers often impact upon the effectiveness of PPDR agency responses especially during a crisis event, but also such barriers limit the data flow in day-by-day operations where access to such shared information improves situation awareness considerably.

This need for effective coordination and interoperability can cross state boundaries, also it can involve the deployment of specialist resources from one country to another; optimum effectiveness between agencies is reliant on good communications systems that enable seamless and reliable information exchange.

In addition there is a need to recognise that effective interoperability rests on acknowledging that agencies, both within a country and across international borders, operate to varying processes, procedures and protocols and have different hierarchical governance structures, cultures and indeed organisational aims & objectives.

FREESIC is a cost effective, innovative capability addressing the “techno - organizational - legal” issues. It builds effective and secure interoperability systems for emergency response organizations so that communications and information exchange can be carried out in the most challenging of circumstances.

Where will FREESIC help?

- Differing doctrines between agencies and countries
- Significant budgetary pressures for emergency responder agencies
- Optimization of existing investments
- Multiple systems deployment EU wide
- Trust and security concerns, classified information
- International agreements and legal limitations.

Visions of FREESIC project:

- Interconnection of responder agency communication systems without major investment and close to zero operational costs

- Agencies continue to use existing communication systems
- The building and maintenance of a network of emergency responder agencies across borders
- Systematic mapping of constraints (cultural, legal, technical) that currently hinder the close cooperation of different responder agencies.

How it will work:

The solution is based on a universal gateway with customisable adapters allowing third party infrastructures to be connected to the FREESIC Unified Communication Network. End users will handle network management tasks through the collaboration site based on WEB 2.0 components that allow users configure their own interoperability attributes.

The FREESIC Gateway:

Public Protection and Disaster Relief Organisations connected to FREESIC will have the ability to exchange required information with partner agencies regardless of state borders via the FREESIC Gateway which will be made available to them with full specification upon acceptance of the FREESIC terms and conditions described in the FREESIC multilateral agreement. Agencies can ask their system integrators to develop an adapter to the FREESIC Gateway that connects their own communication system with the FREESIC platform.

Thus, each inter-operating agency, using FREESIC, needs only to develop one adapter to achieve multilateral interoperability with other agencies. The specification of FREESIC Gateway will be provided as a shared JAVA source code with sample implementations as well as additional tools enhancing the configuration adapters connecting to the FREESIC platform. It means any kind of communication

system can be easily integrated at minor costs. Moreover, the system integrators do not need to share any of their own assets, specification or source codes they consider as business sensitive information or own intellectual property.

The FREESIC Collaboration web:

Thanks to the FREESIC collaboration web, the operation of the interoperability platform is performed in a decentralised way (WEB 2.0 principles) according to transparent interoperability rules enabling the interconnection of an organisation’s communication system. Thanks to the continuous involvement of end user communities at the technology platform development, the user interface will be accommodated to the end user’s expectations, habits and vocabulary providing an interoperability tool that end users can quickly become familiar with.

The FREESIC end user focus:

Another aspect of the FREESIC project is the focus on potential end user expectations, habits and constraints with special emphasis on non-technical barriers that first responder organisations in Europe are facing when they are attempting to set-up interoperability with partner agencies.

FREESIC project partners consult such non-technical barriers with over 50 stakeholder organisations across ten EU states. Furthermore, engagement with a wide range of end users has resulted in a series of suggested proposed solutions to identified barriers.

The FREESIC deployment:

The FREESIC infrastructure consists of a set of servers, secure multimedia switching software, web management tools. The backup (load-balancing) servers around Europe will enable the system high availability and the meshed

Figure 1: FREESIC architecture

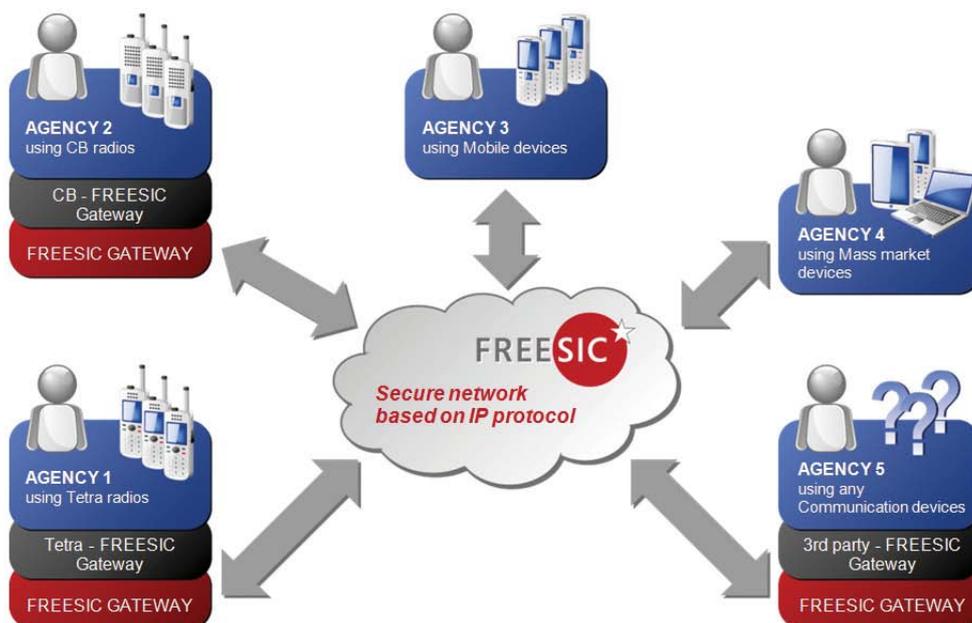


Figure 2: FREESIC pilot of Collaboration web



- ▶ topology will enhance its resilience towards attack. The system is designed with security in mind from the beginning. The first interoperability between different systems will be evaluated using testing environments of organisations who participate directly as partners or associated partners in the FREESIC project or through their systems integrators/ consultants.

Conclusion:

The FREESIC system will be free and the decision to connect to it voluntary. FREESIC is not compulsory but provides a capability that brings added value to the participating organisations. It gives you:

- Permanent connectivity with partner organisations that regularly operate together but have differing communications systems

- Temporary connectivity with other FREESIC participating organisations when deemed operationally necessary
- End to end connection between strategic and tactical command groups using different communication tools
- The ability to tailor needs for the specifics of an organisation and incident
- Secure communication channels.

This is an extract from a FREESIC project materials and project outputs compiled by: Aurel Machalek (University of Luxembourg, Luxembourg, aurel.machalek@uni.lu), Latif Ladid (University of Luxembourg, Luxembourg, latif@ladid.lu), Stefan Vanya (Ardaco, Slovakia, stefan.vanya@ardaco.com)

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www.freesic.eu

Figure 3: FREESIC interoperability example

