



Presentation to: RUSI 7 December 2009

Emergency Response 2009: Communicating in a Crisis

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The Consortium



- User Requirements



- Infrastructure



- Applications

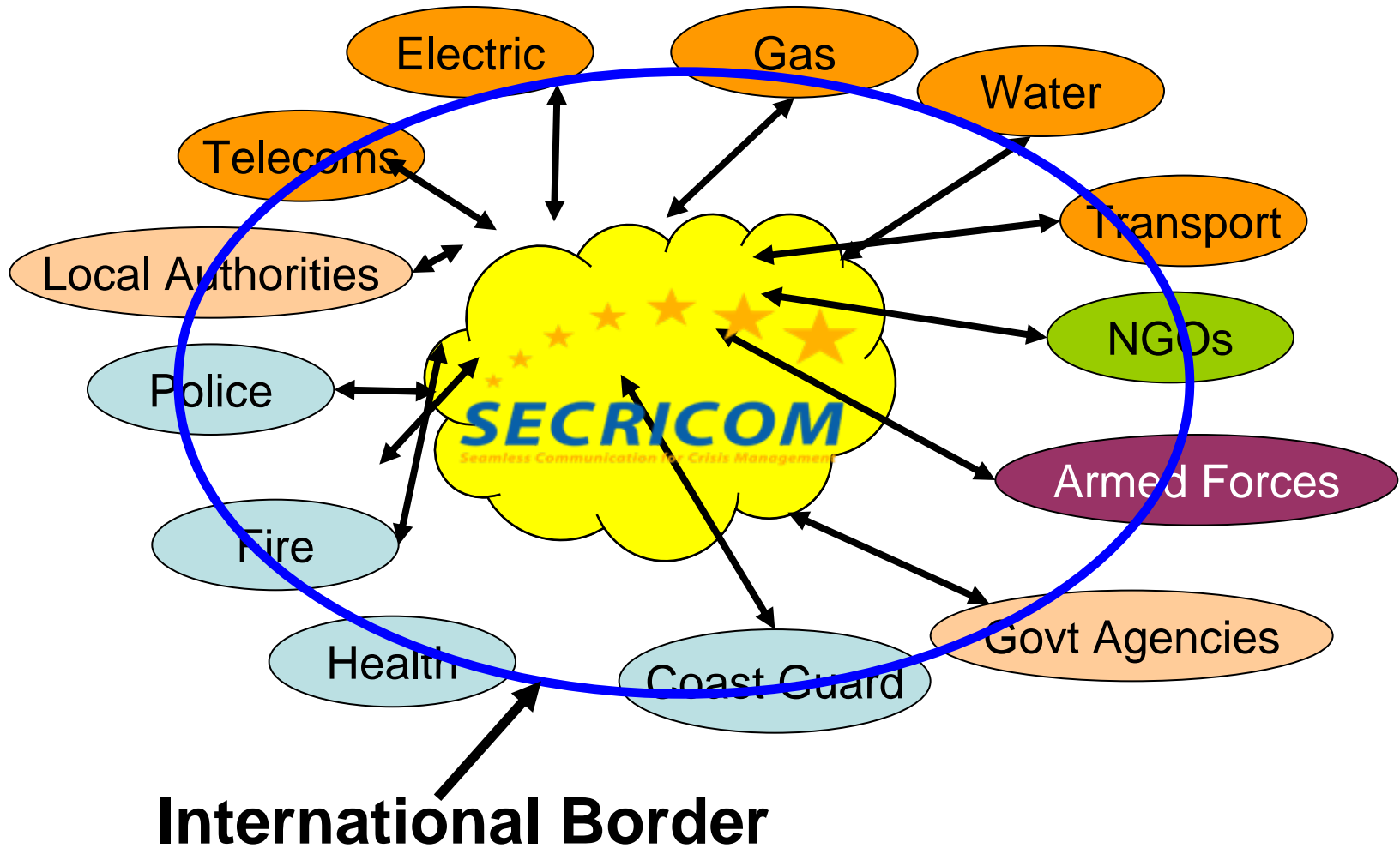


Vision

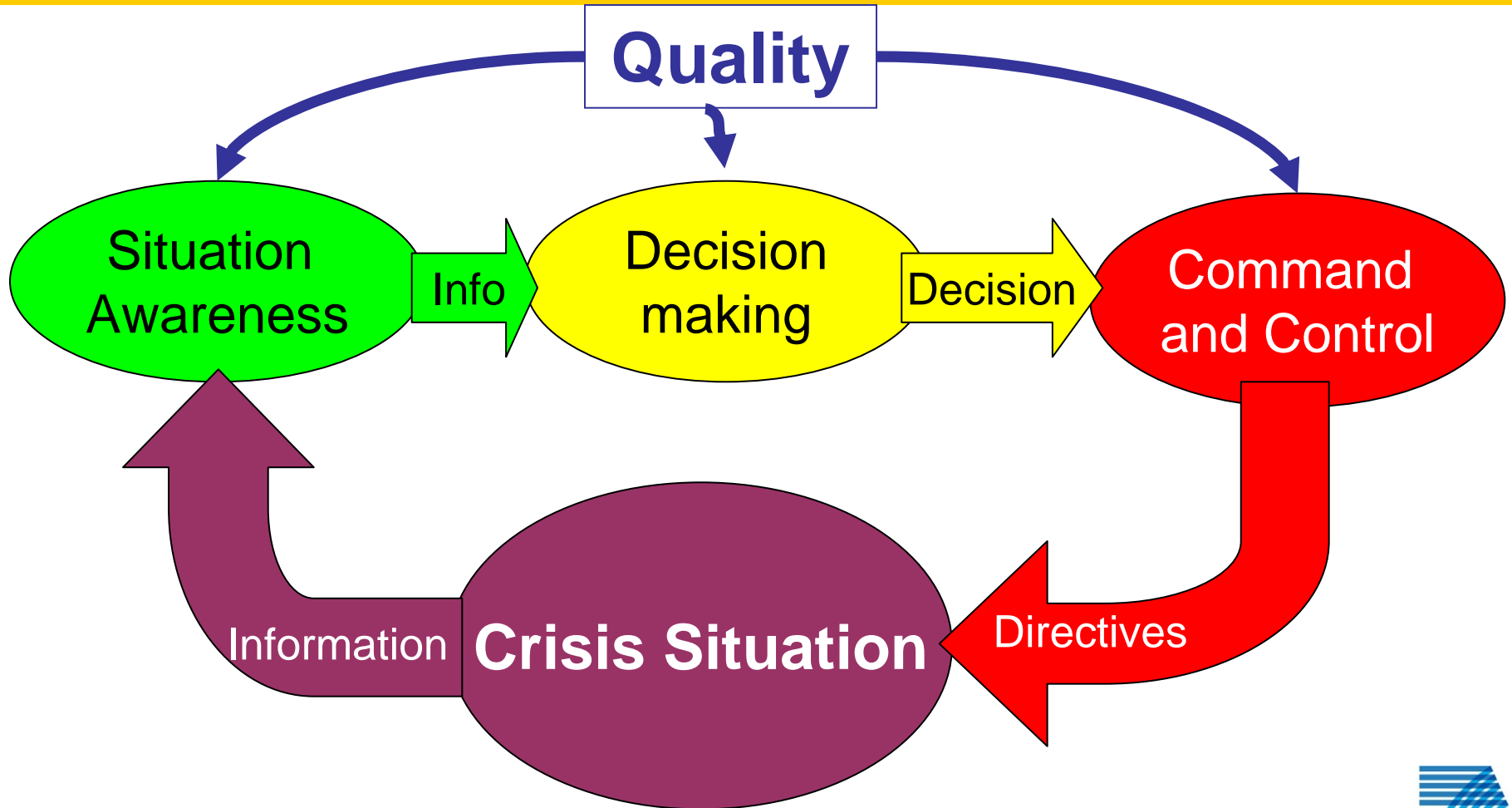
- Ability for responders to operate across different European emergency services / responder agencies as one cohesive unit at the time of a crisis
- Secure communication system during a crisis with technical interoperability built into the design



Business Stakeholders



Principle of Crisis Management



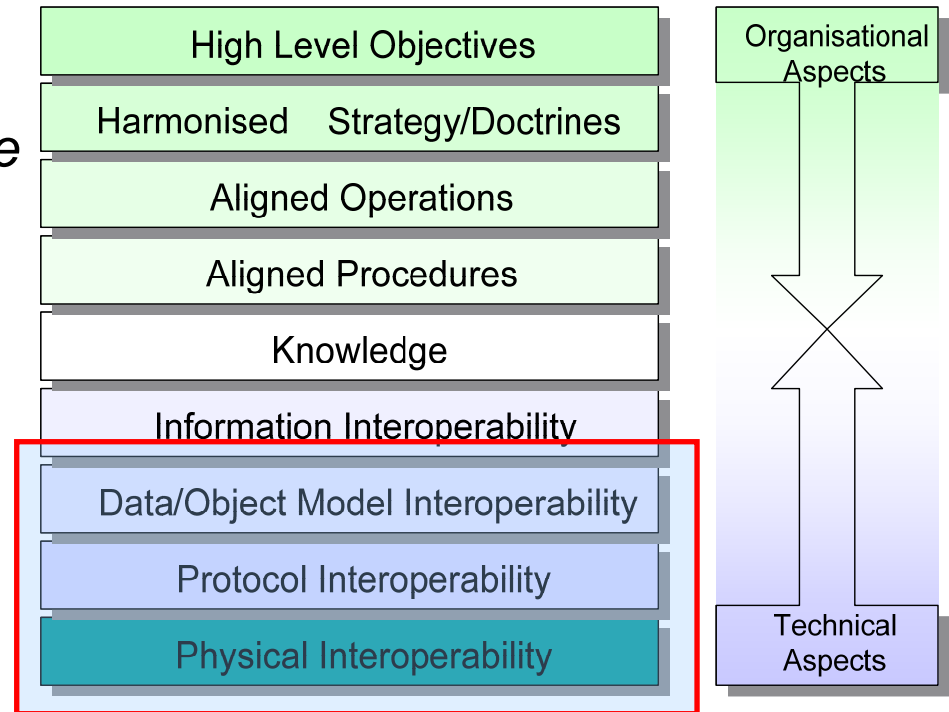
Interoperability

Definition:

The capability of two or more organisations or discrete parts of the same organisation to exchange decision-critical information and to use the information that has been exchanged.

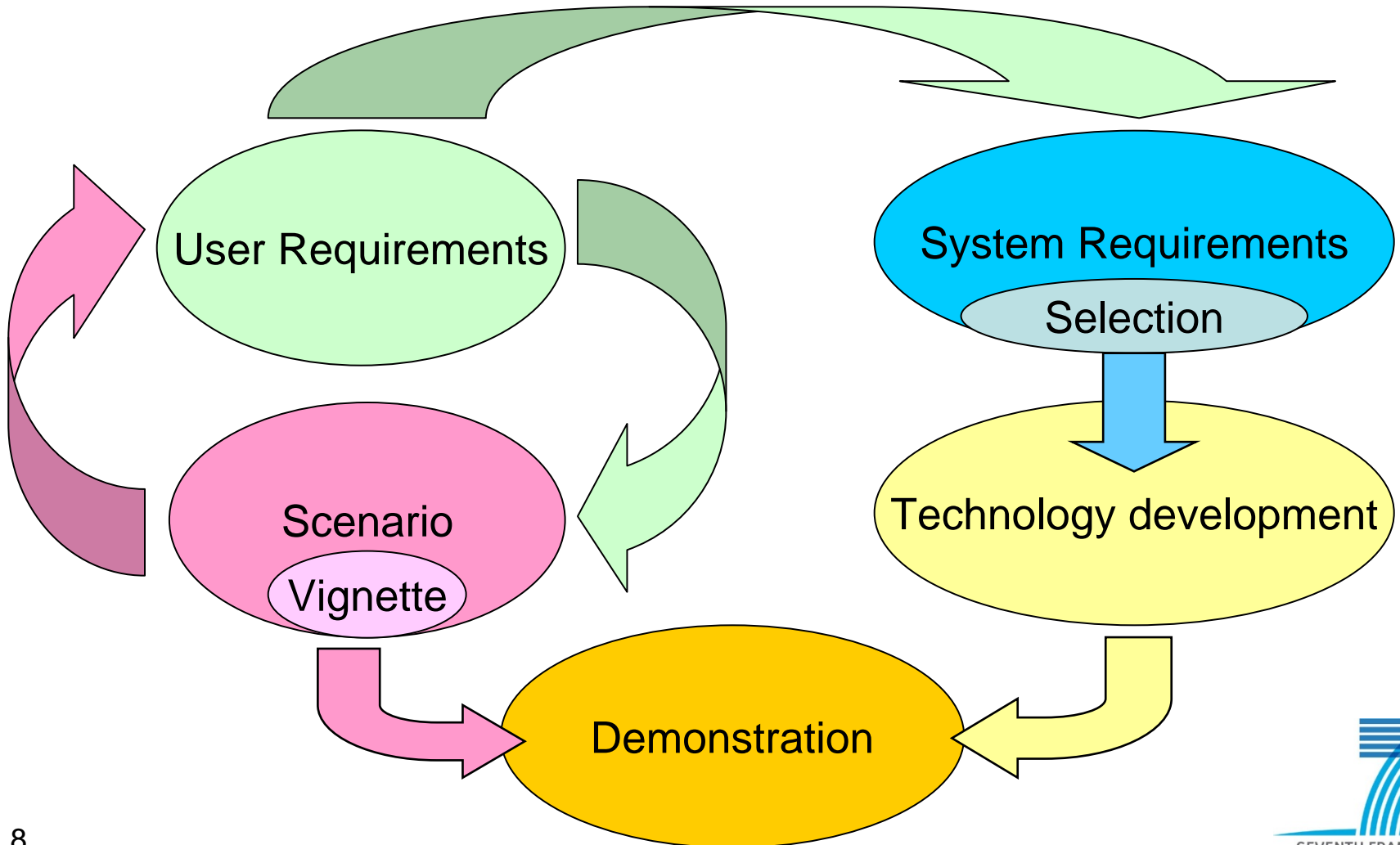
Clearly, interoperability ranges from organisational to technical aspects all of which must be 'harmonised' in order to achieve full interoperability.

Layers of Interoperability

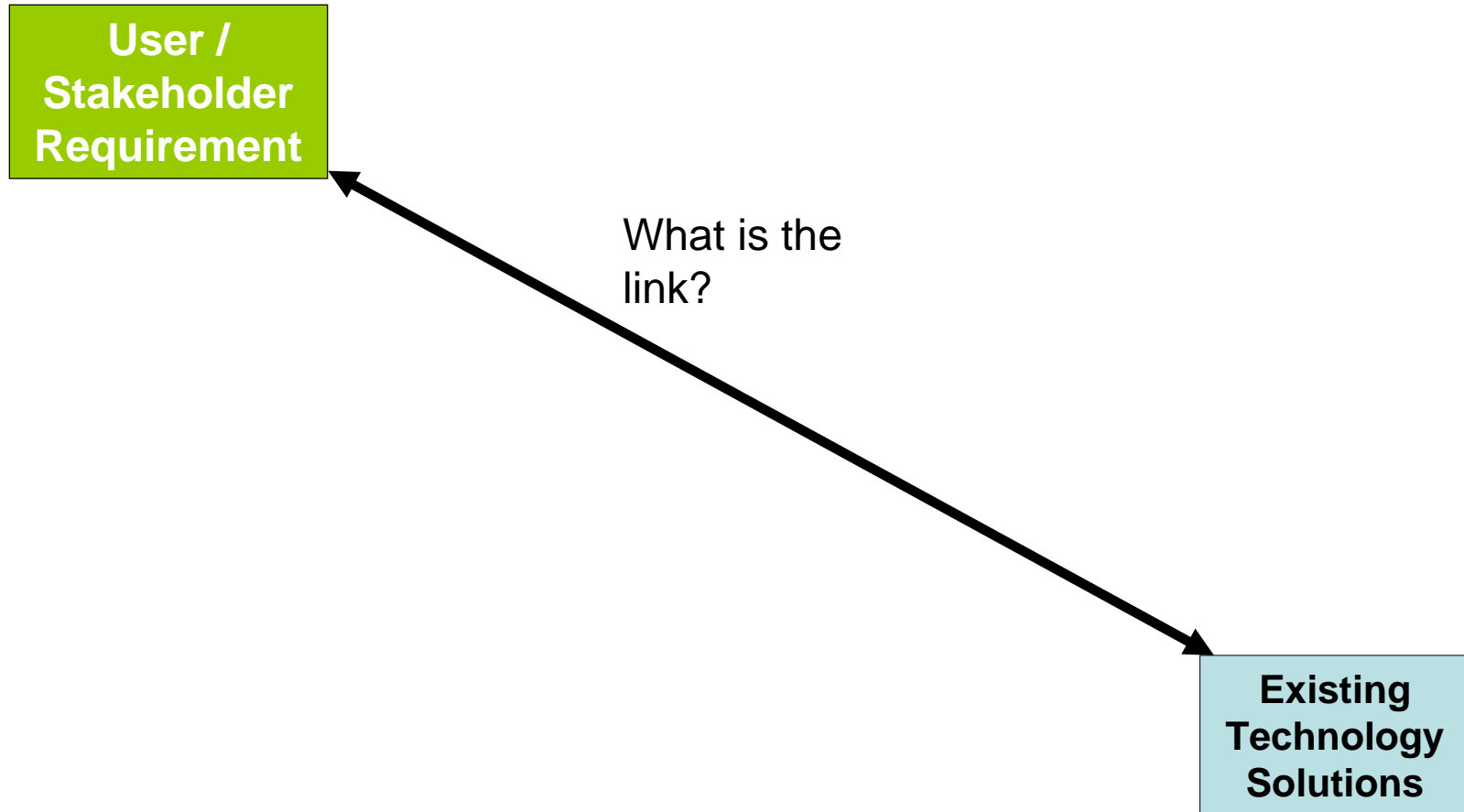


Scope: The technical aspects of Interoperability

Project Approach

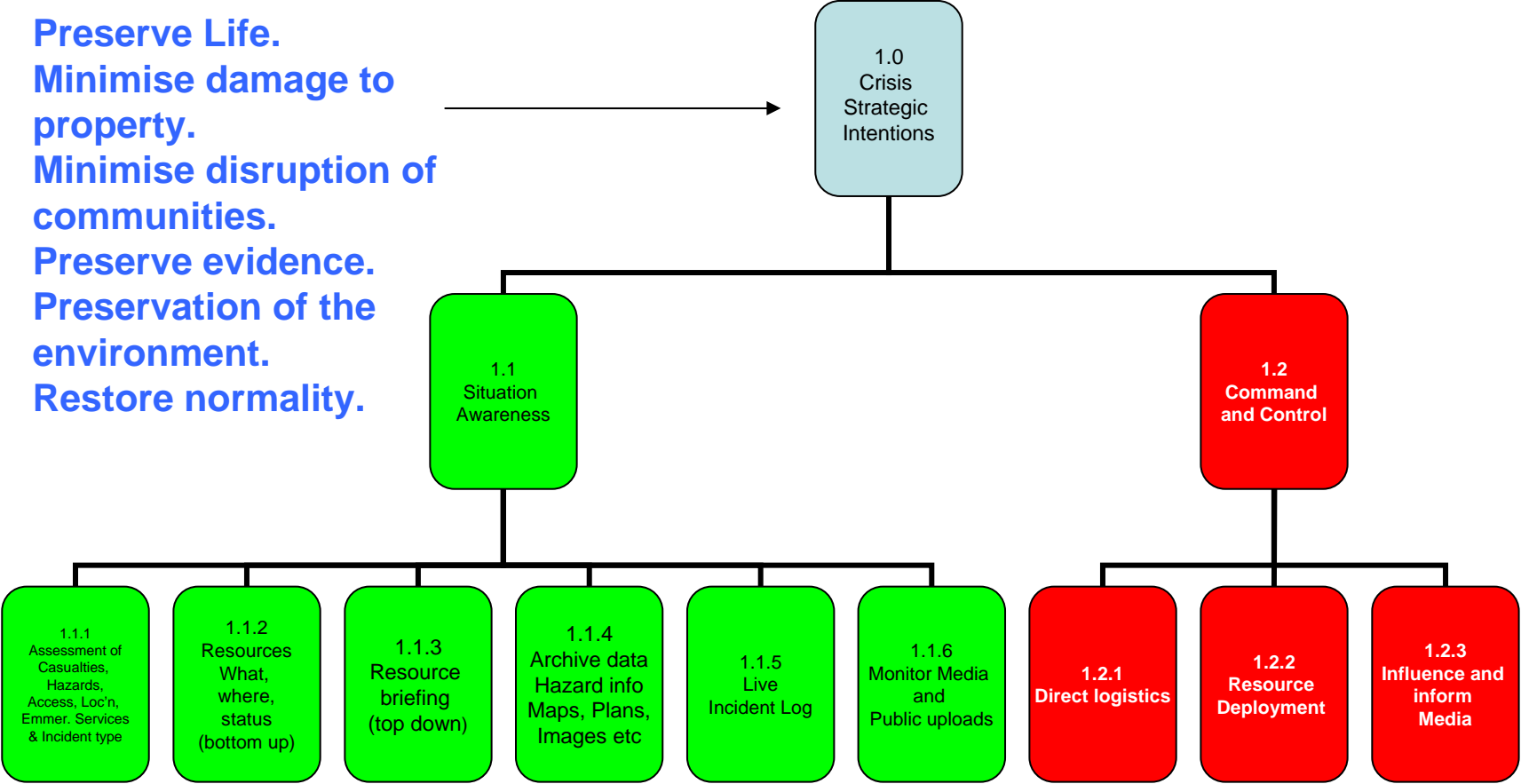


Capability Gap Analysis

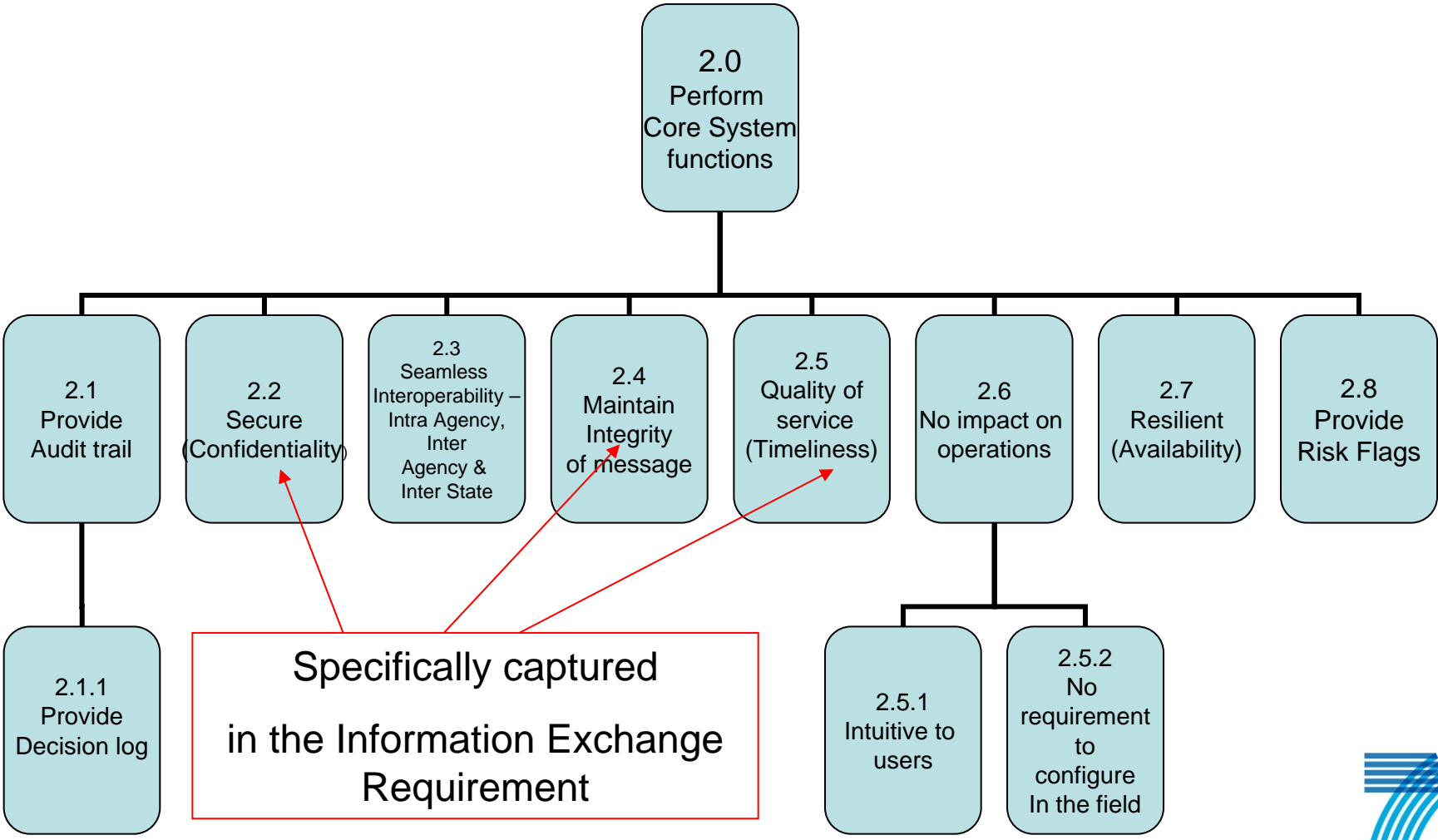


Top level User Requirements

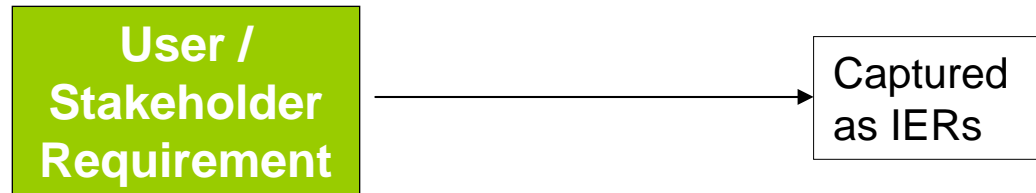
Preserve Life.
Minimise damage to property.
Minimise disruption of communities.
Preserve evidence.
Preservation of the environment.
Restore normality.



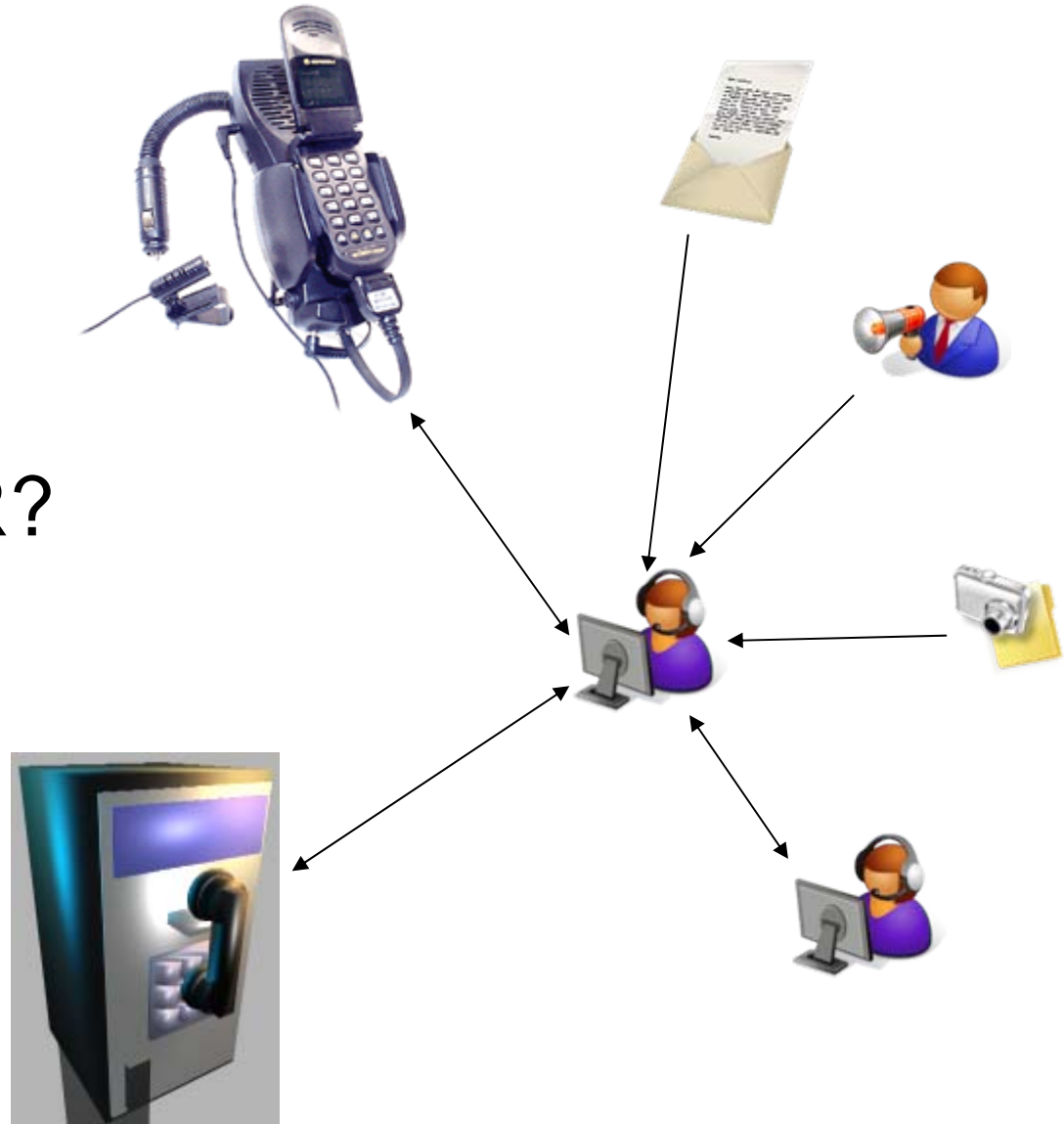
Core Functions



Capability Gap Analysis



What is an IER?

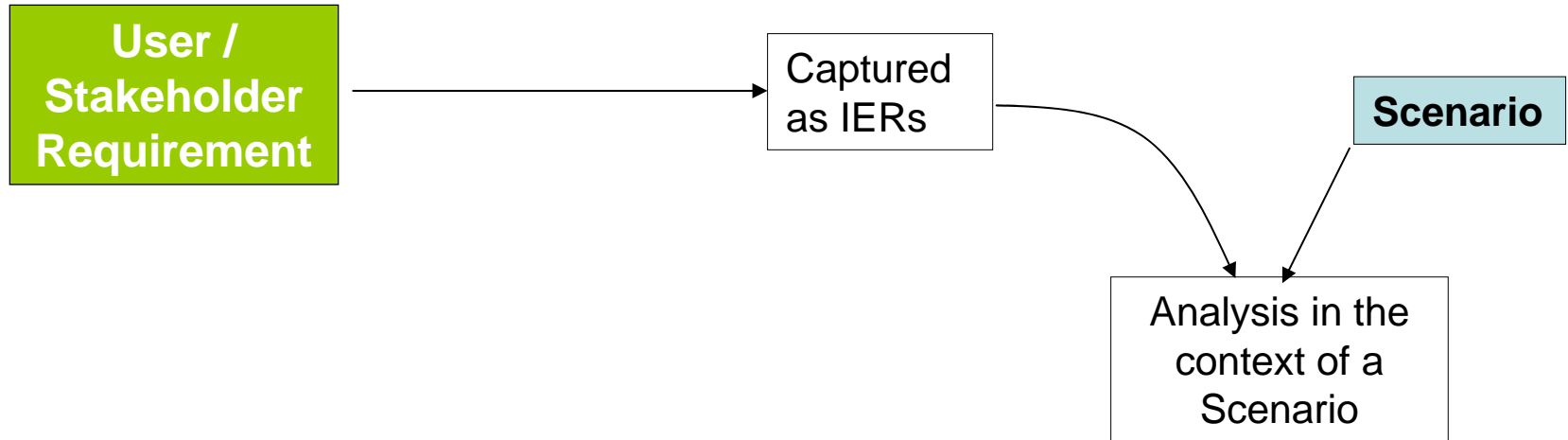


**An IER is the
“Unconstrained User
Requirement for
Information Exchange”**

Information Exchange Requirements

- Key Information required:
 - Source & Destination
 - Information Type (e.g. Voice, Data)
 - Size (linked to Information Type)
 - Timeliness (“worst case time to delivery”)
- Additional Information required:
 - **Criticality**
 - Other analysis attributes

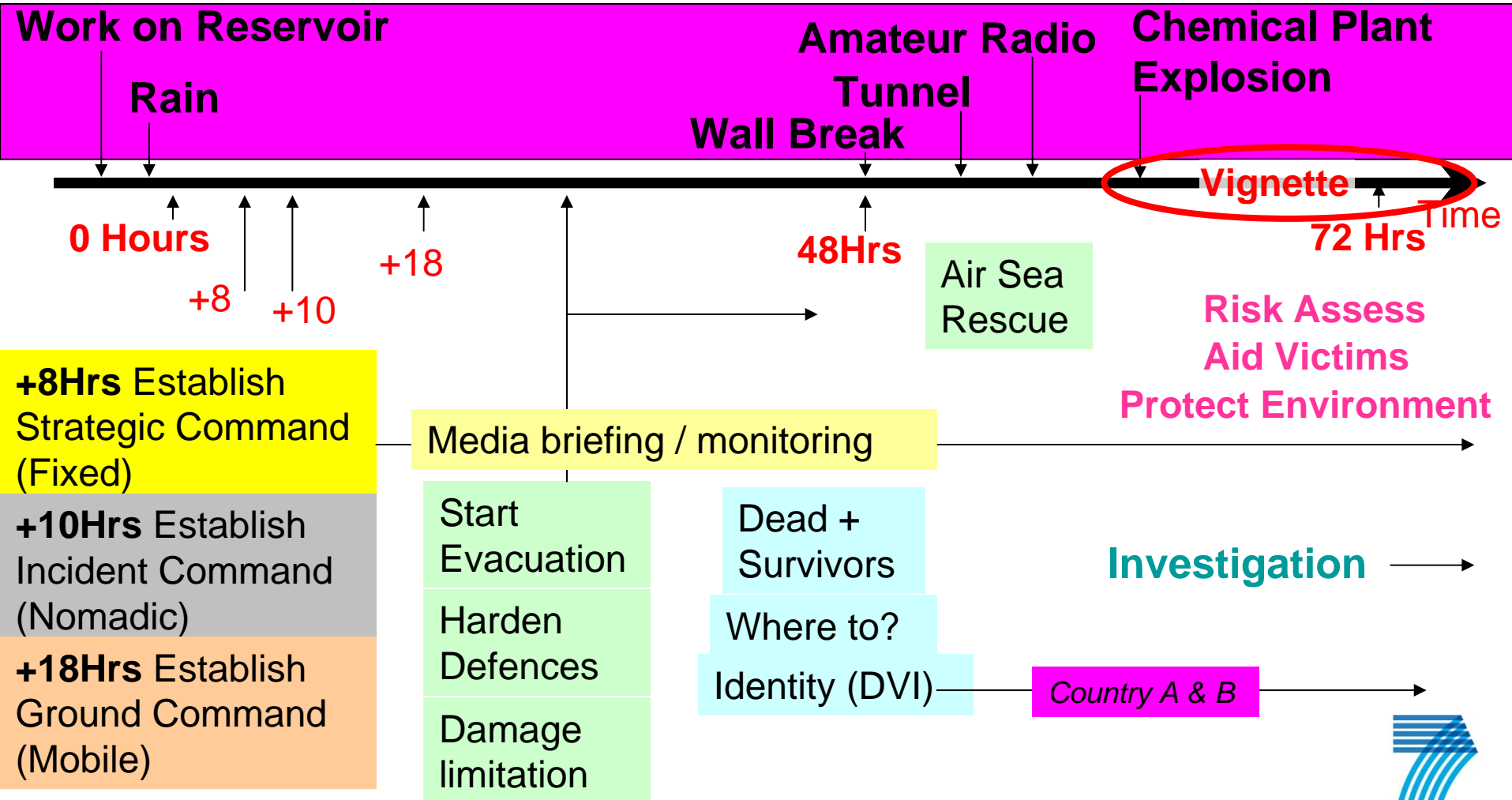
Capability Gap Analysis



Scenario outline

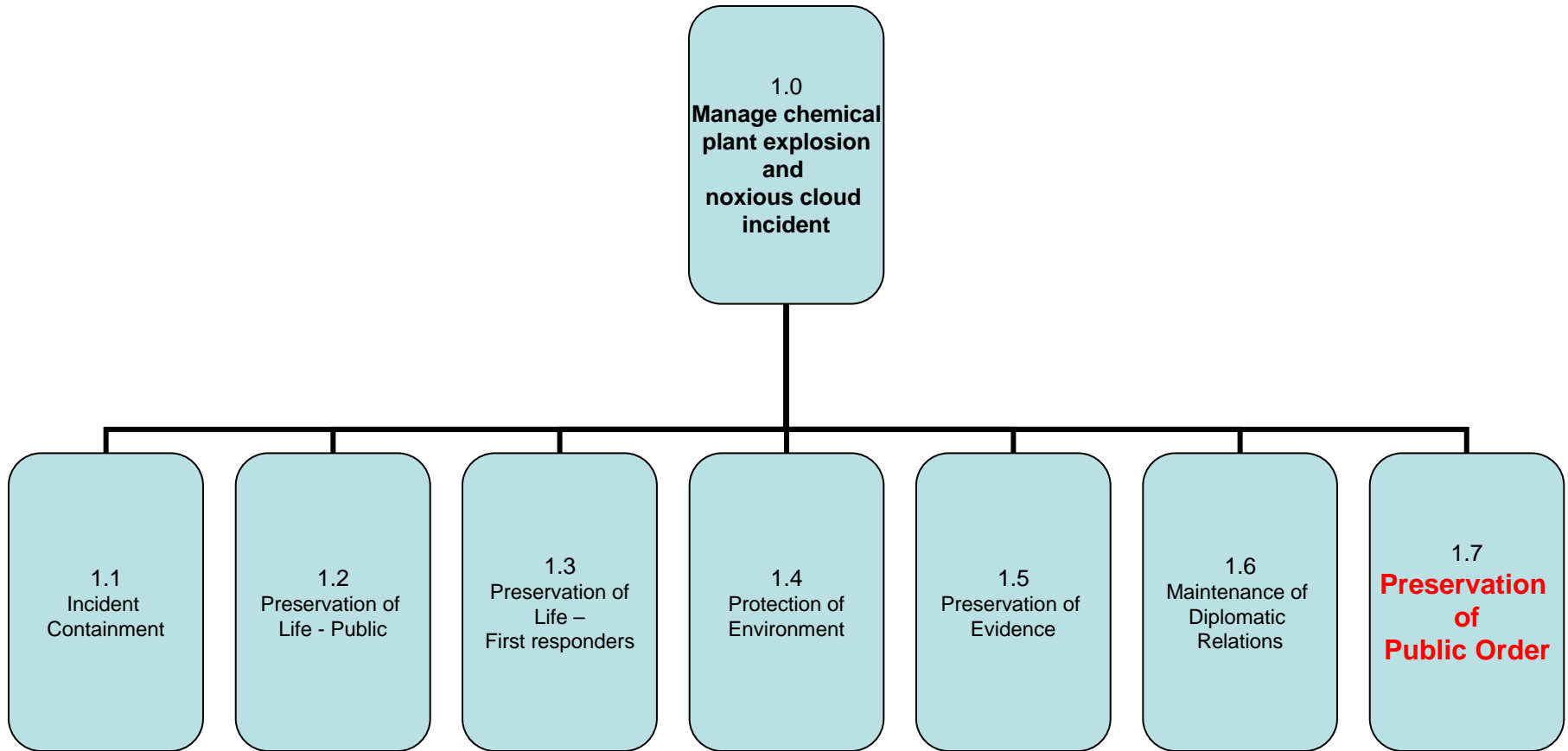
- Country 'A' reservoir (close to state border with country 'B') is under repair
- Heavy rain causes water level to rise
- Expert advice – wall collapse in 72 Hours
- Threat to:
 - Urban environment
 - **Chemical plant**
 - Power plant
 - Transport / Communications Infrastructure
- Wall collapses in **48** Hours

Scenario

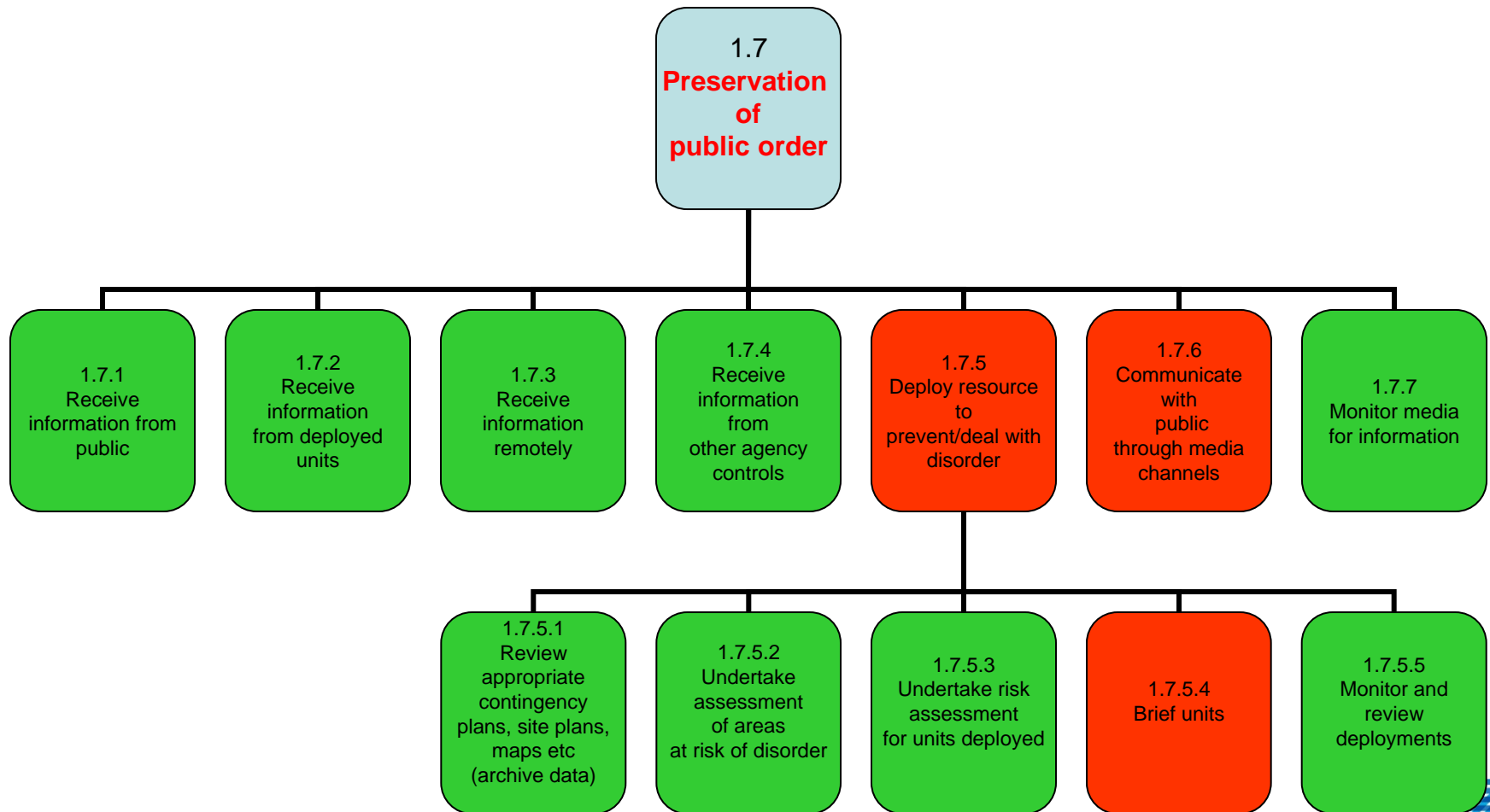


Use Case (Vignette Example)

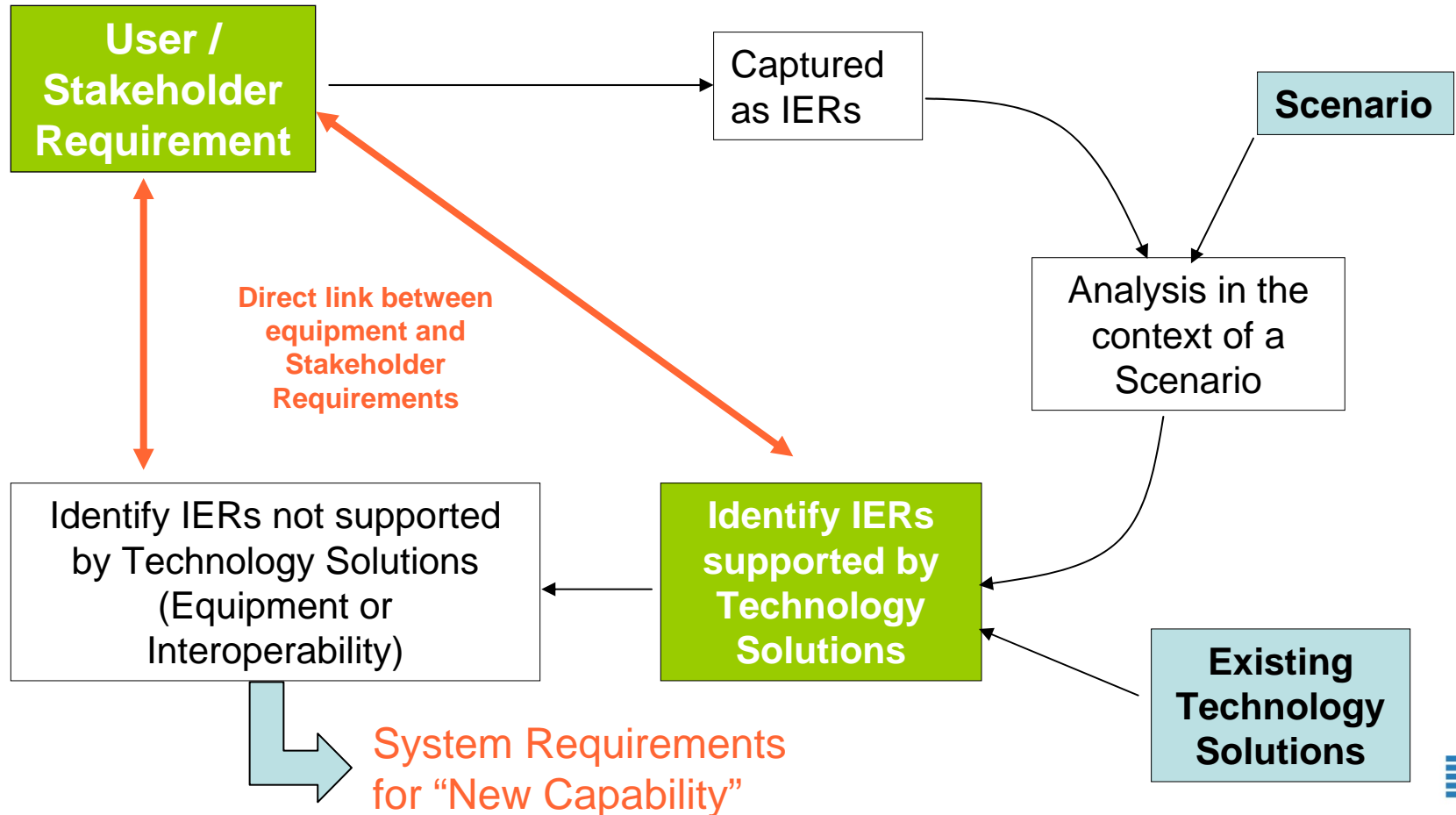
Chemical Plant Explosion



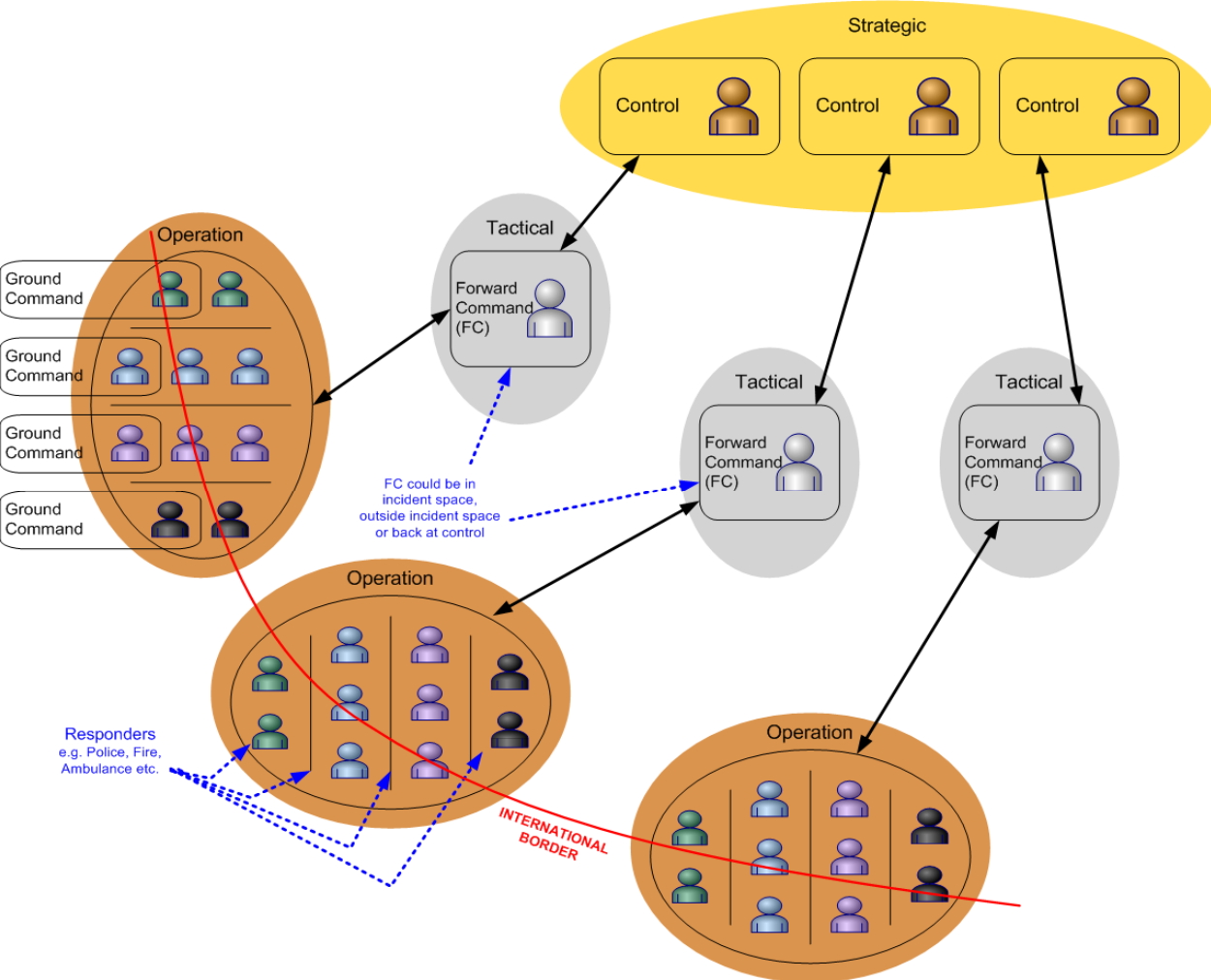
Use Case (Vignette Example)



Capability Gap Analysis



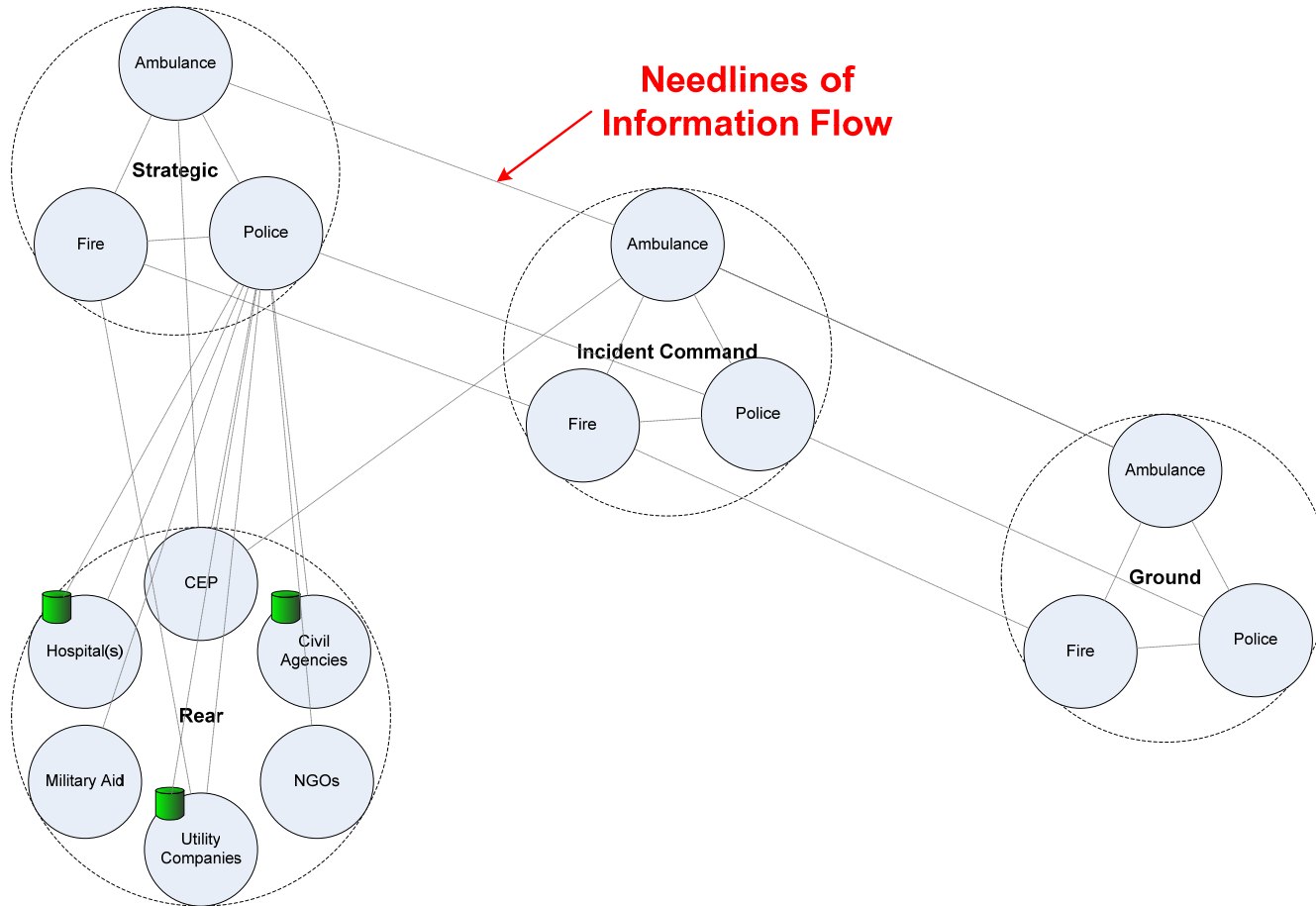
Typical Command and Control for Crisis Management



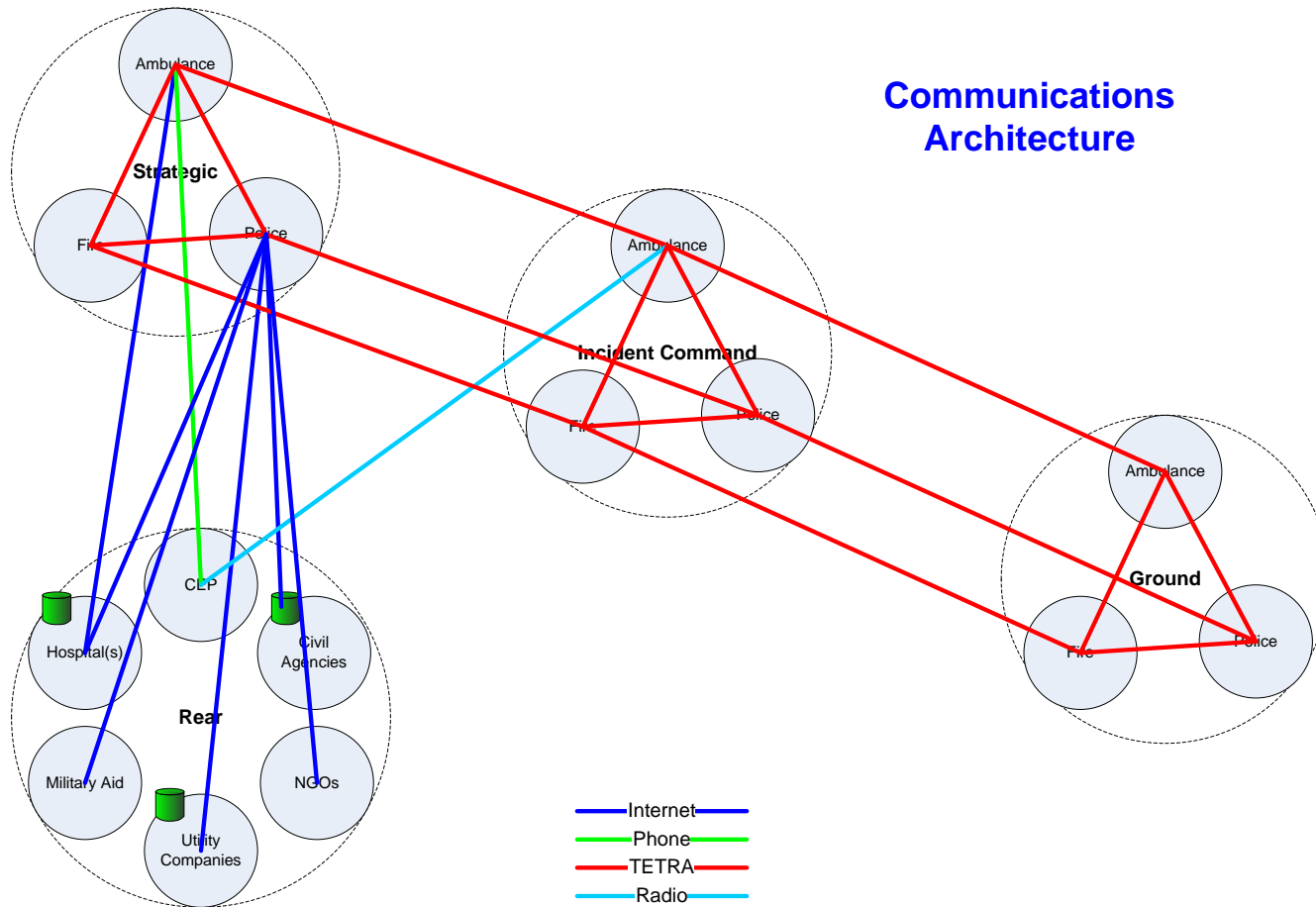
Extends across international borders

Extends across different agencies

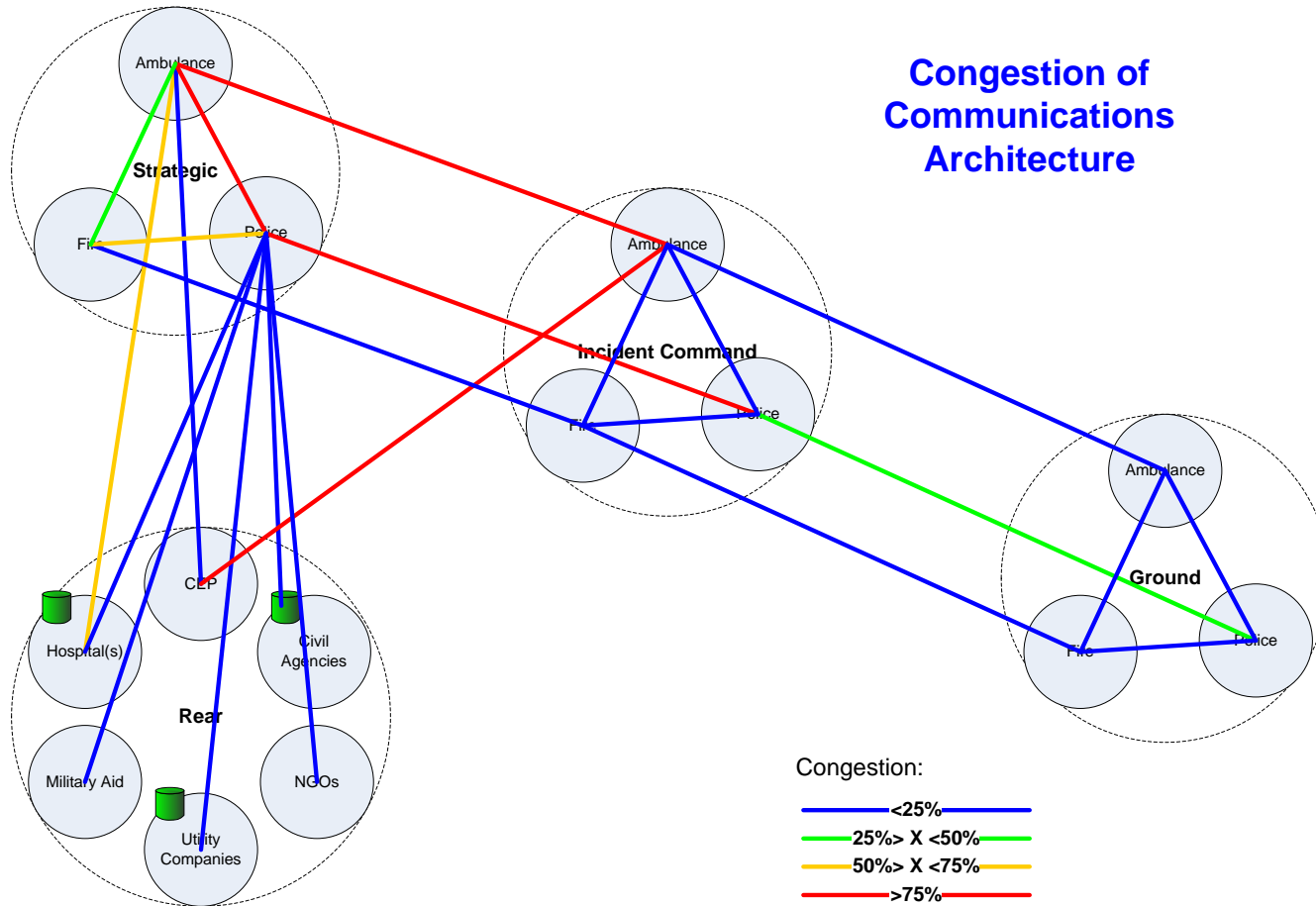
IER Analysis



IER Analysis



IER Analysis



Benefits to the Stakeholder

- User driven process for requirements capture
- Requirements emerge from realistic scenario
- Requirements become scenario independent
- Clear audit trail from requirements through systems requirements to final demonstrator test

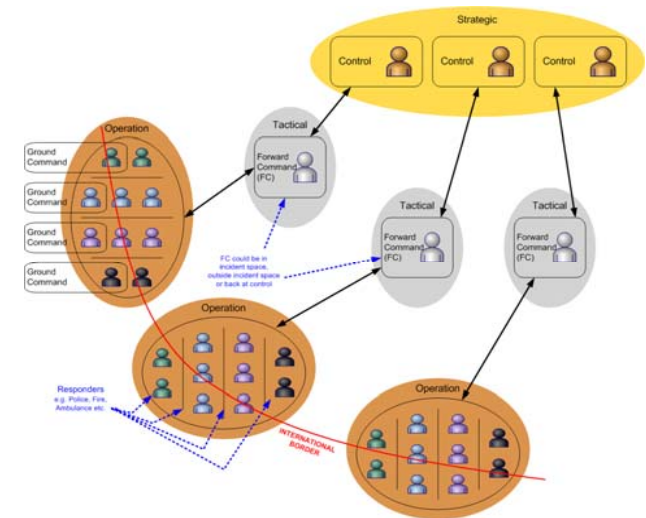
Resilience & Risk

- **Risk** - a future uncertain event that could influence the achievement of departmental objectives and statutory obligations;
 - In our case: influence the achievement of an Information Exchange Requirement;
- **Risk** -The product of **Threat** and **Vulnerability**;
- **Vulnerability** - The feature or characteristic of an **Asset** that could be exploited in an attack;
- **Asset** – A tangible or intangible entity which contributes to the achievement of the objective;
- **Threat** - The probability or **likelihood** of an attack taking place based on **Capability** and **Intent**;
- **Risk** – Measured in terms of **Impact** and **Likelihood**;
- **Asset Value** – Measured in terms of the **Impact** on the objectives if the asset is compromised.

Resilience

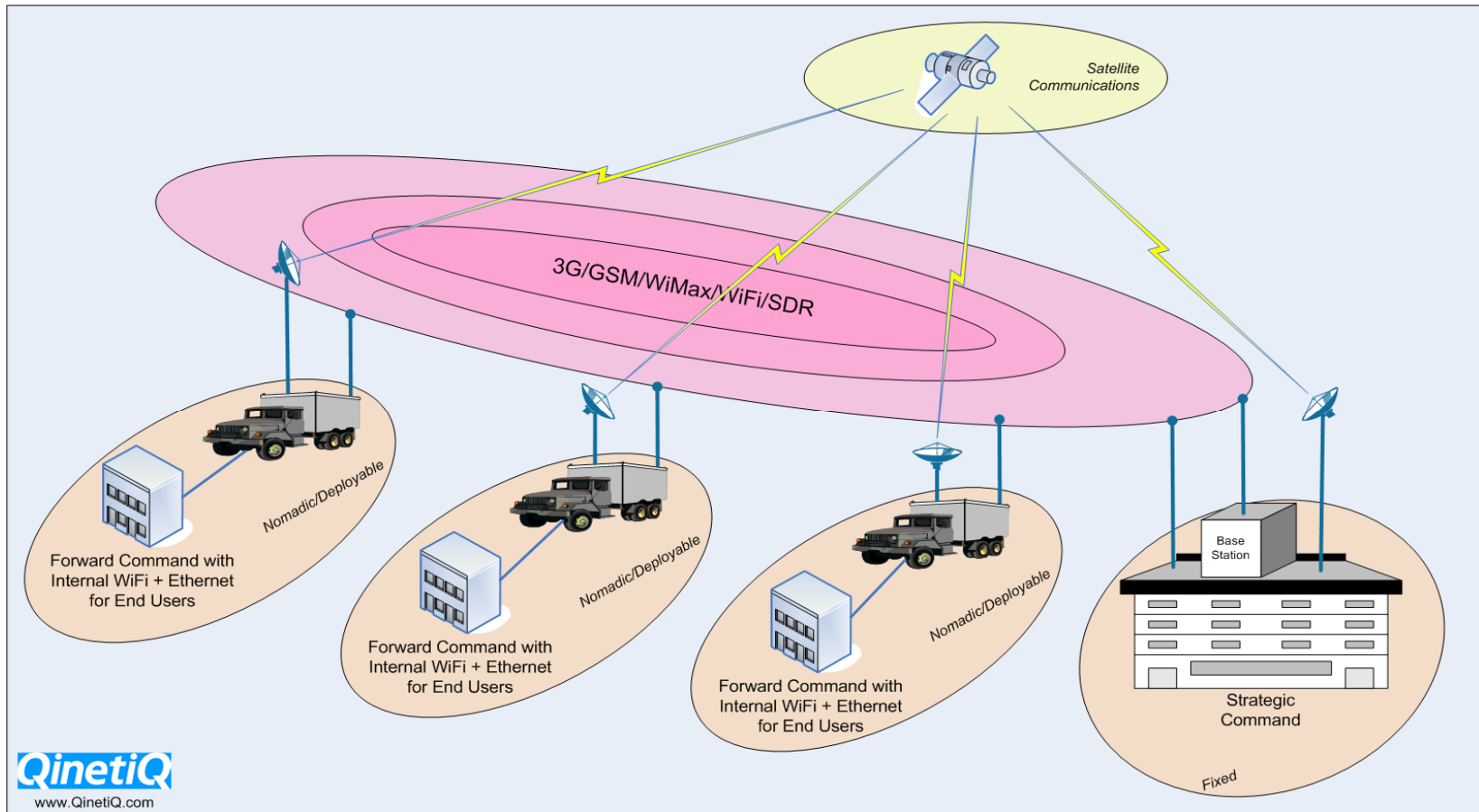
- Focus resilience measures on those areas where the vulnerable asset value is high;
- IERs identify the criticality of assets;
- Interoperability aids resilience;
- Multi-bearer routing enables seamless communication and graceful degradation.

System Architecture and Solution Technologies

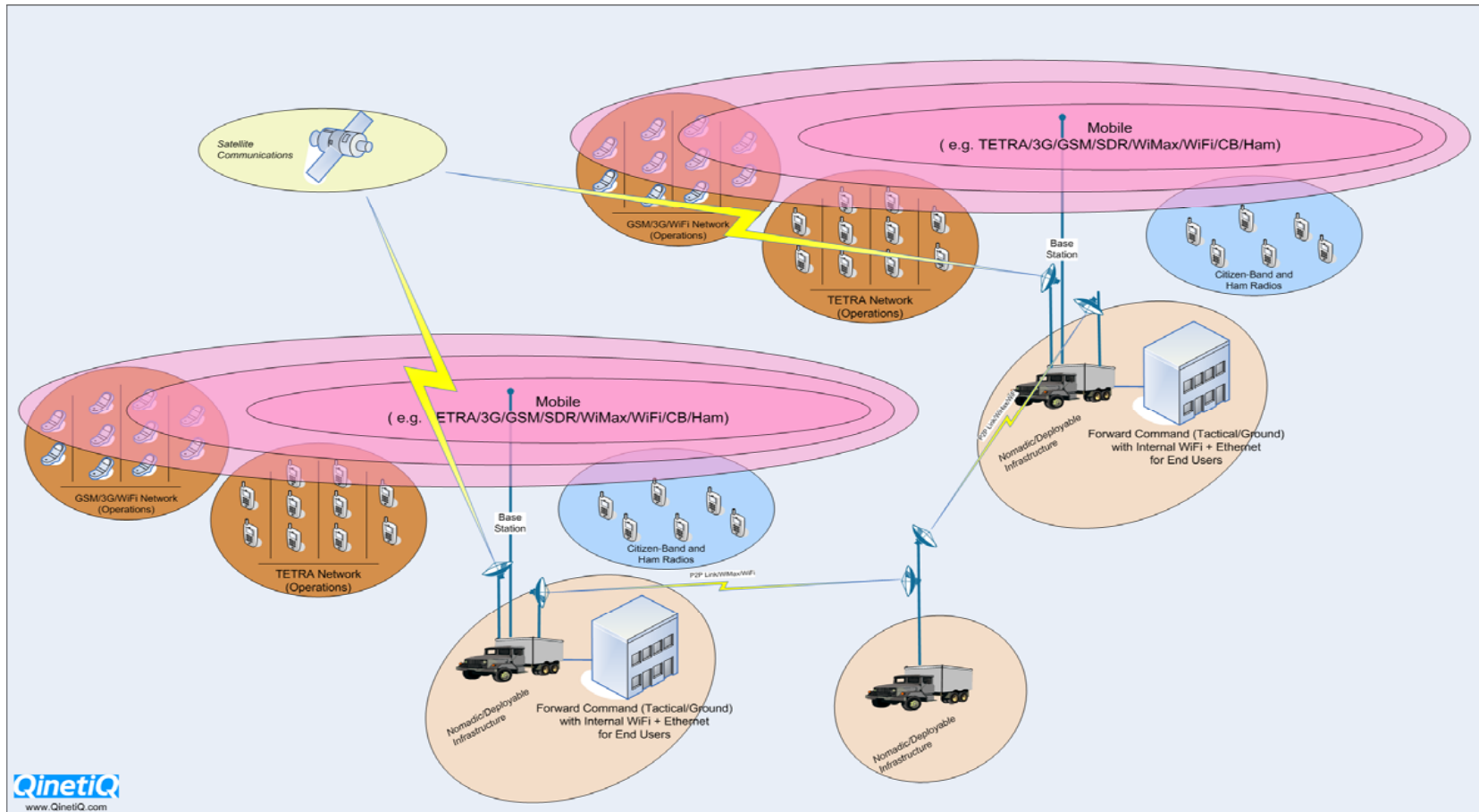


Clear Need for communications that can be relied upon

System Requirements: Strategic/Forward Command Connectivity



System Requirements: Forward-Command/Operations Connectivity

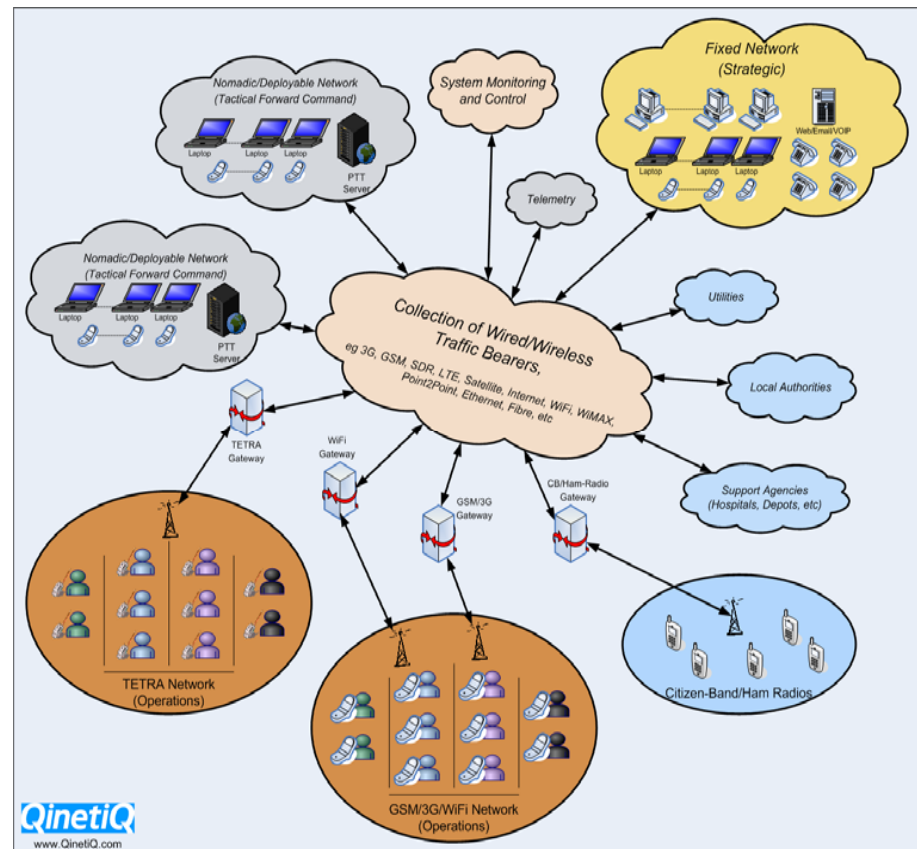


System Requirements:

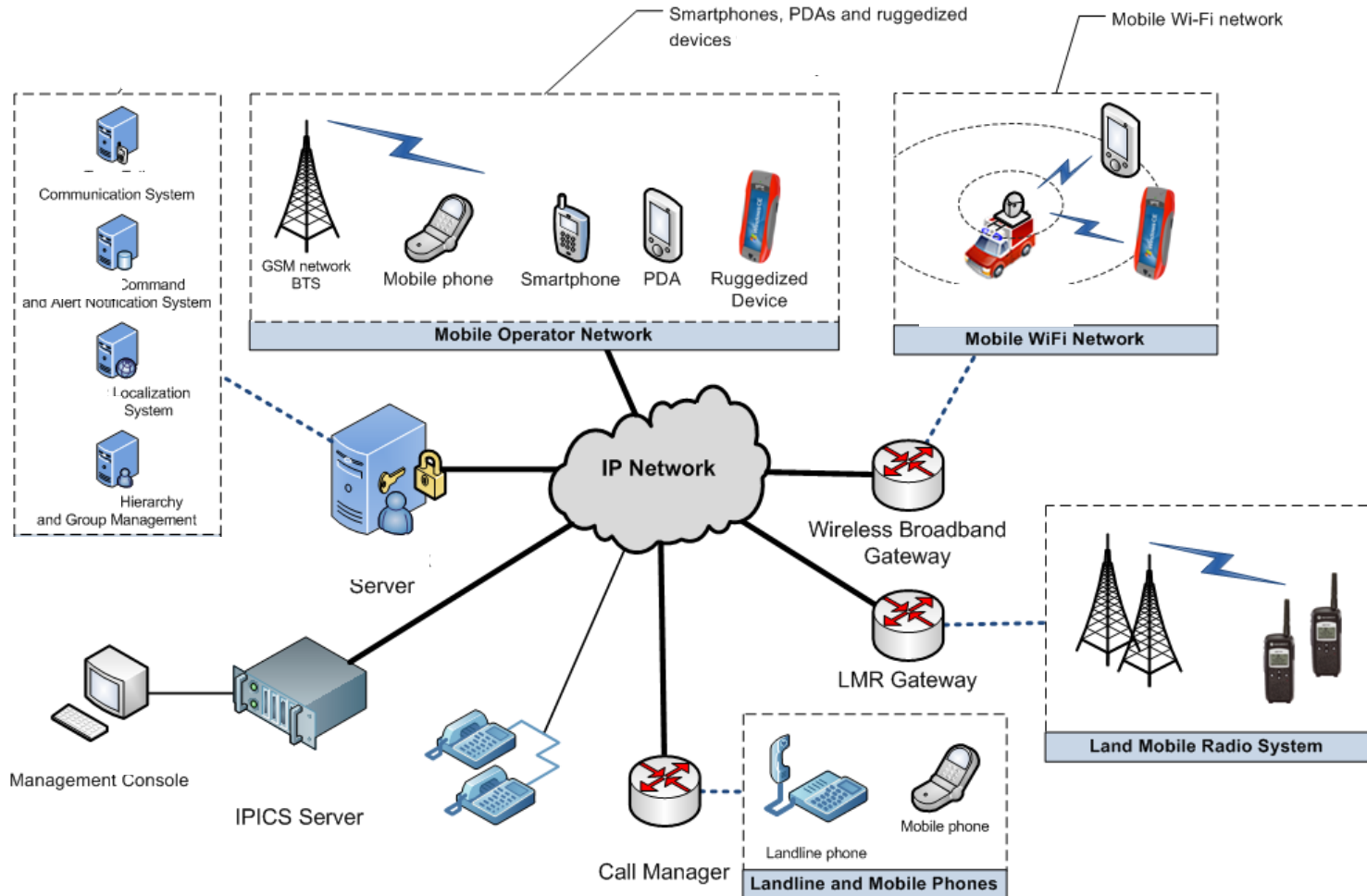
Holistic High Level View

The communications system architecture allows:

- Technical interoperability:
Able to extend comms across different agencies and countries.
- Service expandability:
Able to extend comms into areas of poor coverage.



System Convergence



Thank you for your attention



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