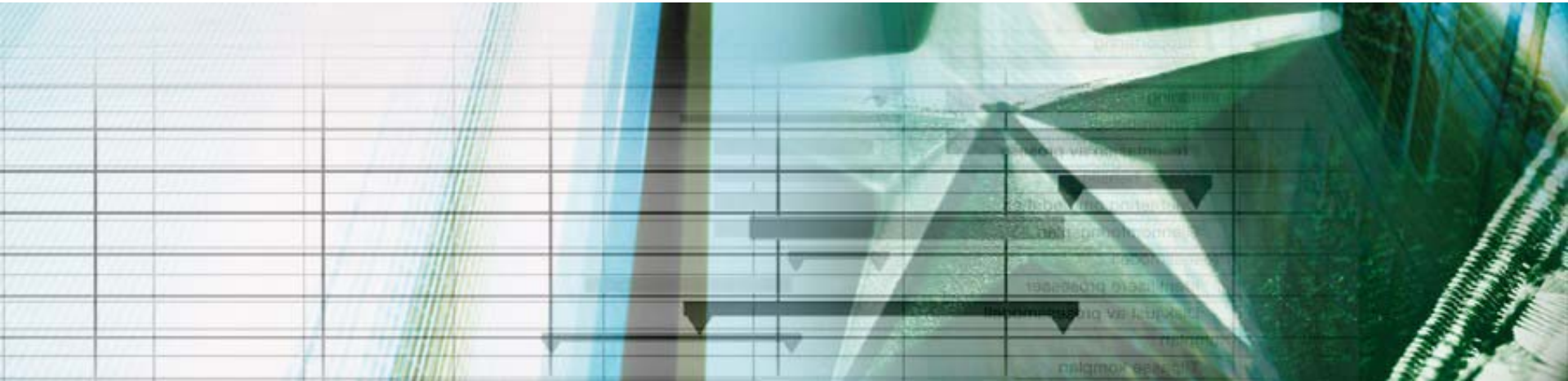


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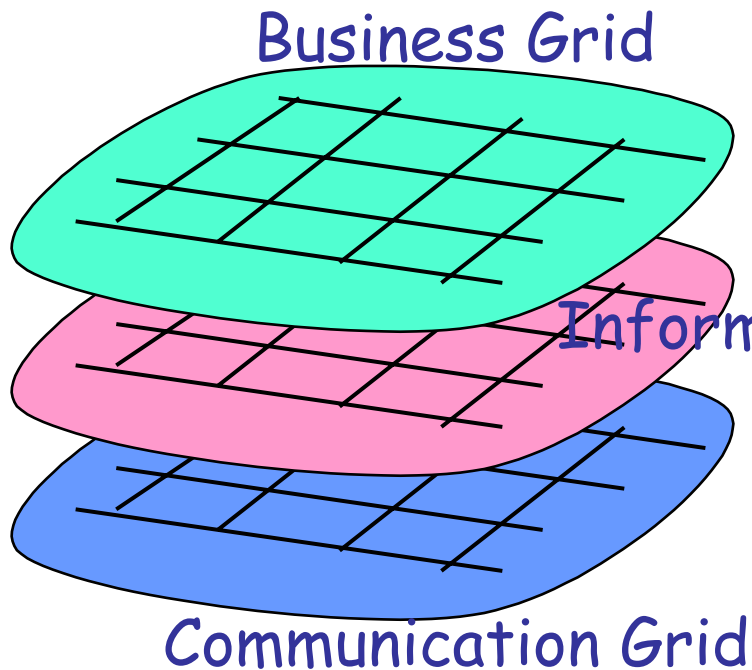
Network Centric Information Structure Crisis Information Management

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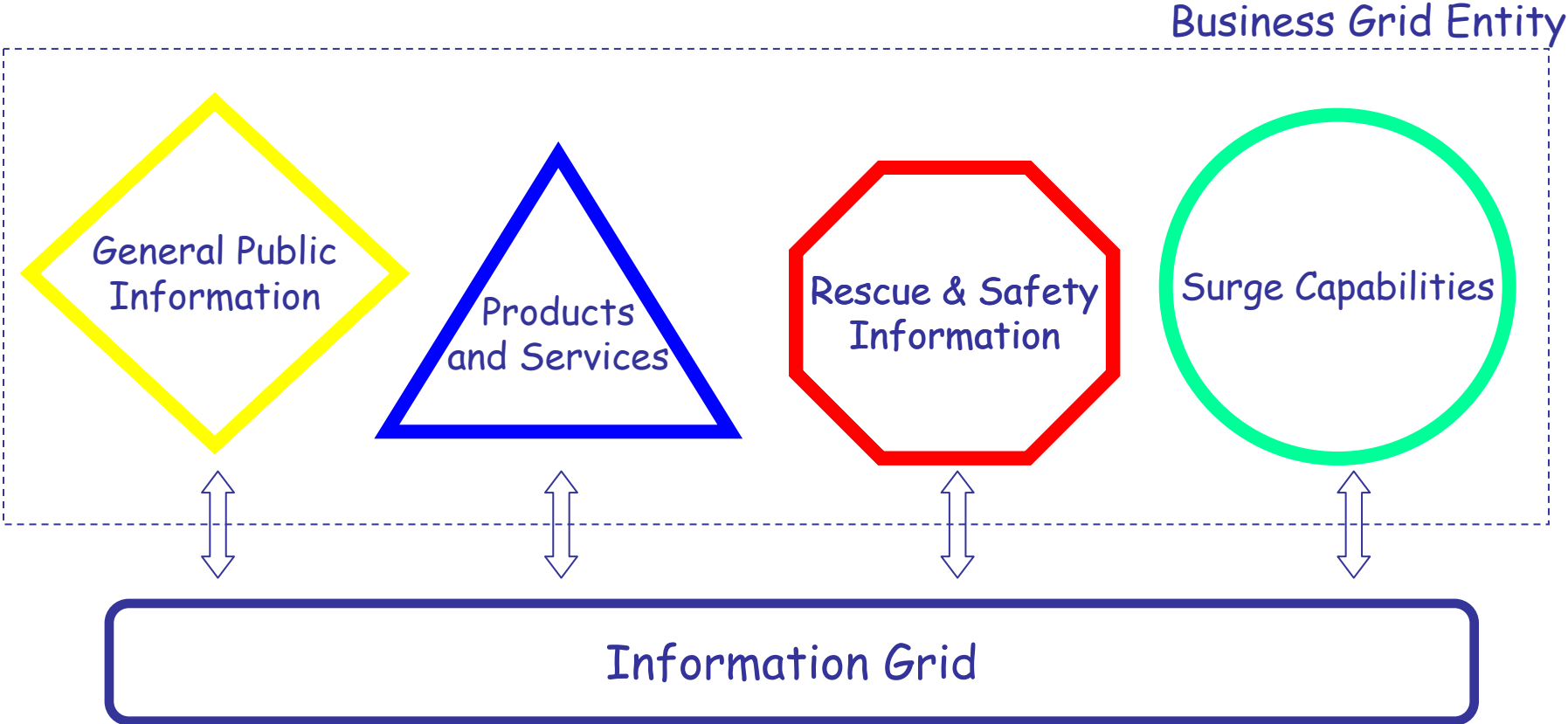
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Maturity of Infrastructure Layers



- The business grid and the communications grid are highly developed
- The information grid is highly underdeveloped
- We have some suggestions to improve the information grid architecture that will assist information exchange

Generic Information Categories



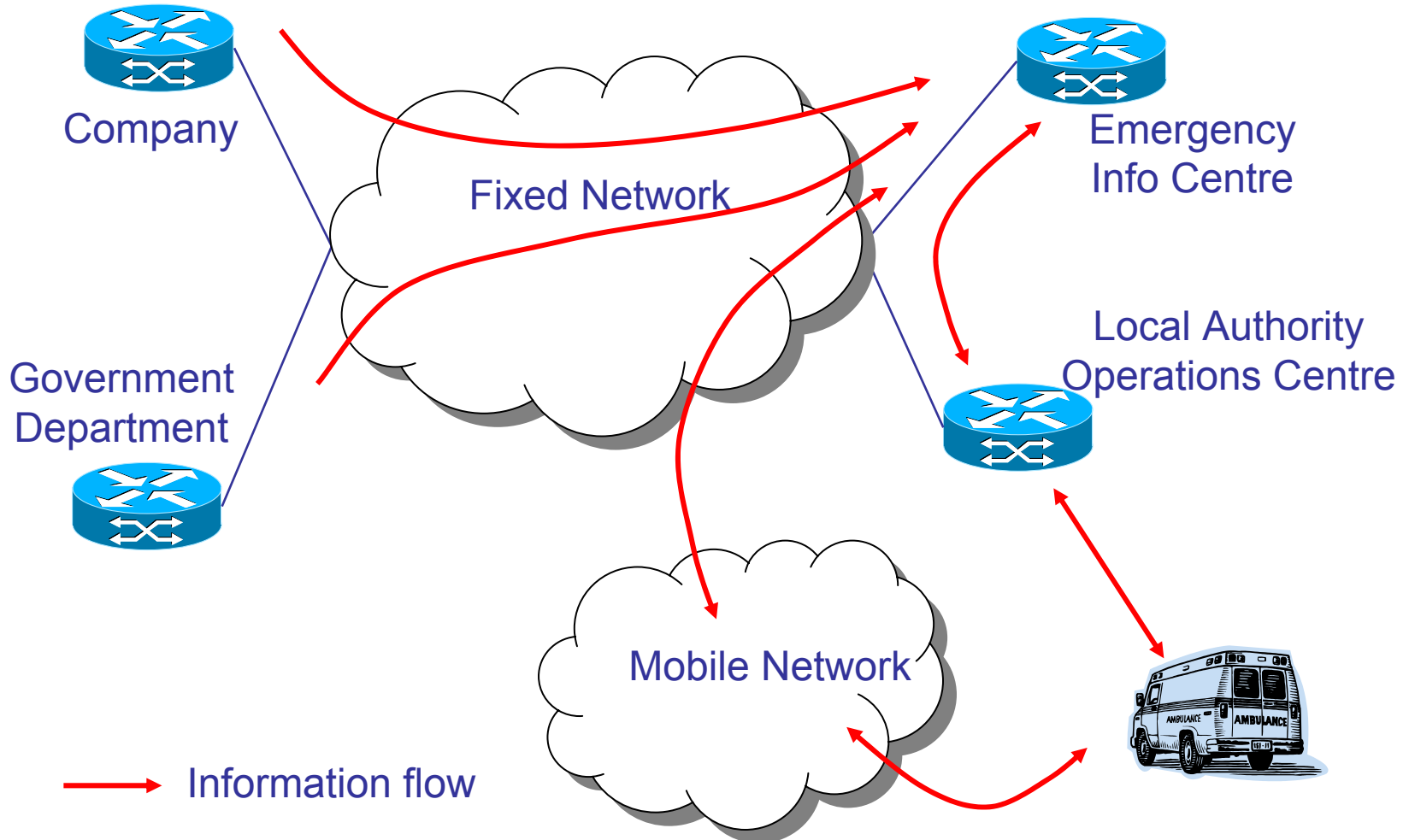
Benefits of Improved Availability



Rescue & Safety
Information

- Improved Safety of rescue personnel
- Quicker identification of required resources
- Effective control of escalation/spread
- Protection of most valued assets
- Quicker evacuation and rescue
- Quicker assessment of damage

Network Information Flow



NCIS System Requirements

- The Network Centric Information Structure (NCIS) system uses standard computers, standard office software tools, existing networks and conventional communication protocols.
- There is no need to invest in new technology for existing businesses; all that is needed is an area on the business web site and a wish to participate.

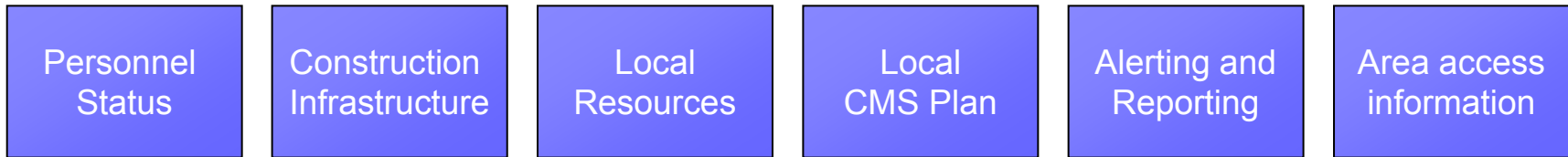
NCIS Technical Description

- Each business (the client) allocates an area on its intranet/Internet for emergency information. The information is maintained by linking it to a generic template (word processor or a spread sheet). As information becomes available, the client populates the document with information.
- The information centre (the server) automatically collects (pulls) the information from each business over Internet. Security access is limited by conventional authentication.
- The emergency team (the information user) obtains access to the information published by the information centre through Internet. General information is automatically uploaded (pushed) from the information centre, while sensitive information is downloaded (pulled) when needed.

NCIS User Interface

- The NCIS demonstrator can be realised in numerous ways, but a main focus is to limit complexity of the system. There shall be no valid technical reason why information is not entered into the information database.
- The information is maintained using conventional word processing tools. If the information is structured in a predetermined format, a generic user interface template can be used to simplify information exchange.
- A simple graphical user interface is used by the client to populate the information template. The same interface is used by the user to access the required information.

Network Centric Information Structure



- The information is divided into six information elements
- The purpose of the network centric information structure is to provide specific information relating to the above information elements

Network Centric Information Structure



- Number of people on site
- Registration of personnel
- Exact location of personnel
- Personnel tracking system
- Personnel with special needs (impaired hearing, sight, disability, medical profile, etc.)

Network Centric Information Structure



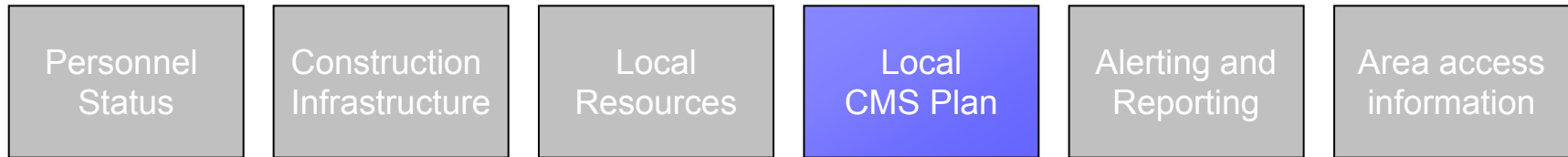
- Location of first aid equipment, emergency exits, fire detectors, fire extinguishers, fire blankets, fire axes, stretchers and other emergency equipment
- Detailed construction drawings with cable gates, main switchboard, electrical wiring, main cock, plumbing, sprinkler system, door systems, ventilation systems, fire walls, staircases, floors, lifts and evacuation rooms

Network Centric Information Structure



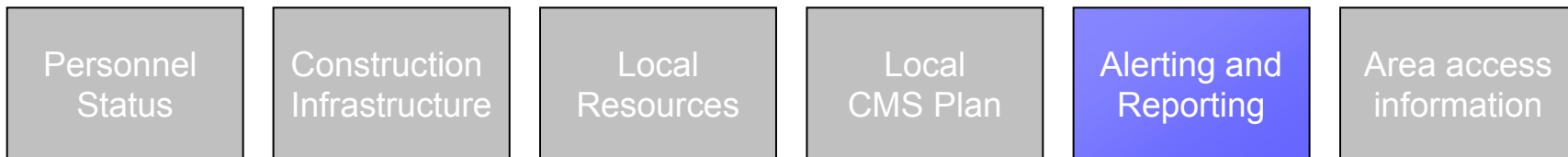
- Resources on location, such as personnel with experience in first aid, fire rescue, weapons or negotiations. Availability of technical solutions, such as fire hydrants. Status of electricity and telephone system
- The dangers associated with the crisis; for example existence of chemical or biological agents such as gas, acids, drugs, bacteria, virus, radioactive agents, explosives, fuels or weapons

Network Centric Information Structure



- Local emergency plans and organisation, emergency preparedness practises, existence of test scenarios.
- Communications within rescue organisation; such as report lines between rescue leader, assistants, personnel, press, public administration, civil defence, home guard and military
- Established physical communication networks; such as telephone, radio, TETRA
- Rescue leader, collaboration, who does what
- Contact information to local rescue resources

Network Centric Information Structure



- Contact information to fire department, police, medical, psychiatric, helicopter, church representative, radiation agency, local government, civil defence, home guard, military agency
- Procedures for contacting the above resources

Network Centric Information Structure



- Exact address, geographical information (GPS)
- Maps of the area and surrounding areas, topographical maps, local authority planning maps with marked water supplies, electrical power, telephone cables, mobile telephone and radio base stations
- Area access information; such as infrastructure, one-way streets, blocked access routes, road barriers, parking, helicopter landing areas, etc.

NCIS Demonstrator

- The demonstrator is basically a web-page filled with specific information at specific locations
- [NCIS Demo](#)



Data Models

- Comprehensive crises management requires a common operating picture to emergency responders similar to what is sought in military C4I systems.
- This requires quick integration of information from all relevant sources.
- First of all, this calls for an information technology infrastructure (communication grid) from local to national level.
- Secondly, it requires a standard terminology to be used across jurisdictions, disciplines and participants of the business grid.
- Thirdly, this common language and definitions need to be applied through a set of common data exchange standards and data models.
- In support of this, metadata must be developed and maintained by authoritative sources.

Relevant Data Models and Standards

PLCS

Information element	Status	Possible Candidates for use of standards
Construction and Infrastructure Information	Several data models and standards are being applied	ISO 16739 (Industry Foundation Classes, IFC) part of ISO TC 184/SC 4
Personnel Status Information	Proprietary solutions	ISO 10303-239 Product Life Cycle Support part of ISO TC 184/SC 4
Local Crises Management Team and Equipment	No solutions	ISO 10303-239 Product Life Cycle Support part of ISO TC 184/SC 4
Local Crises Management Plan	Guidelines only	New standards required
Alerting, Reporting and Notification Information	Proprietary Solutions	ISO 10303-239 Product Life Cycle Support
Area Access Information	Many standards related to geographical data	Industry Foundation Classes for GIS (IFG) ISO TC 211

Conclusion



- In this concept paper, we have detailed an implementation of a simple network centric information system well suited to assist local authorities in crisis information management.
- Some simple steps in terms of detailing the information structure and at the same time making businesses talk to each other over the communication grid, will alleviate local authority of the burden of obvious lack of crisis management.
- The initiative is really in the hands of those responsible for crisis management at any level.
- And if some more of the suggestions in our information based business model are taken into account, then it may even be possible to make some business out of being prepared for crisis management...

