SECURE EUROPEAN COMMON INFORMATION SPACE FOR THE INTEROPERABILITY OF FIRST RESPONDERS AND POLICE AUTHORITIES

Final Demonstration Introduction

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This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 607821.
Outline

• The problem
  – The flooding event

• The challenge
  – Cross-boarder communication and cooperation among first responders and decision makers through interoperability of heterogeneous IT tools and information sources

• The solution
  – The SECTOR platform

• Demo steps introduction
The event: location

- Roermond, NL, Limburg region, near the Maas and Meuse Rivers
The event: location

- Strategical cross-border region for water ways

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The event: heavy rainfall for days

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The event: Roermond and close villages are flooded

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The event: waterways closed; intnl. support needed
• Diverse stakeholders involved
  – Local government
  – Local first responders
  – National authorities
  – International aid
  – International policy makers
  – Private companies

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The challenge (2/5)

- We need to share the common operational picture
  - Remotely, using diverse IT Tools

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The challenge (3/5)

- We need to share the common operational picture
  - Taking data from heterogeneous data sources

<table>
<thead>
<tr>
<th>Satellite, maps</th>
<th>Field (sensors, messages, calls …)</th>
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<tr>
<td><img src="image1.png" alt="Satellite" /></td>
<td><img src="image2.png" alt="Field" /></td>
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<th>People</th>
<th>External sources</th>
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<td><img src="image3.png" alt="Google" /></td>
<td><img src="image4.png" alt="External sources" /></td>
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The challenge (4/5)

• We need to estimate the impact of the disaster
  – How to forecast the most impacted areas in advance?
  – How to assess the current situation?

• We need to agree on action plans
  – Under pressure
  – With limited resources
  – Involving stakeholders from different locations
The challenge (5/5)

• We need to communicate and coordinate quickly
  – Start conference calls with involved stakeholders
  – Send/receive information to/from field

• We need to securely share the information on the event
  – Let authorized foreign stakeholders to join the coordination and get data
  – Hide sensible information, according to pre-defined trust policies
The solution: SECTOR

• SECTOR focuses on providing a Common Information Space and Collaboration Platform
  – to dynamically set-up cross-agency collaboration,
  – for information and resource sharing
  – across agencies and across borders

by defining interoperability between crisis management systems

that were independently developed, may use incompatible technology, and remain independently managed.

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Interoperability Box (IBx) facilitates integration between the systems

- Provide connectivity between the systems
- Manage the interactions between the systems
- Enforce transformation and other business rules
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SECTOR in Numbers

- 16 IBXs
- 30+ web services interfaces (including wired interconnections among SECTOR servers)
- 330+ services (7 services per interface in mean)
- 240 components’ artifacts
- 9 main releases of the platform
- 2,500,000+ lines of Code
- 6,000+ cups of coffee
The SECTOR concept

• Functionalities are provided either by the SECTOR network
  - Persistency, Data Sharing, Security, Configuration ...
  - Past Events Inventory

• Or requested from external systems connected via “IBXes”
  - Decision support, Impact assessment, WebGIS, Communication, ...

• Information sources are connected via IBxes as well
  - Weather services, Traffic Network, Flood Awareness System

• **SEAMLESS CONNECTION:** Interaction through their familiar IT tools
• **EXTENSIBILITY:** New sources or systems can be added in the future
Demonstration Scenario Introduction

• Three time frames
  – Timeframe #1: Pre-crisis evaluation
    • Before the flooding (T0 – 24h)
  – Timeframe #2: Local response
    • The flood starts, first response (T0)
  – Timeframe #3: International support
    • Foreign responders join and help (T0+12)
• **Timeframe #1: Pre-crisis evaluation (T0 – 24h)**
  – Area Monitoring: retrieve relevant data on the area (weather, LIWO, …)
  – Early Warning: obtain and share Impact Reduction Mapping data
  – Sharing: visualize the same data from different IT tools
  – Awareness: monitor the situation from different countries
  – Connect to SECTOR to receive updates
  – View EFAS river level data
  – Capture the situation on the decision support tool
  – Request a Copernicus activation on the area
• **Timeframe #2: Local response (T0)**
  - Create and share a public alert
  - Use conference calls to communicate and coordinate
  - Use the decision support tool to create and share an activity plan
  - Communicate with field forces via SMSes
  - Update available resources using an IT tool
  - Use decision support to update the plan
• Timeframe #3: International support (T0 + 12h)
  – Receive SMS from the field with updates on the situation
  – Request international support with an alert
  – Enter the collaboration
  – Copernicus data available (notification) and visualized from different tools
  – Use decision support to create a new evacuation plan considering the help of international forces
  – Create and share missing persons reports via Google Person Finder
Involved stakeholders in demo

- Local government
  - Roermond Mayor

- National Authorities
  - Directorate for National Safety and Security

- Local Coordination
  - Netherlands Police
  - Netherlands Fire Brigade

- International Coordination
  - Bavarian Police
  - AMI medical assistance NGO

- International Policy Makers
  - Office of the German Ministry of Economy

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