Emergency management is a collaborative effort and what does this mean for support systems

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Outline

• Emergency management is all about collaboration.
  – A visual tour
• What does this mean for support systems?
  – User requirements
• What is our solution?
  – The Ketale system
• Isn’t there a risk on relying on Internet technology?
  – Yes, but ...
• How does other DSSs fit into that pictures?
  – Obstacles and our believes
Emergency management is all about collaboration

- **The human aspect**
  - up to 100 persons can be involved in STUK alone and have to coordinate their work

- **The software aspect**
  - Silam, Valma, Rodos, Aino, etc
  - Office, GIS, Acrobat, Browser etc
  - Email, ftp, etc
  - Java, Linux, Windows, etc
  - Passwords, accounts, etc

- **The hardware aspect**
  - Supercomputer at FMI
  - A multitude of servers and workstations at STUK
  - Often programs are accessible only from dedicated HW
STUK’s organisation during emergencies

**MANAGEMENT** 1+1+5
STUK’s decisions & statements regarding e.g.
- safety assessment
- recommendations

**SECRETARIAT** 17-25
- assistance of the management
- communication with counterparts

ACCIDENT ASSESSMENT 18-23
- assessment and development of event
- releases into environment
- INES

RADIOLOGICAL CONSEQUENCES 40-60
- defining area of potential hazard
- evaluation of exposure to population
- proposals for protective measures
- environmental monitoring

ADVICE FOR AUTHORITIES, 10-20
TRADE, COMMERCE AND CITIZENS

PUBLIC INFORMATION 11-15
- contacts with media

INTERNAL SERVICES 10-18
Accident assessment group

- Follows up the accident development
- Makes release assessments
- Contact to accident site
- INES classification
Radiological consequence assessment group

• Takes release assessment and request dispersion predictions from FMI
• Make dose and health assessments
• Recommend protective actions
• Plan and implement measurement campaigns
Management and Secretary

- Coordination
- Public relations
- Recommendations
- Safety assessment
Some observations

- **Emergency management is a collaborative effort.** An easily accessible and constantly updated audit trail of all activities such as model requests or communications is needed.

- **Modeling applications and expertise are distributed** (weather forecasts and dispersion predictions by FMI, source term and dose assessments by STUK) and have to be integrated.

- **Modeling applications run on different hardware and software** and often have scientifically motivated user interfaces. The users should not have to care about these peculiarities.

- Modeling applications often produce **static images that are hardly suitable for all users in all cases.**
Let’s do it again – User requirements

- **Collaboratively multi-user**
  - Users work together on a single case
  - Remote access
  - Different users need different views of the system

- **Ease-of-use**
  - Few client side requirements
  - Should not require any special or advanced computer skills

- **Reliable**
  - Fit for operational use in emergency centers
  - Assured by constant quality control

- **Open**
  - Data import and export should be easy
  - Should integrate well with other systems

- **Multi-lingual**
  - Finnish, Swedish, and English at least as far as products are concerned

- **Multiple purpose**
  - Emergencies, exercises, training, comparison exercises, source detection, European coverage
What is our solution?
Ketale – Main functions

- **Data acquisition**
  - Glue layer between the distributed modeling applications

- **Data management**
  - Provide an audit trail of who was doing what and when

- **Data visualization**
  - Provide functions to dynamically produce sufficiently annotated data portrayals

- **Data analysis**
  - Provide functions to compare and manipulate results
Ketale – System highlights

- Web application
- Database centric but vendor neutral
- Modular (popular Model-View-Controller design pattern)
- Web map visualization
- Open source software
- Platform independent
What about the inherent risk of Internet technology?

• We try to minimize it by:
  – SSL, VPN
  – Implement the Nike® protocol, ie we provide alternative entry points
• The system is not more vulnerable than other DSSs or the traditional approach, which also relied on TCP/IP.
Ketale – Conclusions

• Reports can be produced much faster than before
• Reports are standardized and better deliberated than before
• Data portrayals are tailored to the needs of the users
• Different users are provided with their own view of the data
• A complete audit trail is preserved
• Data and information exchange between STUK and FMI is streamlined, transparent, traceable, and routinely tested
• Supports the process from source term input up the issue of reports
How does other DSSs fit into that pictures?

Obstacles to a tight one-system-for-all approach:
- Institutional traditions
- Existing IT infrastructure
- User profiles
- User needs

But luckily this is not required anymore: JRodos can be used partly as a service and thus fits into the Ketale picture.
In conclusion, we believe in

- openness
- the need for tailored user interfaces
- the usefulness of standardized program interfaces and exchange formats
- the advantages of collaborative software
- the future of service-oriented architecture
- the need of rapid development