

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

Michael Ammann

Nordic Workshop for users of Decision Support  
Systems

Copenhagen, 1-2 Oct 2009

Acknowledging Anne Weltner and Heikki Lemmelä for  
Slides 5-7

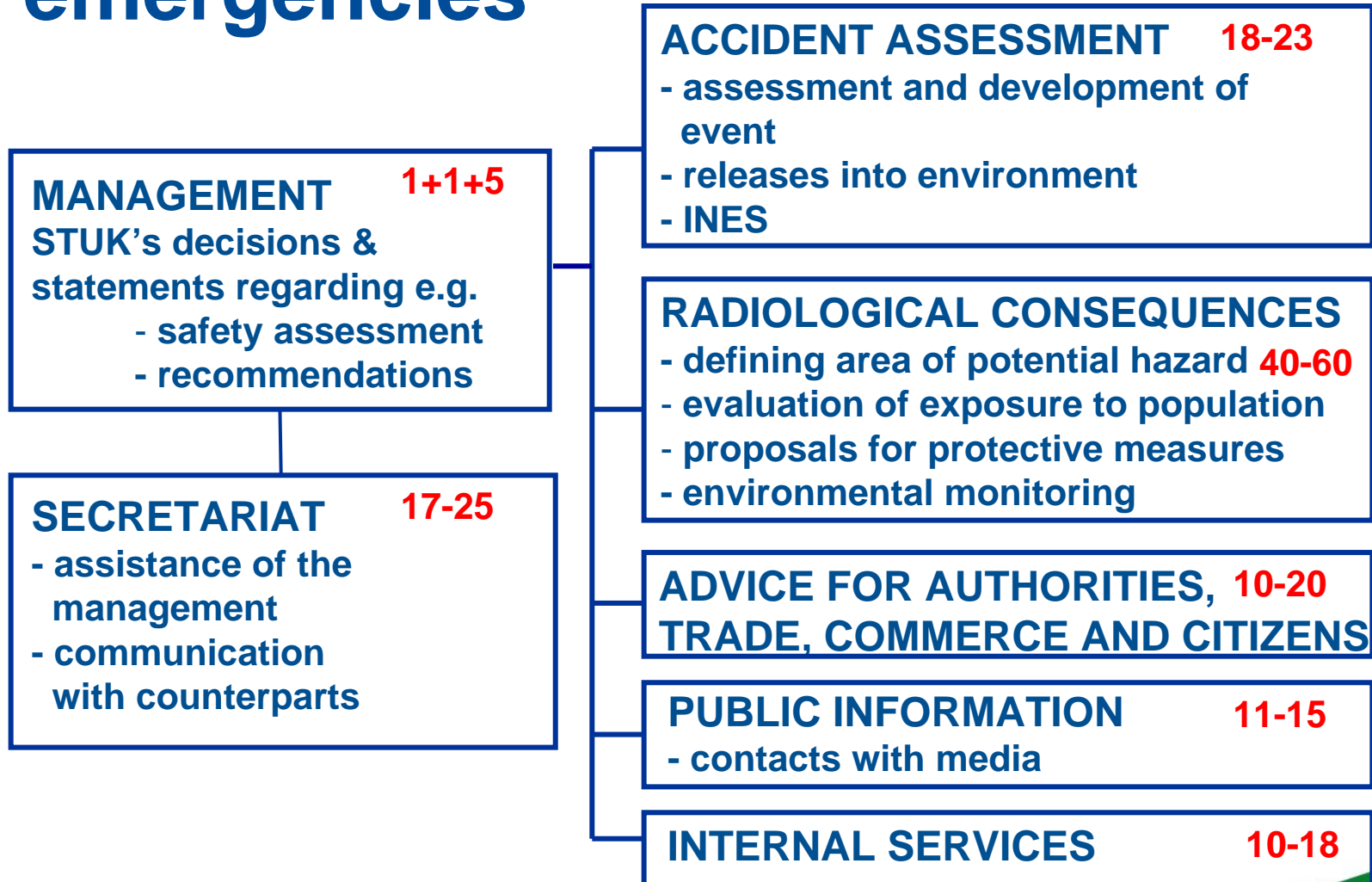
# Outline

- 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



# 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

Events Sites Infos Requests Responses Reports

Michael Ammann  
Preferences Logout

### Filters

Event

STUK\_FMI\_Test

Type

- select filter -

User

- select filter -

### Browse

Type	Description	User	Created
Report	Report (id 5) draft	Michael Ammann	2008-05-09 07:10 UTC+0000
Request	File upload (id 14) successful	Michael Ammann	2008-05-09 07:08 UTC+0000
Request	File upload (id 13) successful	Michael Ammann	2008-05-09 07:07 UTC+0000
Information	Kommentti säämalliasiaan	Markku Seppänen	2008-05-09 07:03 UTC+0000
Information	SÄÄTIEDOTUS	Tuomas Peltonen	2008-05-07 09:27 UTC+0000
Report	Report (id 3) draft	Heikki Lemmelä	2008-05-07 09:11 UTC+0000
Request	Valma (id 12) successful	Tuomas Peltonen	2008-05-07 08:56 UTC+0000
Request	SILAM Advanced (id 11) successful	Tuomas Peltonen	2008-05-07 08:51 UTC+0000
Information	Päästötermi	Heikki Lemmelä	2008-05-07 08:51 UTC+0000
Information	Pikasulku	Michael Ammann	2008-05-07 08:49 UTC+0000
Request	File upload (id 10) successful	Kaj Vesterbacka	2008-05-07 08:37 UTC+0000
Request	File upload (id 9) successful	Kaj Vesterbacka	2008-05-07 08:37 UTC+0000
Request	File upload (id 8) successful	Kaj Vesterbacka	2008-05-07 08:36 UTC+0000
Request	File upload (id 7) successful	Tuomas Peltonen	2008-05-07 08:36 UTC+0000
Request	SILAM Trajectory (id 6) successful	Tuomas Peltonen	2008-05-07 08:33 UTC+0000
Request	USVA Trajectories (id 5) successful	Tuomas Peltonen	2008-05-07 08:32 UTC+0000
Report	Report (id 2) approved	Heikki Lemmelä	2008-05-07 08:30 UTC+0000
Information	Laitoshätätilanne OL1	Heikki Lemmelä	2008-05-07 08:25 UTC+0000
Event	Event created	Michael Ammann	2008-05-07 08:20 UTC+0000

Copyright © 2007 STUK and FMI

# 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