Overall presentation of *Oasis*

The *Oasis* project

- *Oasis* is co-funded by the European Commission and is part of the Sixth Framework Programme (FP6) within the priority "Improving Risk Management"

- This is a 4 years Integrated Project which started on the 1st September 2004

- Web site of the project: **http://www.oasis-fp6.org**
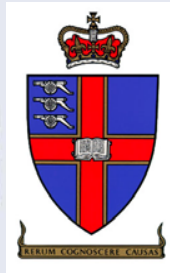
Oasis Consortium

9 countries are represented

BAE SYSTEMS

ERICSSON

AIS
Institut
Autonome Intelligente
Systeme

EADS

DATAMAT
enabling your future

MEDI SOFT

THALES

MEDIUM SOFT a.s.

IRIAS МНИИПУ

SINTEF

The context

- A few years ago, it appeared that civil protection organisations had not benefited as much as other professionals from the new information technologies

  ➢ The situation is now evolving but this evolution is conducted at national level and in a great number of cases at regional level

  ➢ Some organisations are equipped with latest technologies, while others only have previous generation systems

  ➢ Problems of compatibility and interoperability are increasing

Objective of Oasis : To develop a Disaster and Emergency Management system (1/2)

- aiming to support the response operations
  - ➢ in the case of large scale as well as local emergencies
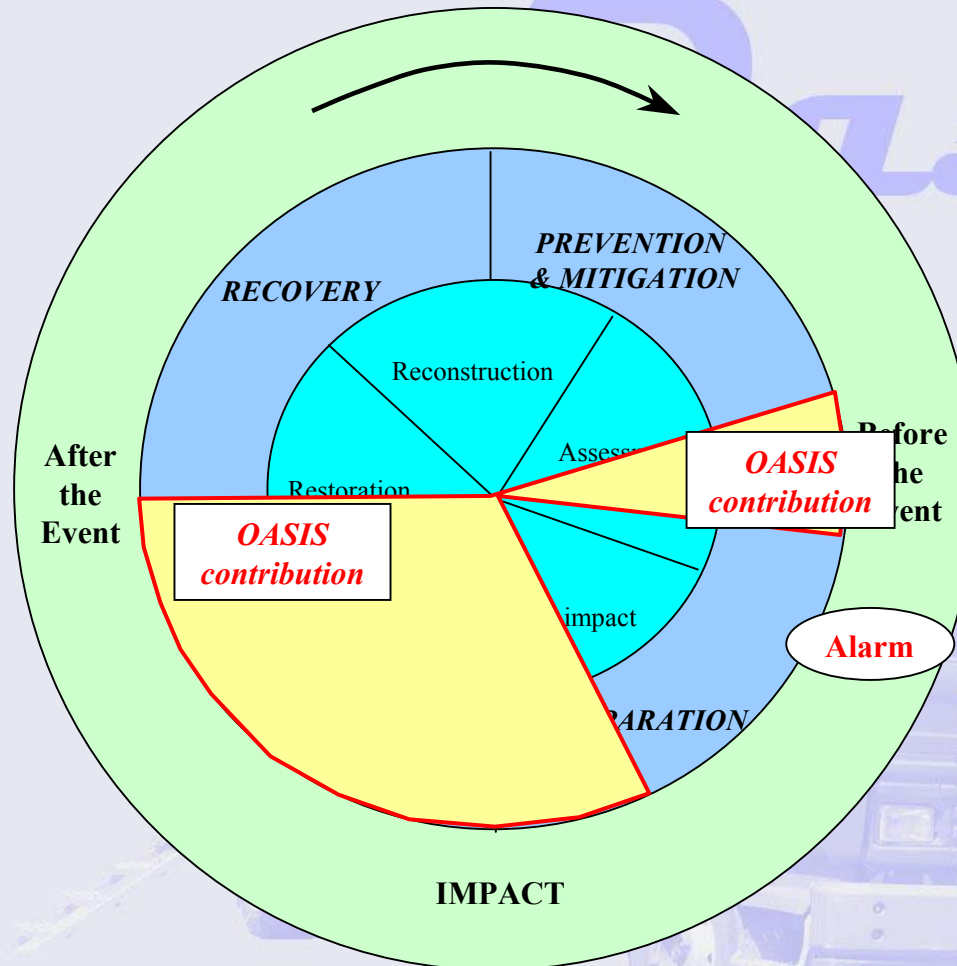 - ➢ subsequent to any kind of disaster
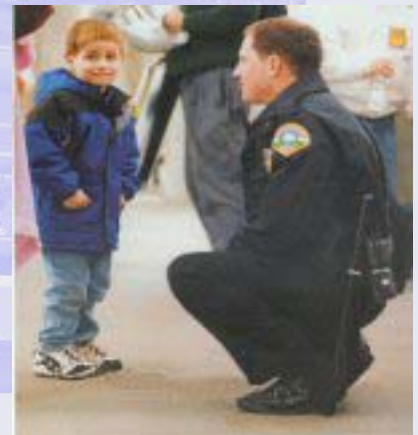
Objective of Oasis : To develop a Disaster and Emergency Management system (2/2)

- which can be used at the different levels of the Civil protection organisations, European, national, regional or local,

- and facilitating the cooperation between the information systems used by the civil protection organisations.

Scope of the *Oasis* project

PREVENTION & MITIGATION

RECOVERY

Reconstruction

Assess

Restoration

After the Event

OASIS contribution

Before the Event

*OASIS contribution*

impact

Alarm

PARATION

IMPACT

The output of the *Oasis* project

- The description of an open architecture, largely based on a list of interfaces, either already existing or proposed by *Oasis*

- An initial set of applications inside this IT framework which covers the main needs of a Disaster and Emergency Management system

Outputs

Oasis will offer a set of IT tools
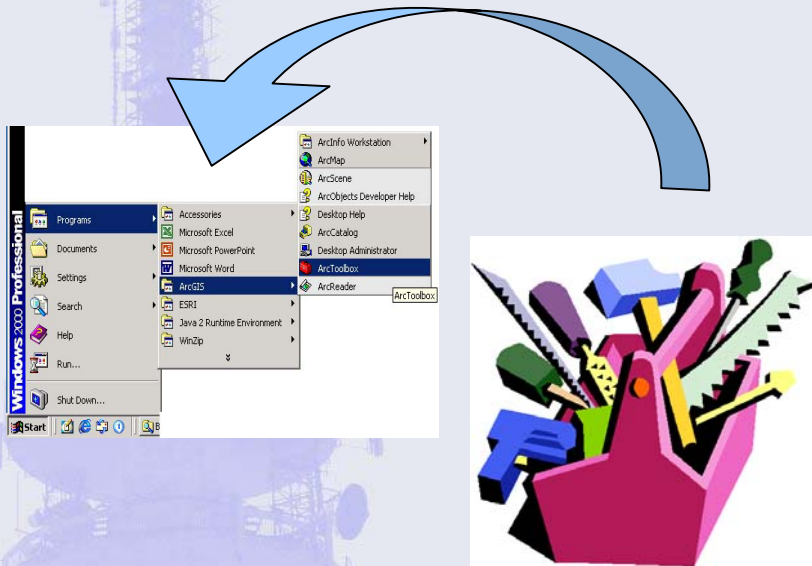
…but more importantly will propose standards!
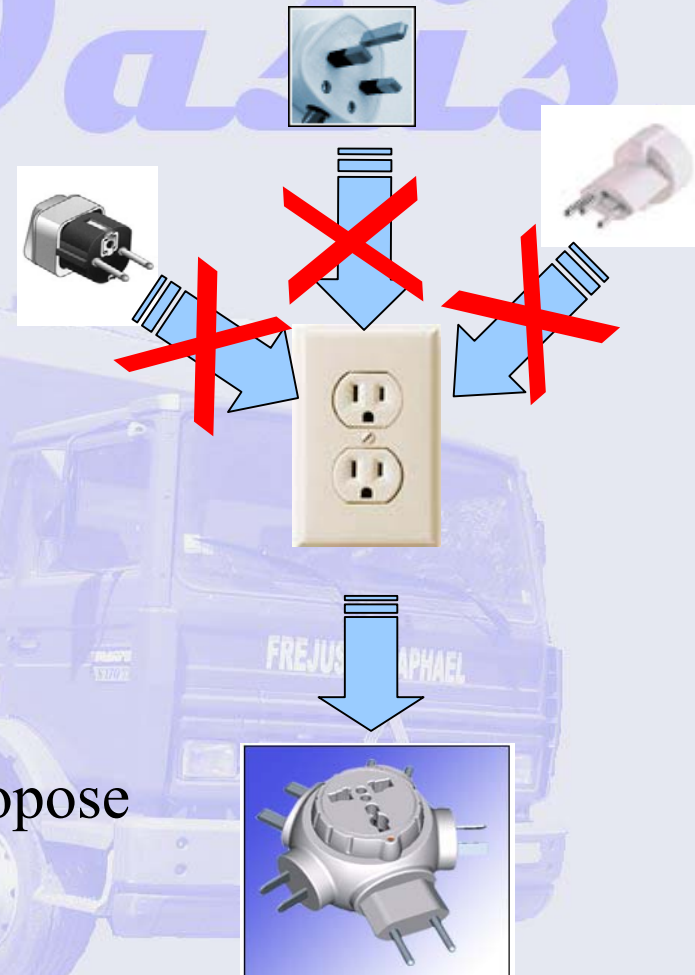
Some *Oasis* services…

Situational Awareness

Continuous production in 'real time'
of an accurate and consistent picture


```
Fire brigade GIS  →  Common Operational Picture (COP)  →  Resource Management
Police GIS        →                                    →  Planning
Police2 GIS       →                                    →  COP GIS View
Other information sources  →
```
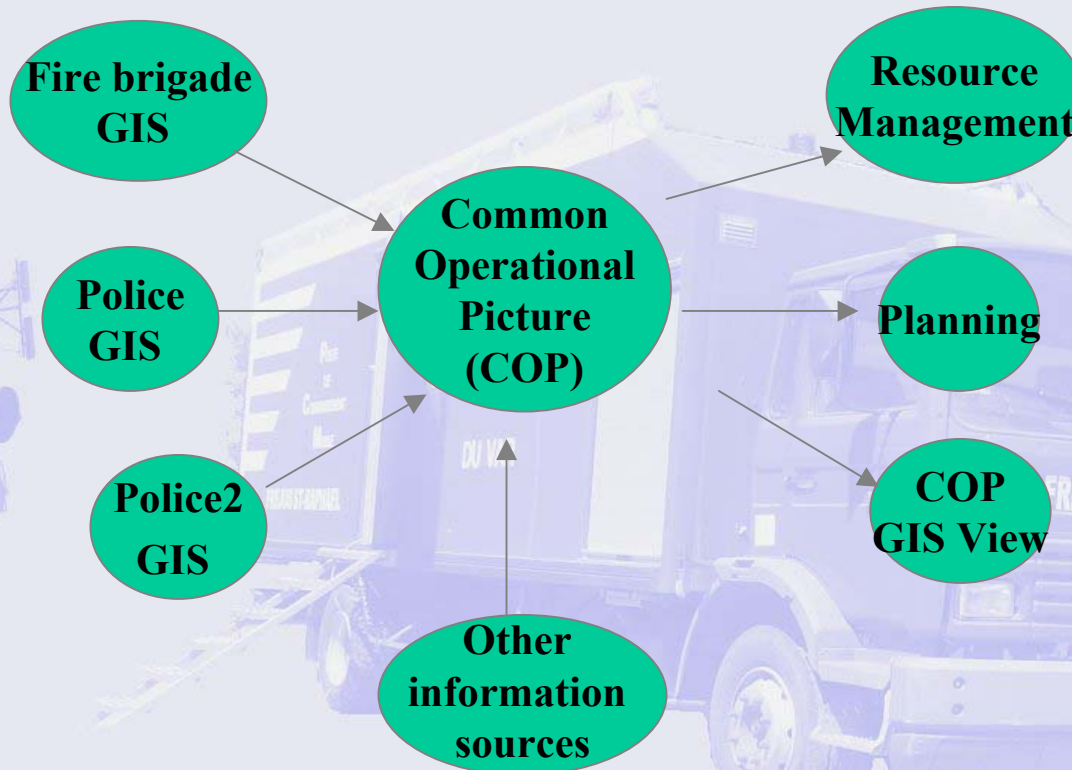
Collaborative Planning & Tasking Services

- Collaborative Planning Services:
  - Import a generic plan from another *Oasis* node
  - Import a generic plan from the external world

- Tasking Services:
  - Receive a mission plan from a top-level *Oasis* node
  - Receive the status of tasks from a bottom-level *Oasis* node

Operational Monitoring and Resource Management

- Activity monitoring
  - Monitoring of ongoing activities and resource status
- Resource Management will support the following four main functionalities:
  - resource type definition
  - resource item definition
  - resource establishment definition
  - management of resource inventory
- Mobile navigational support for rescue teams in the field

Example of Decision Support tools:
Identify the Area Affected by Spreading Chemicals

- Assessment of the propagation of the chemical pollution over time taking into account the meteorological conditions
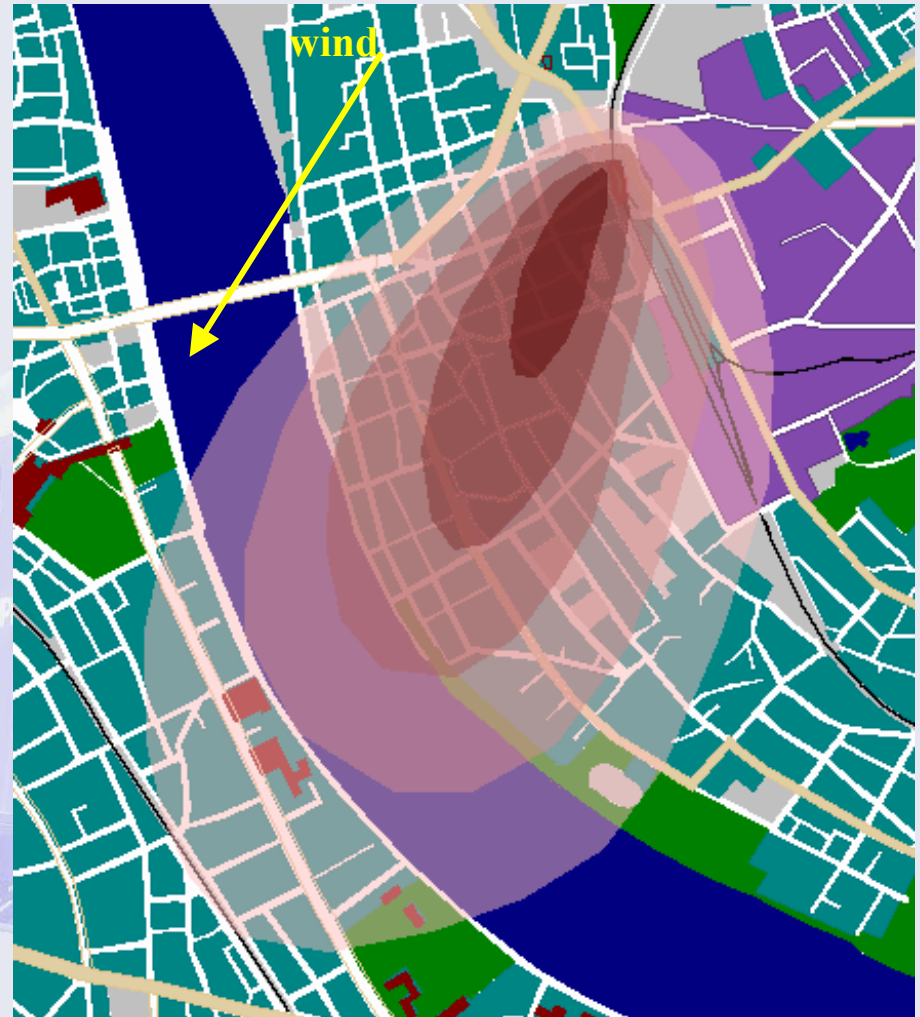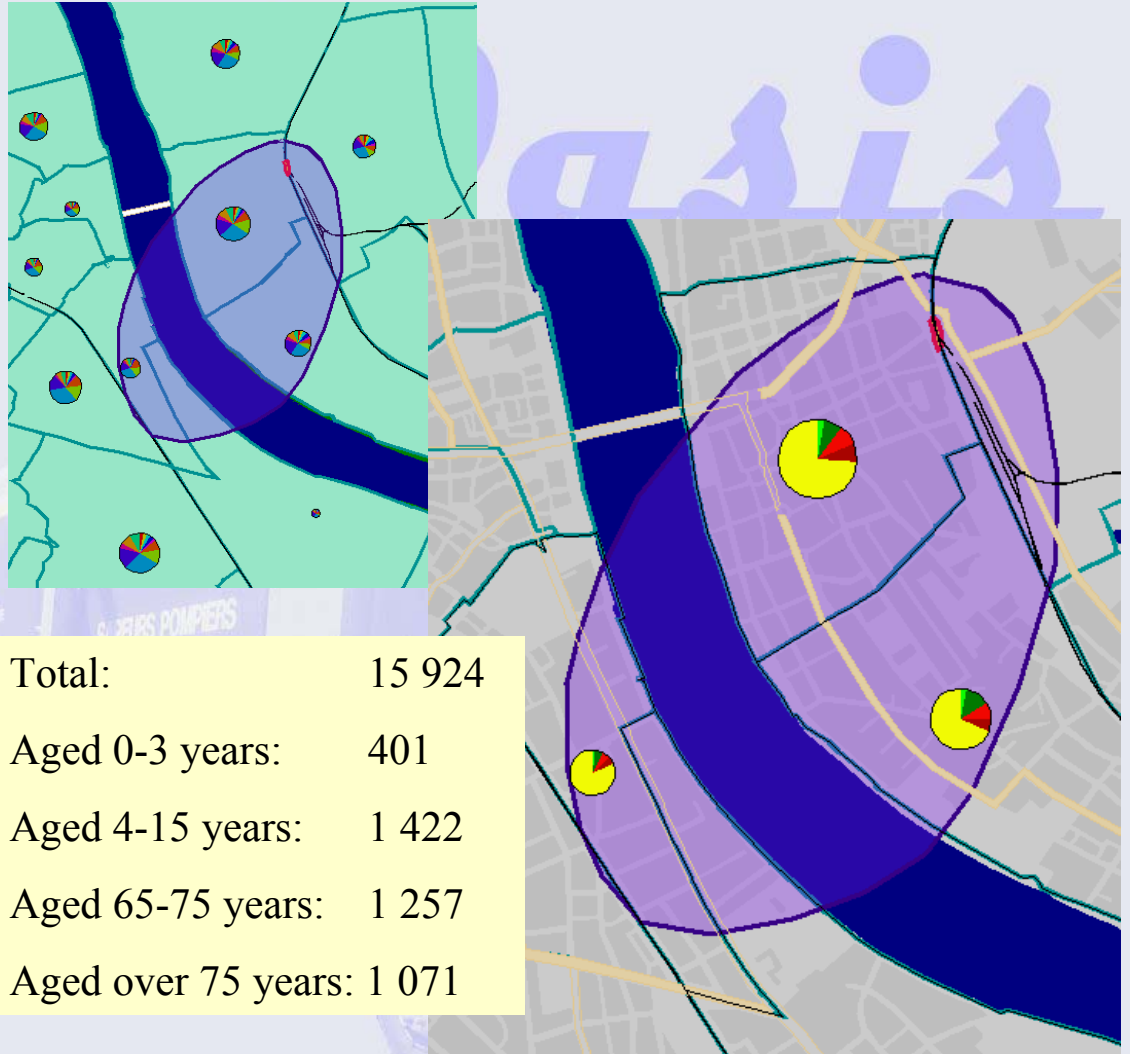
Example of Decision Support tools: Identify the Endangered Population

- Database with population data

- Danger zone

➡

- Number of affected population by age groups

- Entire danger area and by districts

	Total:	15 924
🟡	Aged 0-3 years:	401
🟢	Aged 4-15 years:	1 422
🔴	Aged 65-75 years:	1 257
🔴	Aged over 75 years:	1 071

Example of Decision Support tools: Detect Objects Requiring Special Care

- Determination whether the danger zone contains places with people requiring special care (e.g. hospitals).

  - ➢ It takes into account the day of the week and the time of the day.

A school; shown only at daytime on working days
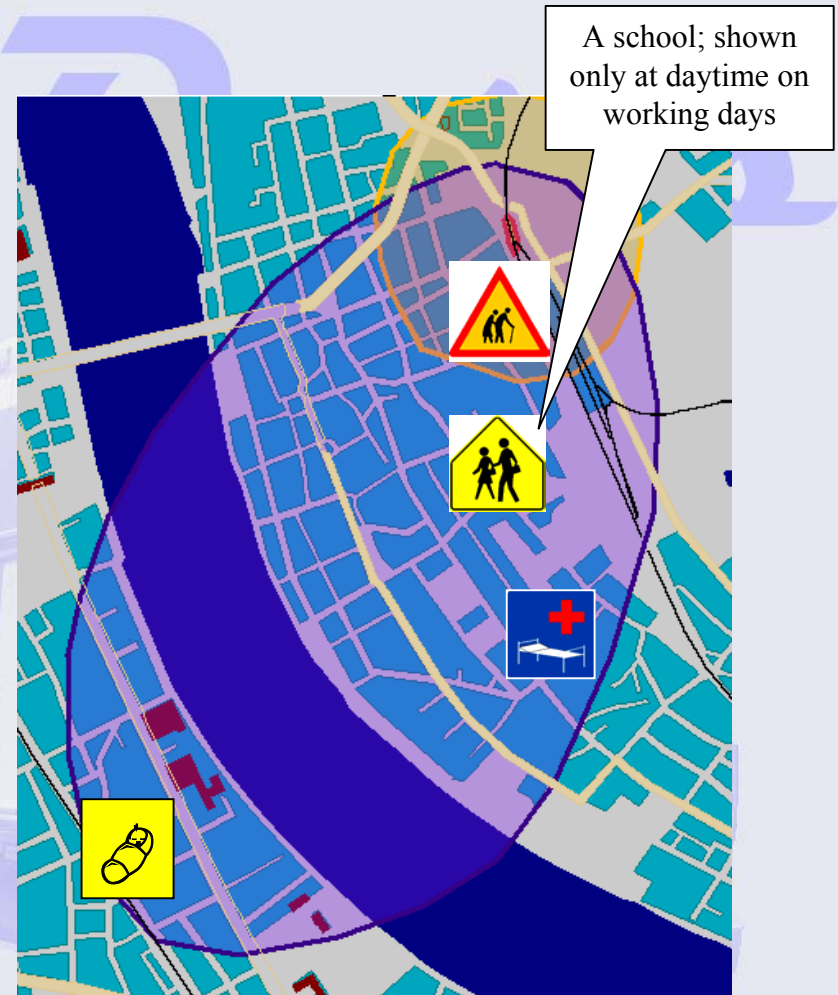
Exploitation of *Oasis*

- *Oasis* outcomes
  - ➤ could complement existing systems with additional applications or services
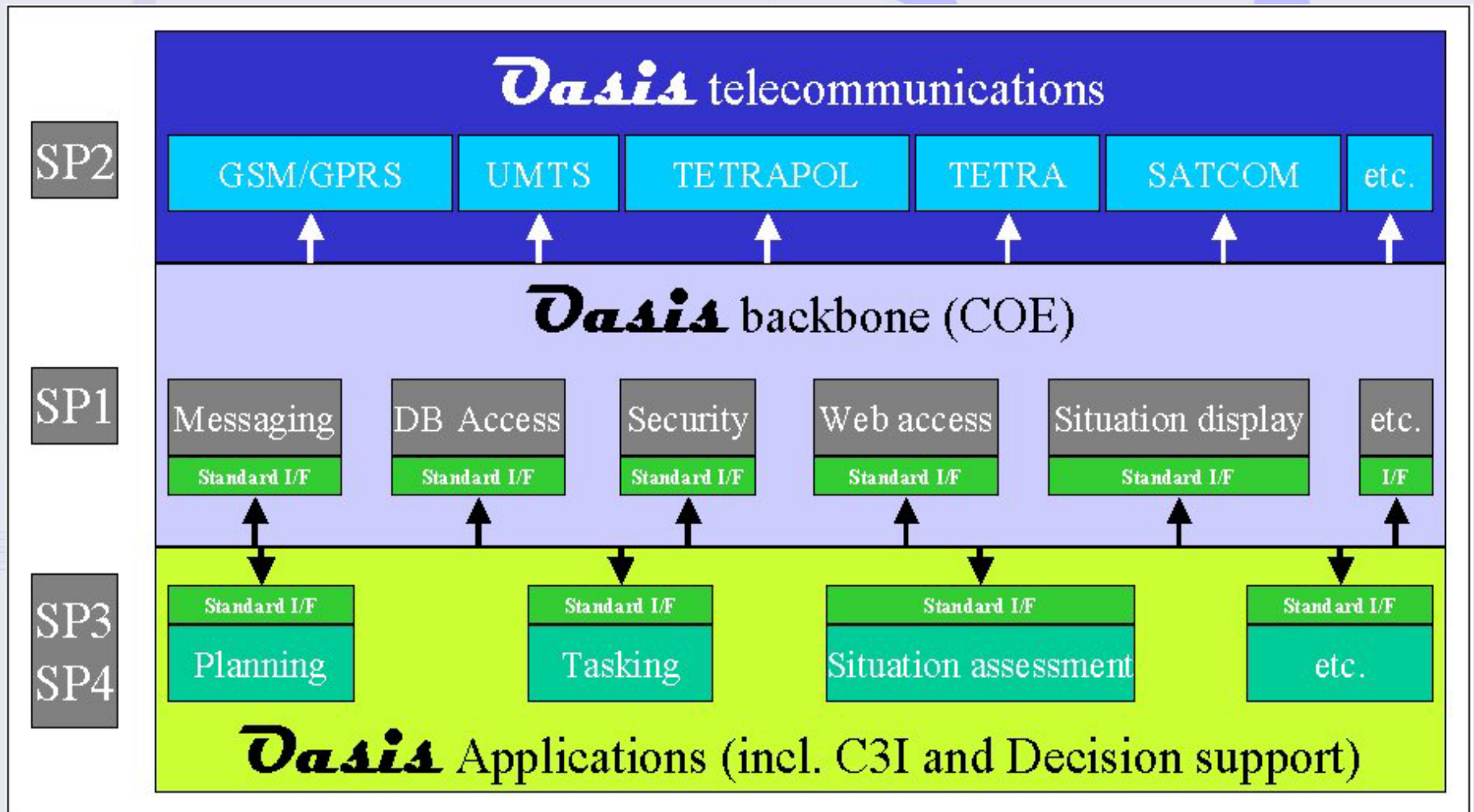
  - ➤ or could be used as a whole set in areas where there is no Disaster and Emergency management system or where the existing system has collapsed

Oasis global functional architecture

Oasis main architectural principles

- Use of open and largely available standards, so that
  - Each agency can choose its vendor / product
  - Modules from different sources can work together
  - The development of a new module shall be "reasonable" and shall take advantage of the already existing services
- Main *Oasis* choices:
  - Use of Web services
  - Definition of a "software subscription mechanism"
  - Definition of an exchange format allowing gateways

Oasis takes into account the security policy of the agencies

Police CR

TSO
Same content, same meaning!

Direct communication

E-mail

Fire brigade CR
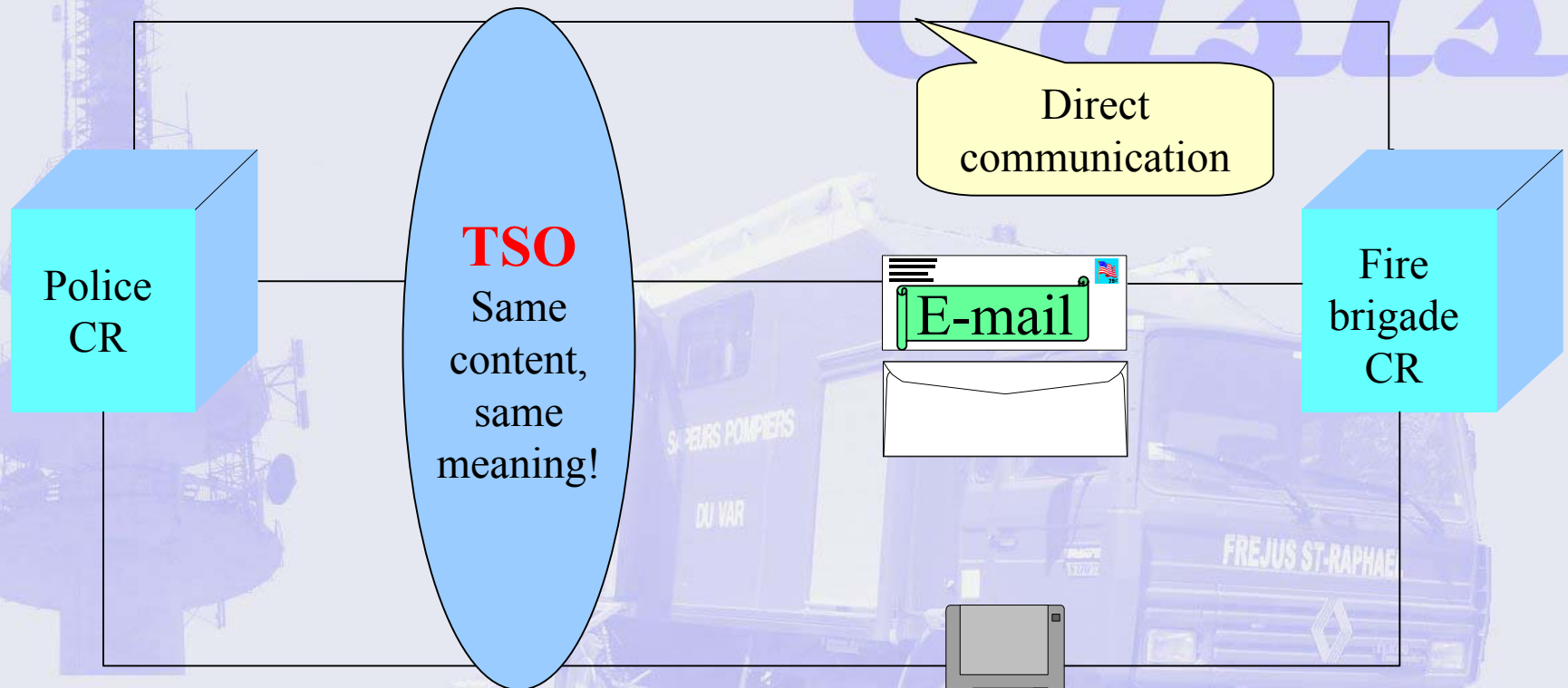
Physical media if the 2 systems are not linked

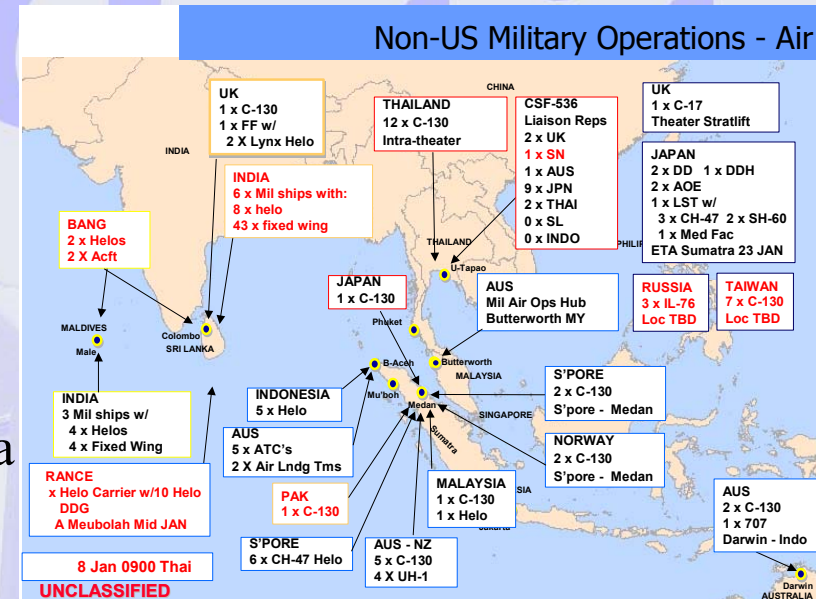# The *Oasis* TSO - Tactical Situation Object

- *Oasis* is defining an interface between emergency agencies for exchanging information during the operations
  - ➢ Based on NATO standards
  - ➢ Based on a rich and expandable dictionary

- This object is one of the major mean to reach a minimum level of interoperability between agencies during the disaster and emergency operations

- It can be exchanged with other systems using *Oasis* or not and will allow the display of the situation

Non-US Military Operations - Air

UK
1 x C-130
1 x FF w/
2 X Lynx Helo

THAILAND
12 x C-130
Intra-theater

CSF-536
Liaison Reps
2 x UK
1 x SN
1 x AUS
9 x JPN
2 x THAI
0 x SL
0 x INDO

UK
1 x C-17
Theater Stratlift

JAPAN
2 x DD   1 x DDH
2 x AOE
1 x LST w/
   3 x CH-47 2 x SH-60
   1 x Med Fac
ETA Sumatra 23 JAN

INDIA
6 x Mil ships with:
8 x helo
43 x fixed wing

BANG
2 x Helos
2 X Acft

JAPAN
1 x C-130

AUS
Mil Air Ops Hub
Butterworth MY

RUSSIA
3 x IL-76
Loc TBD

TAIWAN
7 x C-130
Loc TBD

INDIA
3 Mil ships w/
4 x Helos
4 x Fixed Wing

INDONESIA
5 x Helo

AUS
5 x ATC's
2 X Air Lndg Tms

S'PORE
2 x C-130
S'pore - Medan

NORWAY
2 x C-130
S'pore - Medan

RANCE
x Helo Carrier w/10 Helo
DDG
A Meubolah Mid JAN

PAK
1 x C-130

MALAYSIA
1 x C-130
1 x Helo

AUS
2 x C-130
1 x 707
Darwin - Indo

S'PORE
6 x CH-47 Helo

AUS - NZ
5 x C-130
4 X UH-1

8 Jan 0900 Thai
UNCLASSIFIED

The content of the Tactical Situation Object

- Identification information:
  - ➤ the identifier, the originator of the information and the date of creation of the TSO

- Description of the event:
  - ➤ type of the event, its extent, the number of casualties, the consequences on the environment, its criticality

- Description of the resources:
  - ➤ which resources are already used, which resources are available

- Description of the missions:
  - ➤ the tasks which are on-going, their status, the teams and resources which are engaged for them, their planning

Oasis tools supporting the TSO

- The TSO format is
  - ➤ Simple
    - ❖ It can be understood by human readers
    - ❖ It is independent from the language
  - ➤ Public
  - ➤ Compliant with widely supported standards
    - ❖ All software developers can support it
- Most *Oasis* components will support the TSO
  - ➤ An Open Source component will provide the capability to display and create TSO files
  - ➤ A TSO / NATO gateway will be developed for joined operations

TSO Editor - overview

- Open-source web based application allowing creation, display and editing of Tactical Situation Objects (TSOs)

- The TSO Editor will be fully visual, allowing the user to build/change/display a tactical situation in a visual manner.
  - Its main window shall display a map with the typical GIS functionalities like zoom, pan, read position, etc, plus functionalities for managing TSO physical files and allowing placing, displaying, removing and moving the TSO items (the event, resources and missions)
  - The tactical situation built/changed can then be saved to a TSO file. In the same way, a TSO file can be used to load the tactical situation
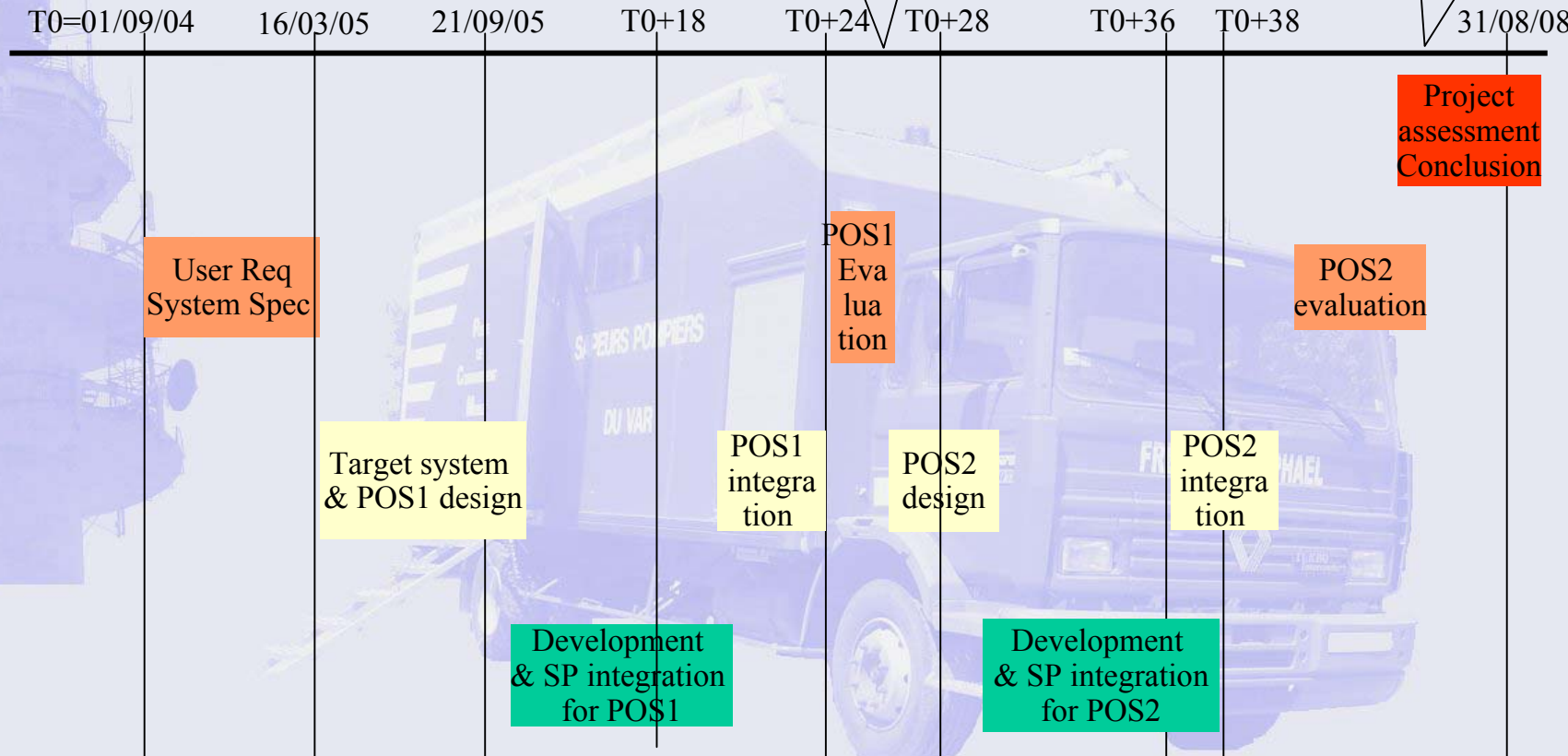
Schedule

POS1 = Pre-Operational System V1
POS2 = Pre-Operational System V2

Today

Results of POS1 evaluation with users at T0+26 (November 2006)

Results of POS2 evaluation with users at T0+45 (June 2008)

| T0=01/09/04 | 16/03/05 | 21/09/05 | T0+18 | T0+24 | T0+28 | T0+36 | T0+38 | 31/08/08 |

Project assessment Conclusion

User Req System Spec

POS1 Eva lua tion

POS2 evaluation

Target system & POS1 design

POS1 integra tion

POS2 design

POS2 integra tion

Development & SP integration for PO$1

Development & SP integration for POS2

Evaluation of the
the first version of *Oasis*

Aim and Objectives of the evaluation

- Our aim for this first evaluation phase is to demonstrate the interest of *Oasis* as a solution for inter-agency cooperation supporting response operations in the case of large scale as well as local emergencies.

- This demonstration will focus on the following objectives:
  - To show how the interoperability, communications and security issues are tackled by the *Oasis* solution, and in particular, to illustrate the effectiveness of the Tactical Situation Object (TSO),
  - To evaluate the Pre-Operational System 1 (POS1) in order to highlight capability gaps that should be dealt with in POS2,
  - To confirm or redefine the future development of the POS2.

The scenario for evaluating POS 1

The event: a fire in a chemical plant

The scenario is divided into 4 phases:

- ➤ ALARM
- ➤ MOBILISATION- DEPLOYMENT
- ➤ DEPLOYMENT – RESCUE – DECONTAMINATION
- ➤ ENVIRONMENTAL DAMAGE - EVACUATION

Evaluation of *Oasis*

- Users representatives will participate to the evaluation which will take place in different EU countries

- The first version of *Oasis* will be evaluated in September-October 2006