U.S. Department of Homeland Security

DISASTER MANAGEMENT

Disaster Management Initiative

President's Management Council E-Gov Subcommittee

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Mission and Goals

Goal 1: An easy to use, unified point of access to Disaster Management knowledge and services.

Goal 2: Accelerated and improved quality of disaster mitigation and response.

- Minimize loss of life and property
  - Prepare
  - Mitigate
  - Respond
  - Recover
- Provide consolidated source of disaster-related information and services (www.disasterhelp.gov)
- Establish information interoperability infrastructure
- Leverage existing assets
- Streamline disaster-related processes
- “Bottom up”: responder/stakeholder driven requirements

What's the first problem?

Organization to organization interoperability tends to be inefficient

"Pass the rumor telephone chaos."

"Same room syndrome"

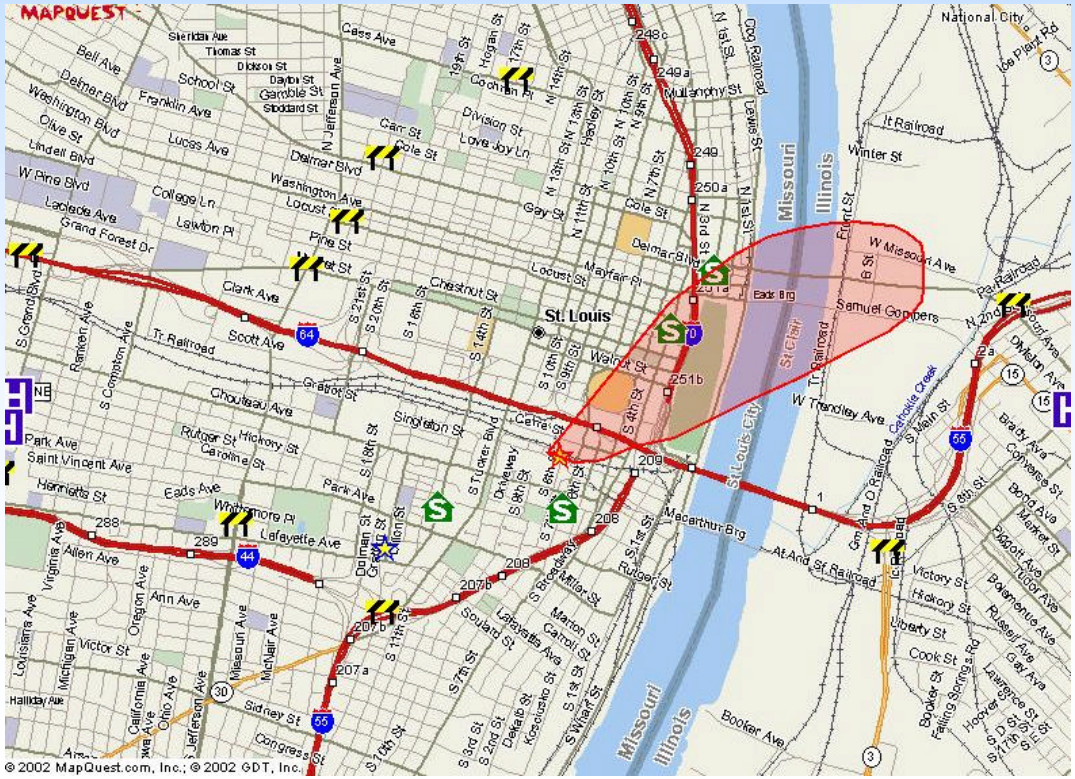
FAX hassles

"Grease pencil and acetate"

What's that mean in the real world?

Consider:

- **St Louis Riverfront Festival, July 4**
- **Terrorist rocket into chlorine tank car**
- **Lethal plume across:**
  - **Unprotected thousands**
  - **Multiple municipal jurisdictions**
  - **2 states**
  - **2 FEMA regions**



With an interoperability service, organizations can:

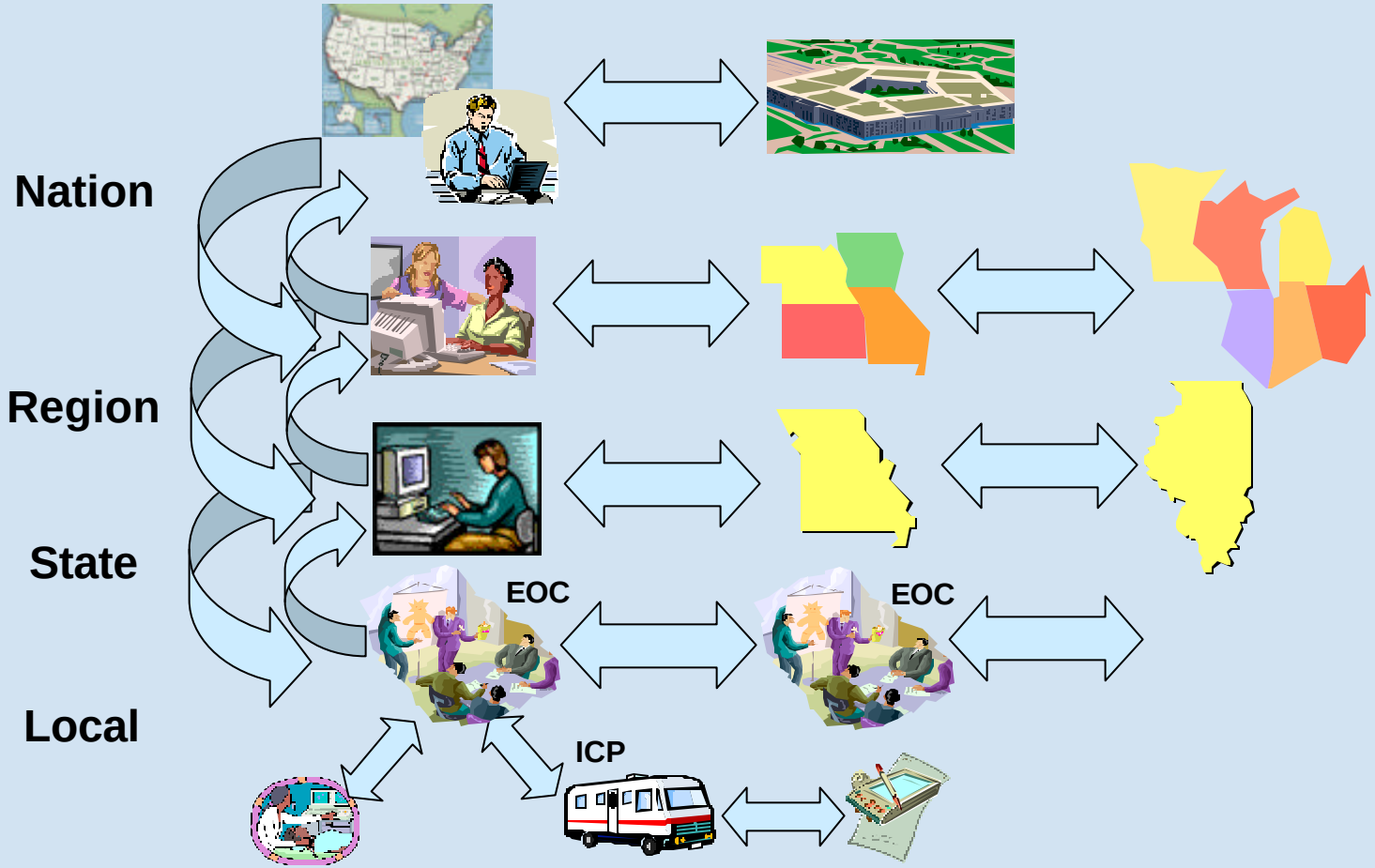
- **Share information**
- **Gain early awareness**
- **Coordinate response**
- **Save lives and minimize property damage**

Despite differing automated systems

What's the solution?

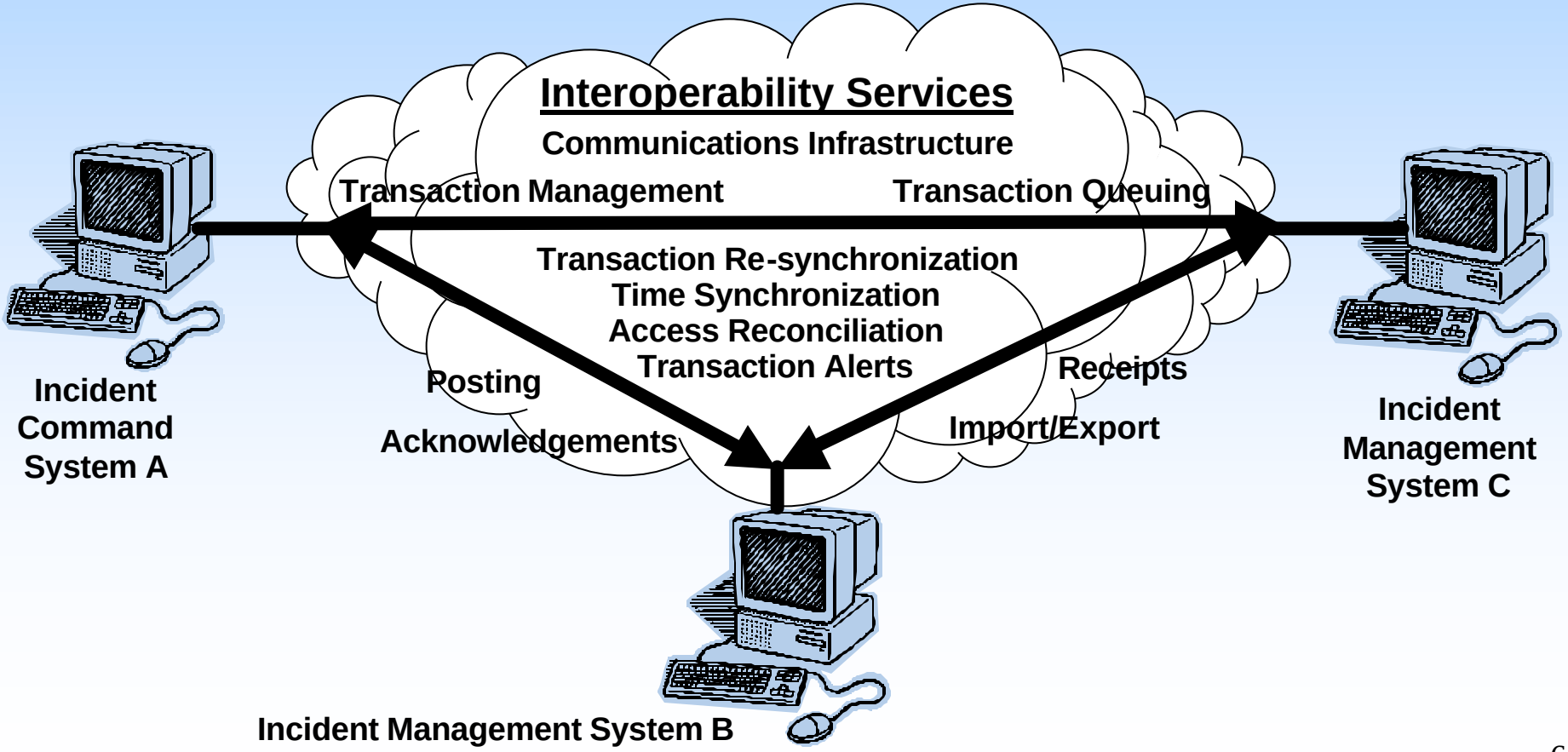
- Leverage technology to gain efficiency
- Develop a national emergency information interoperability service

Interoperability Service enabling horizontal & vertical information sharing



What's an Interoperability Service?

An infrastructure with common service functions that enable <u>heterogeneous</u> automated information systems to "talk to each other."

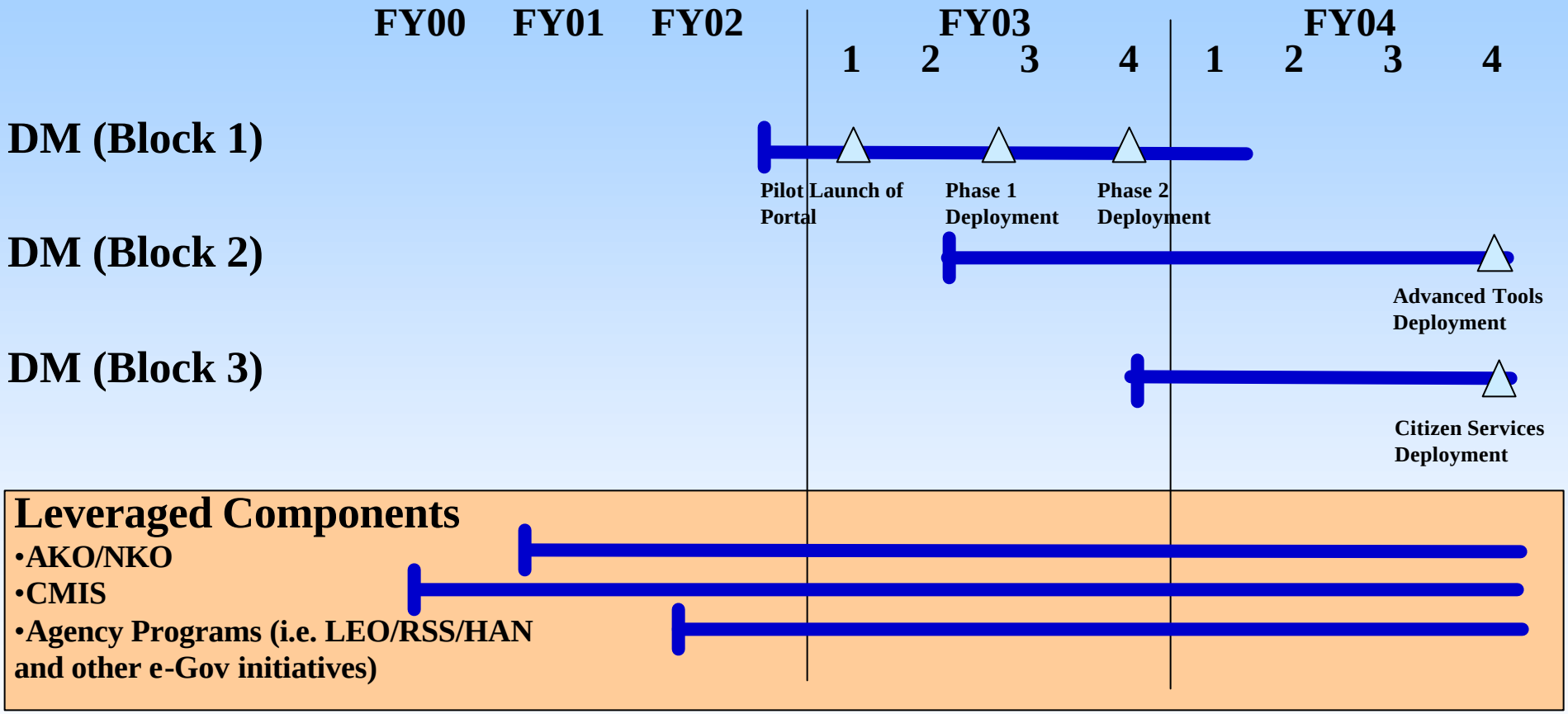


Metrics- Saving Lives and Property

Goal	Mission Need	Key Performance Parameters	Tangible Outcomes*
1 & 2	Block 1: Knowledge Management, Responder Application Basic Tools, and Level 1 Interoperability	• Reduce response/recovery time by a threshold of 15% with Objective of 25%	**Phase 1:** •Specific Needs Request •Weather Forecast •Alerts •Open-Source Intel Plus •Threaded Discussions •Subject Matter Expert Tracking •Level 1 Presentable Interoperability **•Phase 2:** •Agent Identifier •On-line Mapping •Target Folder •Playbook •Lessons Learned Repository •White-boarding •Level 2 Reportable Interoperability
1 & 2	Block 2: Responder Applications Advanced Tools and Level 2 Interoperability	• Improve situation awareness & planning capability with a threshold of 25% and objective of 50%	•On-Scene Video •On-Scene Sensor Integration •Secure Wireless Access •EOD M&S Tool (Blast FX) •Level 3 Processable Interoperability
1	Block 3: Citizen Services	• Simplified application process for citizens with threshold of 3 forms and objective of 1.	•Combined resources of federal agencies for citizens •Single on-line form processing for grants

*** Not all-inclusive**

Project Schedule

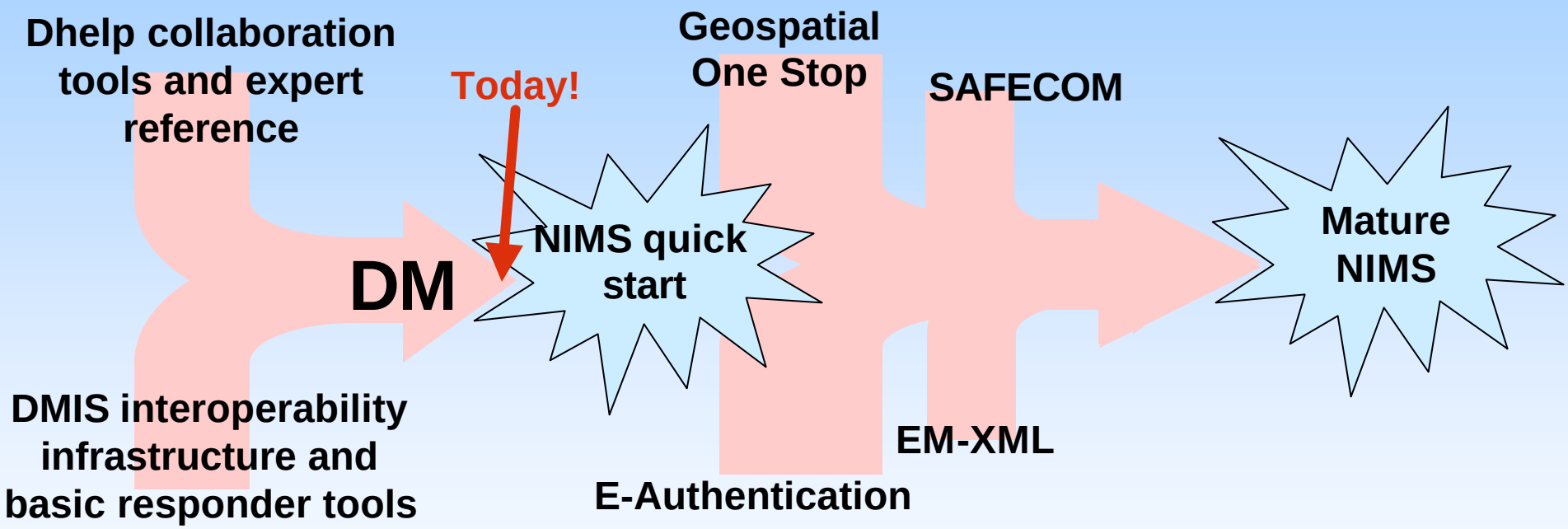


Block 1: Knowledge Management, Responder Application Basic Tools, and Interoperability

Block 2: Responder Applications Advanced Tool and Interoperability

Block 3: Citizen Services, i.e. e-Grants, e-Authentication etc.

In response to HSPD-5, converging roads to NIMS technologies.



Government / science / industry collaboration developing technologies for homeland security

BACKUP SLIDES

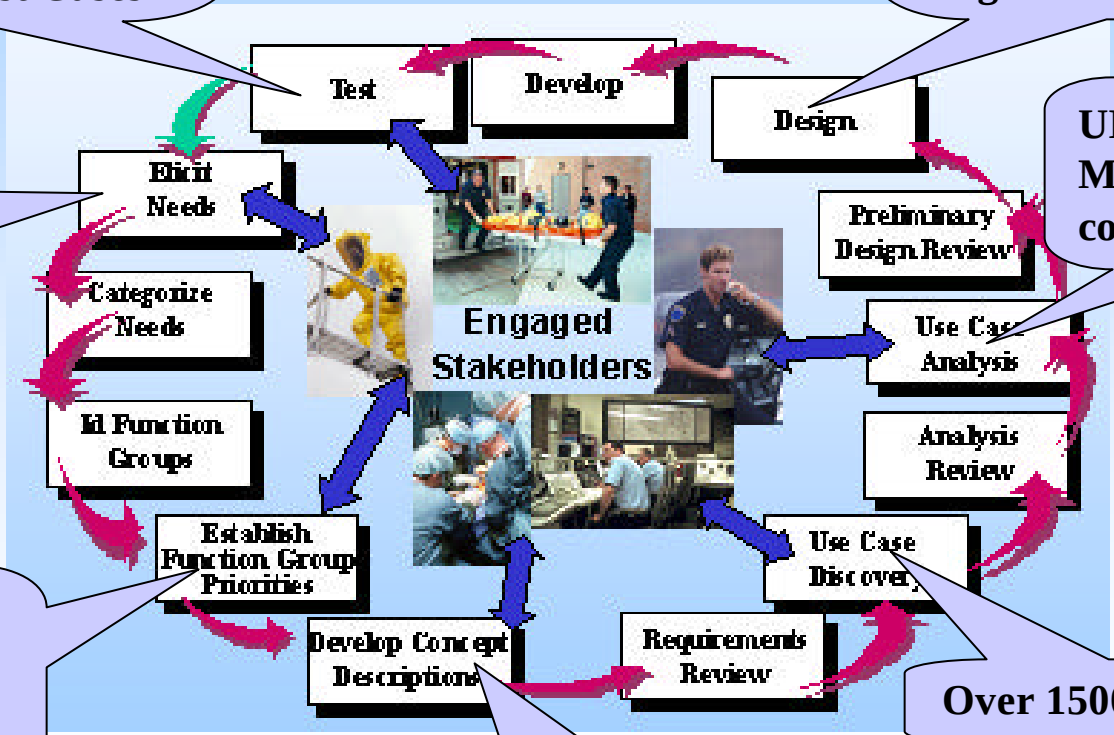
Rational Process/Stakeholder Experience

Beta Testing:
Cities: LA, Dallas, Seattle
States: IL, MA, NH
- 50 Application Test Cases

- Roughly 500 Robustness Diagrams
- Over 300 Sequence Diagrams

1,000 formal responder interviews

UML Domain Models for each component



• 3 formal responder surveys
•Regular advisory body prioritization

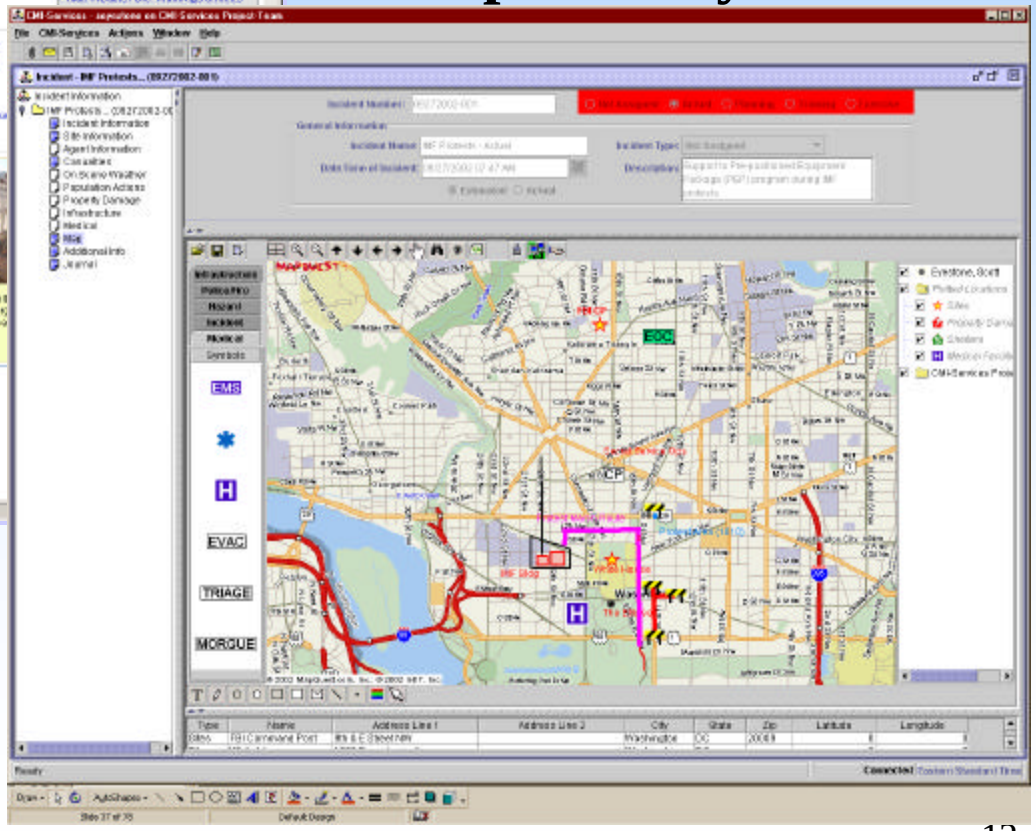
Over 1500 use cases

Roughly 50 functional concept descriptions

Current DM Capabilities

DisasterHelp.gov

Disaster Management Interoperability Services



DM Current Capabilities

- Shared situation awareness tools, including interactive maps
- Open-source intelligence (OSInt)
- Private chat for responders
- Collaborative workspace with instant-messaging (IM), chat, document repository
- Data center / communications / access control / security / privacy
- 24x7 help desk / program support
- Transaction queuing during communication loss
- Prototype web-based access to DMI-Services
- Disaster information portal with search
- Threaded discussions

Planned Capabilities

- External systems interfaces - interoperability API
- Specific Needs Request
- Agent Indicator
- Desktop video teleconferencing
- Detailed weather forecasts for responders
- Target Folder
- Playbook
- Webify current client-server application (interactive mapping tool)
- Enhanced portal access control
- Web-services mapping
- Secure wireless access
- Alert notifications
- Electronic information campaigns

All are “bottom-up” responder-driven requirements

Future Capabilities

- Lessons Learned Repository
- On-scene Video
- Handheld Agent Indicator
- Weapons of Mass Destruction (WMD) Planning Tool
- Intelligence Reports (INTRep) (unclassified)
- Access to chem/bio weapons encyclopedia (BACWORTH)
- USDA Report Forms
- Sensor Interfaces
- Health Alert Network Interoperability
- Enhanced mapping Interoperability
- Distributed Exercises
- Agro-terrorism Database
- Blast FX- Tool for simulation of structure explosion
- Subject matter expert query capability

All are "bottom-up" responder-driven requirements

Saving Life and Property

Capability	*Response Phase*	
	Preparedness / Mitigation	***Response / Recovery***
Planning	**- WMD Plans, Target Folder, and INTRep**	**-Playbook**
Reference	**- BACWORTH access - USDA Report Forms - OSInt - Lessons Learned - Portal Search**	**- Agent Indicator - HAN Interoperability - Weather Forecasts**
Sharing	**- HAN Interoperability - GIS Working Environments - Video Teleconference - Portal Collaboration Center - IM, Chat -Threaded Discussions**	**- Tactical information exch. - Specific Needs Request - On-scene video - GIS Interoperability - Messenger - Sensor Interfaces**
Training	**- Distributed Exercises**	
Other	**- Blast FX**	**- Agro-terrorism Database**

Structured Processes + Engaged Stakeholders = Mitigated Risk

- Used enhanced Rational Unified Process for software development
- Involved responders and other stakeholders at all steps to mitigate risk
- Actively pursued outreach activities to get stakeholder buy-in
- Used proven integration technologies and vendors from AKO and CMI-S experience
- Deployed proven technical architecture
- Established outreach and requirements baseline

Functional Concept Description

Functional Concept Description

Lessons Learned Repository

1) Introduction

a) General Description. The Memorial Institute for Prevention of Terrorism (MIPT) is developing a Lessons Learned Repository (LLR) database that will serve as a comprehensive compendium of lessons learned from exercises and incident responses. CMI-Services stakeholders currently rely upon their own experiences, local lessons learned documentation, and anecdotal documentation available in literature. This effort will provide a national lessons learned database available to registered CMI-Services Operators throughout the emergency response community. Operators will be able to contribute local lessons learned to the database and draw lessons learned on selected topics from organizations throughout the nation.

b) Functional Scope. The scope of this work includes development of the LLR database, determination of the best location for hosting it, and development of the mechanism for serving the LLR to CMI-Services Operators. MIPT will be responsible for development of the database and development/maintenance of its content. CMI-Services is responsible for access mechanisms within the CMI-Services environment. The host site will be collaboratively determined.

2) Background / Statement of Need

This initiative is in response to stakeholder needs collected during interviews in municipalities, June through August 2000. Although variously expressed, the functional requirement is summarized as, "Provide a national database with query capability for selected lessons learned topics from exercises and actual incident responses."

3) Objectives

a) Stakeholder Objectives

- Rapidly acquire legitimate lessons learned by others to facilitate response planning and training
- Acquire lessons learned from a single authoritative source

b) CMI-Services Team Objectives

- Partially satisfy the stakeholder statement of need and objectives within the constraints provided below
- Leverage capability developed by external organizations
- Provide controlled access by the nation's response community to lessons learned from exercises and incident responses

4) Constraints

a) Functional. The functionality and content of this CMI-Services sub-system will be constrained to that developed by the MIPT vendor. CMI-Services will serve out the resource "as is" within the CMI-Services application desktop environment. The MIPT LLR database application will be called by a command item in the CMI-Services Expert Reference menu.

b) Technical. No technical constraints are envisioned. However, peer-to-peer technical discussions among the collaborators have not yet begun.

c) Fiscal. Resources for development of the LLR Database product are constrained by those allocated by MIPT. The resources to develop the CMI-Services menu command item, any data storage, and data transfer mechanisms are not yet defined but projected to be within Release 2 budgetary constraints.

d) Schedule. The CMI-Services effort shall begin upon successful demonstration of the LLR Database prototype.

5) User Encounter Description

A registered CMI-Services Operator has the task to develop or acquire a cost-effective patient decontamination system.

The Operator logs on to CMI-Services, pulls down the Expert Reference menu, and selects the "MIPT Lessons Learned Repository" command item. Selection of the item launches the CMI-Services browser addressed to the MIPT LLR Database resident on CMI-Services' servers.[3]

The Operator uses the MIPT Lessons Learned Repository application to query for "patient decontamination" records entered since January 1998.

The Operator finds sufficient information in this one resource to structure the acquisition plan and justify selection of specific items from specific manufacturers.

6) Interface Considerations

a) Human. No significant user interface issues are identified. The user interface to the MIPT LLR will be developed by the MIPT vendor and presented "as is" within the CMI-Services environment. Navigation and menu commands within the CMI-Services environment shall be consistent with standard CMI-Services graphic user interface style.

b) Database. The required database will be developed by the MIPT vendor.

c) Middleware. Technical discussions with the MIPT vendor will be necessary to determine any middleware requirements.

d) Other Applications. No interfaces to other applications are anticipated.

7) Resources

a) Stakeholder Advocate. Art Slavinski is the CMI-Services internal point of contact for this initiative.

b) References. None available to date; the MIPT Statement of Work to its vendor will be available soon.

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[3] This is an assumption by the RCD author. No technical decisions on this point have been made.

Use Case

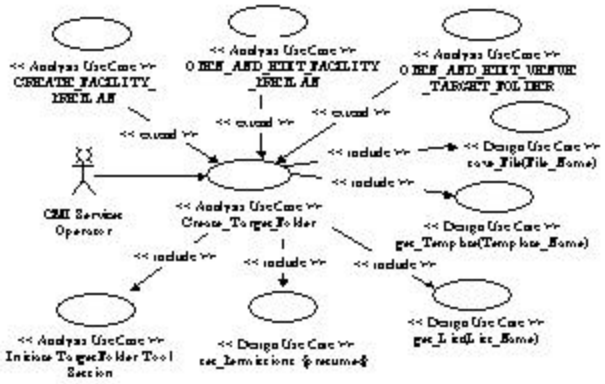
Target Folder Use Case

CREATE_TARGET_FOLDER

1. BRIEF DESCRIPTION

This use case describes the CMI Service Operator's creation of the Target Folder, as a member of the Mission Folder function group, while using the CMI Service Portal (Universal Client). By definition, a Target Folder is specific to a single event.

2. LOCAL VIEW/ USE CASE DIAGRAM



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ACTORS

a. Primary Actor: CMI Service Operator – A designated individual / position, registered on CMI Service, using the Mission Folder sub-system within the CMI Service Universal Client environment.

b. Actor Roles – Mission Folder Group:

- Mission Folder Primary Operator – Assigned Create, Update, and View privileges, and is a possessor/privileges for Mission Folder Group and Sub-Group Applications
- TargetFolder Primary Operator – Assigned Create, Update, and View privileges, and is a possessor/privileges for Target Folder Sub-Group applications

c. Site-Level

- Mission Folder Group Site-Level Primary (local)
- TargetFolderSub-Group Site-Level Primary (local)

METRICS

- Create TargetFolder Utilization Rate: Number of successful target folder file creations over a specified period of time
- Create TargetFolder Operator Utilization: Number of successful target folder file creations per Primary Mission Folder Operator and Primary Target Folder Operator
- Create TargetFolder Site Utilization: Number of successful target folder file creations per Primary Site Level

5. FUNCTIONAL REQUIREMENTS

a. Stakeholder Functional Requirement.

3.6.5 Provide capability to automatically create mission folder, playbook, target folder, and checklist counterpart for each process

b. Derived Functional Requirement

2