

Service Orchestration in a Ballistic Missile Defense System (BMDS) Context

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Army MOIE

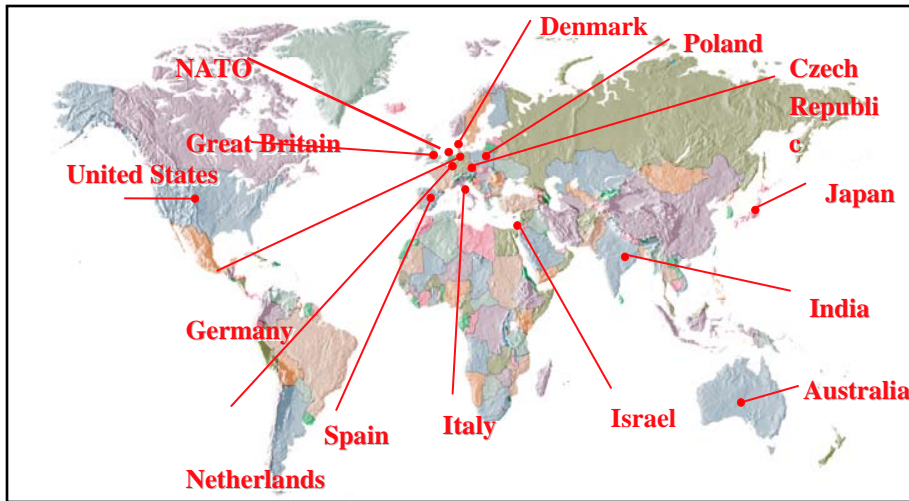
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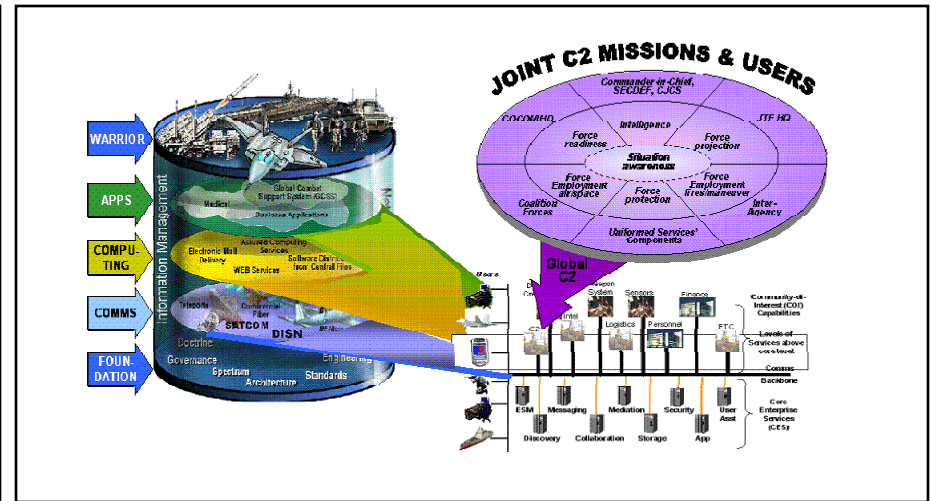
Problem

- **Can the current Web service orchestration standards ensure flexible, yet valid, Ballistic Missile Defense System (BMDS) workflows?**
 - **Identifying Web service capabilities, and the context in which they are valid**
 - **Aligning services to business processes**
 - **Creating and validating resultant service compositions**
 - **Migrating system CM responsibilities from developer to operator**

Background



Expanding Global Missile Defense Capabilities*



Converging C2 Systems

Web Services Standards

Integrated Global Defense System

* Source: http://prague.usembassy.gov/missile_defense.html

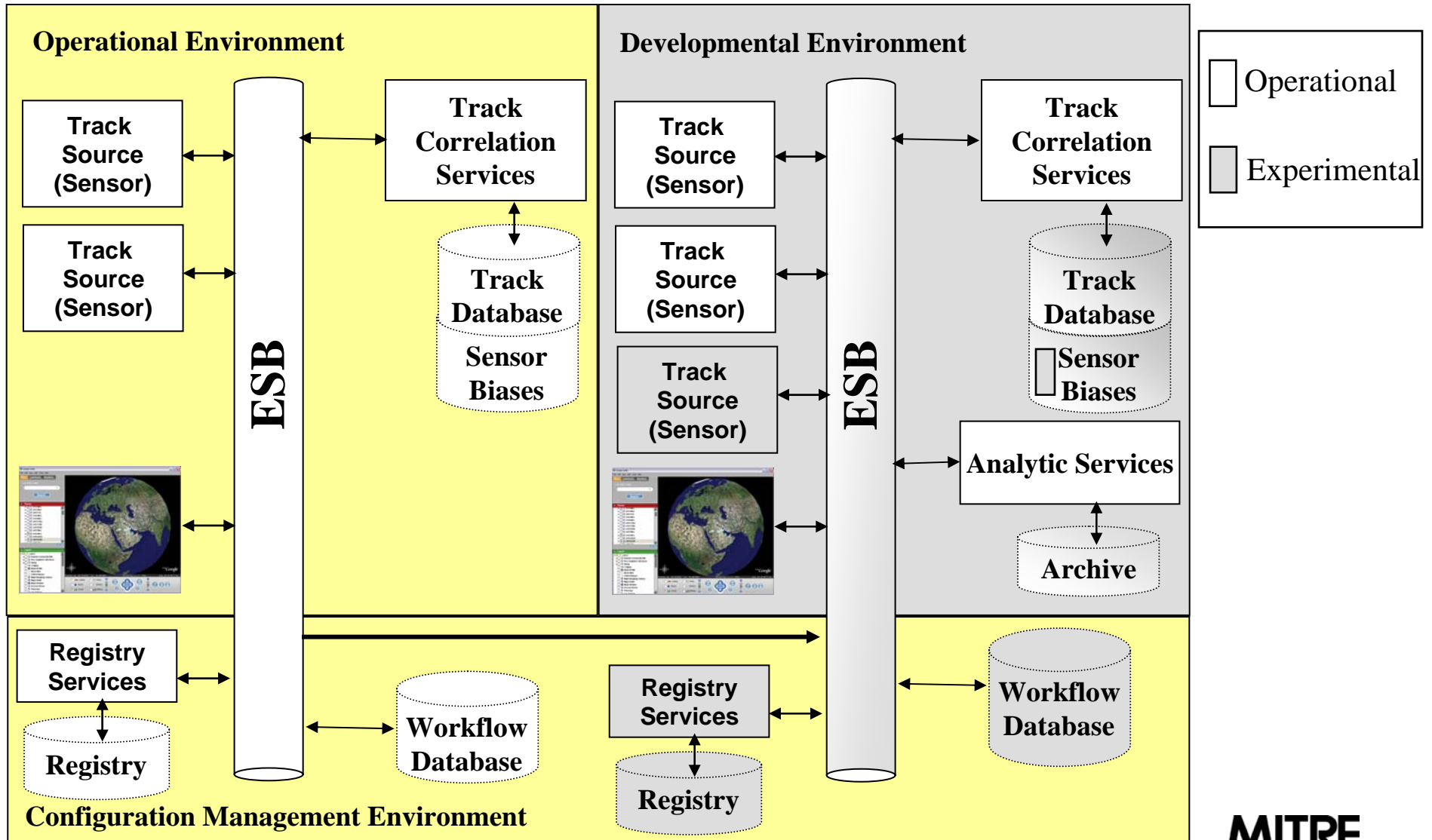
Objective

- **Develop business process framework that supports Web service orchestration for BMDS mission operations**
- **Determine how to include semantics and service constraints to facilitate flexible and valid service orchestration**
- **Evaluate how an operator can create and validate new Web service workflows using component relationships and constraints**

Activities

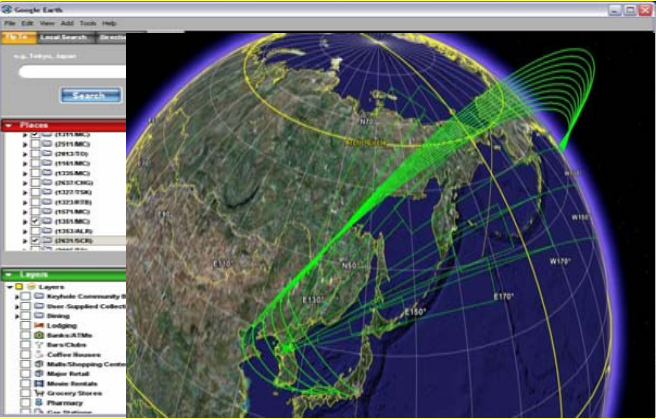
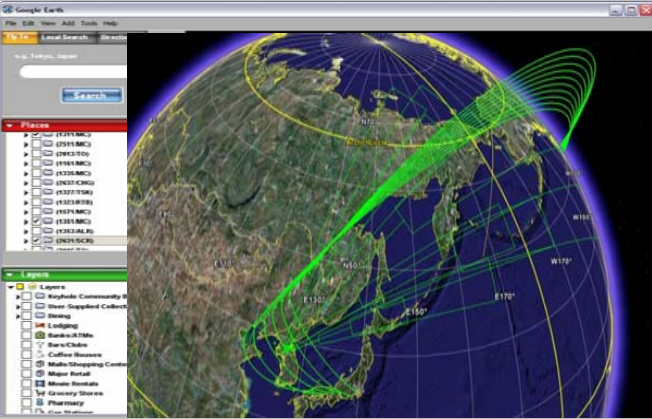
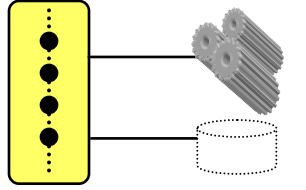
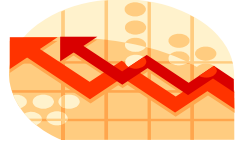
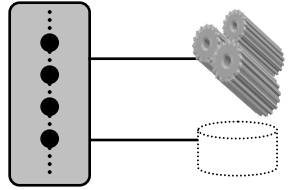
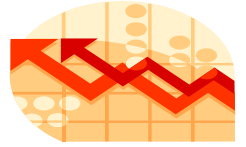
- Document BMDS business process
- Build, deploy, and register Web services
- Describe and discover services
- Orchestrate services workflows to satisfy business process requirements

Highlight



Demonstration

Task: Incorporate tracks from a new sensor

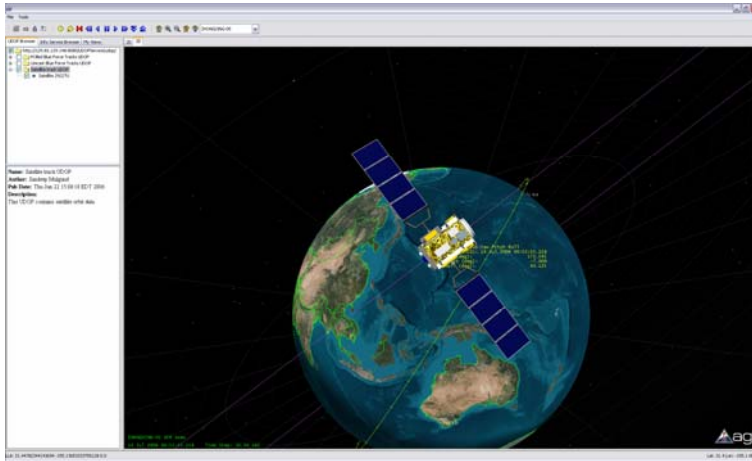
Operational Environment	Developmental Environment		
			
<p>Workflow Manager</p> 	<p>Analytic Tools</p> 	<p>Workflow Manager</p> 	<p>Analytic Tools</p> 

Operator Tunable Web Services in a Parallel Development Environment

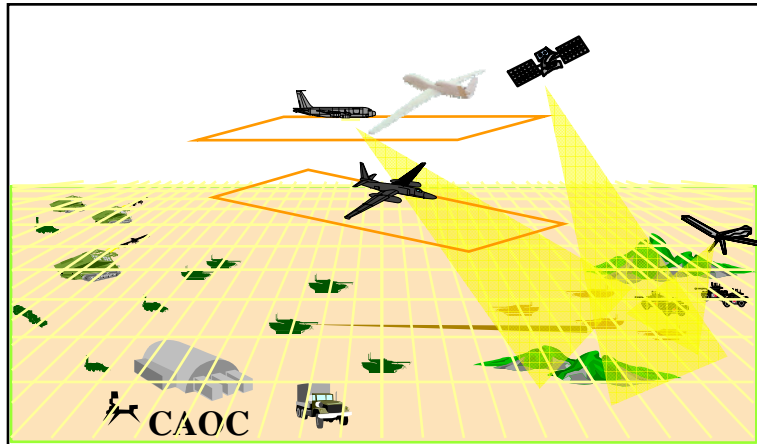
Impacts

- **Guidelines for BMDS element Web service decomposition based upon BMDS business process mapping**
- **Development of framework that specifies the services, metadata, and constraints needed for missile event systems integration**
- **Demonstrated use of semantically enhanced service registries in support of validated service orchestration**
- **Initial insights into governance needed to support operations-based configuration management**

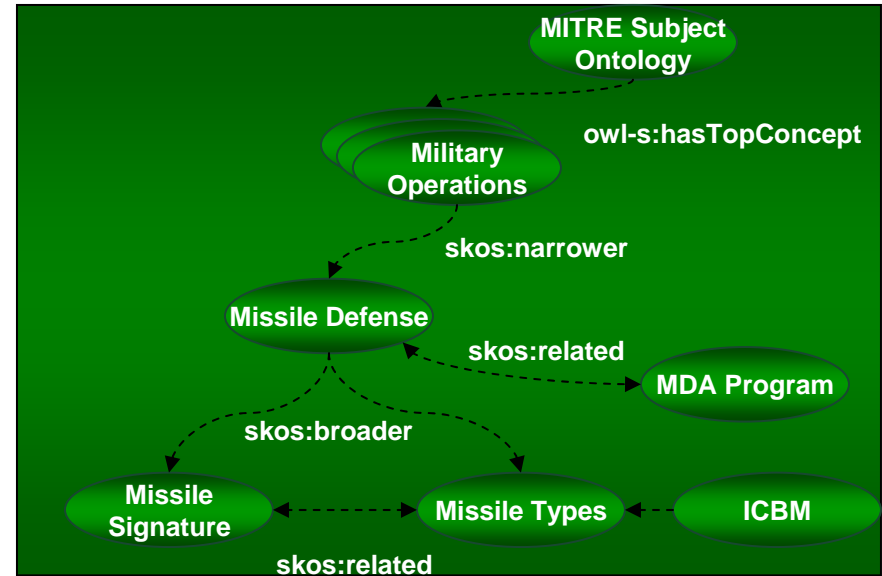
Future Plans




Missile Defense and Space Integration



Offense-Defense Integration



Semantic-Enabled Orchestration



- Policy
- Security
- Performance
- Risk
- Configuration Management
- Pedigree
- ...

Governance

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