

Federated Model Management

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Drivers

- Stakeholders are distributed in organizations and models need to be oriented to stakeholder concerns
- Stakeholders are close to the Operational and Strategic needs or are at the Resource Acquisition and development/sustainment viewpoints
- Models represent shared intention and consensus of stakeholders
- Views need to be Stakeholder oriented and use Stakeholder language
 - Stakeholders need to understand their model views
 - An Actual Performing Organization is a Stakeholder
- Centralization of architecture does not scale
 - Needs to be distributed with an integration framework to manage coherence
 - This framework is being referred to as Federated Model Management
- Use existing standards and tooling with workarounds

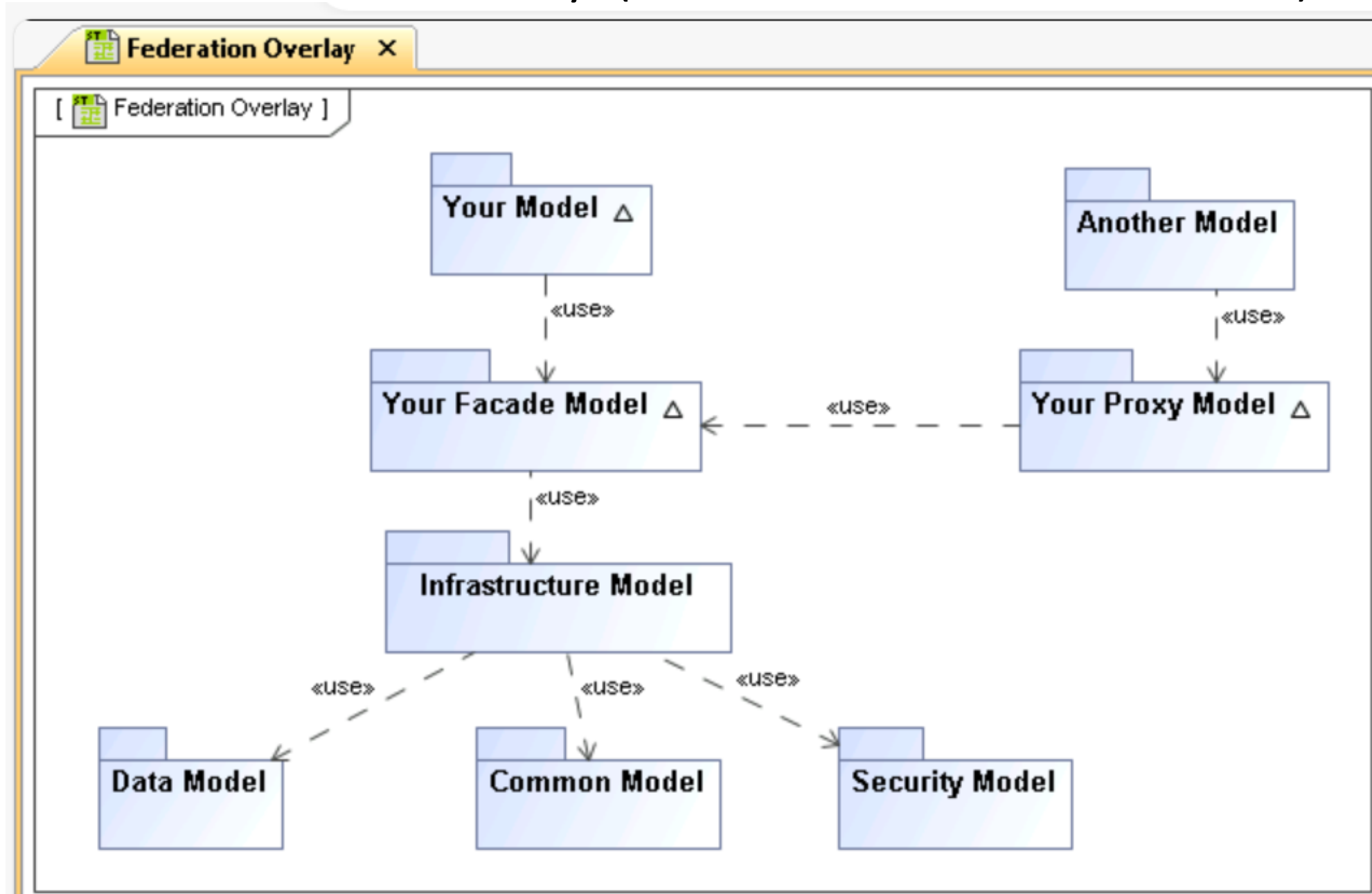
Segmentation Principles

- Segmentation Axes
 - Organizational Capability
 - Acquisition components (MOSA) and resource project management
 - Specialization – Operational, Physical, Electrical, Hydraulic/pneumatic, Digital
 - Classification – security domains
- Convergence - only have one representation
 - Shared platforms and networking
 - Terminology – Named actual resources and types
 - Data Domain model – referenced in exchanges and persistence
 - Security infrastructure and functions
 - Life cycle states and milestones
- Cross segment views
 - Viability and completeness overview
 - Capability – Deployment readiness synchrony and PLM
 - Change impact projection

Approach to Federated UAF

- High level federated set of models
 - Higher models can contain or reference other detailed models
- Federating Models involve Producer(s) and Consumer(s) of an Exchange
 - Operational and Resource Exchanges which are conveyed on shared connectors
- Limit the View by arranging Models with a black box view (Façade) and a white box – Core (Core uses the Façade)
- The Producer has a Façade and the Consumers import its Proxy
 - Proxy demonstrates how to use the Façade
- Two models could have exchanges in both directions so each Exchange direction has a Proxy Façade pair

Federation Overlay (uses unloaded models)



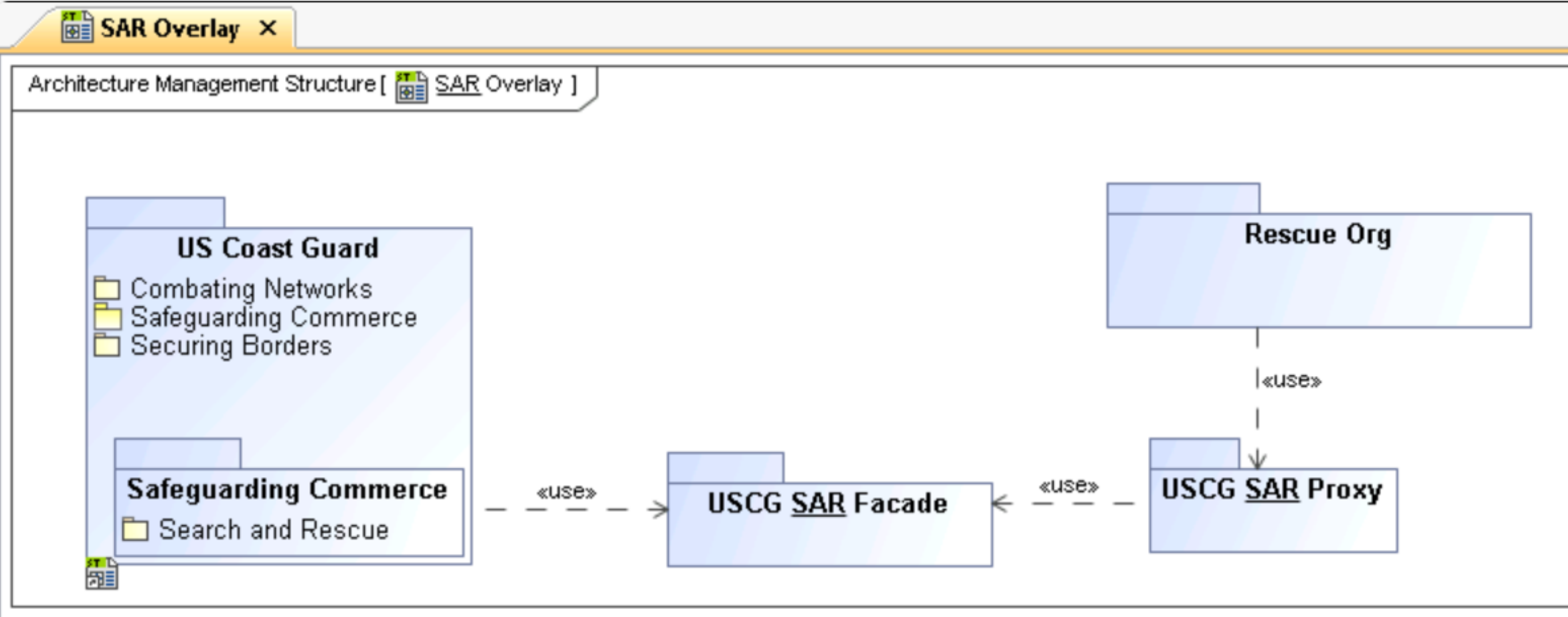
UAF Implications

- Needs a style/implementation guide
 - Rules for application of <<UAF stereotypes>> to organization terms
 - Subset of UAF elements and relationships
 - Fit-for-purpose views for Lifecycle activities
 - Often vertical slivers through multiple UAF layers
 - Monitor UAF for Acquisition
- Pay attention to Namespaces and Qualified Names
 - An organization is a naming authority for its elements
 - Need to have namespace toggle for Packages
 - UAF Package Naming gets in the way
- Usage across models without import needs to be defined
 - Using a Cameo feature but the model is not declaring its usages
 - Version declaration – Content, UAF, Tooling
 - Read-only control

Refactoring Step 0 (OMG EA Guide for UAF)

- Start with the stakeholders and their operational responsibility
- Identify the total exchange flow
 - Define where Model segment boundaries should exist
 - Where flows cross boundaries there will be a Proxy/Façade pair from the Producer
- Identify common shared models
- Identify the responsible modelers for each segment
- Construct shell models and delegate to the responsible modelers with a common styleguide/example

Search and Rescue (SAR) Model Federation



Framework for Computational Knowledge Custody

Sample Stakeholders across Federated Organizations

- Strategic Capability Planners
- Requirements and Acquisition
- Resource Developers and Replication
- Testers
- Operational documenters and training
- System User manual documenters and training
- Deployment and configuration Management
- Infrastructure support
- Operational management and Issue resolution
- Security

Questions