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