Working Group Outbrief

Ground System Architectures Workshop

Session 11A

Evolving Model-Based Engineering Practices and Integrating Model-Based Engineering Across Enterprise, System, and Software Levels

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This working group is intended to foster a mutually beneficial discussion of the community’s lessons learned from the research, demonstration, and early adopters of MBSE approaches. This will be a free and open discussion on needs and challenges for model-based engineering, particularly how they could improve the acquisition and development of systems and services for satellite ground systems. Discussion will be driven by interests expressed by participants.
Presenters/Panelists

- NONE
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Key Points

- Model-based techniques needed to deal with growing complexity
- Rigor of modeling ferrets out inconsistencies and defects early and often
  - Evolutionary improvement to systems and software engineering
- Use cases and mission threads to guide verification process
- Large views vs. small views vs. COTS tools for visualization
- Integrating system models with cost models
  - Challenge for one-off systems and large-scale system evolution
- Training and education across workforce, cultural challenges
- Benefits of MBSE, metrics and success stories, sharing positive anecdotes
- Barriers to adoption of MBSE
- Auto-code-generation
- How to facilitate collaboration and sharing of best practices
- Challenges to sharing of models due to proprietary and IA concerns
- Tool interoperability, standards, style guidelines
• MBSE critical for handling the complexity of modern systems
  – Gives you the best chance for success
• Modeling exposes the holes in the collective knowledge
• MBSE effort is more front-loaded than traditional SE
  – Benefit on the back end in reducing late discovery of defects
  – But benefits can be seen early in accelerating trade studies and impact analysis
• More training and education needed to familiarize people with the benefits of using the model vs. traditional methods
  – Importance of ambassadors to bridge cultural gap between core modelers and SMEs/stakeholders
• Modeling should be focused on the key questions to be answered
• The model is the authoritative reference of the collective knowledge
  – The views provide the mechanism for communication