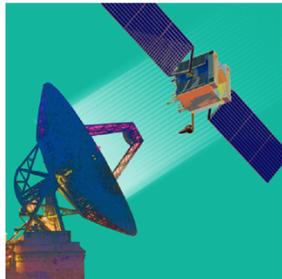


# Working Group Outbrief



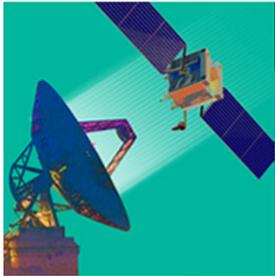
## Ground System Architectures Workshop



Session 11B

Achieving the Resilient Enterprise Through Model-Based Engineering

*Ryan Noguchi and Robert Pettit IV,  
The Aerospace Corporation*

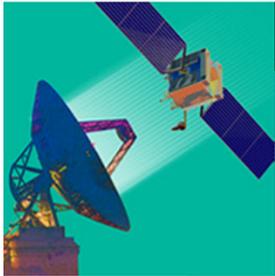


## Session 11B

### Session Goals

- Opportunities for Enabling the Resilient Enterprise through MBE
  - Anyone have experience with this?
    - Architecting, Acquisition, Development, Operations
  - How does MBE need to evolve to better do this?
- Open discussion on Model Based Systems Engineering and Model Based Software Engineering for Ground Systems
  - Case studies
  - Lessons learned
- Discussion of a Collaborative effort to develop a Ground System MBSE framework
  - Interest in sustained collaboration outside of GSAW?
- Prepare outbrief slides to brief to the plenary session tomorrow

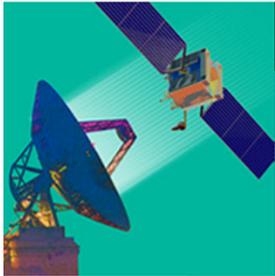
# Ground System Architectures Workshop



Session 11B

Presenters/Panelists

- None; open group discussion
- 25 participants



## Session 11B

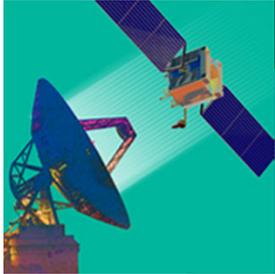
### Key Points – Achieving the Resilient Enterprise

- Multiple perspectives for achieving a resilient enterprise
  - Improving resilience of an individual system
    - More robust engineering of systems
  - Improving resilience at the enterprise level
    - More robust architecting of an enterprise to provide redundancy, agility, etc. across multiple systems
  - Improving resilience at the data layer
    - Common data formats improve interoperability, ability to adapt to system failures by using alternate systems
  - Improving resilience of systems engineering and other processes
    - Faster, more agile engineering change processes, etc.
    - Faster, better-informed decision-making, faster recovery
    - Improve ability to communicate with non-engineers

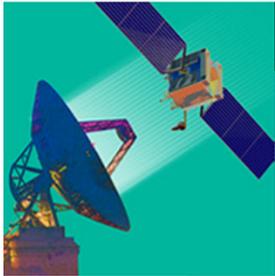


## Session 11B

### Key Points – Achieving the Resilient Enterprise



- Improving resilience of the workforce
  - Shared knowledge, less variation between individuals' mental models
  - Cultural barriers, individuals afraid of losing “power” or being replaced by “more efficient” model-driven processes
  - Facilitate greater flexibility in downstream sustainment by reducing lock-in to the developer
- Improving resilience of software development
  - Software architecture modeling helps flush out disconnects
- Improving resilience of architecture
  - Functional layer is often the most robust and enduring
  - Serves as a good point of departure for exploring alternatives



## Session 11B

### Key Points – Collaboration on Modeling Framework

- Presented a proposed collaborative project to develop a Ground System MBSE framework and library
  - Capture best-practices in system modeling
  - Facilitate model interoperability
  - Establish common language for communicating within our community
- Challenges include:
  - Establishing appropriate scope and level of detail to standardize
    - What's in scope, what's NOT in scope
  - Achieving consensus among a diverse group of stakeholders
- Interest in starting this collaboration
  - Tag onto INCOSE Space Systems Working Group
  - Anyone else interested in participating? Contact us