Architectural Approaches for Multi-Mission Ground Systems

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Session Chair
Session Goals

• **Definition of a Multi-mission Satellite Ground Control System (GCS):**
  – System for controlling multiple families of satellites of different make/model

• **Session Goals**
  – Identify key elements of a Multi-Mission Ground Control System
  – Understand how these elements support the Multi-Mission capability
Participants

**Satellite Operators**
- Susan Kurtik, Jet Propulsion Laboratory
- Tina Arechiga, PanAmSat

**Ground System Vendors**
- David Allen, L-3 Communications/Storm Control Systems
- Pete Gaffney, Integral Systems, Inc.

**Ground System Component Vendor**
- Robert Andzik, RT Logic
Session Results

- **Multi-mission approach is preferred**
  - Multiple dedicated systems were too costly
  - Valid at operations, systems & component level
- **Systems must be designed for upgrade**
  - H/W & S/W Maintenance Problems
  - Personnel training and interest
  - Systems must support regression and operations testing while in use
Session Results, pg 2

- **Decouple Components**
  - Isolate mission specific functions from core
  - Isolate hardware dependencies
  - Multiple versions of APIs support evolution
  - Supports layered, tailororable architecture

- **Use of Standards**
  - Must be widely accepted
    - TCP/IP
    - CCSDS/SLE
    - CORBA
  - Not too low level
Session Results, pg 3

• Distributed Architectures
  – Architectural flexibility
  – Hardware independence/flexibility
  – Personnel and operations flexibility

• COTS Components
  – Total COTS system is not possible
  – Need some in-house development to keep maintainers trained/interested
  – Node-locked licenses inhibit s/w distribution