Working Group Preview

Ground System Architectures Workshop

Session 12F

Cloud Computing for Spacecraft Operations

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Executive Summary

- Cloud computing is a game changer, bringing a fundamental shift in Information Technology Management
  - Lower cost of IT will accelerate innovation
  - This will have a great influence on implementation, procurement, and utilization of ground systems
- The working group consists of:
  - Presentations, demonstrations, and discussions of key principles of cloud computing
  - Discussions of the unique issues with the use of cloud computing to deliver ground systems for spacecraft operations
- The goal: Develop a roadmap for successful migration to a cloud environment in harmonization with the existing systems and processes

Working Group Format

- Review of the state of the art, led by Panelists
- Presentations from cloud providers, ground system providers, and ground system users
- Demonstrations on the use of cloud computing
- Discuss the benefits, challenges, and misconceptions in migrating to a cloud environment
- Brief survey of the participants on the status of their journey to the adaptation of cloud
- Development of a roadmap for successful implementation of the cloud environment
- Identification of the Top 10 things to be considered for a successful implementation of cloud

Key Questions

- Cloud computing for ground systems: what is the state of the art?

- What are the benefits and challenges to embrace cloud computing? What are some misconceptions?

- Which components (work loads) of ground systems are better suited for a cloud environment?

- Which phases of ground system lifecycle (development, testing, production) are well suited for the cloud?

- What are the enablers required for cloud computing in spacecraft operations to become a reality?

- How can cloud computing support harmonization of ground systems?

Key Participants

Panelists	
Justin Boss	Integral Systems, Inc
Ted Hessler	Sirius XM Radio Inc
Brad Kizzort	Harris Corporation
Craig Lee	Aerospace Corporation
Knut Tjonneland	Intelsat

Presenters	
Doug Barnhart	General Dynamics C4 Systems
Jeremy Jacobsohn	GMV Space Systems, Inc
Emily Law	NASA JPL
Bill Lowry	Terremark
Dan Mandl	NASA GSFC

iCORE Demo
iCORE: A cloud-based framework and incubator Unclassified demo on Amazon EC2 by Nehal Desai, The Aerospace Corporation

Terremark/ISI Demo
Implementation of Epoch ground control system on Terremark Enterprise cloud Demo by Bill Lowry, Terremark and Mark Walker, ISI