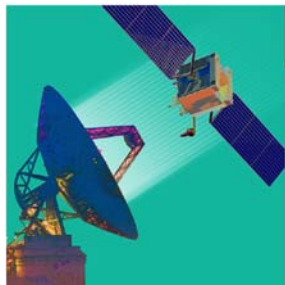


Working Group Outbrief

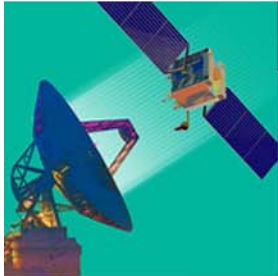
Ground System Architectures Workshop



Session 11D

Cost Cloud Computing for Ground Systems VI

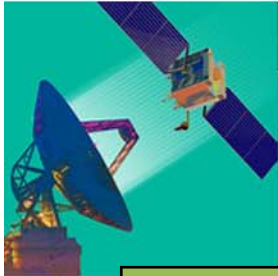
*Ramesh Rangachar and Craig Lee,
The Aerospace Corporation*



Session Goals

- Examine the "State of the Art" and "State of the Possible" in Cloud Computing and Big Data
 - Talks from across industry
 - Discussion among the Ground System Community of Interest
- Evaluate the impact of Cloud and Big Data on ground systems
 - Design, implementation, acquisition, deployment, operations, sustainment (end-to-end life cycle)
 - Potential benefits and outstanding challenges
- Discussion to better understand the adoption issues and how to address them

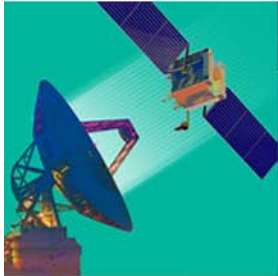
Ground System Architectures Workshop



Presenters/Panelists

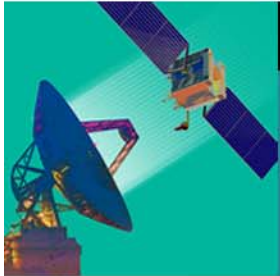
Title	Presenter	Organization
Introduction	Ramesh Rangachar	The Aerospace Corporation
Cloud-based Open Architecture approach for Common Enterprise Ground Services	Tom Vanek	Booz Allen Hamilton
Cloudy Ground: An Overview of ESA Cloud Computing Initiatives for Ground Data Systems	Mehran Sarkarati	ESA
Next Generation Cloud Based Ingest & Processing Framework for Environmental Data	Rich Baker	Solers, Inc.
Enabling Data and Computational Science Capabilities for Future Missions and Research	Daniel Crichton	NASA/JPL
Discussion: Cloud Computing Solution for the Enterprise Ground System Christian Wallisch, Moderator (Aerospace) Mehran Sarkarati (ESA), Thomas Huang (JPL), Josh Perrius (BAH), Craig Lee (Aerospace)		
Demo: Bridging Silos - A Demonstration of Federation Management Using the KeyVOMS Prototype, Craig Lee, The Aerospace Corporation		

Ground System Architectures Workshop



Key Points

- New Technologies Gaining Recognition:
 - Cloud Data Services (CDS)
 - Containers -- Containers as a Service
 - Micro-services
- New Tools Gaining Popularity:
 - Chef, Puppet, SALT (configuration management tools)
- Systems demonstrated on private, public and hybrid clouds
- Need for Federation Management
 - Integration of data from different missions, agencies
 - Virtual integration of distributed archives
 - Federated data access
 - Hybrid Clouds



Conclusions and Outstanding Challenges

- Cloud is an enabler for a rapid rate of change
- How to manage performance in a multi-mission environment?
- How to achieve and manage system accreditation in a cloud environment?
 - Allow configuration change within a known constraint
- How to evaluate when to re-host, re-factor, re-build when going to a cloud?
 - What is the minimum lead time necessary for a legacy or new mission to actually getting benefit from moving to the cloud?
- How to avoid “*Silos-as-a-Service*”?
 - Federated Identity Management
 - Federated Resource Management