Ground System Architectures Workshop

Session 11B

Cloud Computing for Ground Systems III

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Session Goals

• Examine the "State of the Art" for cloud computing
  – Talks from across industry on the “State of the Possible”
  – Potential benefits – mission effectiveness & cost effectiveness
  – Outstanding challenges

• Evaluate the impact of cloud and big data on ground systems
  – Design, deployment, procurement, utilization
  – A generic hosting environment for multi-tenant missions

• Identify specific mission requirements for the adoption of cloud computing
  – Discussion and identification of action items
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Presenters/Panelists

- **Stovepipes to Clouds**
  - Rick Reid, SGI Federal
- **Autonomic Cloud Workflows and Cloud Federation**
  - Craig Lee, The Aerospace Corporation
- **Secure Identity in Cloud Computing**
  - Michelle A. Carter, The Aerospace Corporation
- **Commercial imaging constellation meets cloud computing**
  - Oliver Guinan, Skybox Imaging
- **Transforming Science Data Systems**
  - Thomas Huang, Jet Propulsion Laboratory
- **Cloud Tester Benchmark Suite “demo”**
  - Douglas Enright, The Aerospace Corporation
Key Points

• Certification and Accreditation
  – USC/ISI DODCS example

• System and data integrity
  – Attestation architectures
  – MD5 and SHA-3

• SLAs and Trust issues
  – Machine-enforceable SLAs
  – Managing a Trust Eco-system

• ISP vs. ASP
  – Chicken and egg problem
  – Which apps first? Which are ready? Priorities?
Conclusions

• Skybox "Nugget"
  – Did not have to commit to an IT architecture and hardware investment!
  – Were able to try-out several system architectures on Amazon until they got something that “hummed along”

• Technology is not the only problem
  – Philosophy and what people are comfortable with
  – Conflicting messages from the command chain

• We will be back next year
  – Increased cloud availability, increased number of migrated apps, and necessity of dealing with big data will motivate further cloud adoption