Working Group Outbrief

Ground System Architectures Workshop

Session 11E

Cloud Computing and Big Data Technologies for Ground Systems IX

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Session Goals

• Discuss the current trends, best practices, and lessons learned in using Cloud Computing and Big Data technologies

• Key Focus Areas:
  – State of the art in Cloud Computing and Big Data
  – Cloud and Big Data reference models
  – Cloud-based ground systems
  – Cloud and Big Data technologies
  – Cloud security, standards, and compliance
  – Acquisition strategies for cloud-based systems
  – Cloud computing economics
  – Cloud performance management
# Presenters/Panelists

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**Town Hall Meeting:**
Moderated discussion on key focus areas
Key Points

- ESOC is using cloud computing and machine learning
  - Starting with auxiliary systems; not yet for online operational use
- NOAA/NESDIS is working on 4 cloud pilot projects
  - Focused on cloud-native implementations
- BAH: Best way to prevent failure is to “embrace the chaos” to ensure success
  - Discussed cloud resiliency reference architecture and best practices
- Solers prototyped environmental data processing services in a FedRAMP-approved Amazon Web Services (AWS) cloud environment
  - Native AWS cloud services; AWS Data Lake Architecture
- Key discussion topics:
  - Data-centric design
  - How to manage performance in a shared, multi-tenant environment?
  - How to manage reliability/availability/COOP/DR in a cloud?
  - Multi-cloud
  - Containerization
• Cloud computing implies relinquishing ownership/control of something
  – Hardware, software, network, data, access, performance, etc.
• Organization confidence and trust must be established
  – Pilots, Prototypes, Proof-of-Concepts
  – Demonstrate value w/o betting the farm
• Best practices and reference architectures increase success rate and lower risk
• Consistent theme: established processes and policies can be impediments to modernization
  – Management must provide leadership
• Expand scope of workshop to include data-centricity
  – Natural extension of the Big Data paradigm