Ground System Architectures Workshop

Session 15
“Doing More with Less”

Plenary Session Summary

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Ground System Architectures Workshop

Challenges…”Doing More with Less”

Extended mission life

Austerity

Disaggregation

Budget Cuts

“Sequestration”

Aggregation

Saturated bandwidth

Program Cancelled

No Travel

Consolidate Ground Systems
We are doing more with less

- Being here (at GSAW) is an opportunity to save $ (Dr. Austin)
  - Increased collaboration, idea exchange, innovation, efficiencies
- Doing more with nothing, doing less with less (but more mission)
- Using architecting to help prioritize
- Resilient, flexible, evolvable architectures
- Small sats (nano, micro, cube) and ground systems at a tipping point
- SOA, cloud, virtualization, standardization, services → all paying off
  - Appropriate use of COTS, Open Source
- Multi-mission ground systems
- Automated operations (lights out ground systems)
  - Methodologies for analysis, design, optimization
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Terms, themes and concepts

- Budget cuts - without decrease in capability demands
- Disaggregated satellites…and aggregate space systems on the ground
- Moving to cloud, but must assess “Cloudability”
- Agile development, rapid spirals, reference implementations
- Systems of systems, services
- The Solar System Internet (SSI)
- The cyber challenge - relentless security threats, architecting for security
- COTS, GOSS and Open Source (Apache™ Hadoop, SELinux, InControl)
- Leveraging commodity and commercial technologies, miniaturization
  - Commanding satellite over cell phone link
“18-13-9-4” (bus GS, payload GS program offices, satellite types)
“Never let a serious crisis go to waste.”
“Do in common those things that are commonly done.”
“Why not make the GS the prime and subcontract the satellite.”
“Standardize interfaces…of course!”
“Sometimes a mark of society is how small they can build things.”
“Standards (CCSDS) do indeed lower costs.”
“We were hacked!”
“3-Ps – Politics, Pesos and Physics.”
“An antique car has charm, but antique spacecraft and ground systems?”
“We need a Ruthless Ruler “ (to address “Legacy Drag”)
“You’ve got to let go to grow.”
“Let's have more fun!”
“In 10-15 years we will have GSAW briefings on (these new) ideas.”
Doing more with less means …
- changing how we look at the future, and adapting to it!

Come back to the future next year at GSAW2014