Ground System Architectures Workshop

Session 15

"Expanding Access to Information"

Plenary Session Summary

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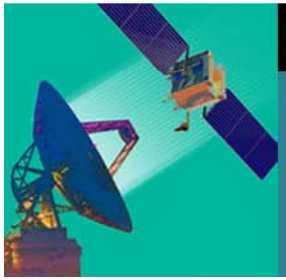
AEROSPACE



Themes

Access to information is expanding

- Quantity and dissemination of data growing exponentially
- Must also enhance quality of information
- > *expand access + enhance quality*

Key space standards are established and new ones emerging

- CCSDS (ubiquitous), XTCE (broader use), GEMS and SOLM (defining)

Open source software, open and common frameworks prevailing

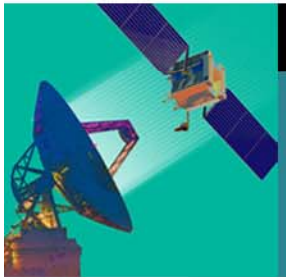
- ACE, Java, Python, European open initiatives, Hurricane, GMSEC, EGS-CC

Collaboration

- JSCC, standards bodies, user communities, mission areas
- International – GPS, iGSAW

Evolution vs. revolution

- Plug-n-Play concepts – SPA, MASTER and supporting frameworks
- Service-oriented successes



Upticks

IT efficiencies are taking root in ground systems

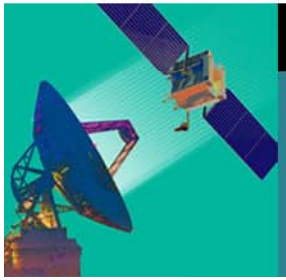
- Virtualization: full lifecycle benefits
- Clouds: handling full mission volumes, now merging clouds – NRO hybrid
- Consolidated enterprise models (ICITE for Intelligence Community)
- Thin clients

Security challenges, solutions (GMES, KVM)

Modernization, evolution

Small satellites and applied technologies/standards

Model-based engineering (UML, SysML)



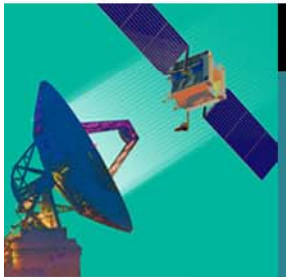
Downticks

Large space/ground system development

Platform dependence

Language dependence

SOA impediments (performance improving, but security not yet)



…and the more they stay the same

Aging systems, but we don't throw anything away

- AFSCN, many other legacy systems ~ 50 years old

Barriers remain more cultural, sociological than technological

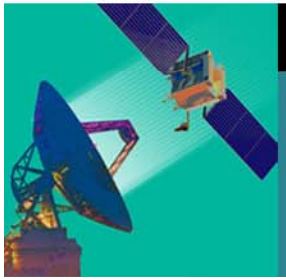
Enterprise governance is the greatest struggle

- What is the enterprise, who is controlling it, funding it?

Yearning for simplicity

- K.I.S.S. … "and as stupid as possible"
- Small-sat examples, IT examples
- Complexity breeds complexity

Multi-mission ground systems (e.g., AMMOS) – but now in operation!



What we heard

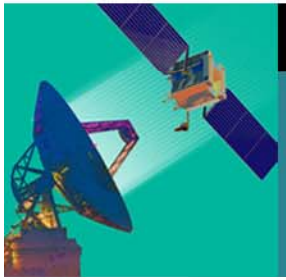
- *Coalition of the willing*
- *We never throw anything away.*
- *We have no money so now we must think. (Churchill, Rutherford)*
- *IT folks think fundamentally differently than space people.*
- *Don't try a day without space now!*
- *Light the fire of virtualization in the hearts of those here today.*
- *Faster, better, cheaper, SAFER*
- *Cylinders of Excellence*
- *Do in common what's commonly done.*

New terms for us

Sensor polytheistic (vs. agnostic)

Box huggers

Pluganize



What does it all mean?

Lifecycle affordability – we need to plan for using systems for a very long time

- More emphasis on lifecycle costs
- Cost of implementing standards?

We will have to change the way we do business, with very very low budgets

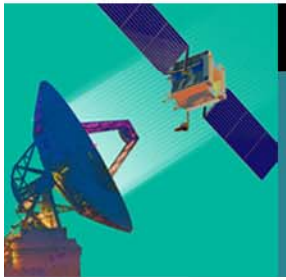
- If not – we will wake up in 10 years to realize we can't do what we do today
- "Disaggregation" - more smaller satellites, hosted payloads

Long-lived systems

- We're flying satellites that are "old enough to drink"
- Some of our satellites are legacy before they are launched

Eye to future

- Science, Technology, Engineering, Math (STEM) for future Ground Systems
- Cyber



Save the Date

And what about “Faster, Better, Cheaper, Safer”??

Bring your ideas back next year

“Doing More With Less” – GSAW 2013

March 11-14, 2013