GSAW2005:
Collaboration and Common Solutions
Plenary Sessions Summary

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Outline

• Collaboration is Happening
• Enablers/Inhibitors of Collaboration
• Collaboration Hurdles
• Common Solutions
• Updated and Repeated GSAW Themes
• Heard at GSAW2005
• And finally, …
Collaboration is Happening

- Organizations, consortia, communities, nations, etc.
- Collaboration between spacecraft engineers and ground system engineers
- Continuous customer/developer/user participation
- Government and industry support of architecture-level integration
  - Using an architecture to tie together different architectures so you don’t have to throw anything away
Enablers/Inhibitors of Collaboration

- Common lexicons
  - Standardization/"harmonisation" of common terms is a very slow process
- Use of standards - CCSDS, SLE, ECSS, XML, ...
  - Creating standards and trying to embrace standards
- Establishing trusted relationships
- Defining the business case
Collaboration Hurdles

• Scale (also a motivator)
• Increased initial cost of collaboration
  ❖ And also of architecture, design, test, …
• Competition, intellectual property issues, security concerns
• Necessary legal paperwork
  ❖ MOUs, NDAs, ITAR compliance, …
• When there are bugs in the interfaces: "It's not us, it's you“
• NTWWADI
Common Solutions

- Common solutions are not identical solutions
- Common ground architectures within and across mission families
- Catalogs of components
  - Even middleware can be switched!
- Consensus reference models/reference architectures
Updated and Repeated GSAW Themes

- **Middleware**
  - In use, with more understanding of its realities
- **Open standards and protocols**
- **Open source software**
- **Approaches that are working**
  - Accommodating change - anticipating creeping requirements
  - Harmonizing architectures
  - Adapting protocols
- **Plan for updates and COTS refresh during the development phase**
Heard at GSAW2005

- It’s a lot easier to communicate with Mars if you have orbiting infrastructure
- Server in space
- The "Delta" approach
- "Sensor to shooter"
- "Bring the sensors to the scientists and the planets to the public"
- "Plug and play"
- "Configure and go"
- Better, cheaper, faster - you CAN get all three
- Better, cheaper, but not necessarily faster
- In Europe, you never see a mix of military and industry people like at GSAW
- "Transforming" - if you want to get money, make sure that word's in all your budget documents
Seen at GSAW2005

- Automation

[Thanks to John Hughes for this figure.]
GSAW: A Key to Collaboration

- GSAW is the international forum for exploring software and system architecture issues for spacecraft ground systems
- Since its inception in 1997, GSAW has transitioned from *identifying* the hard issues to *addressing* the hard issues

- Come back and join us for GSAW2006! March 27-30, 2006