Ground Systems Architecture Challenges

- COTS and IT
- Trade Studies
- Standards and Measurement
- Cost
- People

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COTS and IT

- New processes and architectures to support COTS-based development
  - Business models
  - Technology projections
- System (especially COTS-based) evolution over lifetime
- The role of IT (should we be using java, xml, etc.)
- Appropriate use of “consumer grade” technologies in NSS applications (i.e., Microsoft NT)
Trade Studies

• How best to perform ground systems architectural trade studies (i.e., CDC-like capabilities)

• Optimum mix of space, air and ground functionality
  – Integrated architectures
  – Access-based evolution
Standards and Measurements

- The role of government/industry standards (DII COE, JTA, etc.) in system architecting
- How best to include architectural considerations in the new SEI integrated CMM
Cost

• Ways of building more cost effective ground systems
  – Improved cost/architecture models
  – Multi-mission flexibility
  – Program cost sharing
  – Integrated evolution planning for reduced LCC
  – Pre-planned re-use
  – Product families
  – Transparent hardware upgrades (a la avionics)
  – Shorten software and system development time
People

- How to develop and utilize software and systems architecting expertise
  - Use emerging Internet technologies vs. competing with the “dot coms”
    - Competition very hard, even after recent corrections
  - Better university/industry collaboration
    - Increased availability of expertise
    - A means for non-citizen EE/CS student contributions
  - Leverage existing talent pool
The Bottom Line

• Many challenges facing ground systems development
• FFRDC, industry, academic collaboration essential
• This is an excellent forum to address the issues

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