Ground System as a “Utility”

• Like a Public Utility, Stakeholders Have Expectations of Service
  – Require uninterrupted operations
  – Many types of provider/receiver relationships
  – Requirements change over time
  – Better sensors providing better/more data to the ground
  – Data must be correct and secure

• Upgrades Introduce Difficulties
  – May need to be performed while in operation without loss of connectivity
  – Frequently support “generations” of satellites
  – Maintain backward-compatibility
  – Must minimize negative impact to missions
  – What about COTS and open-source components?

• As Usual, There Are Management Issues
  – Need to deliver within cost and schedule
  – Need to develop/maintain complex, very large, software-intensive systems
Finding Innovative Solutions

• Innovations needed to address ground system “utility” issues
  – Need to keep up to collect, analyze and distribute the data to users
  – Advanced processing/analysis techniques needed to “connect the dots”
  – How do we protect the system from (un)intentional “damage”

• Innovation requires investment and risk-taking…but stakeholders are inherently risk-averse

• Innovate while finding the sweet spot between user requirements, technical capabilities, and cost/schedule

“We cannot solve problems by using the same kind of thinking we used when we created them.”

– Albert Einstein
GSAW Brings the Ground System Community Together

- Civil, commercial, government, international, and academic entities all have contributions to make
- Share lessons-learned on successes AND failures
- Introduce state-of-the-art approaches
- Address system development challenges
- Take advantage of educational opportunities
- Discuss cybersecurity/information assurance issues and solutions
- Envision the future
  - *How do we get there?*
Keynote Address

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