

# Ground System Architectures Workshop

## Innovation on the Ground

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The Aerospace Corporation

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# 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



# Lt. Gen. John “Tom” Sheridan

Commander,  
Space and Missile Systems Center  
United States Air Force

March 2, 2010

