

# Breakout Session 10C: **Satellite Control Network Trends and Prospects for Interoperability**

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Everyone wants interoperability between satellite control networks, but what will it take to get?

Are there standards and architectures that can meet both military and civil space needs?

Will they emerge through the invisible hand of the market place, or do we need government planning and direction to achieve interoperability?

Will it bring cost savings or cost increases?

## **Position Statements:**

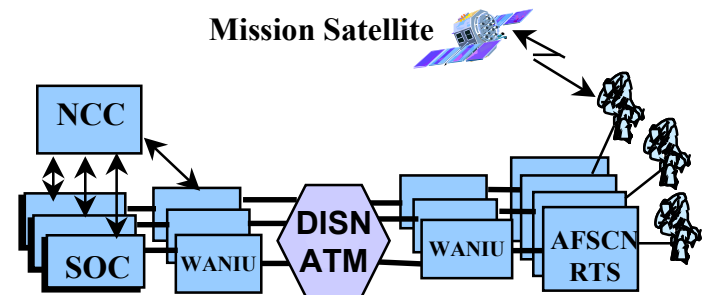
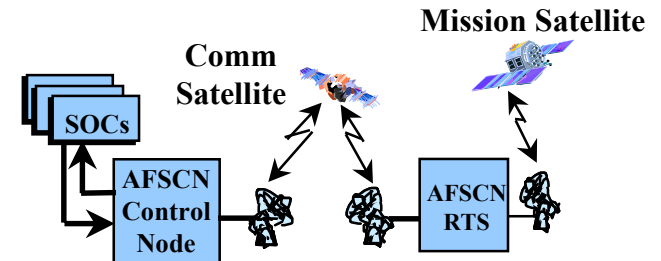
- *AFSCN Evolution*, Carl Sunshine, Aerospace Corporation / SMC
- *NASA Ground Network Evolution*, Edward Burns, NASA HQ
- *CCSDS and NASA Standards*, Peter Shames, Jet Propulsion Lab
- *Achieving Interoperability*, Adrian Hooke, JPL
- *Commercialization Trends*, Michael Anderson, Honeywell

## **Others in attendance (presentations at other sessions):**

- *CCSDS Space Link Extension*, Fred Brosi and John Pietras, GST
- *SLE adaptation for AFSCN*, Jim Noles, GST
- *Universal Space Network*, Greg Hollister
- *NASA Space network evolution*, Roger Flaherty or Aaron Weinberg, NASA GSFC
- *NASCOM Block phaseout*, Larry Muzny, NASA JSFC
- *SLE use for ESA missions*, Hugh Kelliher, BNSC/Vega
- *Future AFSCN architecture*, John Chiang, Aerospace

# AFSCN Infrastructure Evolution

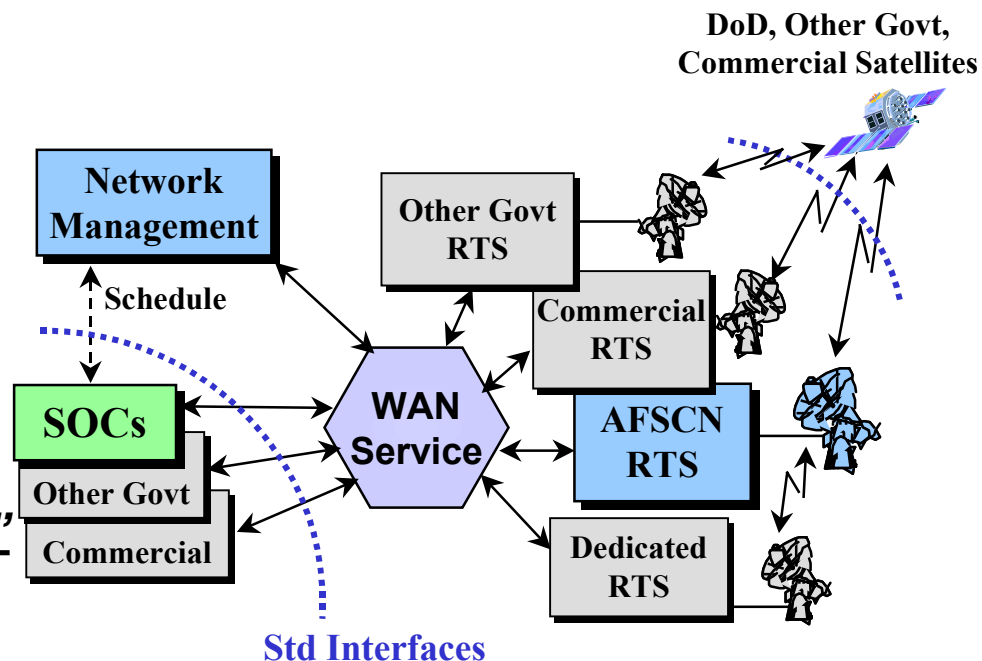
- **2000**
  - Dedicated satcom links
  - Encrypted real-time bit streams over custom satcom mux
  - Centralized control and monitor
- **2003**
  - Military ATM WAN
  - Encrypted real-time bit streams over custom ATM mux
  - User comm control, centralized scheduling



# Infrastructure Evolution 2

## • 2007

- Interconnected military, other gov't, and commercial WANs and Remote Tracking Stations
- Continued legacy bit streams
- COTS comm (frame mode) for civil and some military missions
- User comm control, "federated" scheduling



## • 2015

- Interconnected ground stations plus space relay
- Reduced legacy bit stream traffic
- COTS comm (packet mode) for civil and most military missions
- User comm control, integrated scheduling

# DoD-NASA Interoperability Concept

