Information Technology Based Spacecraft Ground Systems (SGS)

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Traditional Standalone Ground Station Functions

- Ground Resource Management
- Mission Planning
- Tracking, Telemetry & Commanding
- Mission Management
Eliminate Standalone Paradigm

- Reduce complexity
  - Standards (TCP/IP, SNMP, etc.)
- Reduce redundancy
  - Common infrastructure
  - Common management model
- Reduce costs
  - Acquisition
  - Operations & Maintenance (O&M)
The DII-COE Provides a Starting Point

**MISSION APPLICATIONS**
- Mission Management
- Logistics Support
- Mission Data Processing
- Mission Planning
- TT&C
- Program Unique

**COMMON SUPPORT APPLICATIONS**
- Developer’s Tkit
- MCG&I
- Alerts
- Online Help
- Correlation
- Office Automation
- Logistics Analysis
- Msg Proc
- Data Access

**INFRASTRUCTURE SERVICES**
- Management Services
- Comms
- Distributed Computing
- Presentation Services
- Web Server
- Workflow Management
- Global Data Management
- Data Mgmt

**KERNEL**
- Security Mgmt Services
- System Mgmt Services
- Network Svcs (NIS+, DNS)
- COE Tools
- Print Services
- Executive Manager

**DATABASES**
- TLM DB
- Common C2 DBs
- CMD DBs
- Orbit/Sat DBs
- Combat Operations DBs
- Situation & Execution DBs
- Geographic Information DBs

**STANDARDS**
- I&RTS
- Style Guide
- POSIX
- TAFIM
- JTA

Operating System Services (Unix, NT) and Windowing (X, Motif, NT)
Top Level SGS Management Model

Manager of Managers

Agent

Manager

Manager

Manager

Manager

Manager
Benefits of Using IT for Managing the SGS

- Reduce staffing profiles
  - e.g. 1 administrator /50 users --> 1/200
- Reduce downtime
  - e.g. Automated identification and notification
- Legacy systems coexists with new systems
- Darken remote ground systems