WGS Capacity Comparison with DSCS III

1 Wideband Gapfiller Satellite

WGS = 2.1 Gbps
DSCS III = 100 Mbps
DSCS III (SLEP) = 250 Mbps

1 WGS = 2.1 Gbps > 10 DSCS III + 4 DSCS III (SLEP)
WGS Payload

X-Band Transmit Phased Array
8 Shapeable Beams  2.2 – 8 deg

X-Band Receive Phased Array
8 Shapeable Beams  2.2 – 8 deg

Spot Beams (10)
1.5 & 4.5 deg Ka-band
WGS Control Segment products will be integrated into existing facilities
WGS Control Segment

Bus control via Air Force Satellite Control Network

S-Band SGLS and USB

X-band coverage

ETC WSOCE GSCCE (primary)

ETC WSOCE GSCCE (back-up)

ODOCSNet

.payload controlled via Army Wideband Satellite Operation Centers

Integrity - Service - Excellence
Ground Control

Integrity - Service - Excellence
Ground Segment Block Diagram

WSOC
- ODOCS Workstation
  - Other ODOCS HCIs
- Other Servers
  - CNPS/DIMS
  - IMPCS
  - OSCS Server
- Patch Facility
- Remote
- CCS-C AFSCN

GSCCE
- BPS
- SSS
- Server A
  - GEC
  - Director
  - SW Switch
  - Launcher
  - STP
  - Scheduler
- Server B
  - SC 1
  - Payload Apps
- Maintenance Terminal
  - Intel based Windows NT
  - HCI
  - Firewall
  - RAID
  - Monitor, Keyboard, & Mouse

Integrity - Service - Excellence
Mixed Programs, Contractors in a Legacy Environment

- WGS Ground Segment (GSCCE) must integrate into an existing, operational workstation (ODOCS)
- Workstations subject to upgrade
- GSCCE must co-exist with other applications

Solution:
- Common Object Request Broker Architecture (CORBA) based environment
- Provides “middle-man” with a standard interface for each component
CORBA Environment

Three Main Services

- GUI Navigation
  - Context sensitive/work flow navigation
  - Data population (form “pre-loading”)
  - Provides standard and consistent user interfaces

- Messaging & Notification
  - Provides standard and consistent means for distributing control messages among applications
  - Based on CORBA Event Services

- Data Management
  - Provides standard and consistent stored data interfaces
  - Interfaces based on SQL/Call Level Interface
Meet Government Requirements with combination of custom, legacy and COTS products

Diverse Partners
- Boeing Satellite Systems – Custom and Legacy
- Raytheon – Eclipse (COTS Telemetry & Control)
- ITT – Integration and Custom Development
- FDS – Orbit Determination (COTS)