
ELECTRONIC SYSTEMS CENTER
Intelligence, Surveillance, Reconnaissance Integration
Air Force Distributed Common Ground System Net Centric ISR
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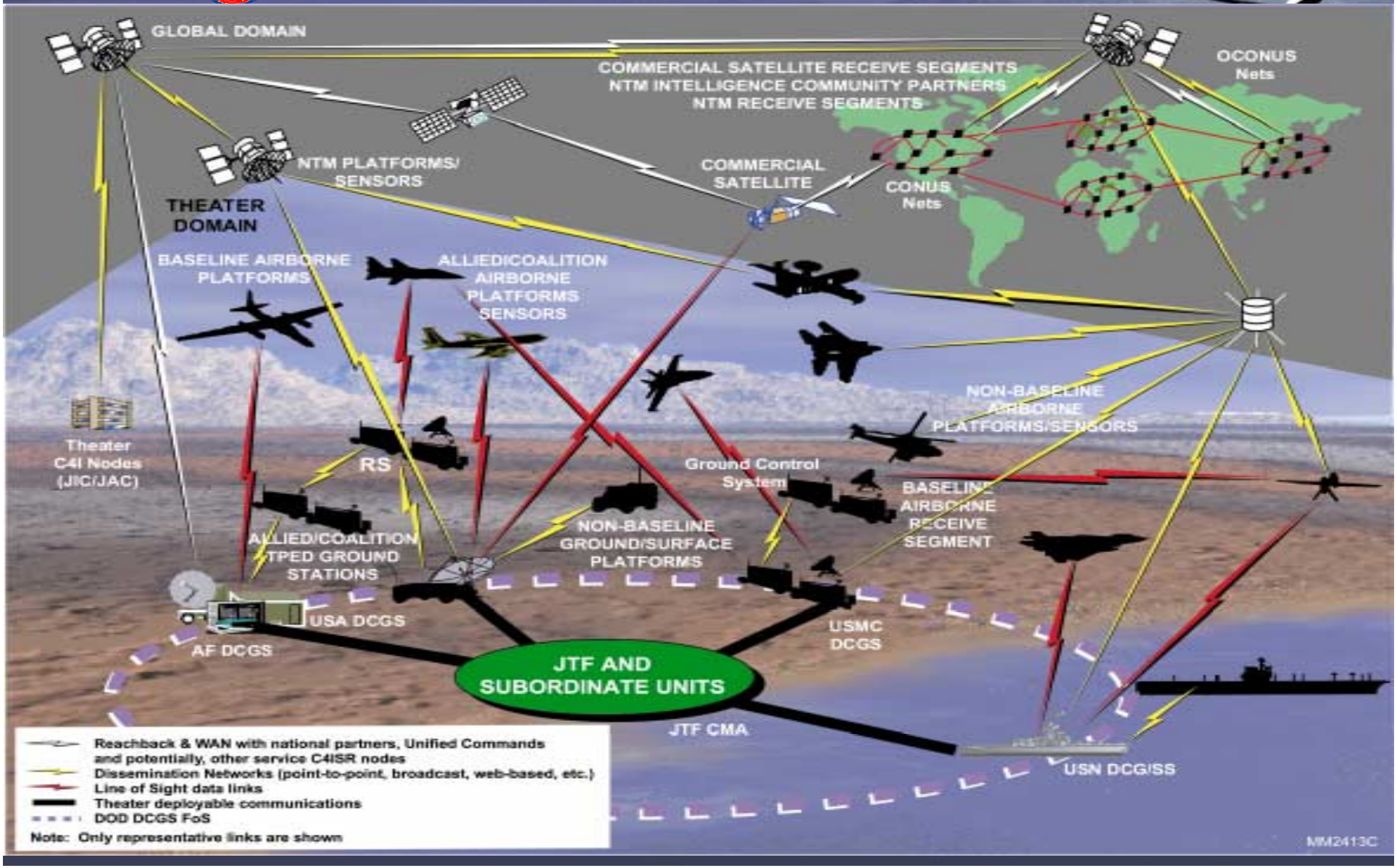
16 Nov 04

Outline

- DoD DCGS and Net Centric Warfare
- AF DCGS Block 10.2
  - Key Capabilities
  - Architecture and DCGS Integration Backbone (DIB)
- Net Centric Co-Evolution
- Common Challenges
- Key Take-Aways

DoD DCGS OV-1
(From JROC-approved DCGS CRD, 6Jan03)



Net Centric Warfare Defined

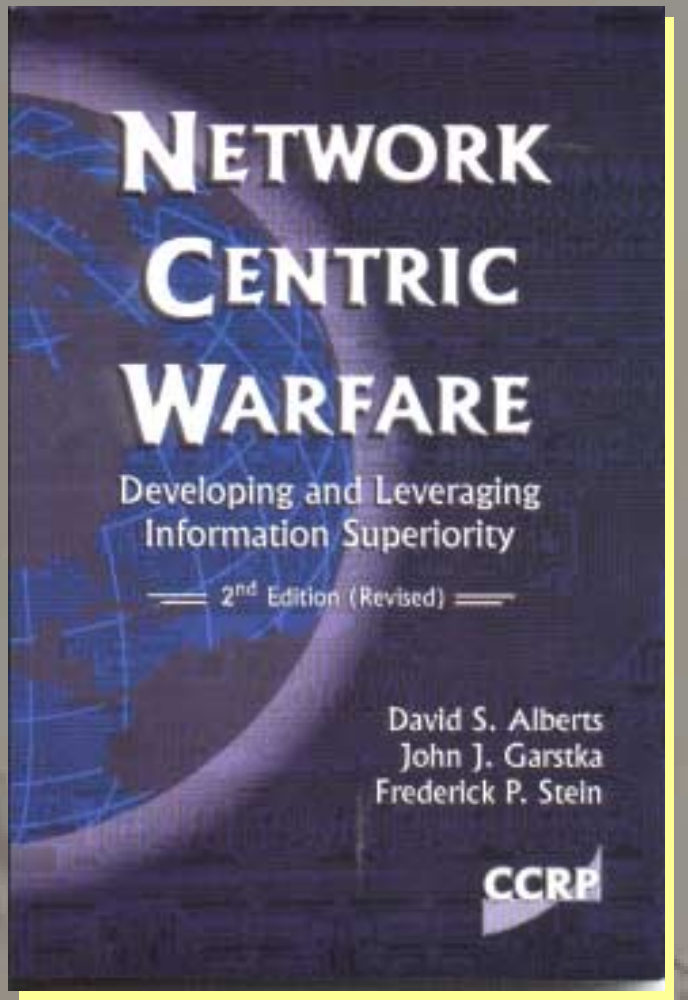
An information Superiority-enabled *concept of operations*

that generates

increased combat power by *networking* sensors, decisions makers, and shooters

to achieve

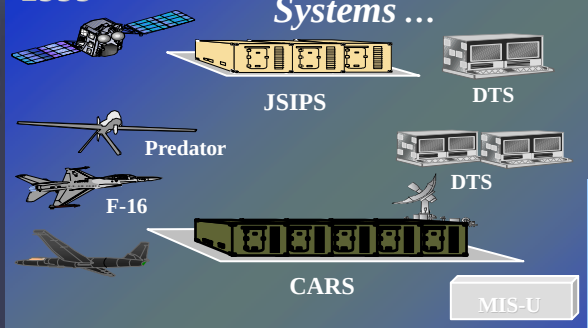
shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability and a degree of self synchronization



Information Sharing is a New Source of Power

AF DCGS Block 10.2
Transformation Legacy to NCW

1999 *Stovepipe Systems …*

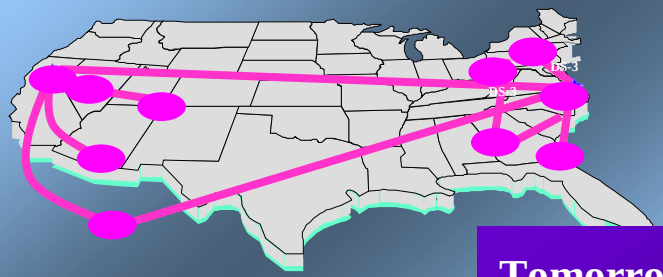


Several Federated Systems with Separate TPED Processes and Single-INT focus

Platform-Centric & Forward Deployed

Distributed/Reachback

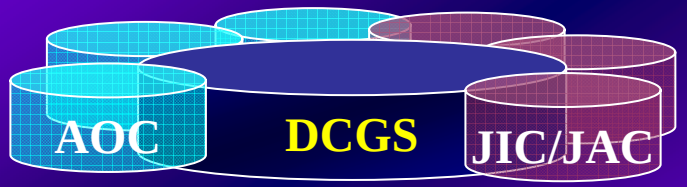
Today *DCGS Sites & Network …*



Networked TPED Ops
Legacy systems
Distributed & Collaborative
Multi-INT DCGS Nodes

Net-Centric

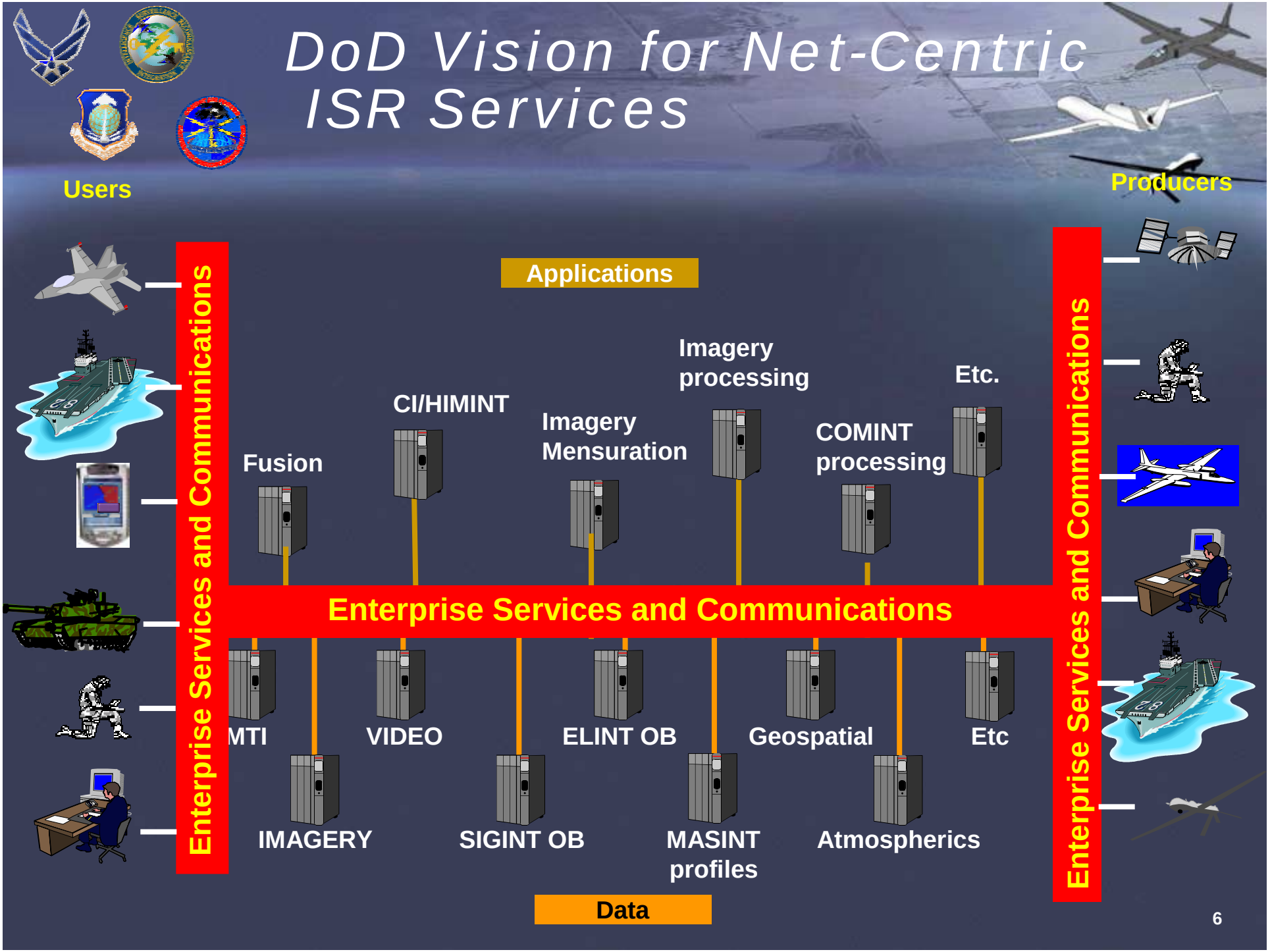
Tomorrow *Integrated ISR Network Centric*



Network-Centric TPPU Ops
Distributed and Collaborative Multi-INT
User-focused information sharing

TPED – Tasking, Processing, Exploitation, & Dissemination
TPPU – Task, Post, Process, Use

DoD Vision for Net-Centric ISR Services



AF DCGS Block 10.2

Net-Centric System of Services

Open Enterprise Service-based Architecture

Web-based and Client-based tools supporting Worldwide-Distributed Operations

Joint Interoperability through Data, Service and Task level integration

Common NCES Compliant Backbone - DCGS Integration Backbone (DIB)

AF DCGS Block 10.2 Key Capabilities

- **Web Portal**
  - Publish and Subscribe Raw and Processed Intel Posted for external systems and users
  - Portal to External users for exposed DCGS Services

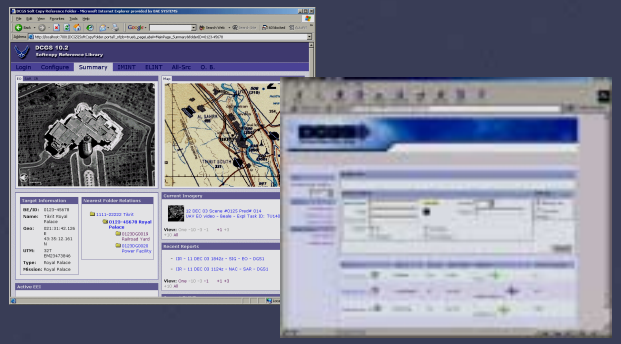
- **Federated Metadata Catalog/Framework**
  - Meta-data based query interface opens DCGS data to other Service DCGS and C4 Networks
  - Provides access to raw and exploited data based on enterprise-wide search criteria (Data type, BE#, Geolocation, time, etc.)

- **Multi-INT Visualization (Situation Awareness)**
  - 2D/3D ISR Assets visualization – National, U-2, GH, Predator, JSTARS, SHARP, ATARS, etc.
    - Platform Position, Sensor FOV/FOR
    - Nav and Collect Plan
  - SIGINT, GMTI and OB Cues/Overlays
  - Web based Drill Down - Hyperlinks to Intel DBs
  - Named Areas of Interest with Web Alerts

- **Distributed Sensor Planning (DSP)**
  - Sensor planning of U-2 or GH missions with visualization of real-time sensor planning and execution

AF DCGS Block 10.2 Key Capabilities (cont)

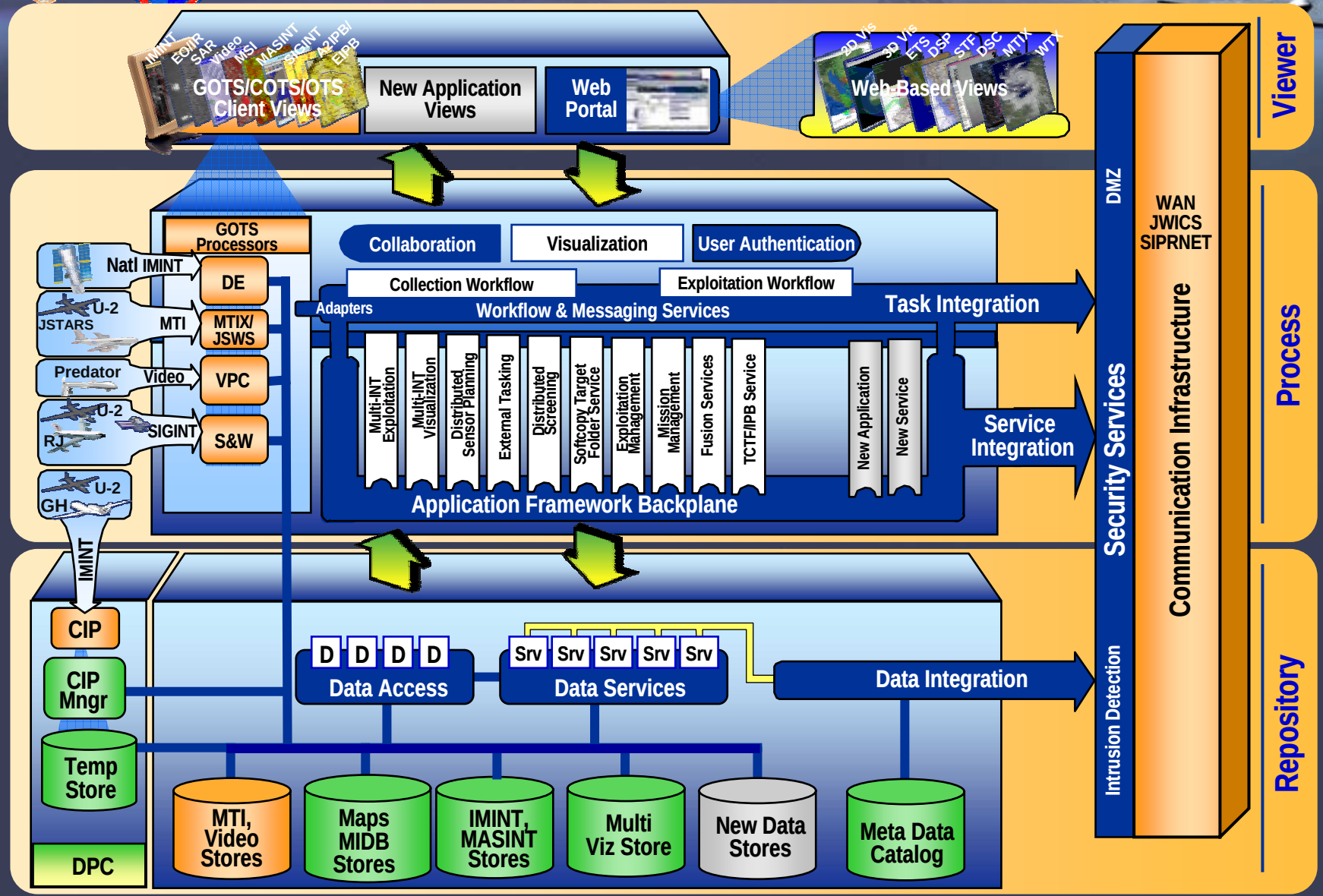
- **Multi-INT Processing and Exploitation System**
  - Common Multi-INT Workstation
  - Image Receipt, Processing/Formatting and Exploitation Capability
    - U-2, Global Hawk, Predator and National sources
  - MTI processing and exploitation
    - JSTARS, Global Hawk and U-2
  - MASINT Exploitation
  - SIGINT Report Level information
    - U-2 Correlated report information
    - IBS Networks



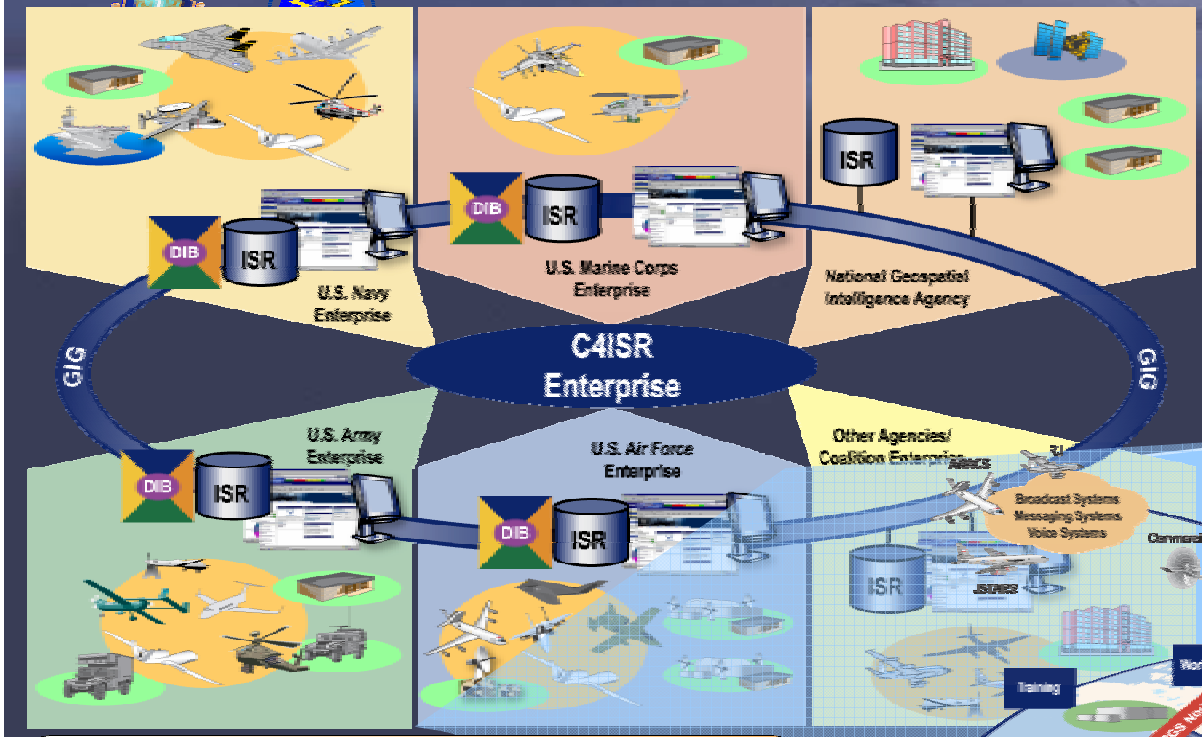
- **External Tasking Service (ETS)**
  - Single Collection Management and Tasking Service with Interface to PRISM, RMS, AFMSS
  - Workflow control between GFE tasking systems
- **Softcopy Reference Folders (SRF)**
  - Correlated Multi-INT "folder" of Target information from across the enterprise in support of Analyst exploitation session

- **Distributed Screening Capability**
  - Auto Screening chips of pre-planned target areas
  - Semi-automated Screening with Multi-INT cues
  - Integrates into DCGS Multi-INT workflow

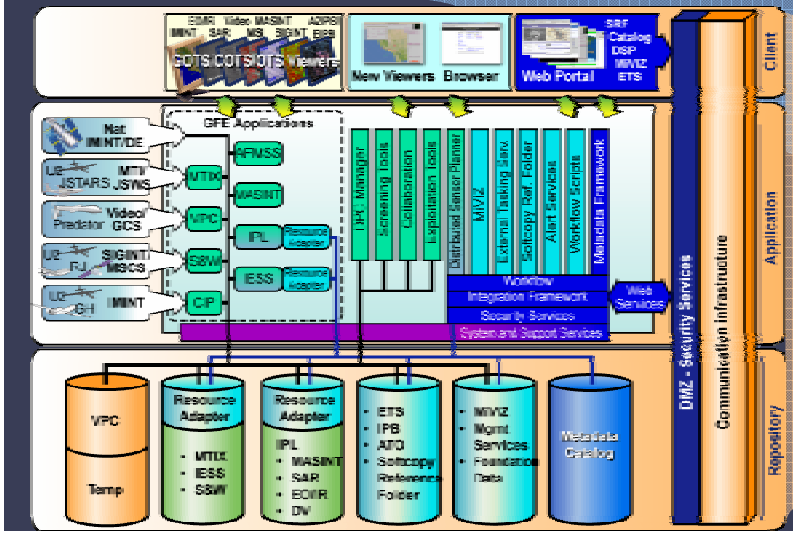
AF DCGS Block 10.2 Multi-Int Service Oriented Architecture



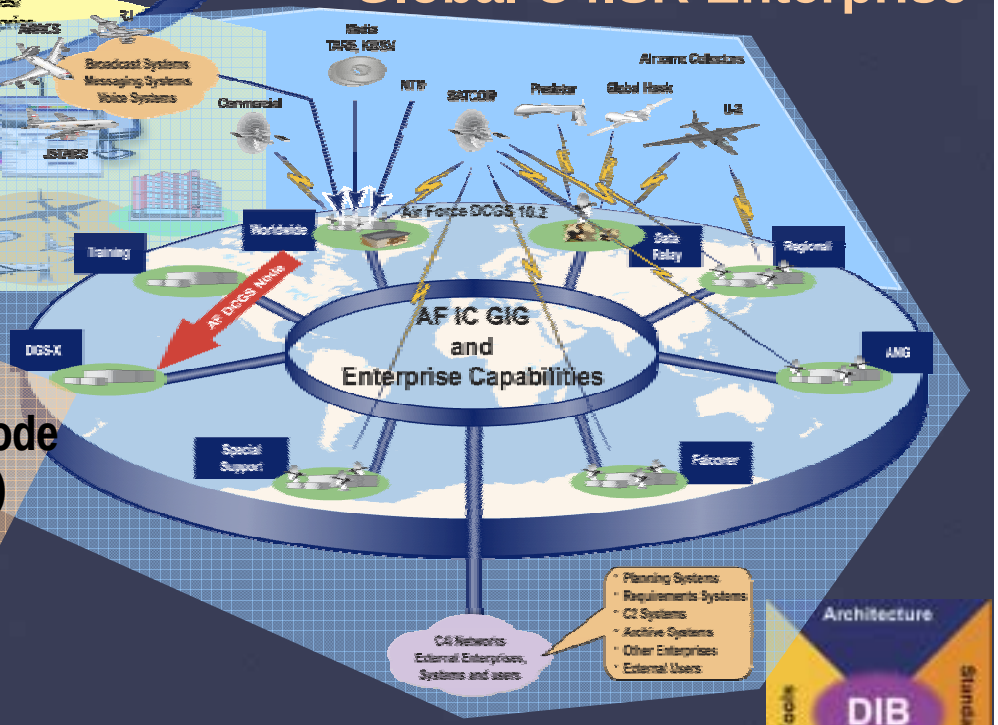
AF DCGS Interoperability Supports Global C4ISR Enterprise Vision



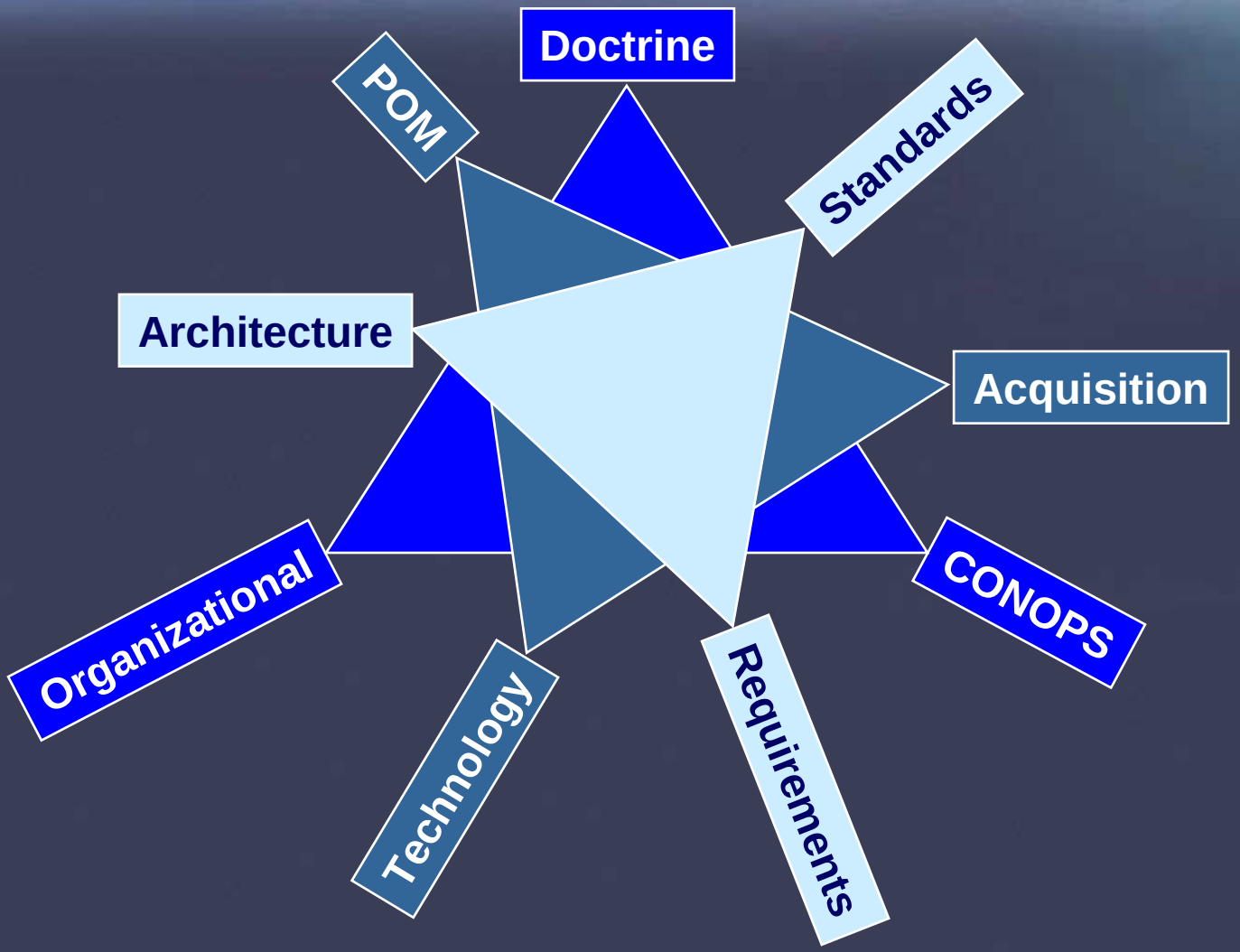
From a Single DCGS Node To a DCGS Enterprise To the Global C4ISR Enterprise



DCGS 10.2 Node (DGS-X)



Net-Centric Co-Evolution



Common Challenges

- Requirements and funding are Service driven
  - COI enterprise engineering
- Co-evolution of network centric architectures, standards, components, CONOPS, mission systems, etc.
- Metadata
  - Harmonization of Metadata content, structure, ontology, registries and standards
- Unanticipated User Access
- Enterprise Test environments and cross-program support
- Enterprise Security
- Synchronization of Capabilities across an enterprise
- Coalition Interoperability
- Enterprise License Strategy
- Enterprise Configuration Management
- Enterprise Developer's environment

Take-Aways

- AF DCGS starting small, focusing on the data per OSD guidance – data interoperability and COTS integration require sound system engineering processes
- On-going collaborative multi-service acquisition (Multi-Service Execution Team) recognizes necessary changes for net-centric operations and management
  - DIB separates data from applications and enables interoperability - links legacy, GOTS, COTS or common applications
    - Metadata harmonization is key
  - COI governance framework promotes collaboration and cooperation (e.g., industry consortium)
    - We need a CONOPs for how COIs will Develop, Maintain, and Use Community agreements to implement the data strategy
- DCGS Service Oriented Architecture breaks closed business models
  - Net-Centric & distributed ops necessary for ISR and C2 integration
  - Brings ISR TPED to internet model (TPPU)
  - Opens the market for industry investment - “best of breed”
  - Enable synchronization with other net centric programs
  - Scalable architecture addresses bandwidth issues -- Services can select applications to best meet missions, CONOPS and available communications
- AF DCGS Net-centric transformation enables enhanced shared awareness, higher tempo of operations, greater lethality and survivability across the Services