DoD EA Policy, Governance and Federation

A Briefing to the 2010 Systems Engineering Conference

https://www.us.army.mil/suite/page/617374

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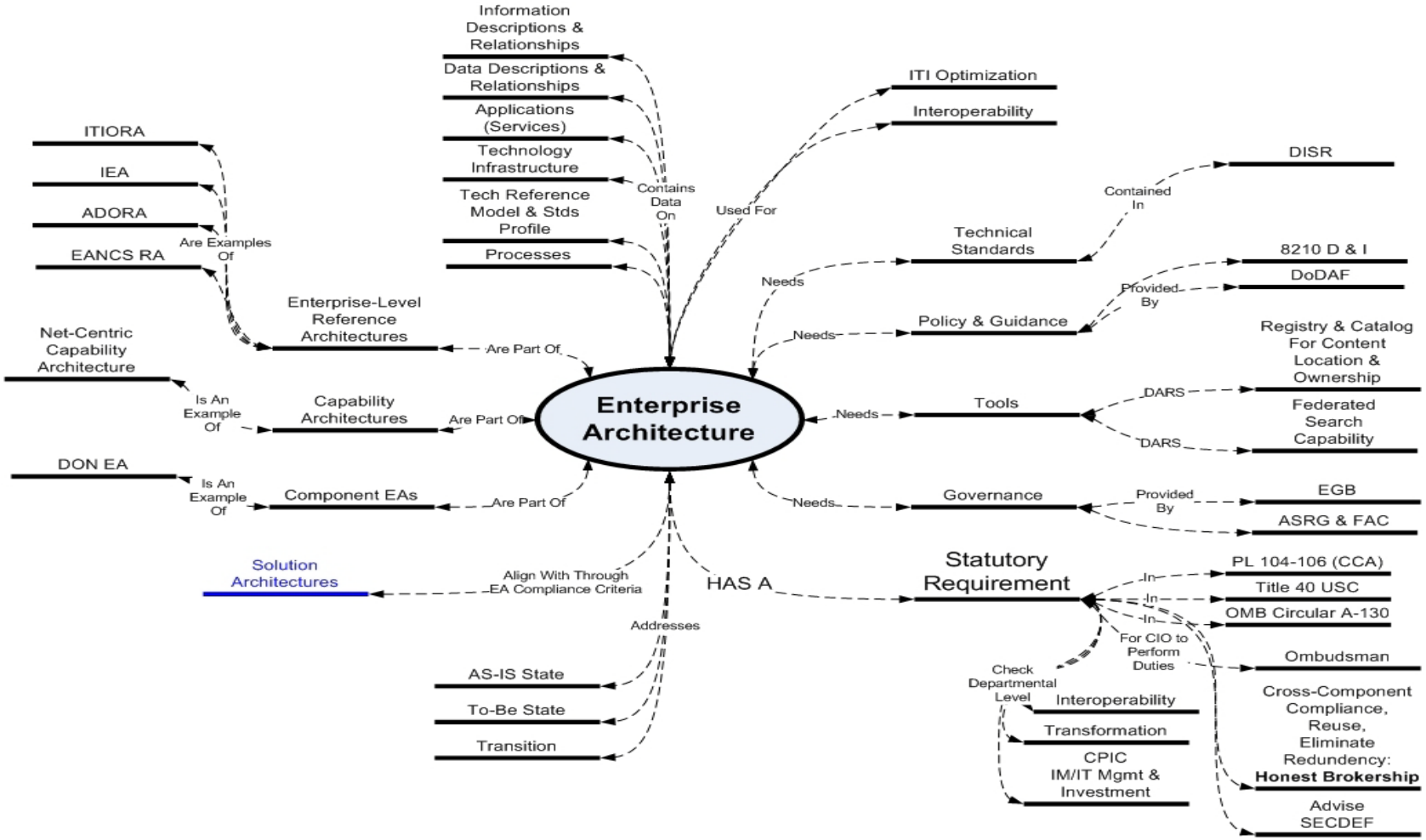
DoD EA Program



EA Policy

- DoDD 8210 (Draft), EA in the DoD, provides Department level policy on the development, maintenance and use of EA.
  - Establishes Roles and Responsibilities
  - Requires DoD Components to do an EA and submit completed EAs through the DoD CIO Governance Process
  - Designate a Chief Architect at the DoD and Component level
  - Establish and maintain an EA governance process
  - Follow the DoDAF and DoD IEA (Compliance)
  - DTM requiring EA registration signed and published
  - Supports other DoD Directives and Instructions that require utilization of EA such as
    - CJCSI 6212 and DoDD 4630.8 (Interoperability)
    - DoDD 8000.1 (IT Investments)

EA Policy

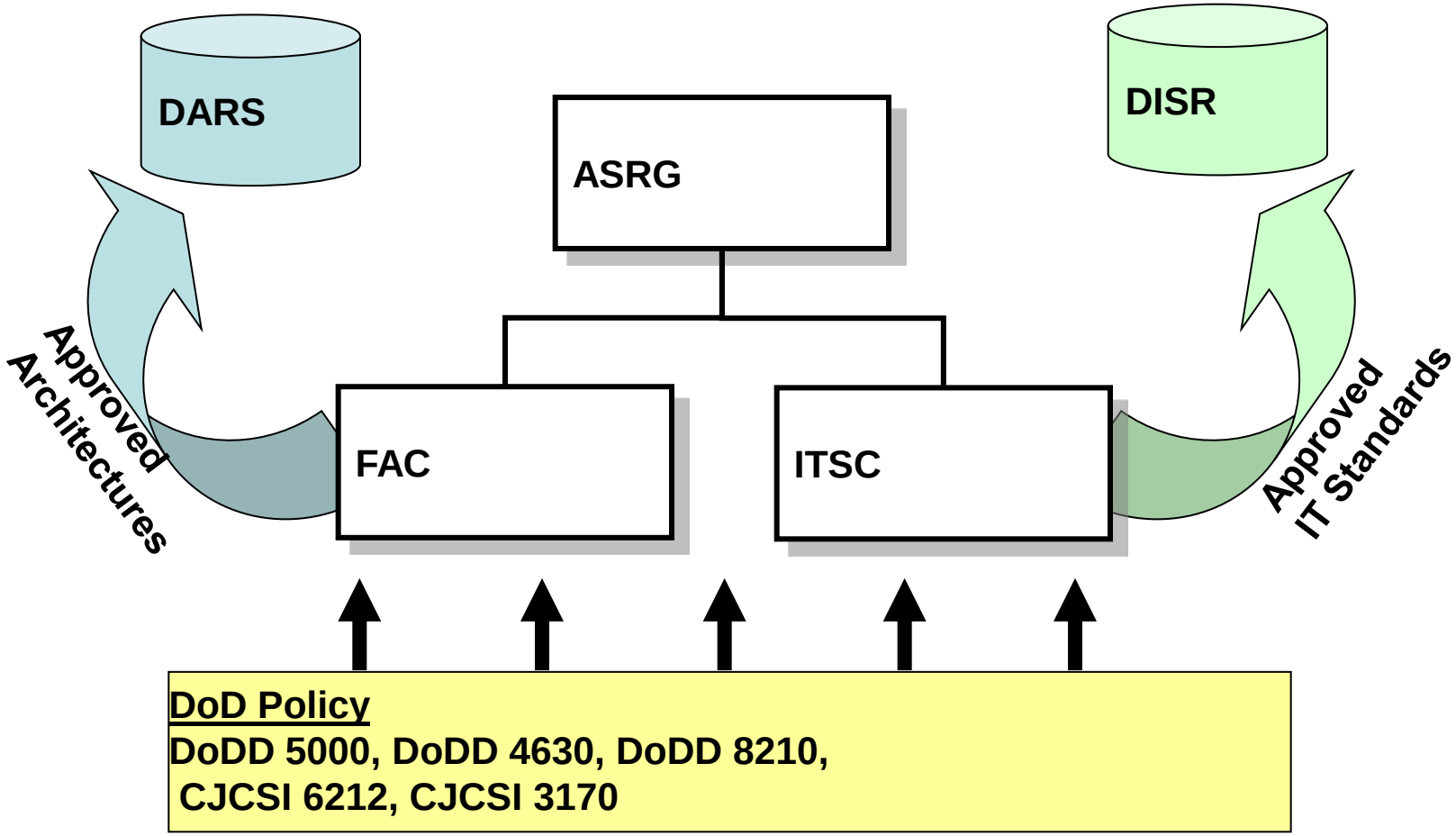
- DoDI 8210 (Draft) supports the DoDD with detailed instructions on what the DoD EA will be as a federation
  - Federation Criteria
    - Enterprise Vocabulary, DoDAF, DIEA, etc..

- Support US Federal (Including IC), Allies and Coalition Partners (NATO, ROK, ETC…)

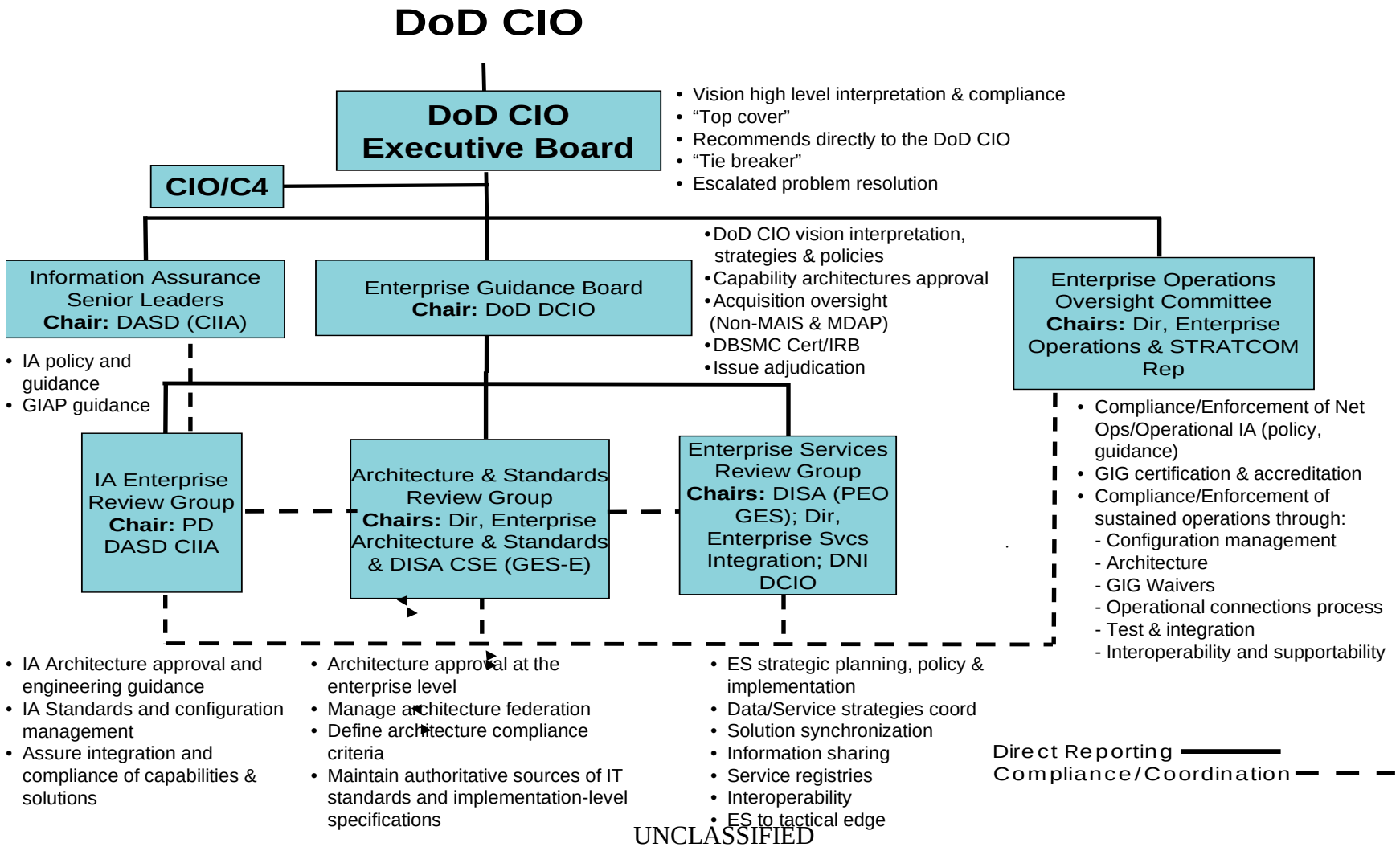
EA Governance

- New DOD CIO governance structure
  - Streamlined process to provide Enterprise Solutions
  - Works to align with IC governance structure
- Architecture and Standards Review Group (ASRG)
  - Action/Decision body
  - ASRG Management Plan details processes
  - Supports EA Policy
  - Approves EAs for the Dept as authoritative and “Fit for Federation”
  - UCORE to support Information Sharing
  - Better Integrates Standards with EA
    - Better for PMs, PfM,AT&L/Systems Engineers
    - Establishes/Incorporates Committees such as the FAC, ITSC and allows the establishment of Ad Hoc Groups as needed.

Authoritative Sources of Approved Architectures & Standards



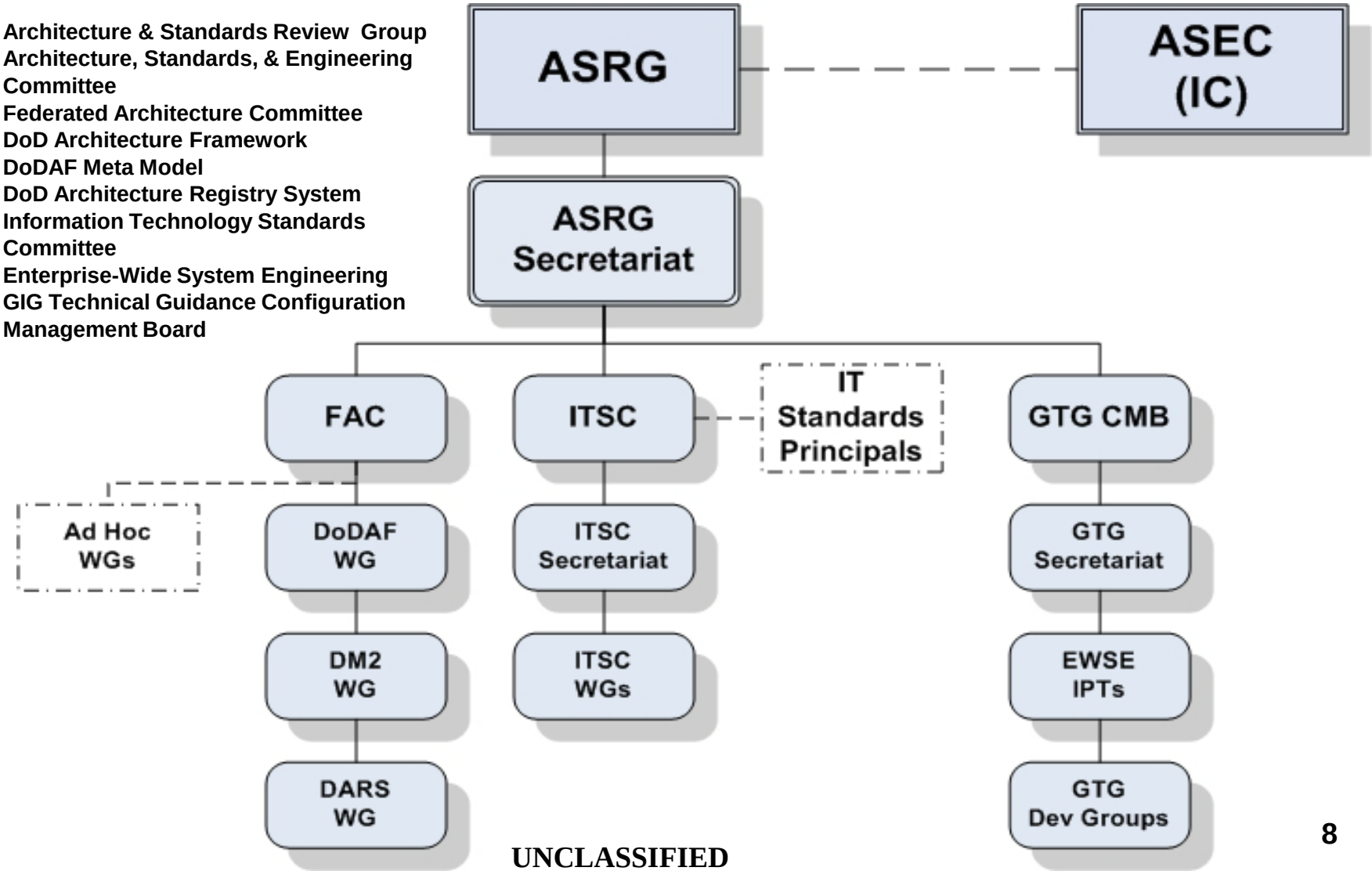
CIO Governance Framework



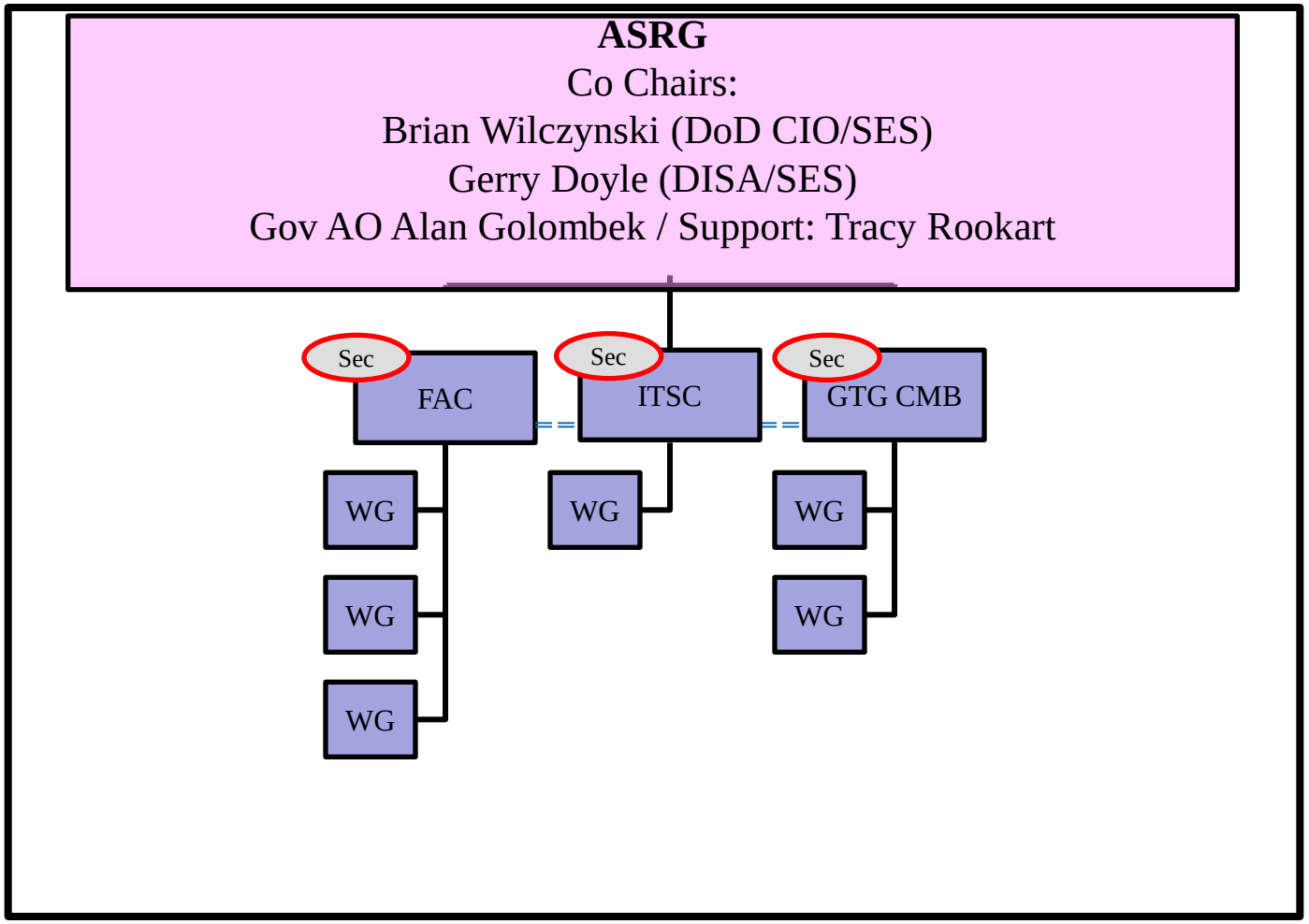
ASRG Organizational Structure

LEGEND

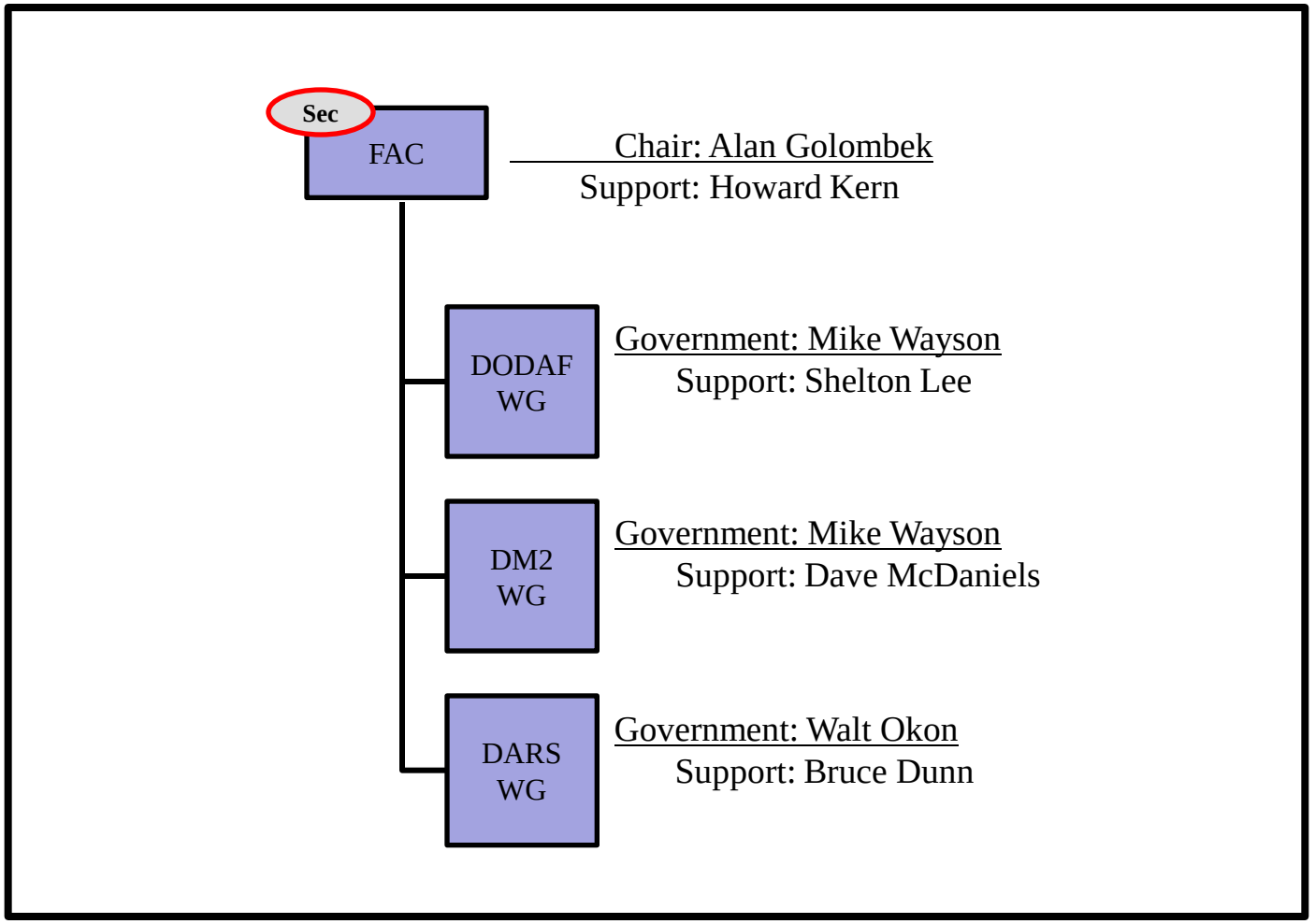
ASRG	Architecture & Standards Review Group
ASEC	Architecture, Standards, & Engineering Committee
FAC	Federated Architecture Committee
DoDAF	DoD Architecture Framework
DM2	DoDAF Meta Model
DARS	DoD Architecture Registry System
ITSC	Information Technology Standards Committee
EWSE	Enterprise-Wide System Engineering
GTG CMB	GIG Technical Guidance Configuration Management Board



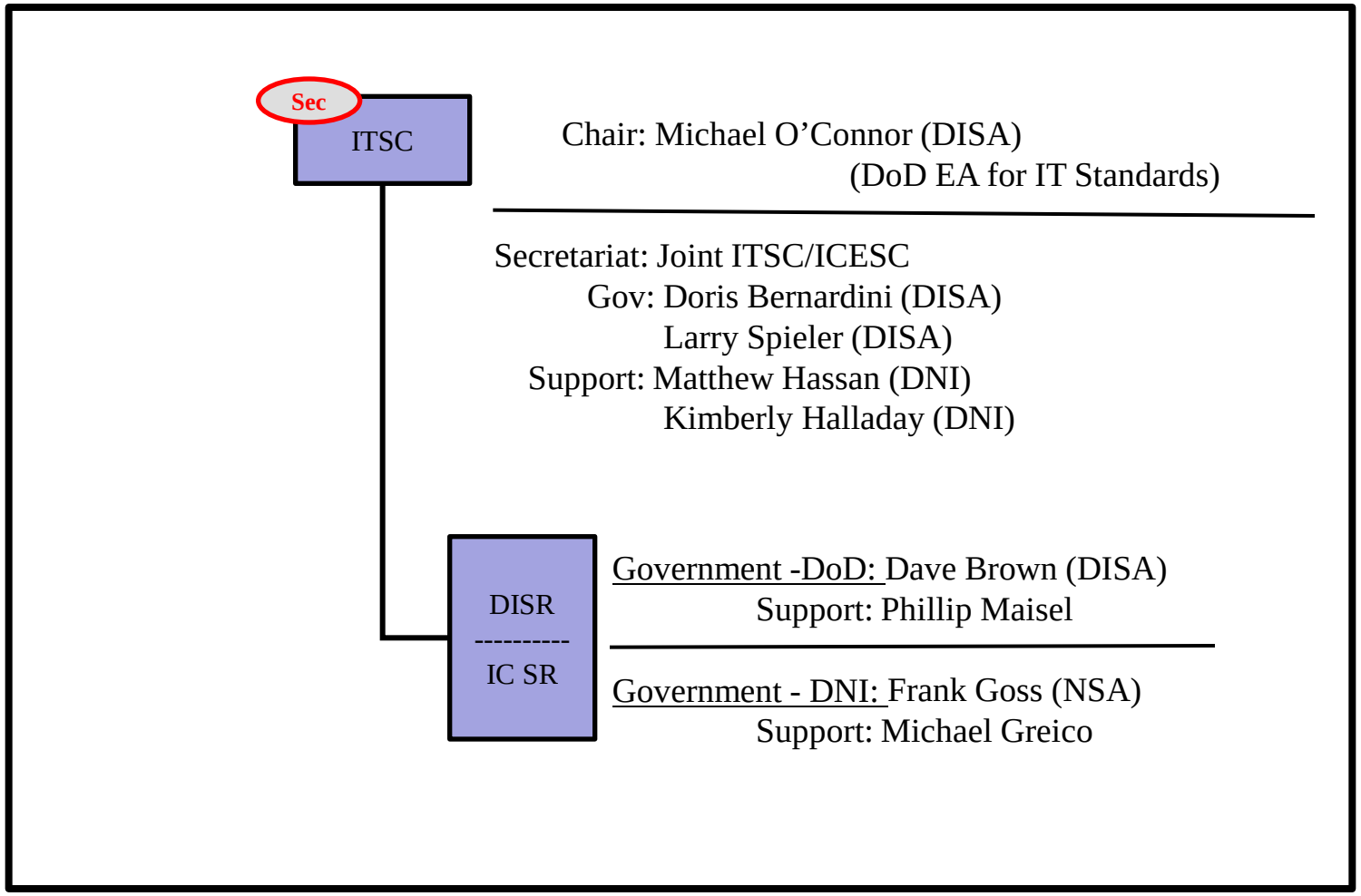
ASRG Structure



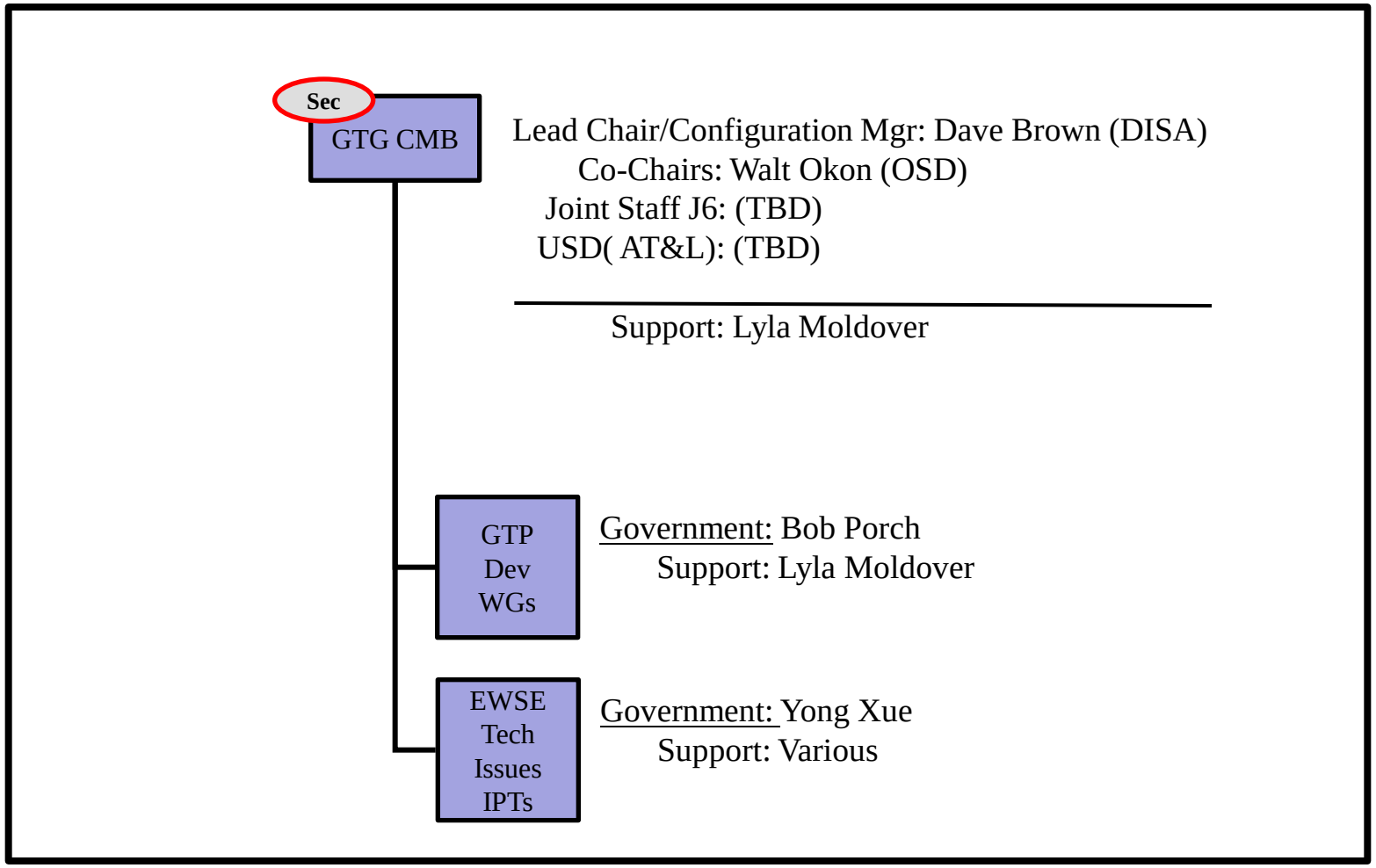
FAC Structure



ITSC Structure



GTG CMB Structure



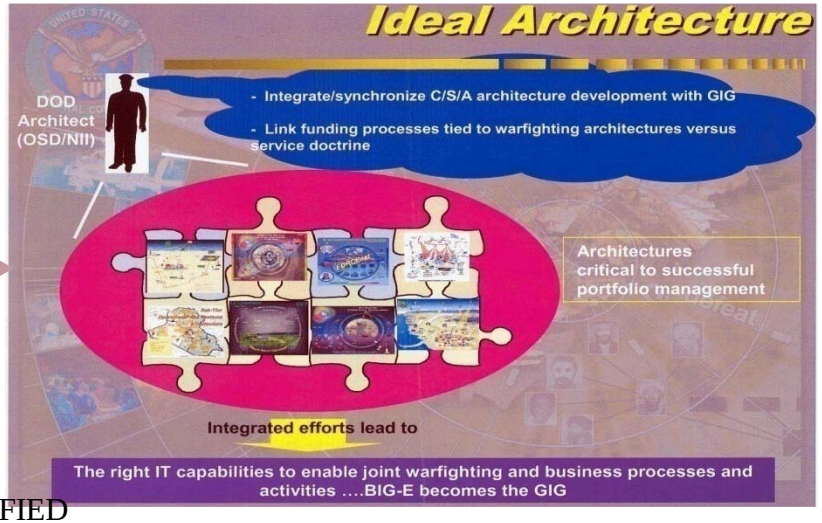
EA Federation

- Goal is to provide useful information to users at all levels. Make EA a Combat Multiplier
- Discovery: DODAF AV-1s are being registered in DARS
- DoDAFs PES and DM2/ UPDM/ support Architectural Data exchange
  - Exchange of Data Machine to Machine and in a Net Centric Environment

Enterprise Architecture Objective

Make Architecture Data:

- Discoverable
- Accessible
- Understandable

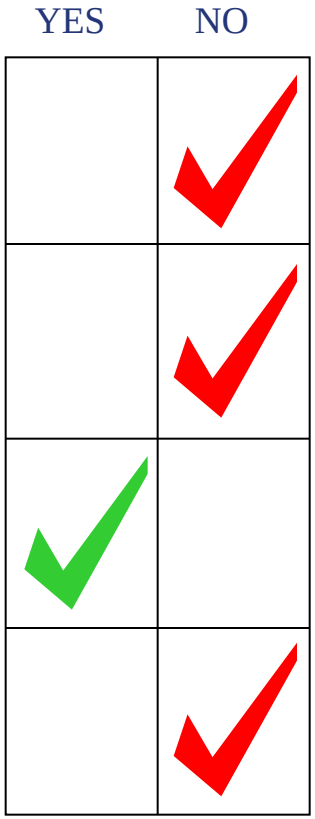


Background (Late 2005 – 2008)

- Enterprise Architecture (EA) was addressed by the Enterprise Architecture Summit (EAS)
- The EAS Created the Federated Joint Architecture Working Group (FJAWG)
  - Component, COCOM, Services representation
  - Developed a Statement of Objectives
  - Developed a Federation Approach
  - Developed & Published Approved Architecture Federation Strategy
- Recommended Pilots to Demonstrate Technical Feasibility and Value

Building The DoD EA

- Convert all architecture description data to one standard architecture data model?
- Scrap all existing architecture descriptions?
- Apply Net-Centric concepts to architecture data?
- Create one monolithic repository vs. maintenance by owners?



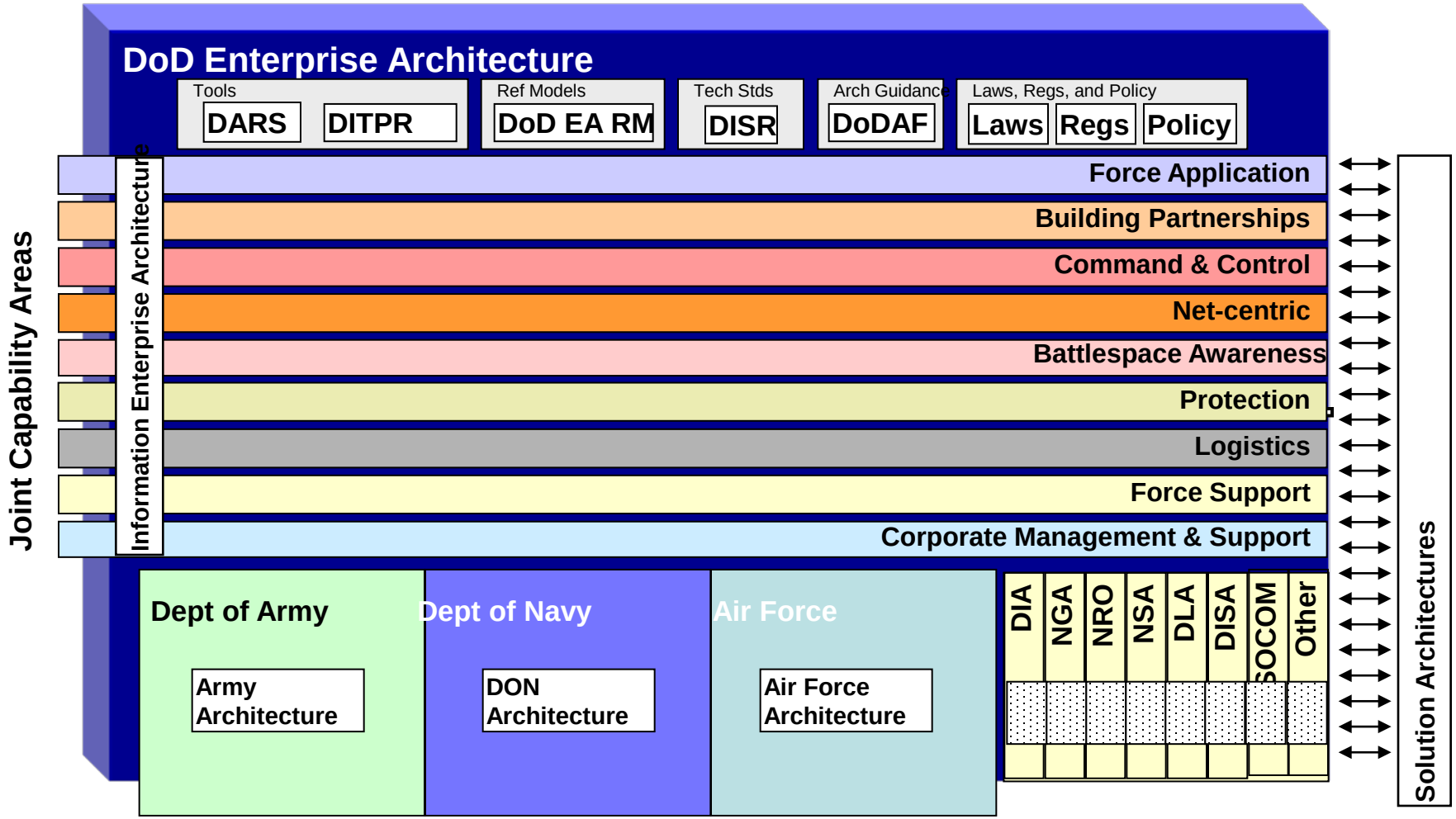
Conclusion: Federate

Initial Federation Process

- Architecture Description Federation Is A Two Step Process:
  - Registration of approved architecture description metadata
  - Alignment
    - Determining relationship between architecture descriptions by examining their activities (enhances search capability)
      - Equivalent To
      - Similar To
      - Part Of
      - Not related

- Develop DoD Directive and Instruction as well as automated registration templates

DoD Architecture Federation



Questions

Back Ups

DoD IT Standards Registry (DISR)
IC/DoD IT Standards Registry

Mr. Walt Okon

Senior Architect Engineer

Architecture & Interoperability Directorate
Office of the DoD CIO/ASD NII

13 May 2010

Information Technology Standards

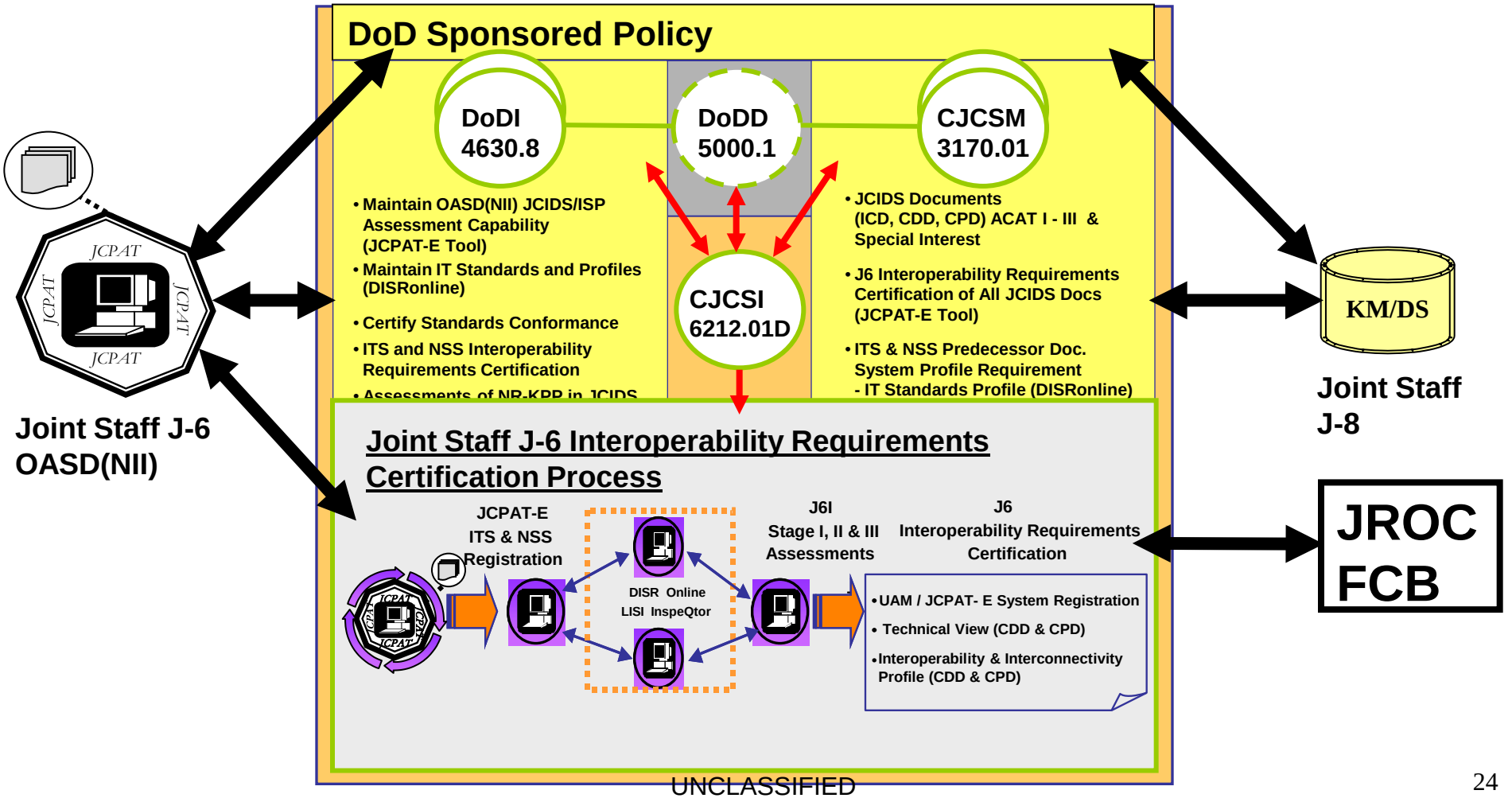
- DoD IT Standards Policy
  - Executive Agency
- DoD IT Standards Registry (DISR)
  - Definition
  - DISRonline Tool
  - Governance Process
  - Configuration Management
- DoD IT Standards Policy & Enforcement
  - JCIDS

Information Technology Standards Authority

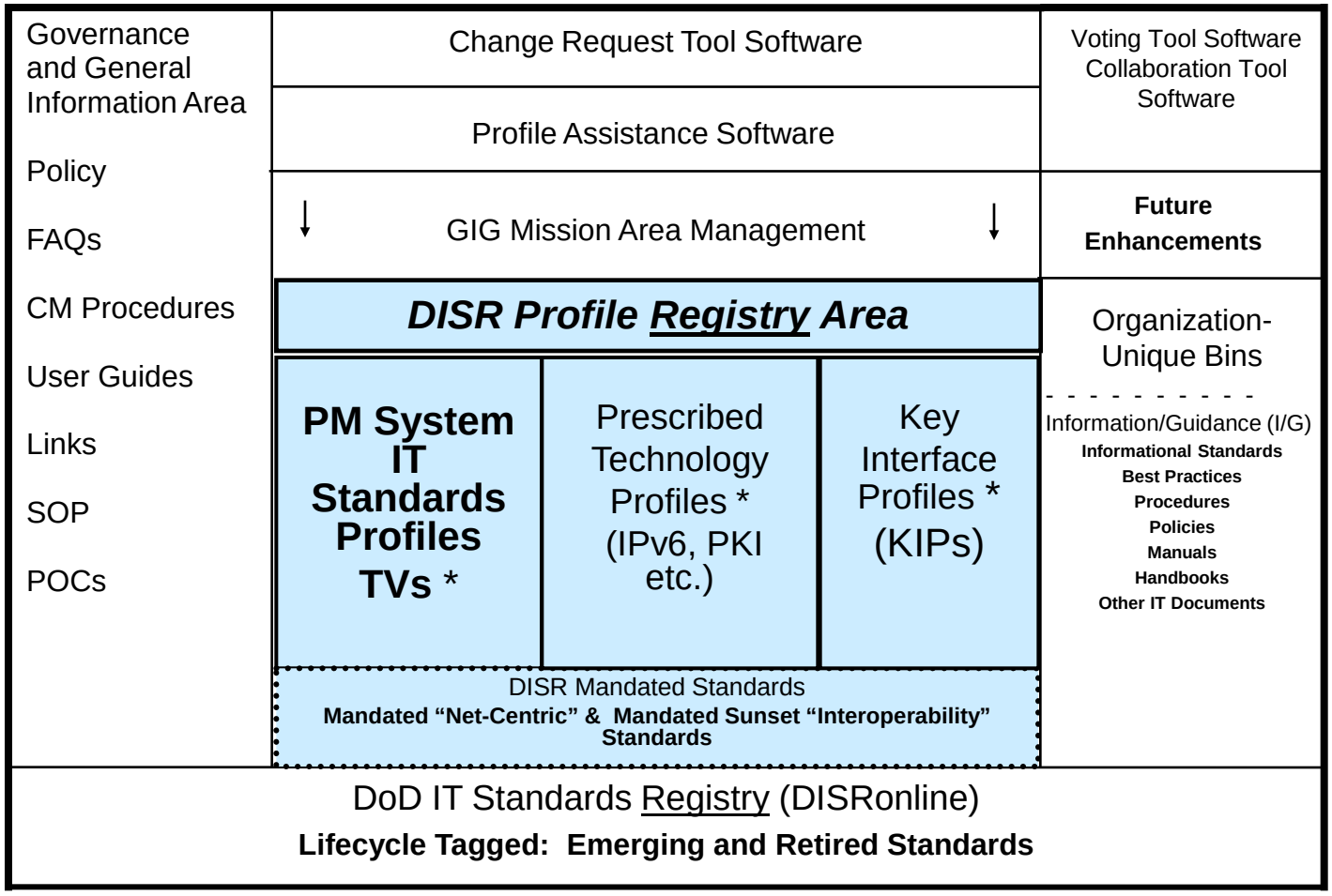
- Clinger-Cohen Act
  - **Requires Performance Based Management Principles for Acquiring Information Technology (IT), Including National Security Systems (NSS)**

- DoD Directive (DoDD) 5101.7
  - **DoD Executive Agent for Information Technology Standards**
    - Develop, Prescribe, and Implement IT and NSS Standards Throughout the DoD.

IT and NSS Interoperability and Supportability Policy and Process Overview



DISR and DISRonline Architecture View



*** Currently scheduled for replacement with GIG Technical Profiles (GTPs)**

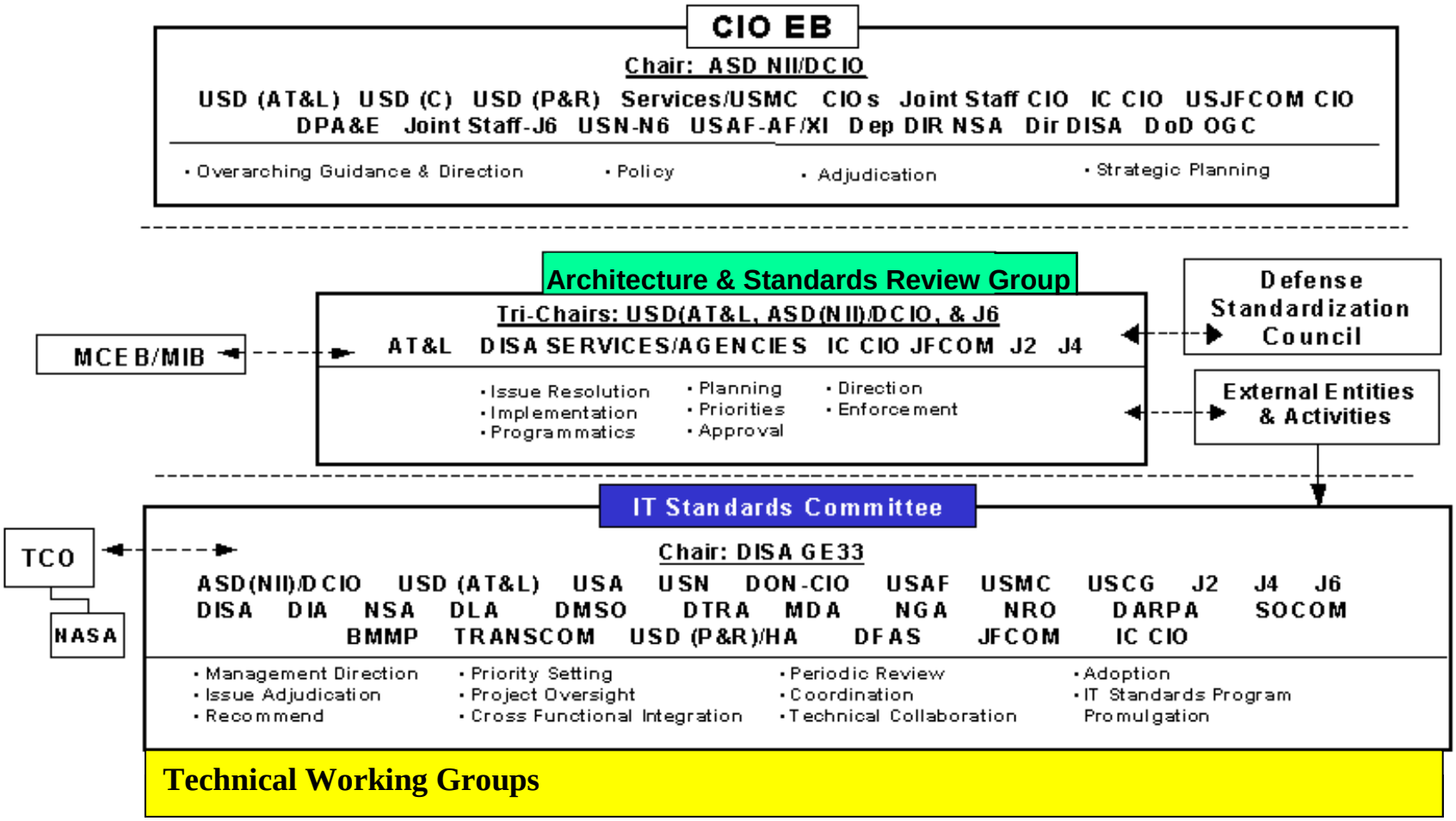
Objectives:

- Champion DoD's Re-Engagement of the IT Standards Communities
- Online IT standards Registry
- Tri-Annual Update of IT Standards Registry
- Tied to JCIDS IT Standards Conformance and Compliance Process
- Intelligence Community Cross Coordination (via ICSR)
- Improved DoD Visibility and Participation in IT Standards Development Organizations
- Develop and Register PM Standards Profiles (TV)
- Standing IT Standards Working Groups Aligned to GIG Portfolio Management

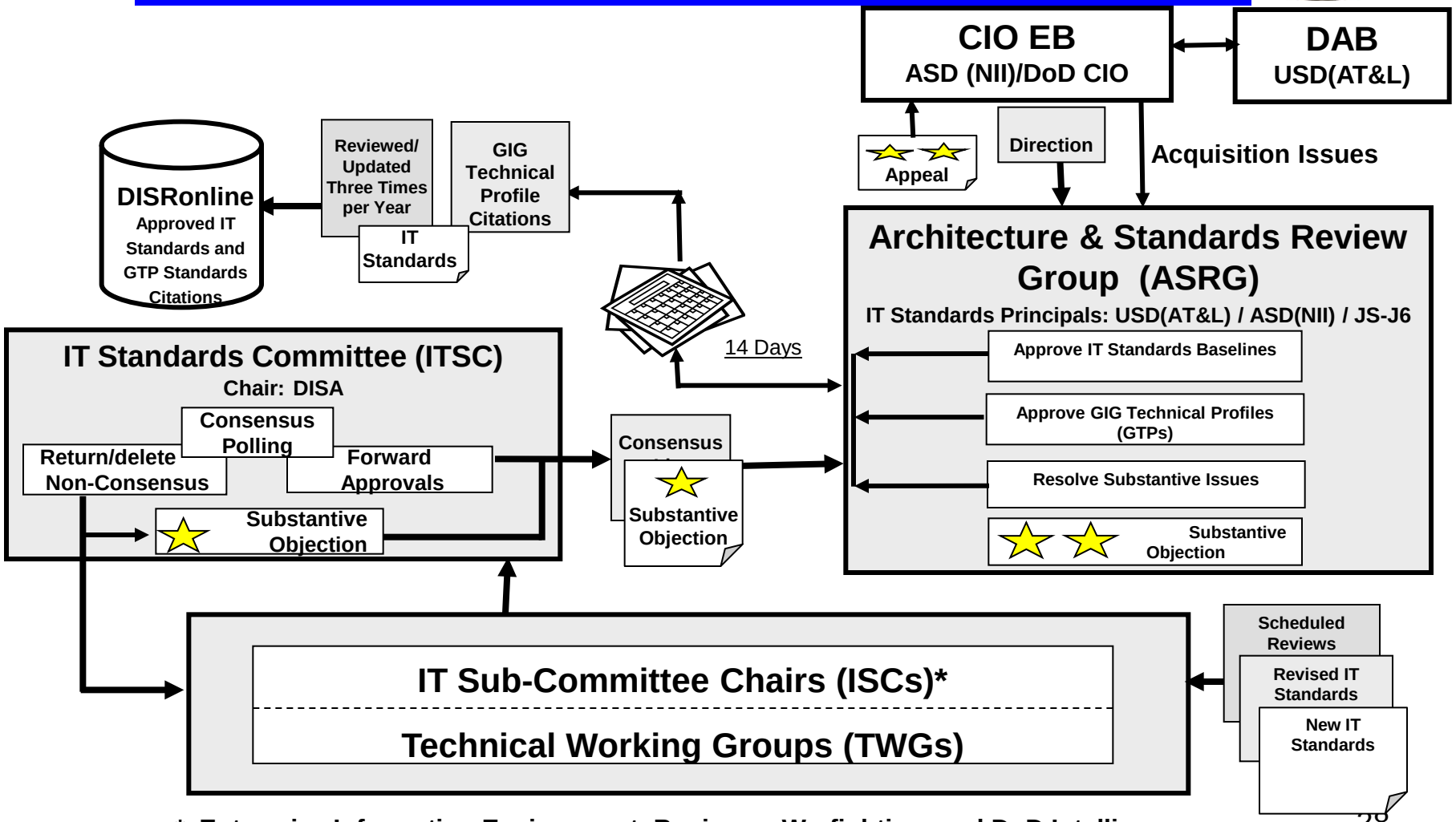
Lifecycle of a Standard

- Emerging
  - Upgradeability Should be a Concern
  - May be Implemented but Not in Lieu of Mandated Standard
  - Expected to be Mandated within Three Years
- Mandated
  - Essential for Interoperability and Net-Centric Services in DoD
  - ***Minimum Set of Essential Standards for the Acquisition of All DoD Systems that Produce, Use, or Exchange Info, and, When Implemented, Facilitates the Flow of Info in Support of Warfighter***
  - Sunset Tag Identifies an Event and Date to Retire a Standard
- Inactive / Retired
  - New Standards / Technology Now Available and Implemented
  - Require Waiver and Migration Plan
  - Remain in the Registry

IT Standards Governance Organization Membership



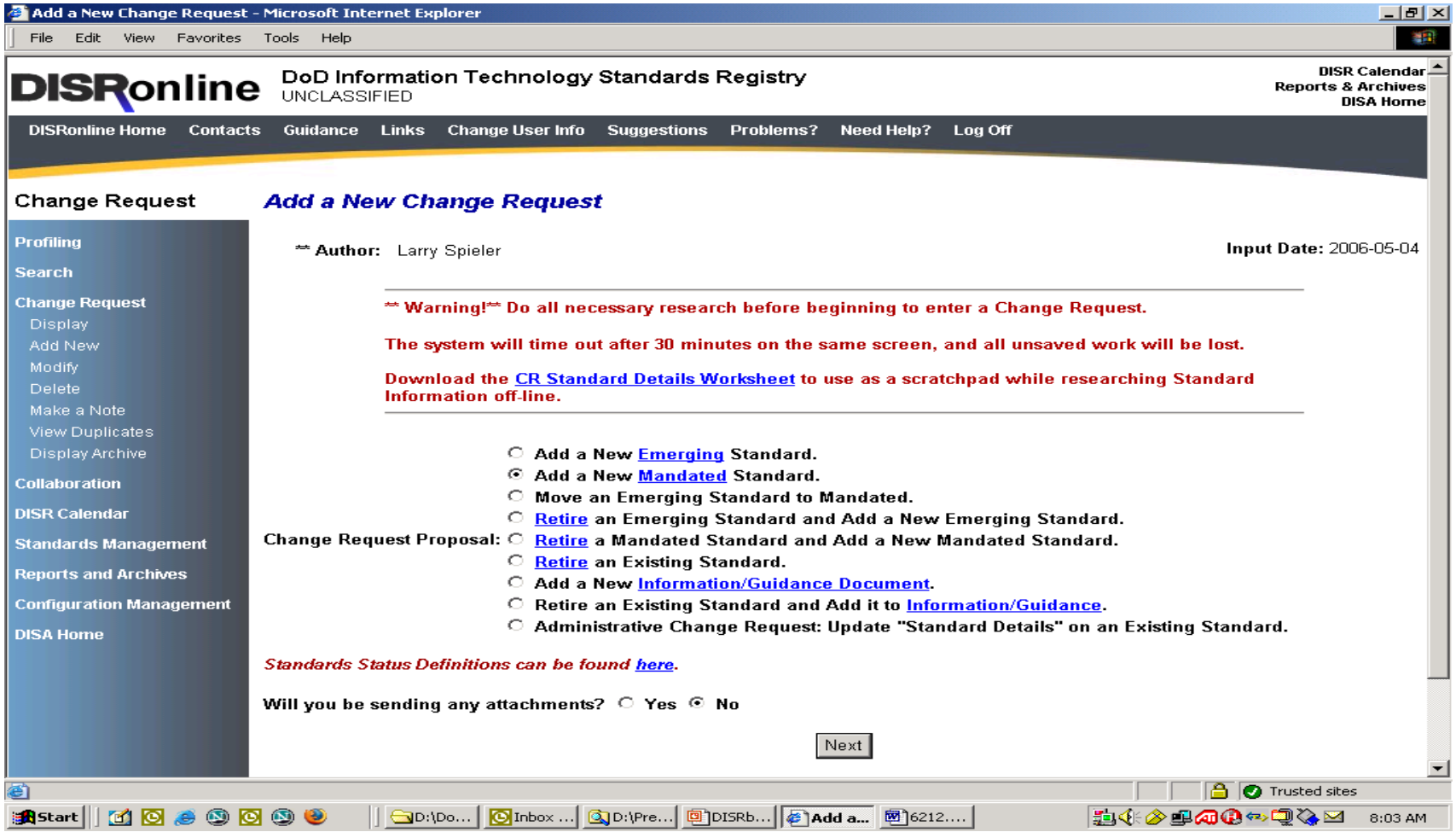
IT Standards Review, Approval, and Appeals Process



* Enterprise Information Environment, Business, Warfighting, and DoD Intelligence

28

Standards Configuration Management



GIG Technical Guidance

Mr. Dave Brown
Chief, Standards Engineering Branch
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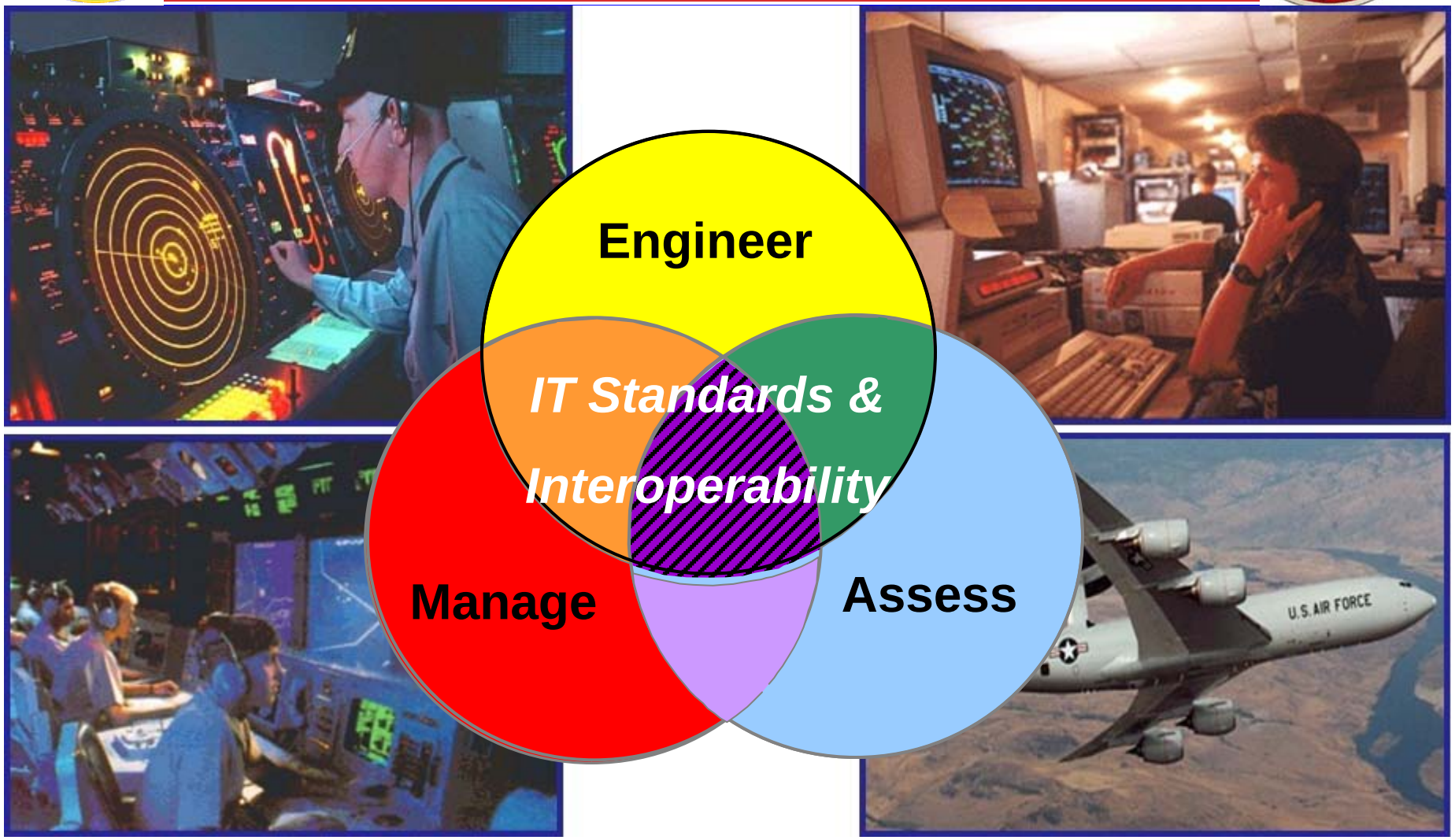
13 May 2010

DoD IT Standards Development



Evolving Net-Centric Requirements

- Improve NR-KPP compliance by providing PMs with Technical Direction on finding and implementing the standards needed to build and access GIG Capabilities
  - Leverage the DISR for the approved standards
  - Leverage KIPs to identify GIG Key Interfaces
  - Leverage the NCIDS/NCOW for Enterprise-Wide GIG Functional Capabilities Descriptions
  - Leverage Net Centric Programs for Architectures and Best Practices
  - Leverage DoD Components for analysis and validation

Support the PM to ensure he is "Net Ready"

GTG Standards Implementation Approach for Interoperability

GIG Technical Guidance is:

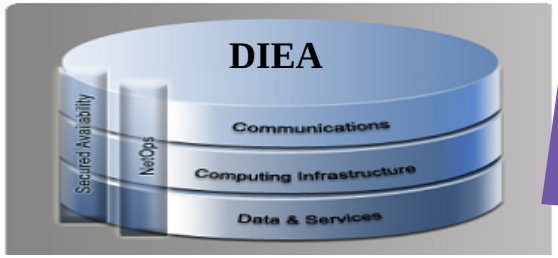
- An evolving web-enabled information sharing capability providing the PM with technical guidance necessary to build or access interoperable and supportable GIG capabilities built on net-centric principles and solutions.
- An authoritative, configuration-managed source of technical standards implementation guidance that synchronizes GIG requirements and NR-KPP compliance
- Contains GIG Enterprise Service Profiles (GESPs) that are developed in a managed process vetted by a cross DoD Configuration Management body
- Regularly promulgated by OSD/Joint Staff as versioned technical baselines

Before: Overload

Organize and condense disparate guidance

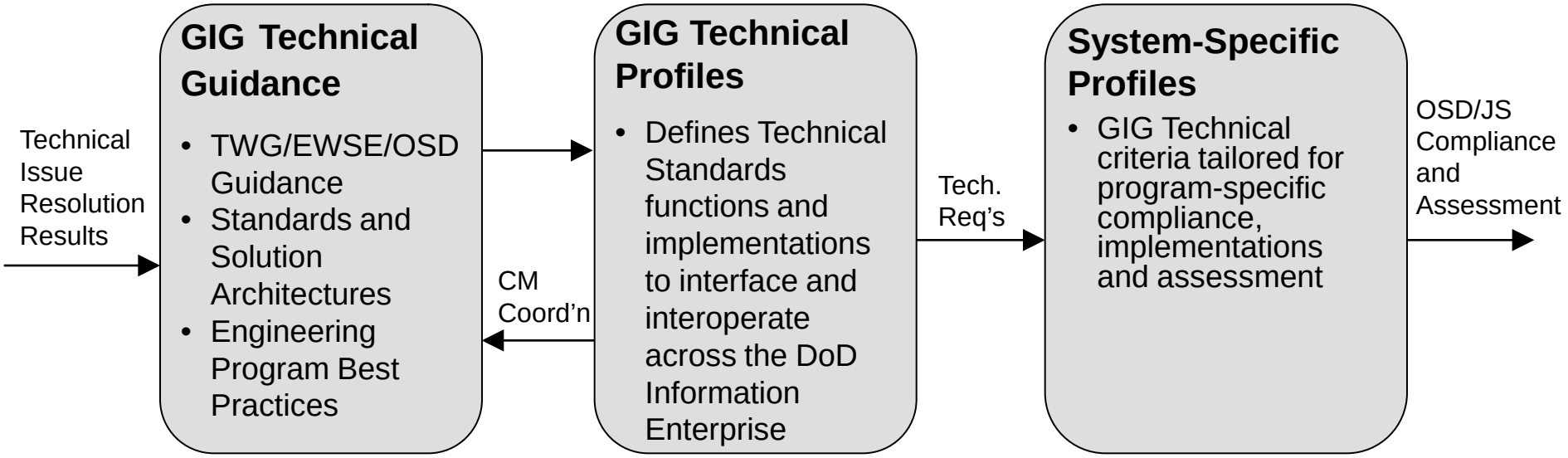
After: GTG/GESP

Manage and deliver evolving, actionable set of consistent technical requirements



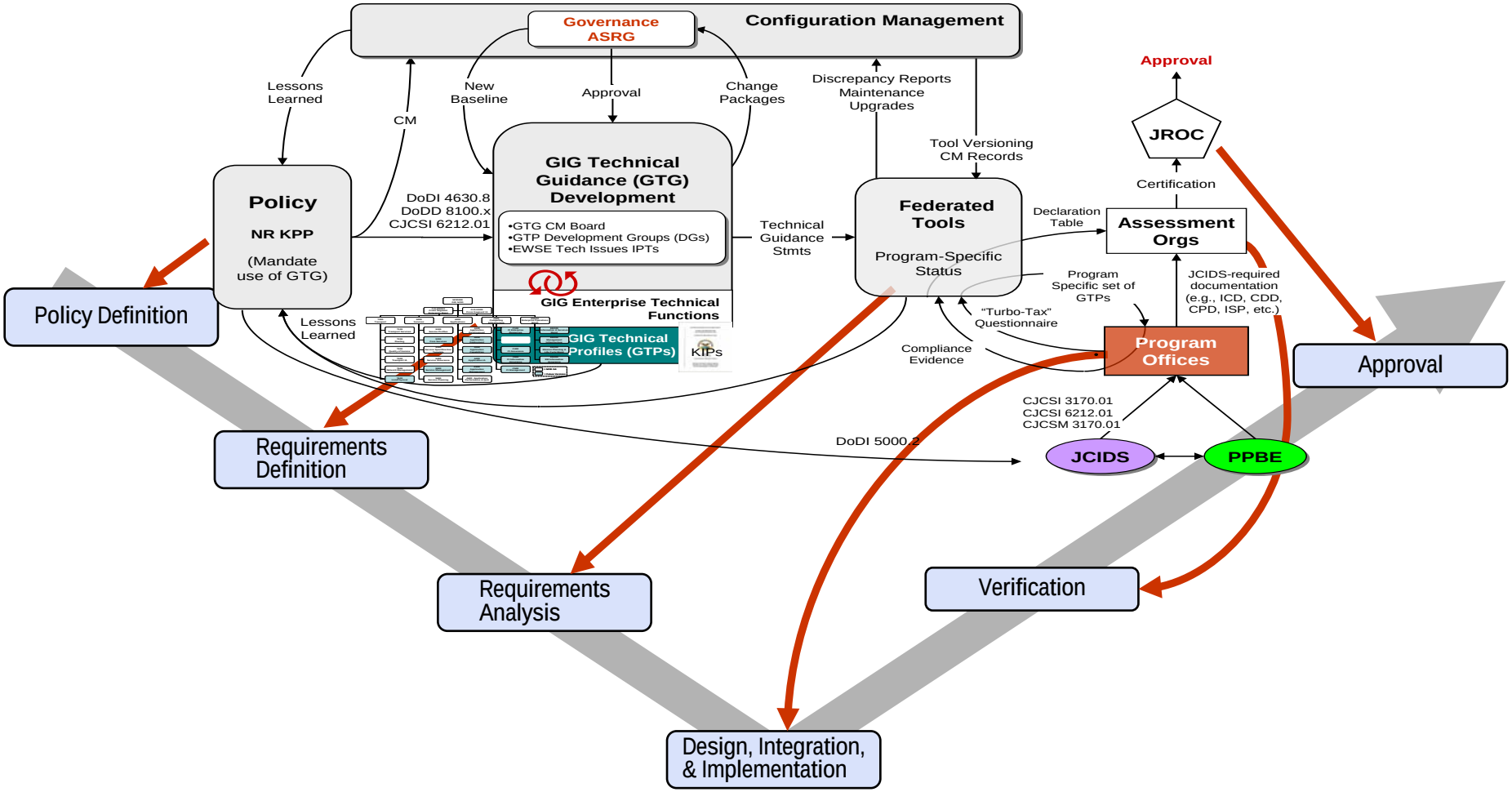
Purpose of GIG Technical Guidance

- **Purpose: Make *visible* DoD GIG technical guidance to acquisition programs and assessors for consistent application and compliance**
- **End product – System-Specific Profiles and Architecture Viewpoints**
  - **Tailored subset of technical guidance for a specific program**
    - Program offices use interactive tools that help them filter technical guidance
    - Assessment organizations review system-specific profiles for compliance



PMs create their System-Specific Profiles to identify what they must do today to be net-centric and review the GTG to know what to expect tomorrow

GTG System Engineering Process



GTG Policy

On 15 Dec 2008 the GTG was included in CJCSI 6212.01E as part of the NR-KPP

Joint Staff:

- Assign GTP CM responsibilities, Identify candidate GTPs (now GTPs)

Services/Agencies/COCOM:

- Comply with GTG & DISR mandated IT Standards in the TV-1, Implement necessary GTPs

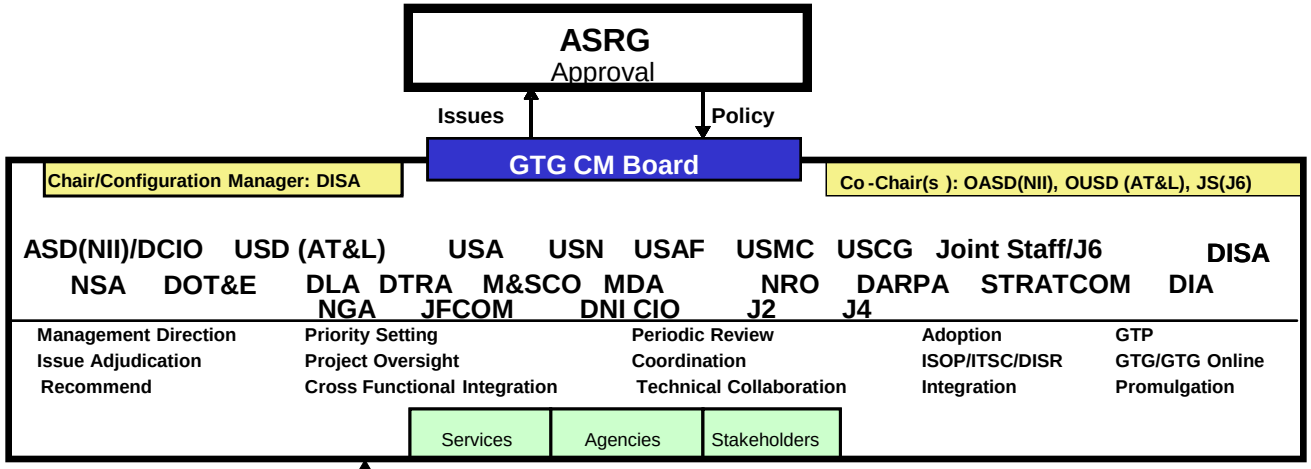
DISA:

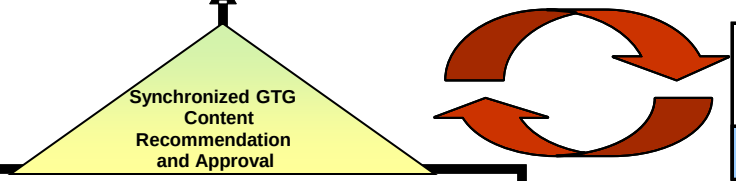
- Lead a collaborative participation in development / validation of GTG-guidance & artifacts.
  - Working groups and IPTs to develop guidance products
  - Senior engineering board for oversight, review, approval and posting of GTG content
- Provide for E2E SE, planning, community collaboration, and directive technical guidance to identify E2E issues and solutions specified as part of the GTG
- Manage and develop the GTG and supporting standards CM and test cert

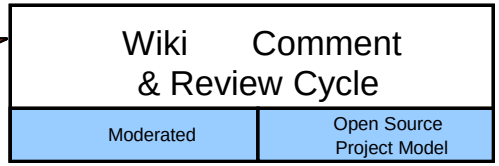
DoD PMs:

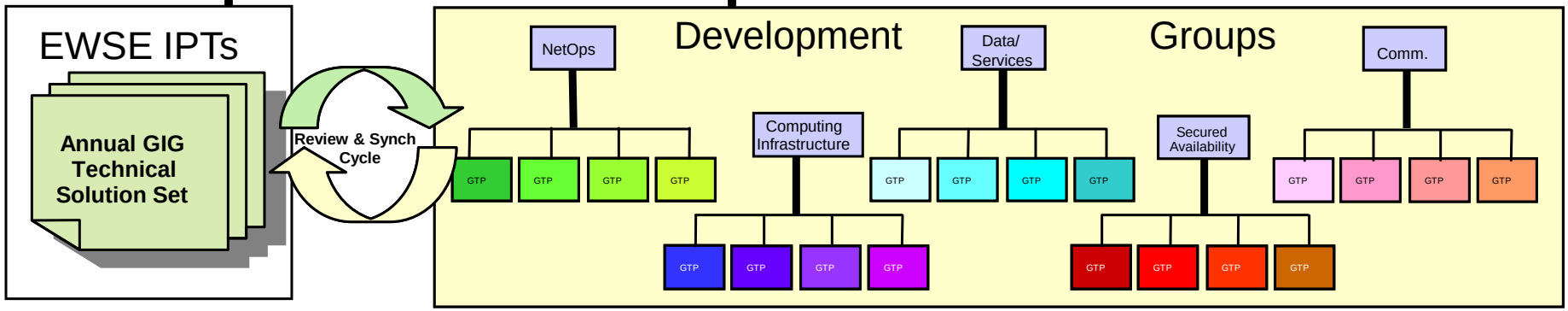
- Use the GTG to conform with appropriate Functional and Technical Implementation guidance and DISR IT Standards

Configuration Management





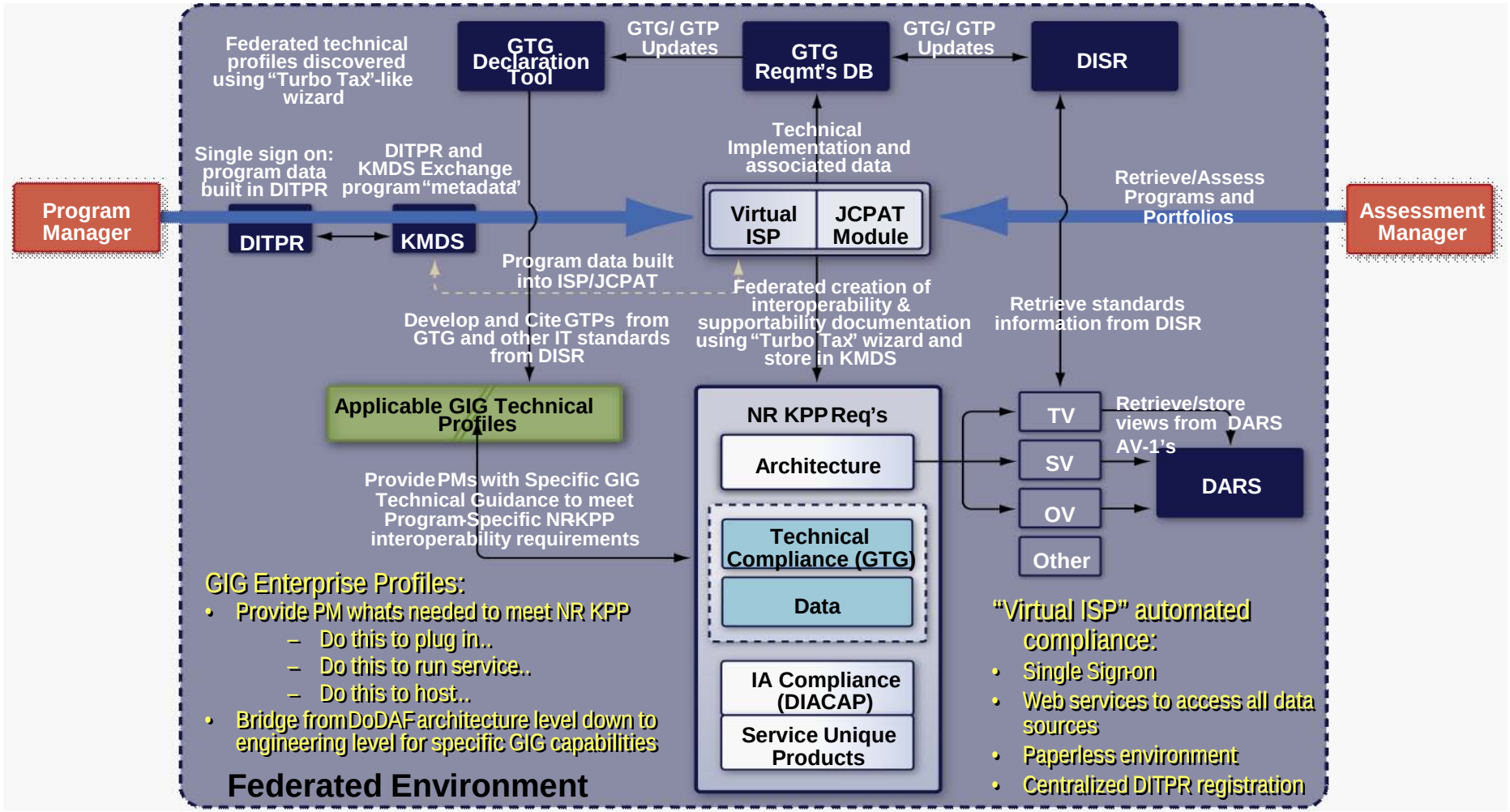




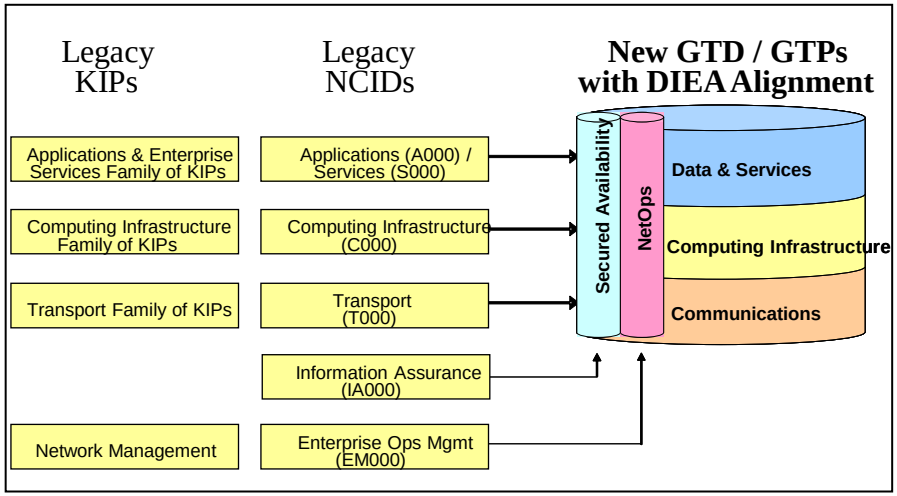
Configuration Management

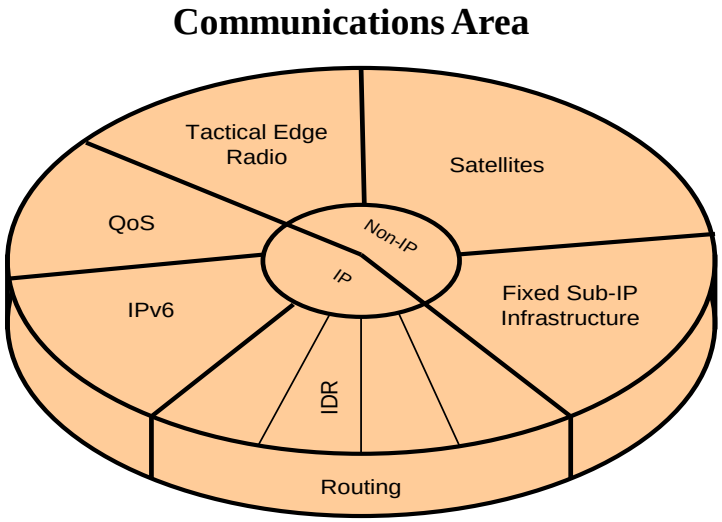
- Organizational CM: **Clarifies DoD and JS policy to eliminate undue, duplicative costs to the DoD Program Managers and Sponsors in documenting and planning for interoperability and supportability certification**
- Technical Level CM: **Synchronization between DIEA, DISR baseline releases and GTP version updates and releases enables consistency between architectures, IT standards mandates, life cycle updates, and implementation guidance across the DoD**
- Federated Process CM: **SOA solutions ensure that the GTG federation is interoperable in the GIG as a capability based enterprise service**
  - **Consistent with the NCDS, all data is registered in the MDR, as exportable XML and discoverable for use in other tools and processes**
  - **Tools able to exchange programmatic, technical guidance, compliance, and assessment data, and**
  - **SOA architecture can be extended to meet organization-specific needs**

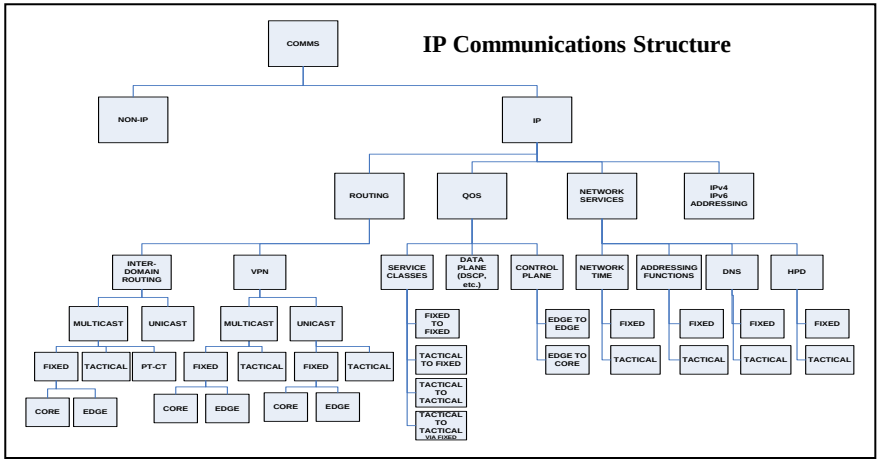
GIG Technical Guidance Tools Overview

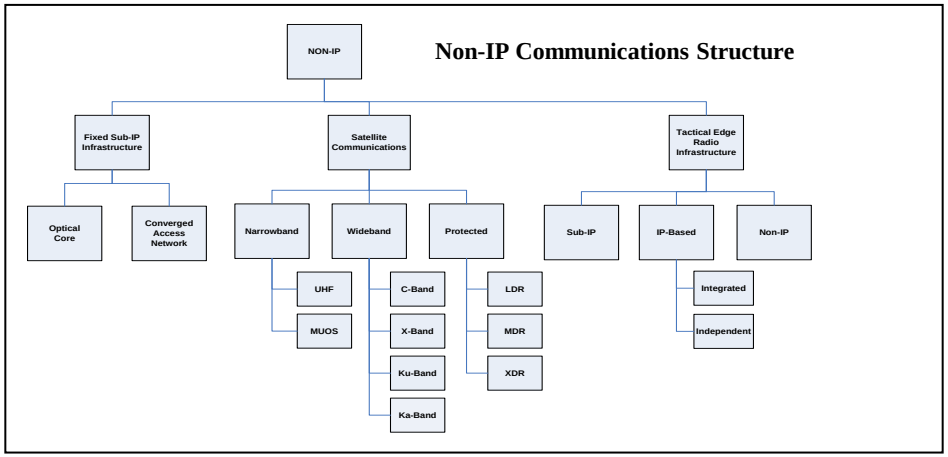


GTG Structure









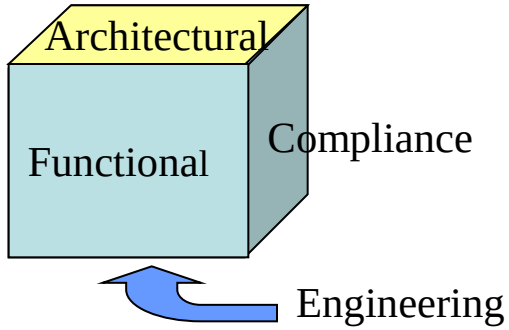
What are the GIG Technical Profiles?

- **Captures the overall potential GIG value by aligning DoD standards and information enterprise capabilities required to interface between producers and consumers**
- **GTP formats were crafted to contain as a minimum:**
  - **Interoperability Requirements Description: Functional breakdown of technical features, IA/security requirements and associated best engineering program practices for implementing net-centric interoperability principles and solutions for specific GIG capabilities**
  - **Interoperability Reference Architecture: Reusable operational and system technical context views that show where GTPs fit into a program's integrated architecture**
  - **Technical Implementation Profile: DISR standards guidance citations for specific GIG capabilities and applicable interface options and settings required to meet Interoperability and netcentric certification requirements**
  - **Compliance Testing Information: Describes how the GTP technical implementation will be tested for compliance and identifies the location of any available test artifacts (e.g, inspection and analysis criteria, demonstration methods, or test procedures)**

Objective is to enhance the end-users experience in identifying applicable guidance and establish a consistent baseline for citing and evaluating interoperability and netcentric compliance

Multiple Dimensions of GTPs

- GTPs have functional, architectural, engineering, and compliance dimensions
- The type of information within each dimension varies by DIEA area



Dimension	Category	Communications Area Examples	Data Services Area Examples
Functional	Descriptions Requirements	Connections Exchanges	Delivery Discovery
Architectural	Standards Profile Reference Architecture	Interfaces Nodes	Information Content Data Artifacts
Engineering	Guidance Statements Implementations Best Practices	Waveforms Performance (e.g., BER, Latency)	Content Management Registration Orchestration
Compliance	Requirements Validation Testing & Verification	Technical Criteria against Requirements	Data Integrity Assured Service Service Efficiency

GTG Use Cases

- **To characterize the common consumer functional interface for GIG Core Services and Data:**
  - Common consumer interfaces enable all enterprise servers with one configuration at the GIG enterprise interface (DISN Gateways), wireless computers with another (MUOS terminals) and small handhelds and mobile devices with yet another (JTRS/Blackberry/PDA)
  - A GTP provides the interface implementation to be specified for all similar devices; Enterprise Core capabilities delivers information and services to multiple consumer devices, consumer capabilities are standardized around specific computing platforms and software configurations

- **To enable the consumption of M2M data and services that are sourced from functionally disparate machines in a standardized format:**
  - Systems delivering satellite reconnaissance data in one geographical format requires standardized georef translation before it can be distributed to analysts (MIL-STDs or GPS?/is imagery pictorial or synthetic)
  - A GTP defines the standards that govern the data translation/mediation at the consuming machines to standardize M2M delivery via autonomous analysts' service

GTG Use Cases

- **To support capability based service delivery to unintended users:**
  - Electronic Health Records are transmitted at differing levels of access depending on the consumer
  - A GTP provides the identity management standards implementation capabilities to tailor the sensitivity and nature of health information services and data depending on whether the information is needed urgently (combat emergency), available temporally (records access coincides with patient appointment or diagnosis), or archival (records tailored for delivery to VA or private care information systems)

GTG Value Metrics

- **Metrics important to PMs/CPMs:**
  - **Duplication**
  - **Process time**
  - **Milestone Decision Success rate on the first try / flunk rate**
  - **Cost to assess/test NR KPP compliance**

- **Metrics important to NII & Joint Staff:**
  - **Duplication**
  - **Process time**
  - **Success rate / flunk rate**
  - **Number of compliance waivers over a period of time**
  - **Cost to maintain GTG and tools**
  - **Cost to assess/test NR KPP compliance**
  - **Cost to PMs in formulating JCIDS and Architectural material, complying w/requirements**
  - **How JCIDS evaluations yield to first-time success during NR KPP testing certification**

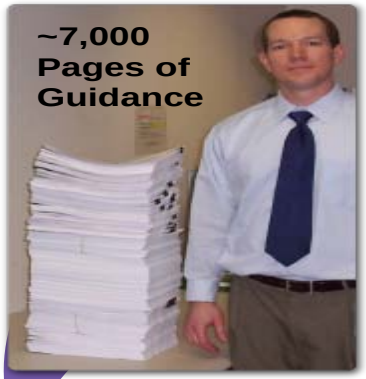
GTG in FY 2010: What's Next

- **Policy: Further institutionalize GTG in DoD Instructions (e.g. DODI 4630.8, 5101.7, 8100 and others)**
- **CM:**
  - **Continue to expand GTP library – EWSE IPT contributions essential**
  - **GTG Charter pulls in Services / Agencies to participate in development, use, CM, and governance of GTG and GTPs**
  - **GTG CM Board Charter can be viewed at: https://www.intelink.gov/wiki/Portal:GIG_Technical_Guidance**
- **GTG Development:**
  - **Develop and maintain the GTP Online Repository with capabilities to expand GTG Federation to include:**
  - **Full Interoperability and Supportability Federation for CDD/CPD/ISP development IAW approved XML data schemas and the PM's primary portal to GTG, DISR standards, and JCIDS NR-KPP assessment and compliance certification capabilities**
- **Federating Tools:**
  - **EISP as the pilot for the capability-based service**
  - **Other data sharing and integration efforts on the drawing board:**
    - **DITPR, DARs and MDR Integration**

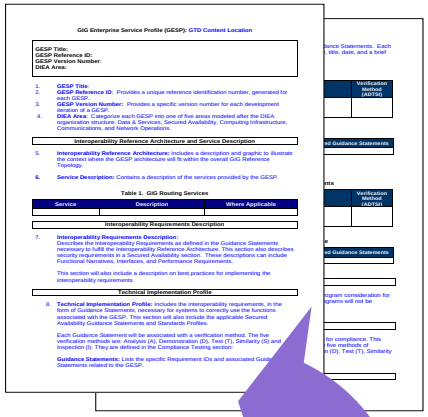
Bottom Line: PM benefits by utilizing I&S Federated Capabilities and GTG content to realize "Net-Readiness" based on the IT standards meeting technical requirements

GTG Summary

Before: Overload

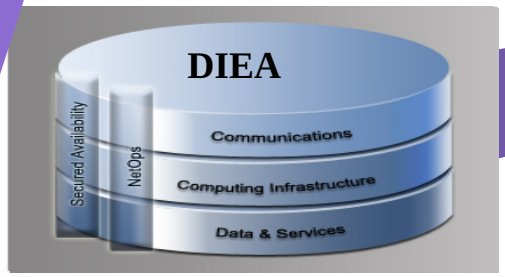


After: GTG/GTP



Manage and deliver evolving, actionable set of consistent technical requirements

Organize and condense disparate guidance



- **GTG Enforcement:**
  - **Defines required GIG net-centric capabilities for programs to use**
  - **Identifies technical details for minimum consistent compliance**
  - **Includes the tests that verify correct implementation**
  - **Drives programs to use the latest GIG technology or justify why not**
  - **Provides metrics to gauge success**
  - **Leads PMs to future standards implementations that will provide trade decisions for future technology**

GTG Point of Contact

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