Defense Information Systems Agency
Department of Defense

DISA Customer Conference 2008

DISN OSS Information Sharing Services

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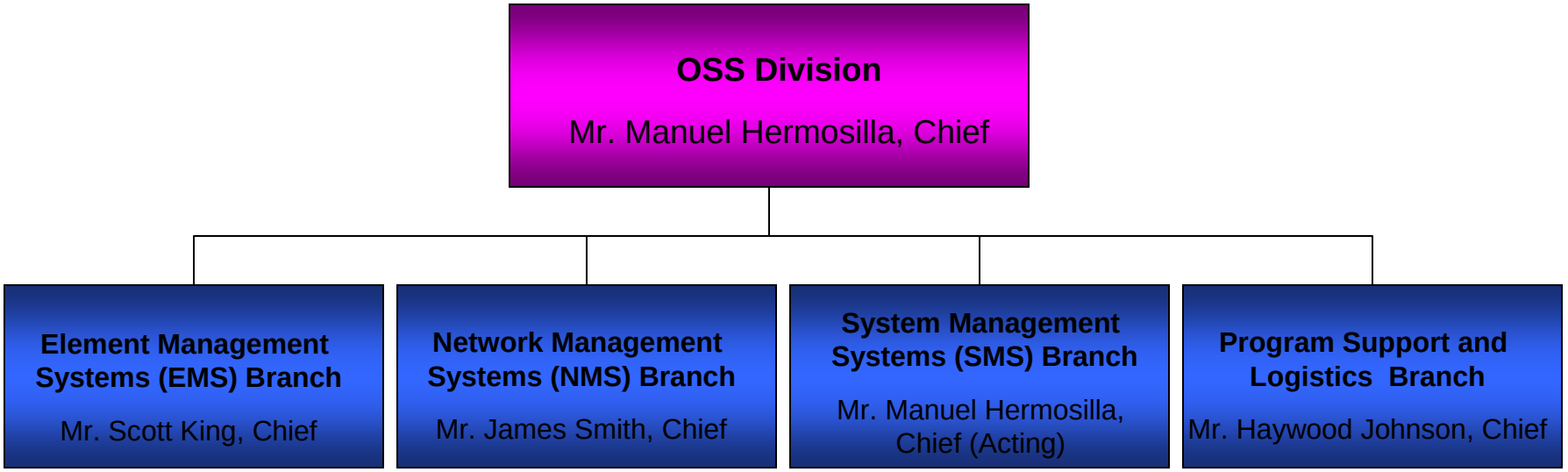
This briefing is Unclassified

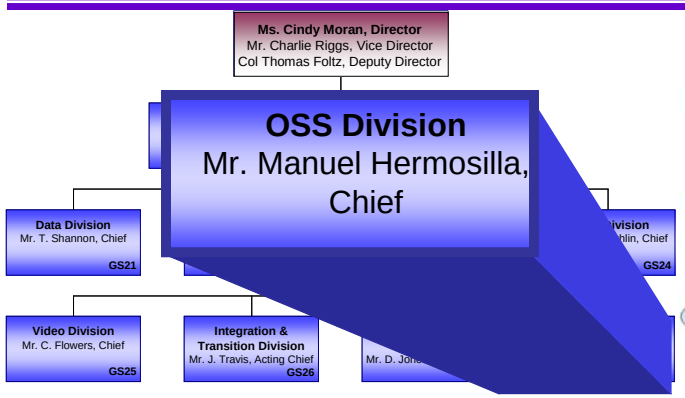
OSS Division: Mission

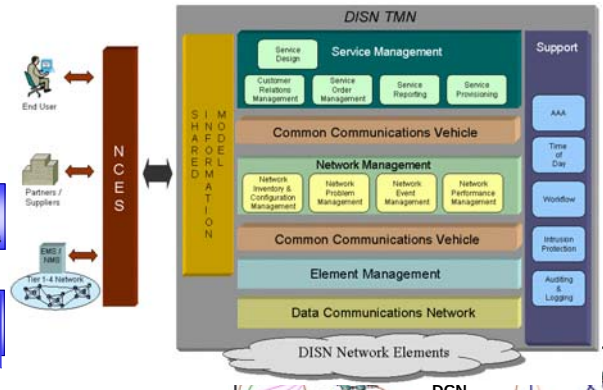


Mission

Operational Support Systems Division – Provides systems engineering and integration, planning, resourcing, fielding, sustaining and evolving secure solutions to instrument and automate the service fulfillment and assurance functions for the DISN using Net-Centric principles and technologies. The DISN OSS will share its data assets for information superiority to the Commander-in-Chief, Combatant Commanders, DoD, DISA, Services, Agencies and the Warfighter.

Operational Support Systems (OSS) Division



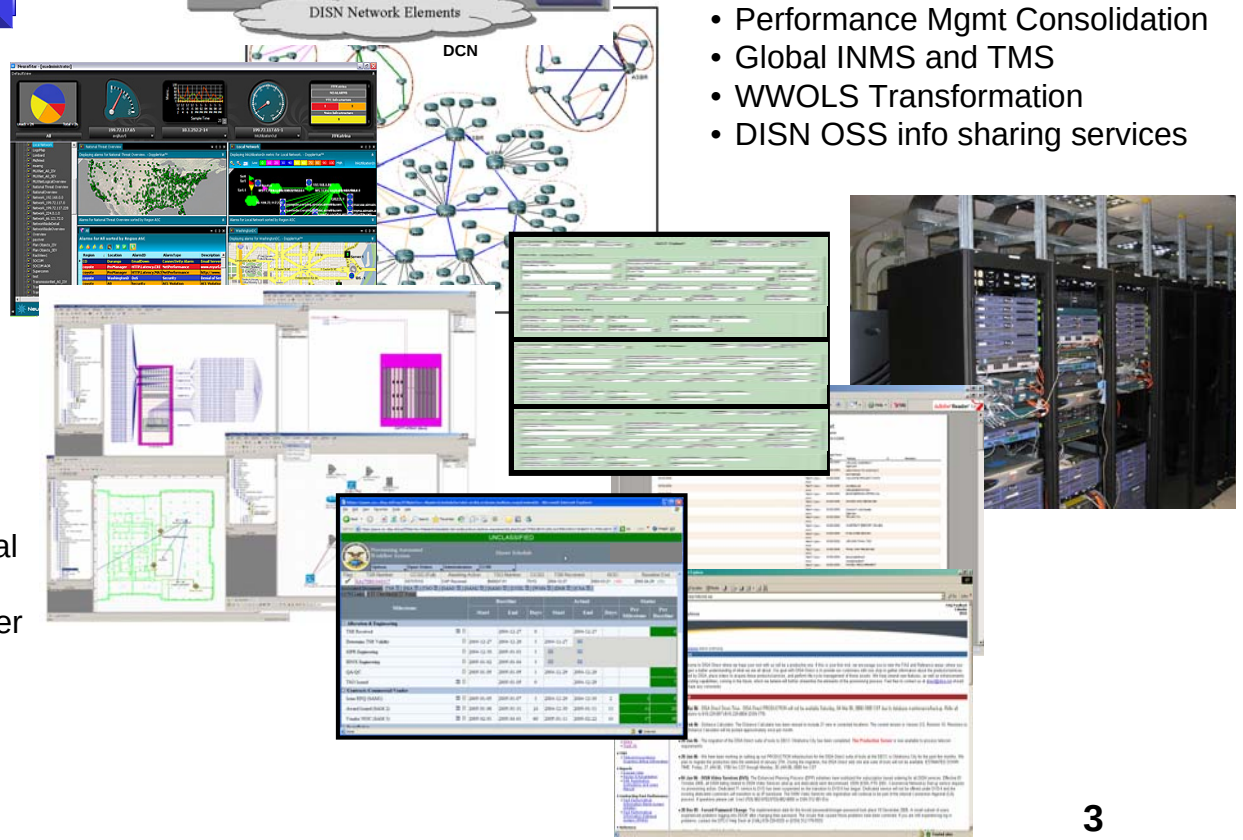


MAJOR PROJECTS

- DISN OSS Consolidation
- Service-Oriented Integration
- Integrated DISN CMDB
- OSS consolidation at DECC
- TNC-CENT Deployment
- OSS Central
- Ford Island Transition
- DCN Optimization/Classified DCN
- Performance Mgmt Consolidation
- Global INMS and TMS
- WWOLS Transformation
- DISN OSS info sharing services

FUNCTIONS/CONTRIBUTIONS

- Net Mgmt Tier III and Ops Support
- Data Communications Network
- Element Management Systems
- Network Management Systems
- Service Management Systems
- Common information Model for NetOps
- Integrated Situational Awareness
- Circuit ordering and tracking for DISA, DoD and Non-DOD requirements
- DISN Database of Record for Contractual and Financial circuit data
- Support ordering of Presidential and other high interest circuits
- DISN Network Operations Consolidated Task Order



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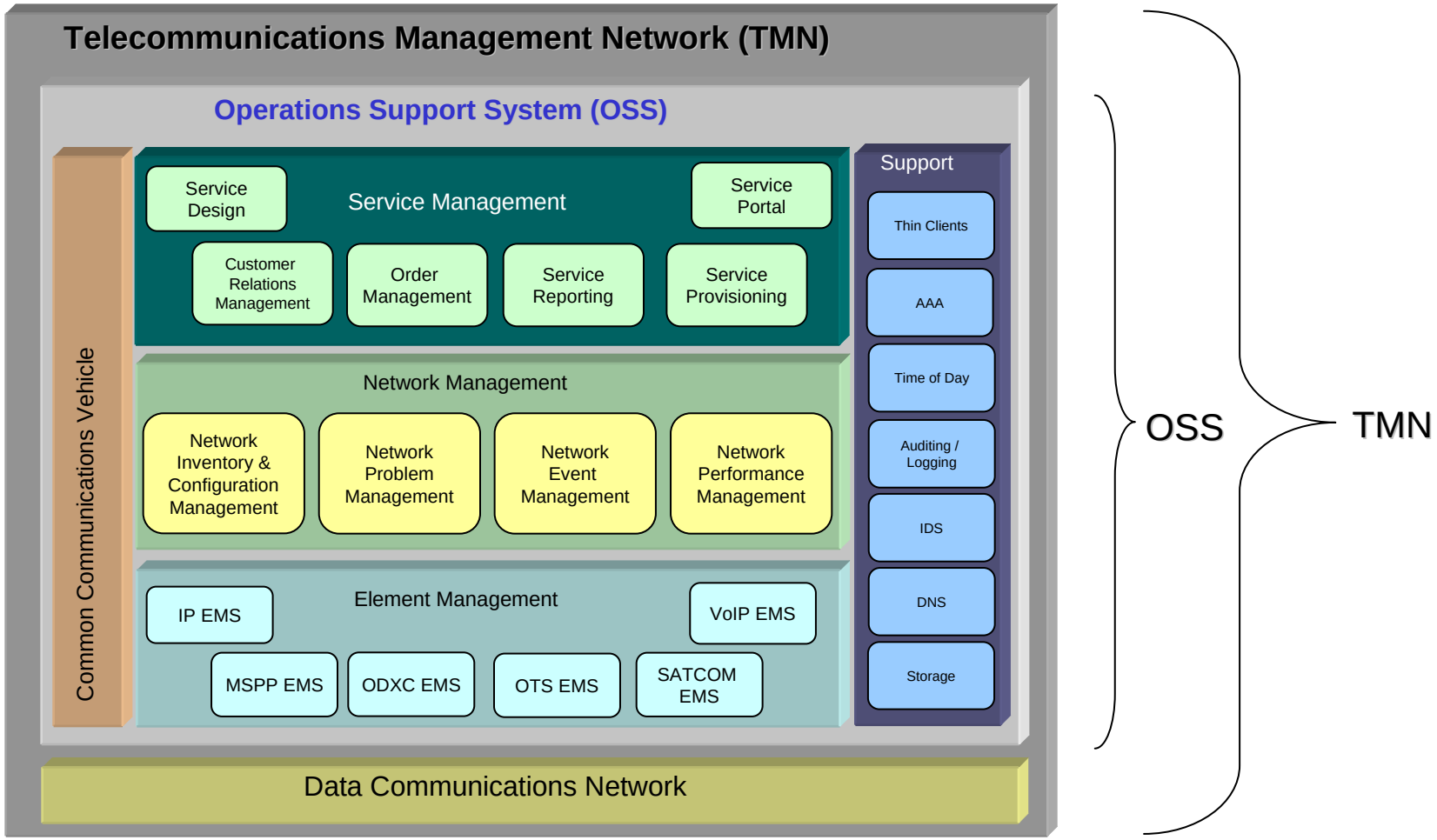
What is a TMN?

According to ITU-T M.3010, a Telecommunications Management Network is defined as …

- **All the systems that provide management functions**
  - **Alarm mgmt, Inventory mgmt, Order mgmt, Provisioning, etc.**
- **The connectivity between the management functions and the managed elements**
- **The connectivity between management functions**
- **Major components of the ITU-T TMN include**
  - **Operations Support System**
  - **Data Communications Network**
  - **Workstation**

DISN TMN Reference Model



DISN Network Elements

"Increases and Facilitates Integration Efficiencies"

DISN TMN Systems

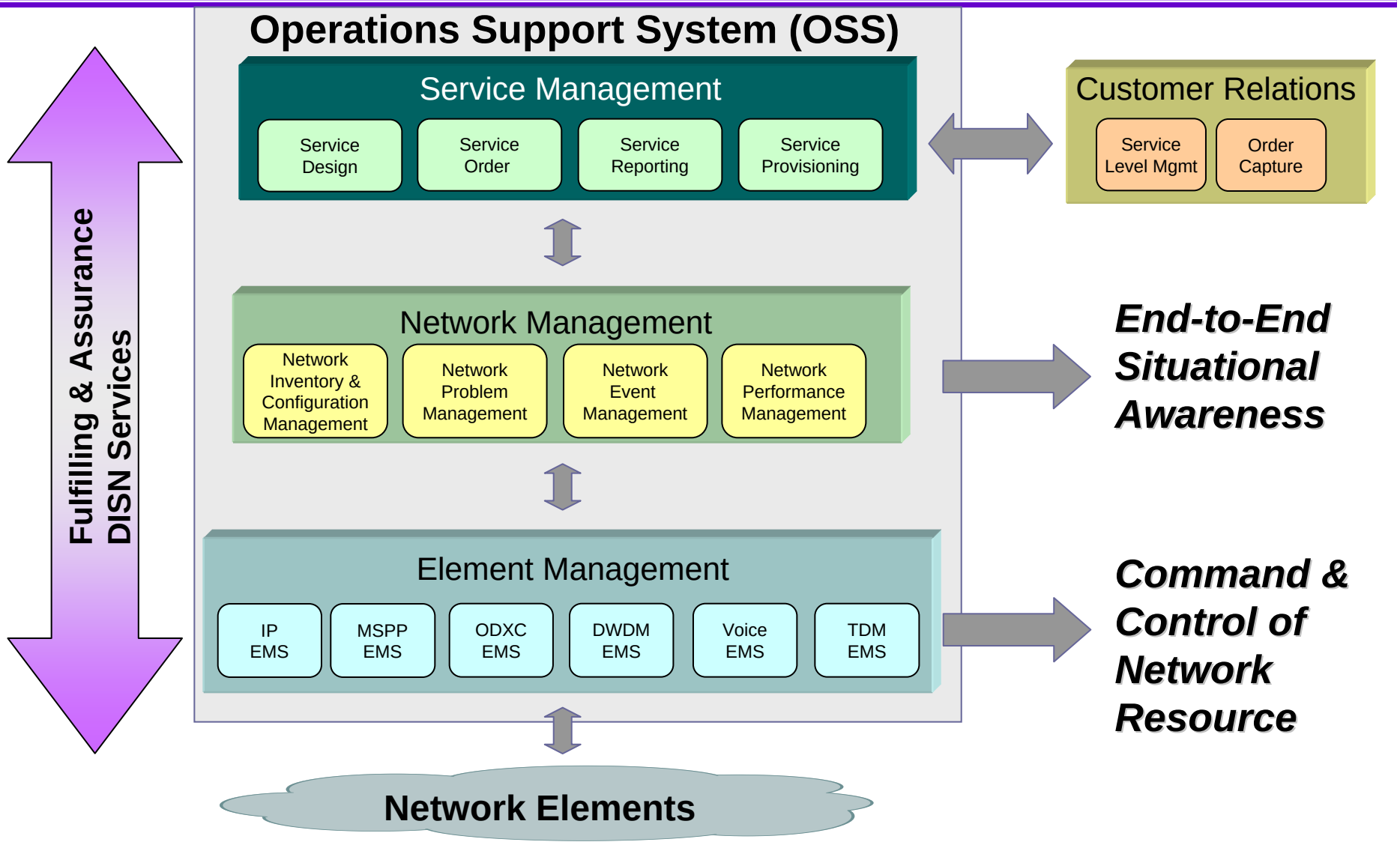
- Operations Support Systems
  - ***Service Management System***
    - **Order Mgmt, CRM, Service Design, Service Provisioning**
      - **DDOE, PAWS, WWOLS-R, WMS**
  - ***Network Management System***
    - **Event Mgmt, Report Mgmt, Trouble Mgmt, Inventory Mgmt**
      - **INMS, TMS, ICATS, RMS**
  - ***Element Management System***
    - **IP (IBM NetCool, InfoVista, ArcSight NCM/NRM, Concord NetHealth, *Packet Design*), OTS, ODXC, MSPP, AMS, *Future***
  - ***Support System***
    - **Common Communications Vehicle (CCV)**
    - **AAA , IDS / IPS, DNS, Time of Day,**
    - **OSS Portal**
  - ***Storage Network***
- Data Communications Network
  - ***Local Area Network***
  - ***Wide Area Network***

DISN OSS BLUF

- **The DISN Operations Support System (OSS) is the collection of systems that perform:**
  - Management
  - Inventory
  - Engineering and Planning
  - Repair functions
- **Key OSS Elements**
  - Processes
    - The sequence of events
  - Data
    - The information that is acted upon
  - Applications
    - The components that implement processes to manage data
  - Technology
    - How we implement the applications

"Efficient Delivery and Operations of DISN Services"

OSS Support Functions



"Functionally Focused Capabilities"

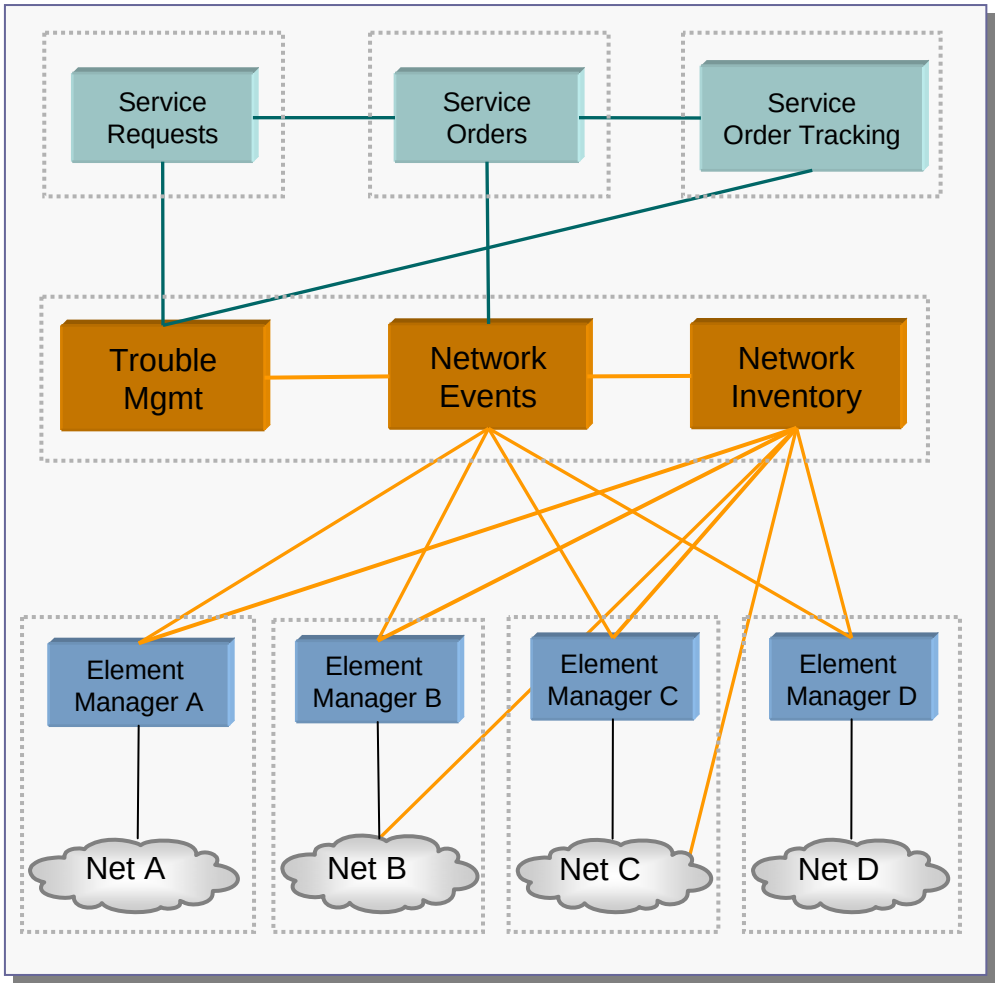
DISN OSS Goals

- Single OSS with interoperable COTS components working in concert to allow for
  - Dynamic, on-demand provisioning & activation of voice, video, and data services
  - End-to-end visualization of DISN
  - Integrated, real-time situational awareness of the DISN
- Interoperable and interchangeable OSS components using one data interface per application
- Service Oriented Integration environment where data interfaces are published, self-describing, and reusable
- Common, shared information exchange schema for application integration

"Transformation to a Data-centric environment"

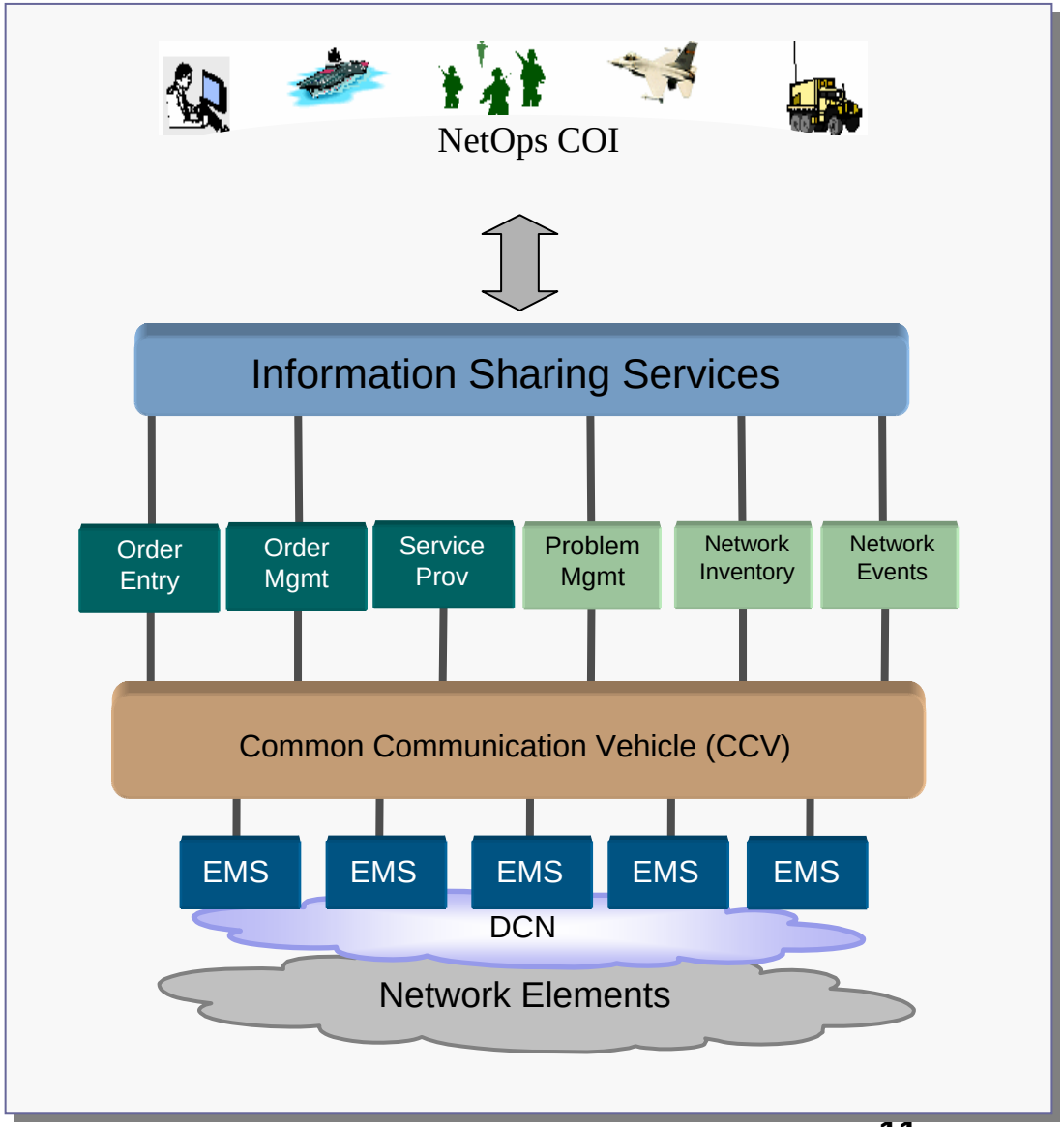
The Problem

- Disparate OSS components
  - Silo applications
  - Tightly coupled interfaces
- No common information sharing model
  - Too many native vocabularies
  - High integration costs
- “Tool-centric”
- Difficult to correlate relationship between alarm, inventory, and customer / mission
- No common architecture
  - Low scalability
  - Limited flexibility
- Problem becomes more acute as OSS grows



The Solution

- Consolidated OSS architecture
  - No Silos
- Loosely-coupled integration
  - Better flexibility and scalability
- “Data-centric”
- Common services for sharing
  - Single point of access
  - Net-Centric



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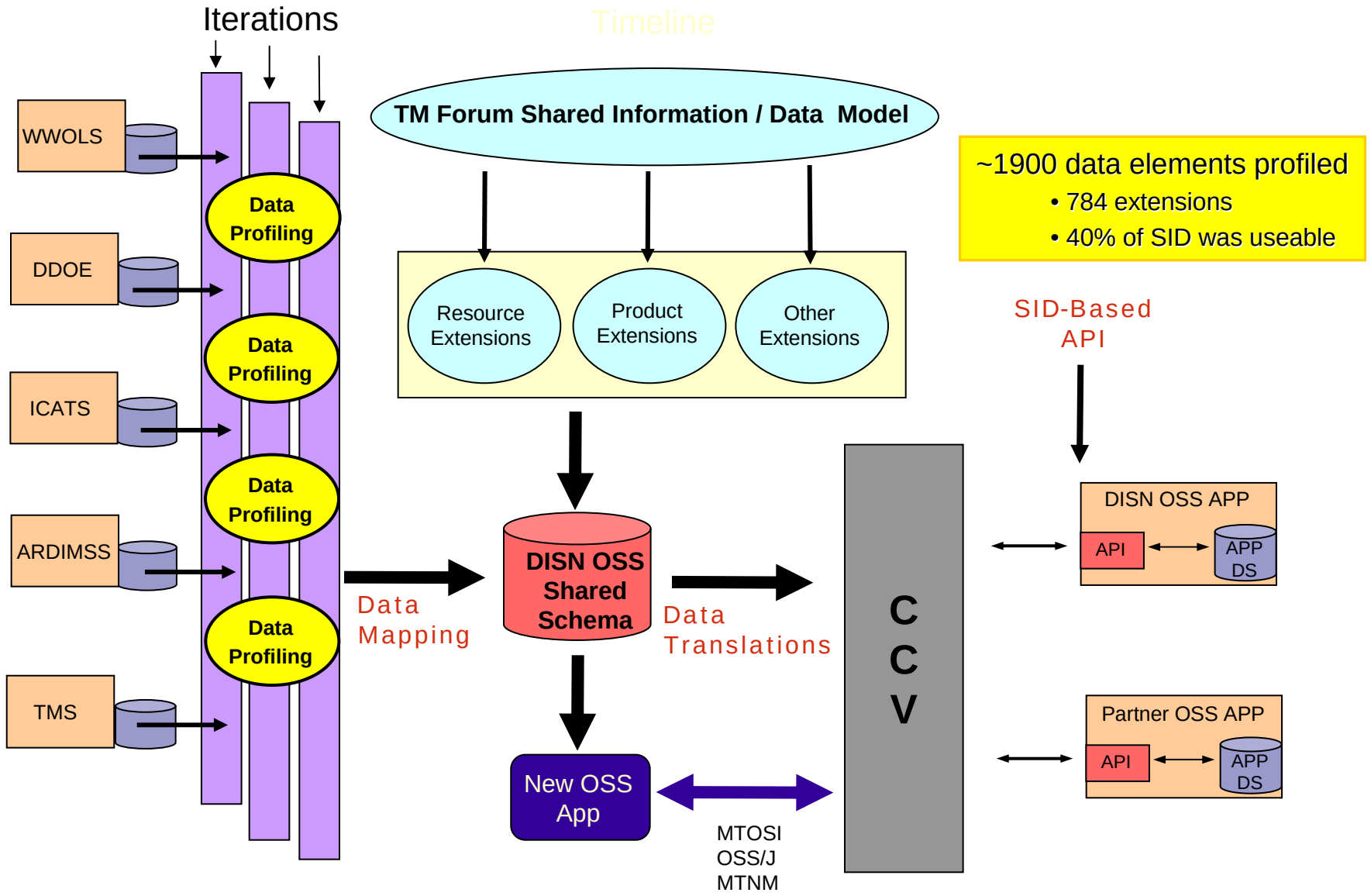
DISN OSS Architecture Strategy

- Define a common NetOps information exchange schema
  - To share information internally and externally
- Deploy common industry standards-based integration technology
  - One integration interface per system
- "ADOPT" industry standards and models as baselines to minimize research & development
  - TeleManagement Forum (www.tmforum.org)
    - Shared Information / Data (SID) model
    - Multi-Technology Network Management (MTNM)
    - Multi-Technology Operations System Interface (MTOSI)
    - OSS through Java (OSS/J)
- Deploy interoperable & interchangeable COTS solutions
- Implement a service-oriented integration environment

"Service-oriented Integration for Composable NetOps Data"

Information Sharing Model Methodology



TMF Interface Specifications

Function	SID Domain	Interface Specification	Java	XML / JMS	WS
Trouble Ticket	Common	OSS/J TT	Yes	Yes	Yes
Event Mgmt	Resource	OSS/J FM	Yes	Yes	Yes
		MTOSI	No	Yes	Yes
		MTNM (CORBA)	No	No	No
		QoS	Yes	Yes	No
Service Inventory	Service	OSS/J	Yes	Yes	Yes
Resource Inventory	Resource	MTOSI	No	Yes	Yes
Resource Usage	Resource	IPDR	Yes	No	No
Order Mgmt	Service	OSS/J	Yes	Yes	Yes
Service Activation	Service	OSS/J Serv Act	Yes	Yes	No
QoS	Service	OSS/J QoS	Yes	Yes	No

In production
In development

DISN OSS Integration Architecture

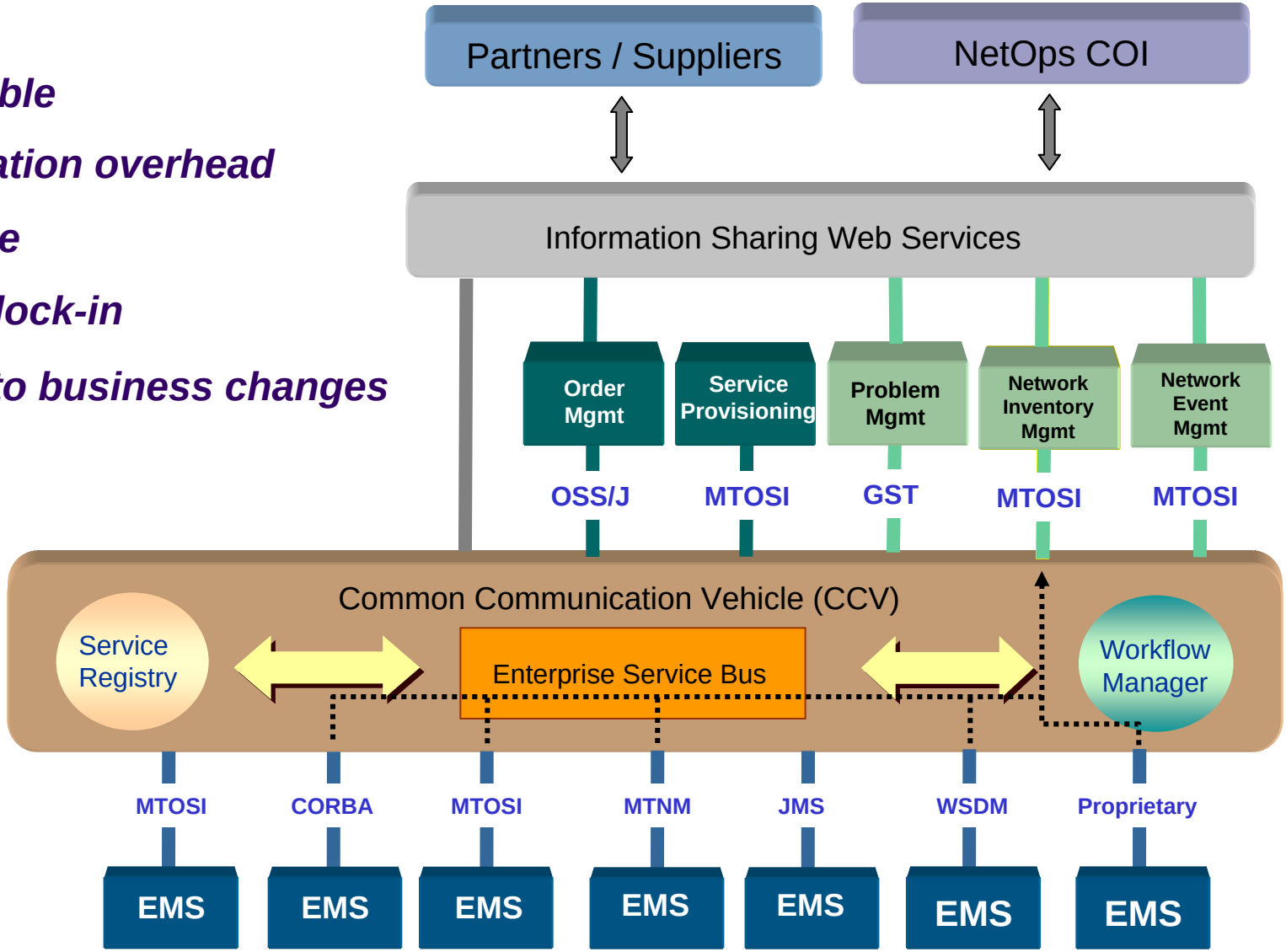
Very Scalable

Low integration overhead

Very flexible

No vendor lock-in

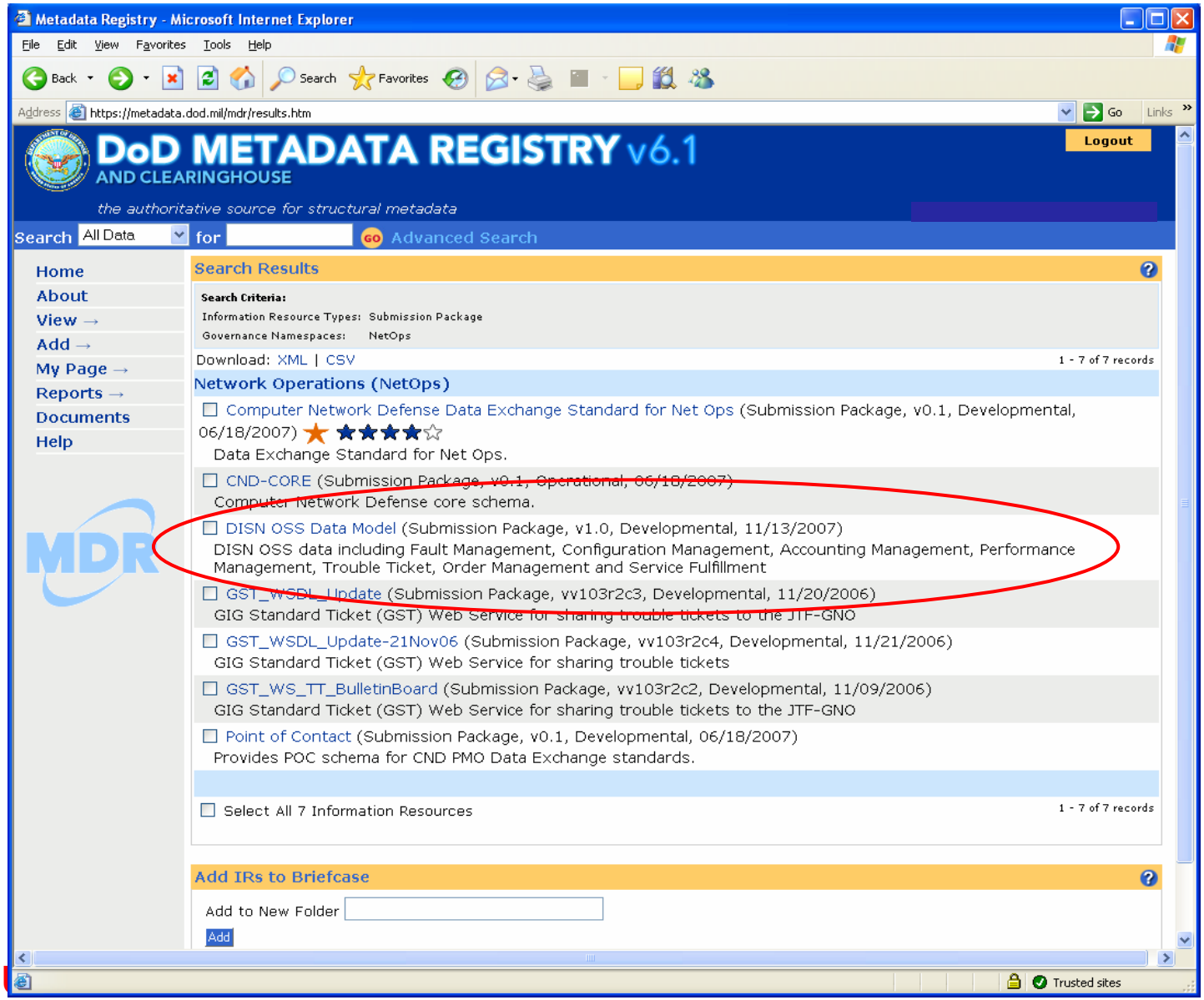
Adaptable to business changes



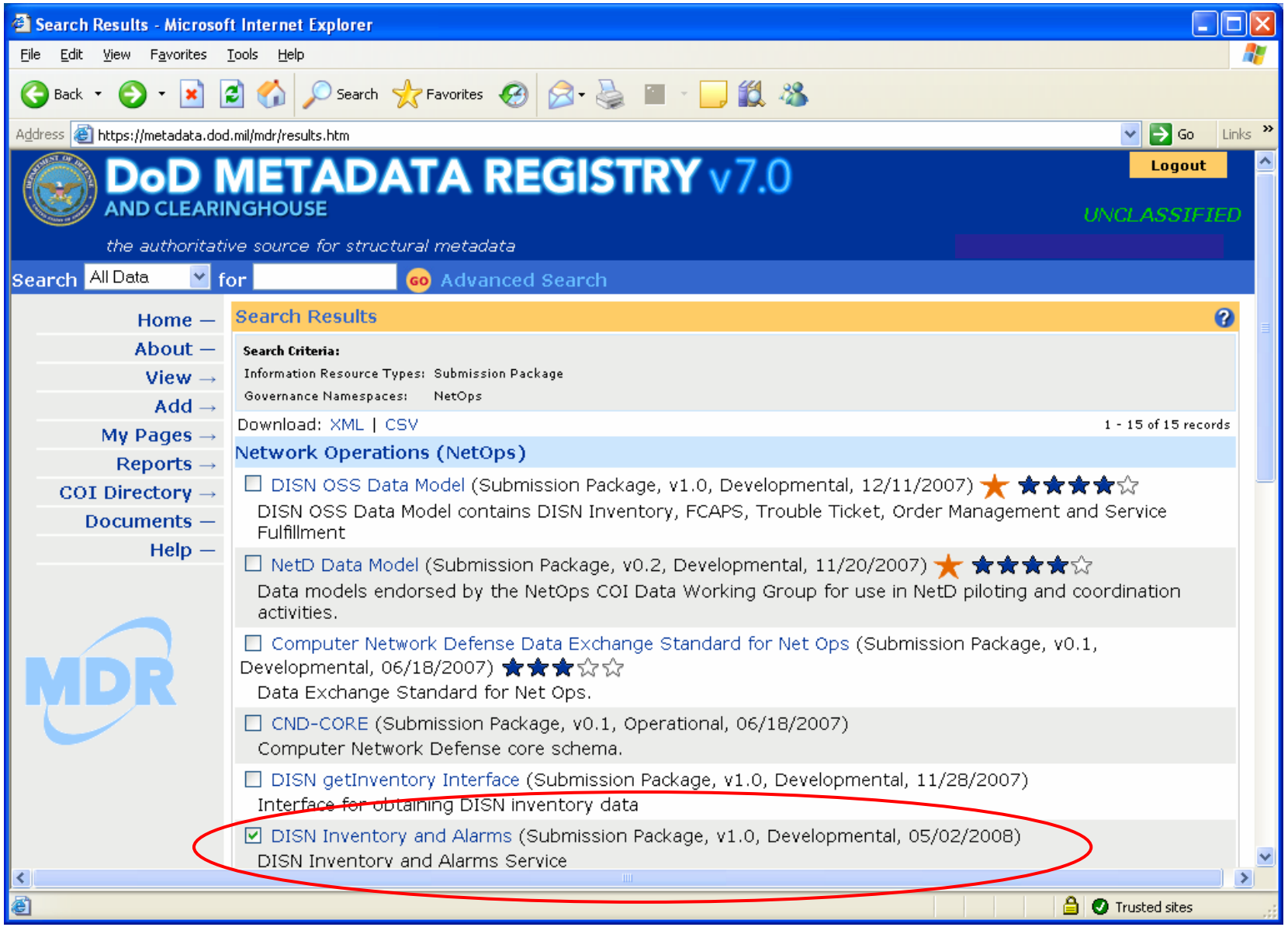
OSS User Benefits

- Many data calls currently requested by Service Managers and customers can be retrieved directly via the DISN OSS Web Services
- Standard information exchange schema between applications will minimize the amount of data re-entry and maximize reuse
- Higher levels of application integration through standard interfaces will help streamline the provisioning and troubleshooting processes
- Slight paradigm shift as operators adjust to data and function-centric capabilities rather than tool specific
- Strict adherence to standards is mandatory, resulting in improved CM processes for the DISN

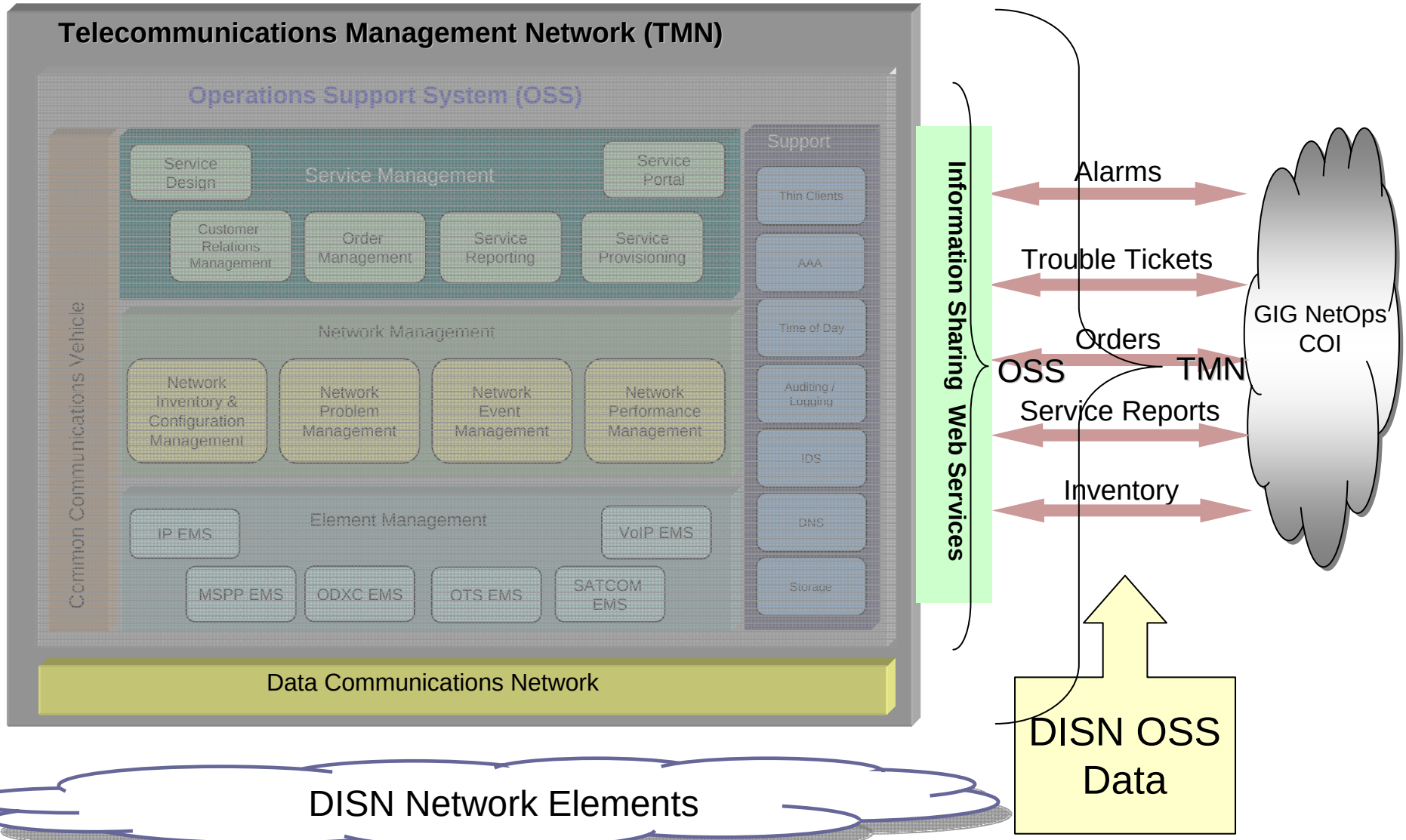
DISN OSS Information Model Published



DISN Inventory & Alarms Published



DISN OSS Information Sharing



"Increases and Facilitates Integration Efficiencies"

DISN OSS Information Sharing

- Information sharing will be through Web Services leveraging industry-specified specifications to minimize research & development efforts
  - The TMF Multi-Technology Operations System Interface (MTOSI)
    - Alarm, performance, and inventory (physical / logical) information
  - The TMF OSS through Java (OSS/J)
    - Trouble tickets
    - Service order information
- All DISN OSS services published on NCES UDDI and DoD Metadata Registries
- All DISN OSS data assets are or will be visible
  - DDMS tags already incorporated in published data
  - DDMS tags embedded in static content in new DISN OSS Portal
  - DISN OSS Central embraces Web 2.0 paradigm for sharing information

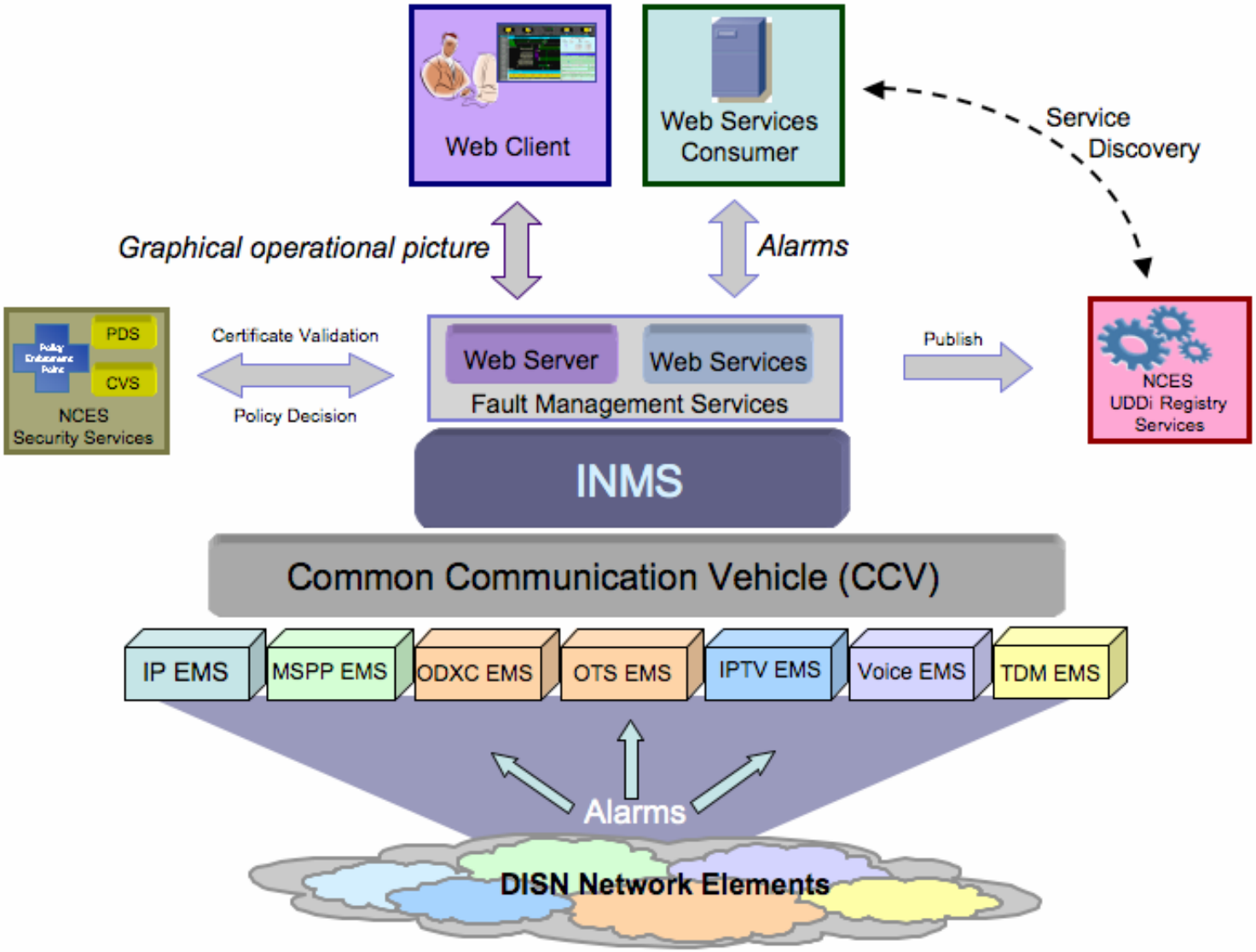
"End-to-End Solution Using Industry Standards "

Information Services Timeline

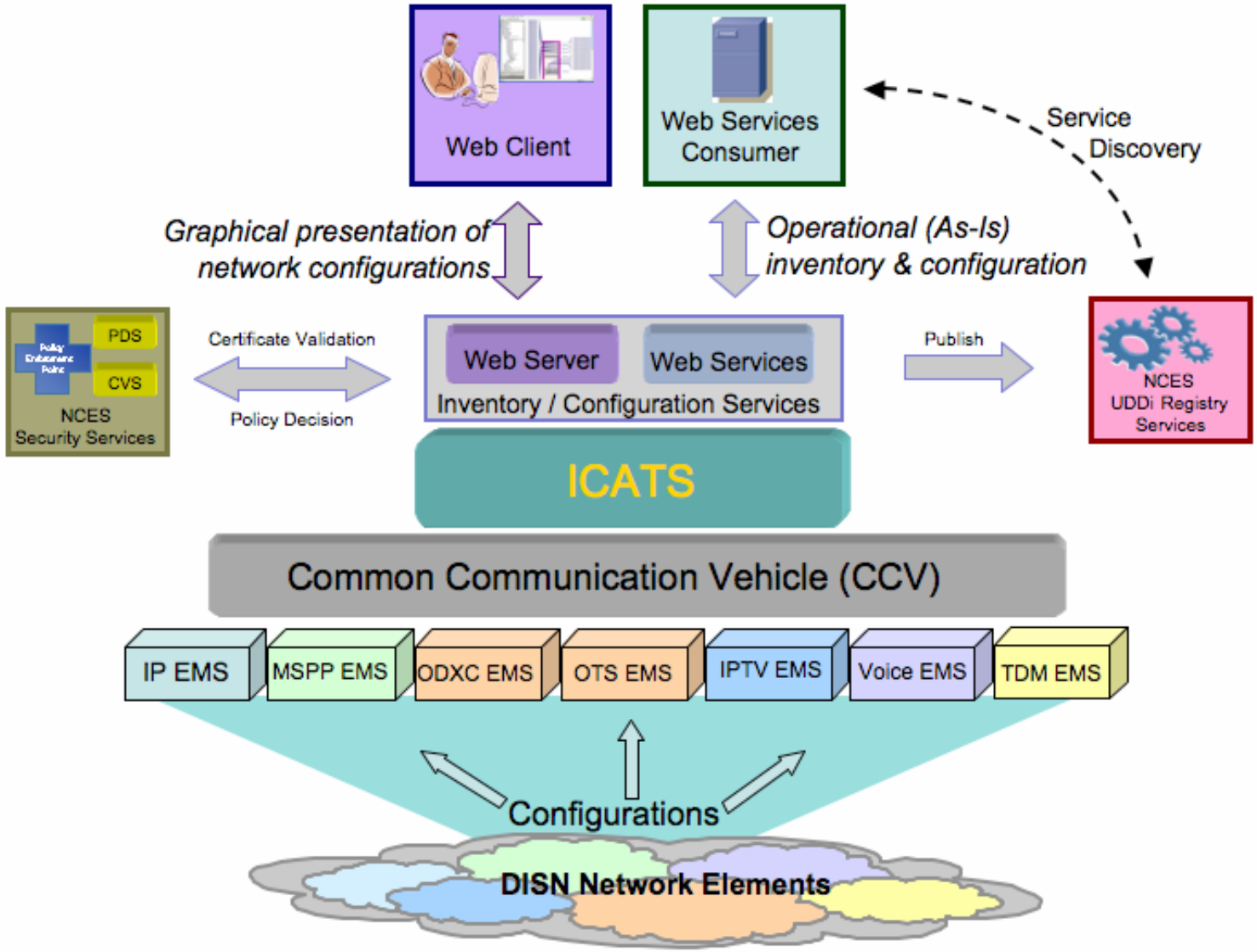
- Alarm Service – April 2008 – CENTCOM AOR
  - Completed mapping from legacy to information sharing alarm service
  - Assisting IBM with client interface for CENTCOM
- Inventory
  - Available today for DISN core network resources
  - Enhanced with router configuration details for CENTCOM (May 2008)
  - All DISN network resources available May 2009
- GIG Standard Ticket (GST) Reportable Ticket
  - Available today for NetOps COI to share reportable events
  - Need to finalize end-to-end process before implementing bi-directional sharing of trouble tickets within the NetOps COI
- Router performance data – December 2008
- IP Route topology – December 2008

"Information Services – Fielded Incrementally"

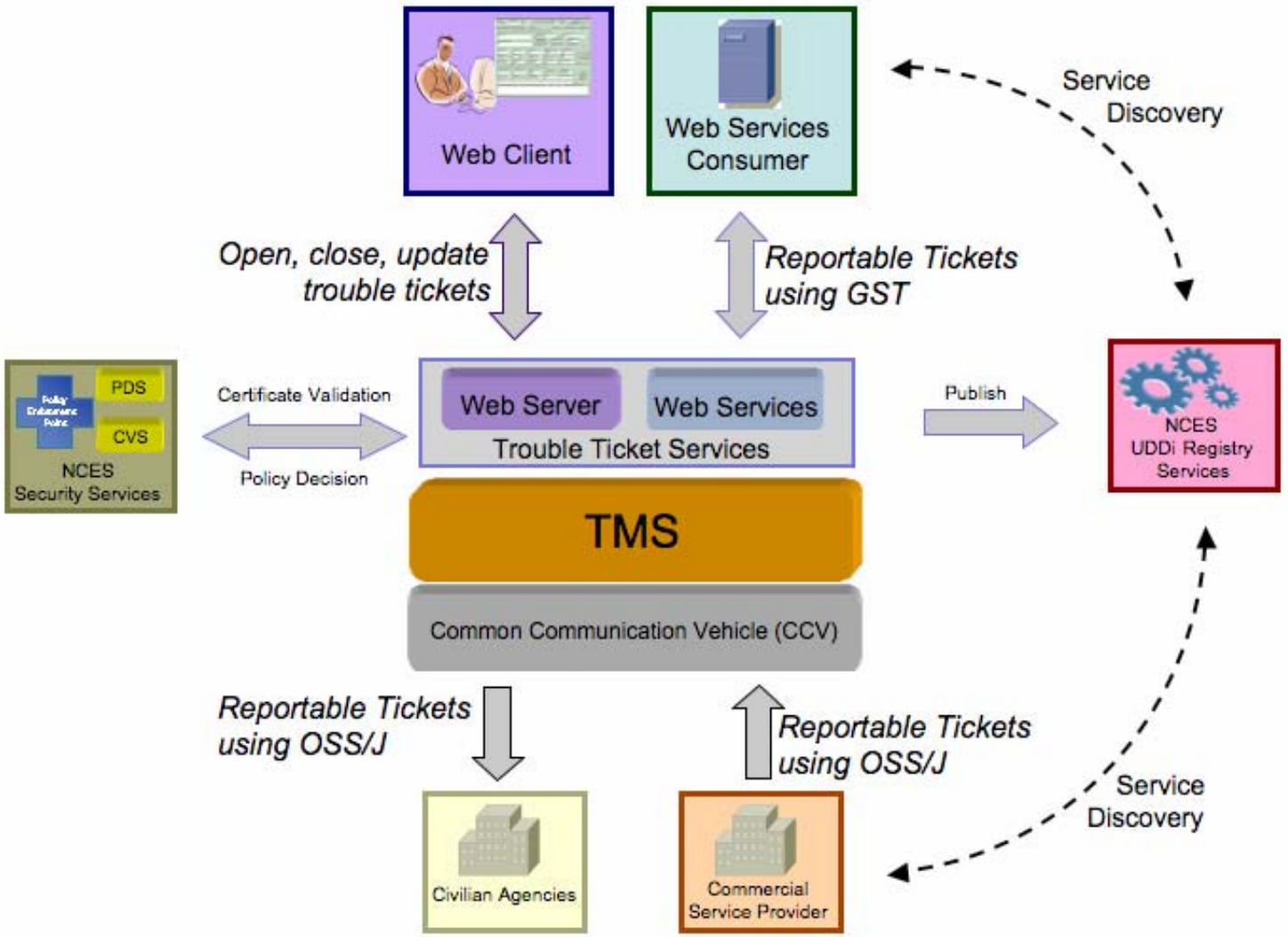
DISN OSS Alarm Service



DISN OSS Operational Inventory Service



Trouble Ticket Service



End State Sharing Information

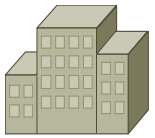
DOD Directive 8320.2

DISN OSS

Information Sharing Services

NetOps Info

Service Orders



Commercial Providers

Web Services
Industry specifications
Common vocabulary (Language)

NCES
Registry & Security Services

Local application
with shared NetOps view

Information Sharing Client

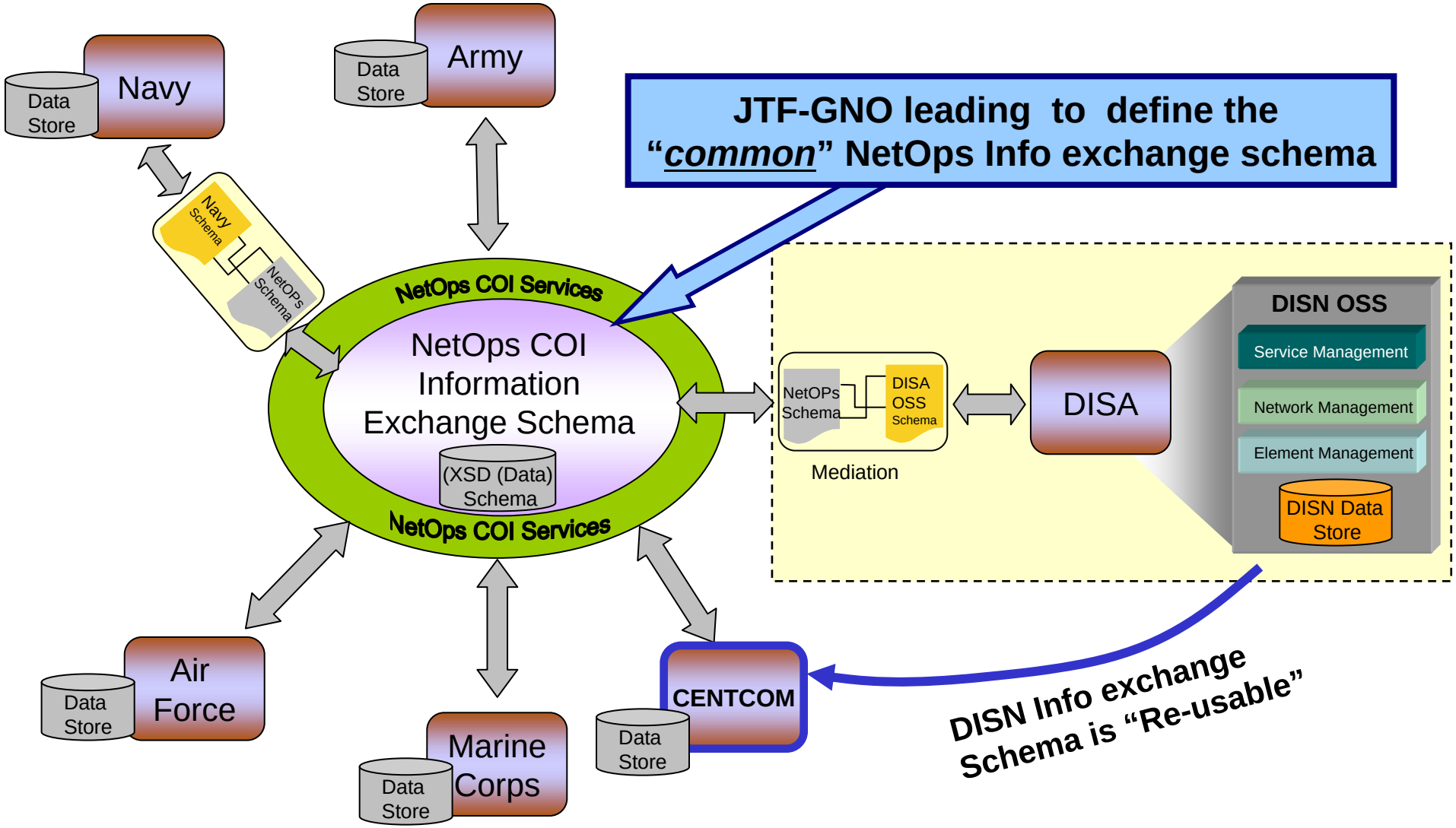
IP EMS

Other EMS

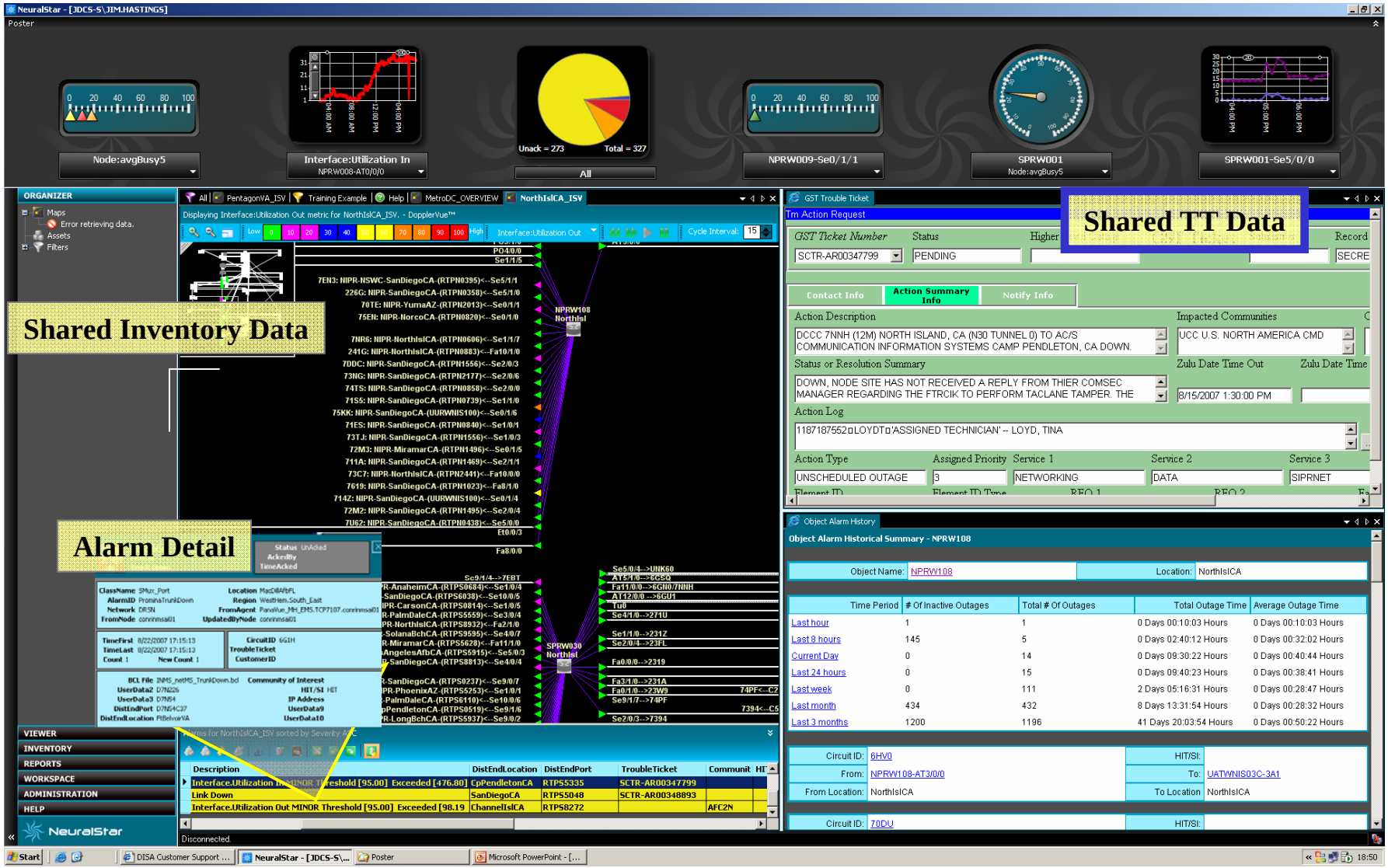
COCOM Nets

"End-to-end Situational Awareness through Information Sharing"

DISN OSS NetOps Info Sharing



Integrated View of Shared Data



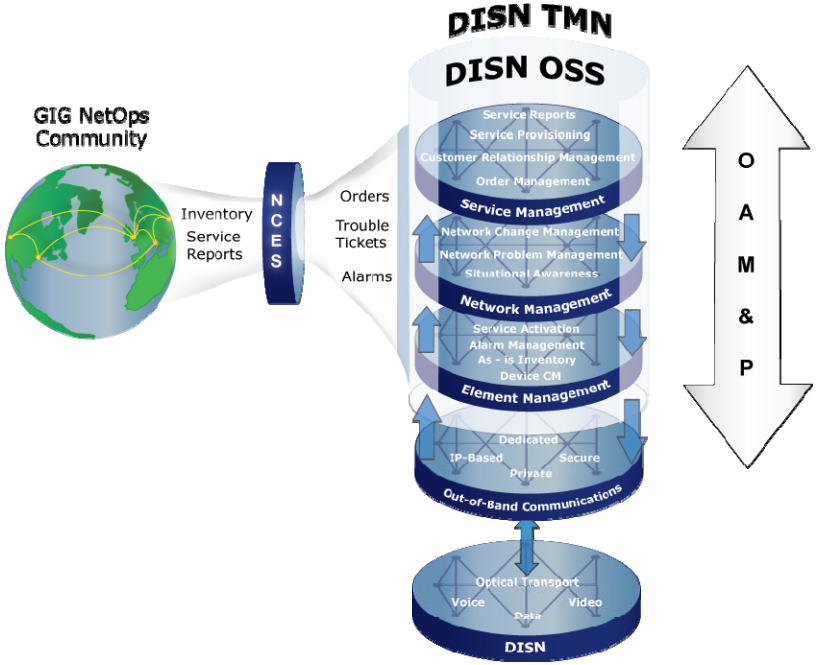
DISN Information Sharing

Through

- *"Published services"*
- *Standard interface technologies*
- *Common information model*

There will be

- *"Better operational effectiveness"*
- *Better information sharing*
- *Accurate situational awareness*



Information Sharing

Information Sharing

www.disa.mil