



# **JPM IS Integrated Architecture and Software Support Activity**

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# JPM IS Integrated Architecture



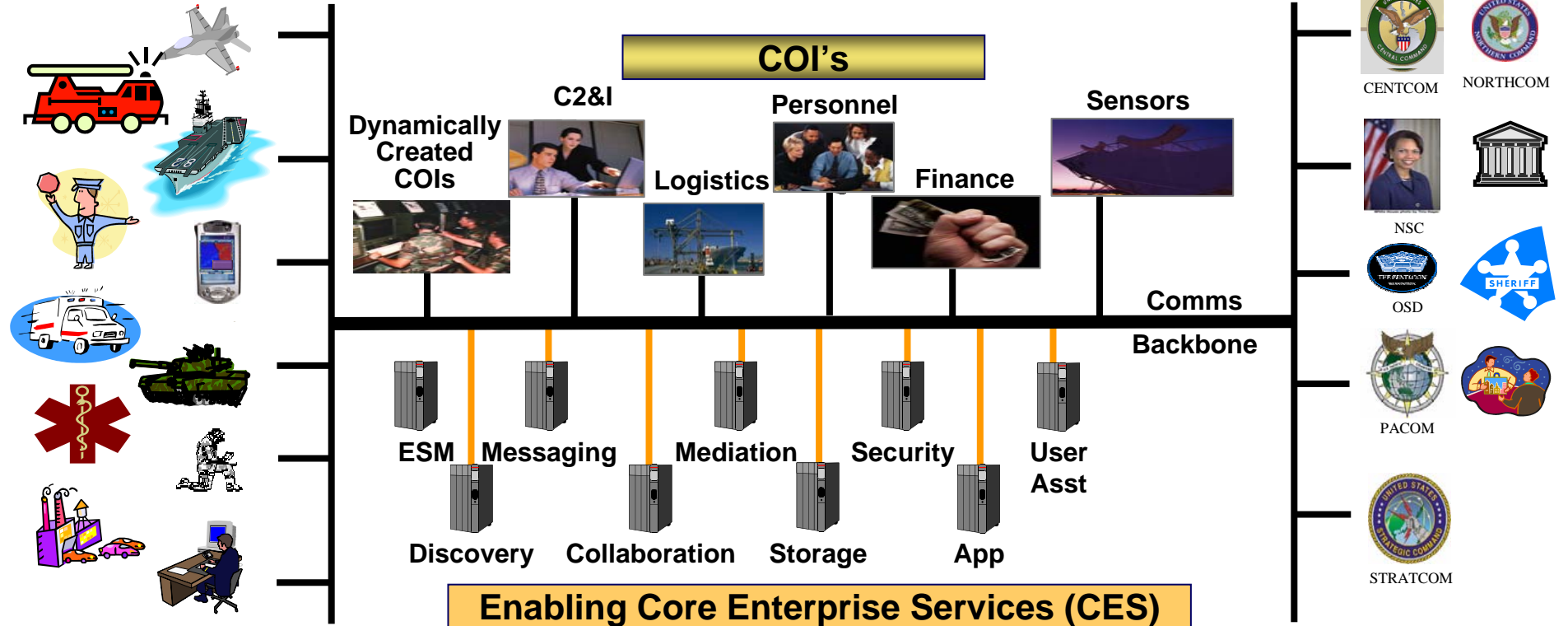
# 21<sup>st</sup> Century C4ISR System



First Responders

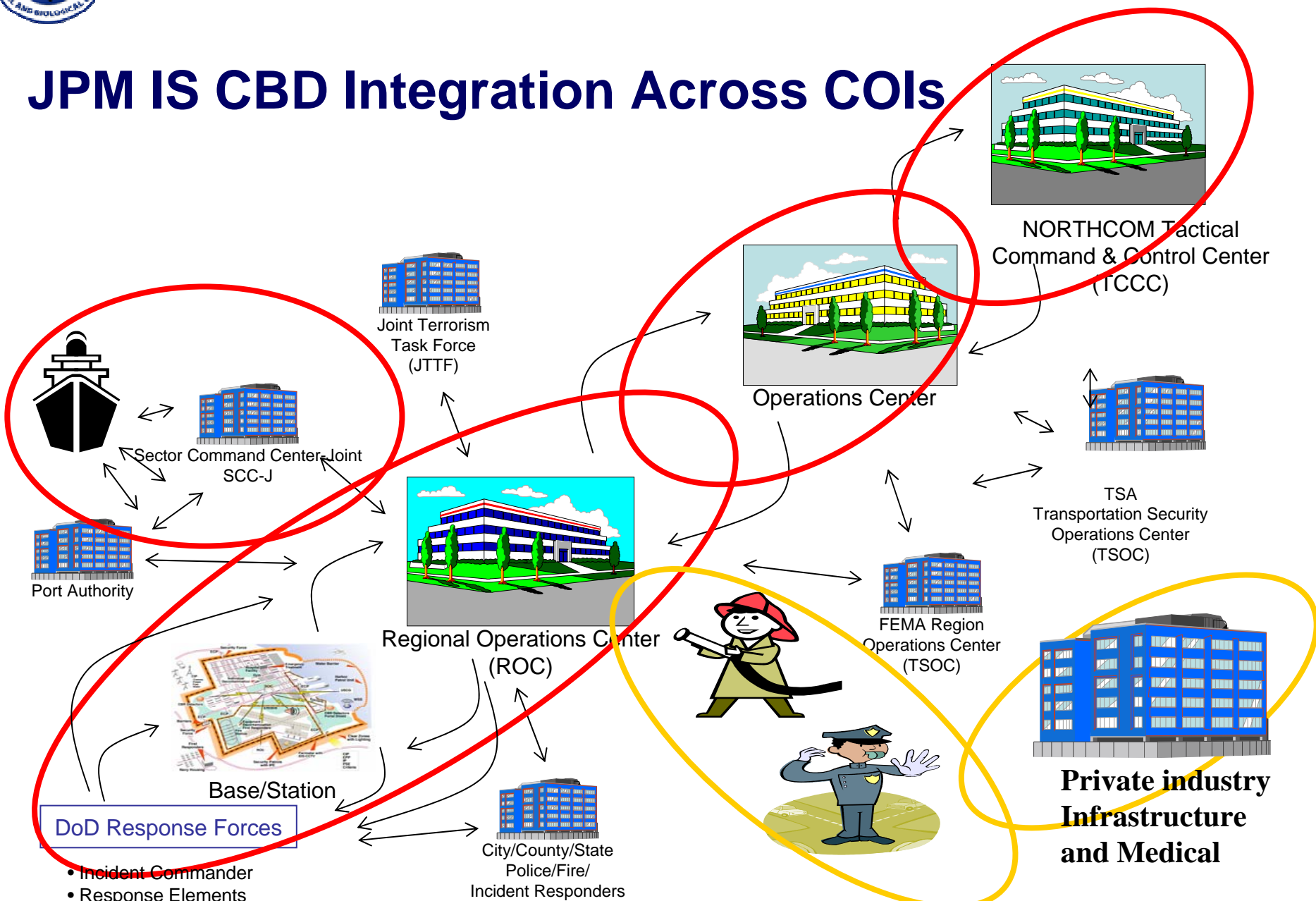
War Fighters

Command Authorities

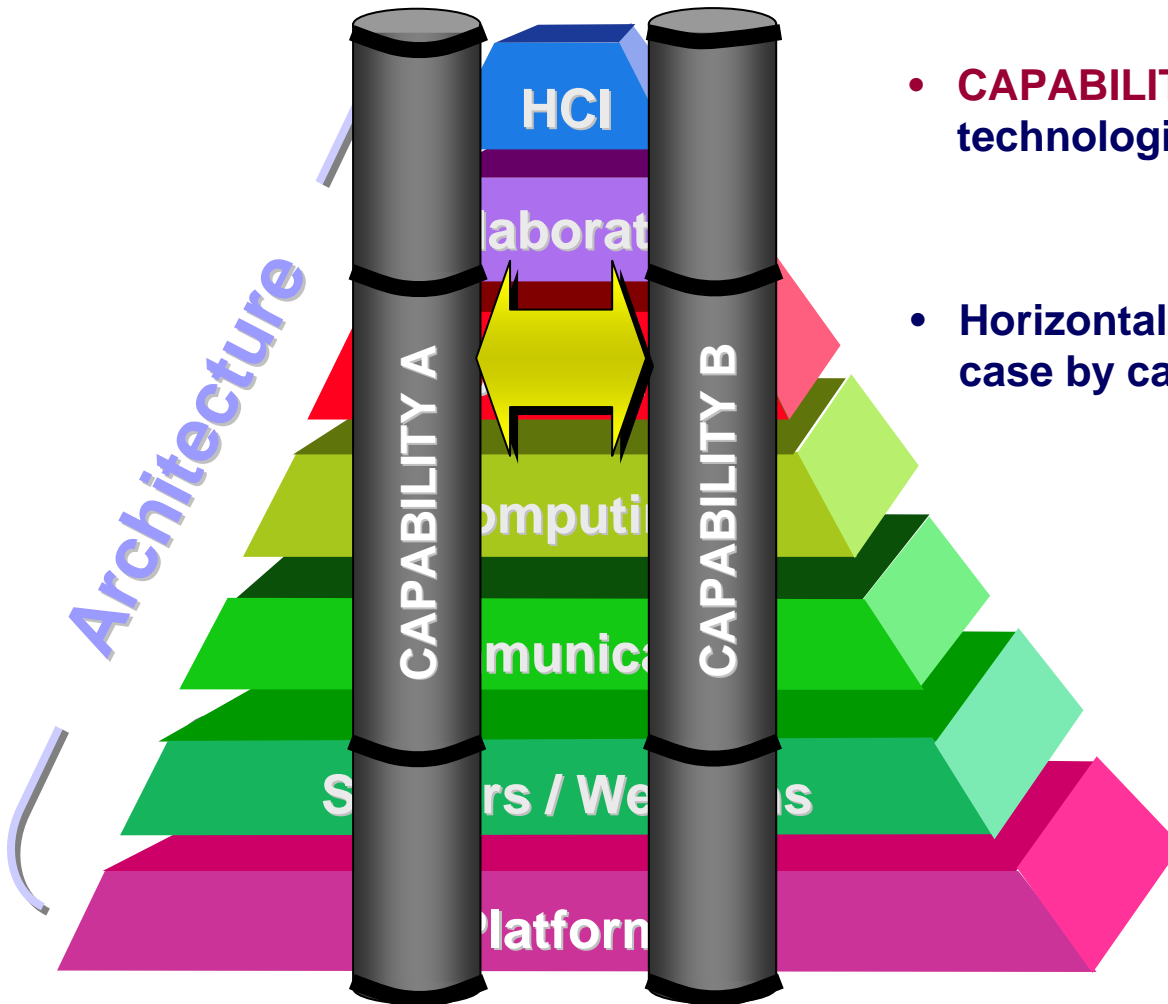




# JPM IS CBD Integration Across COIs



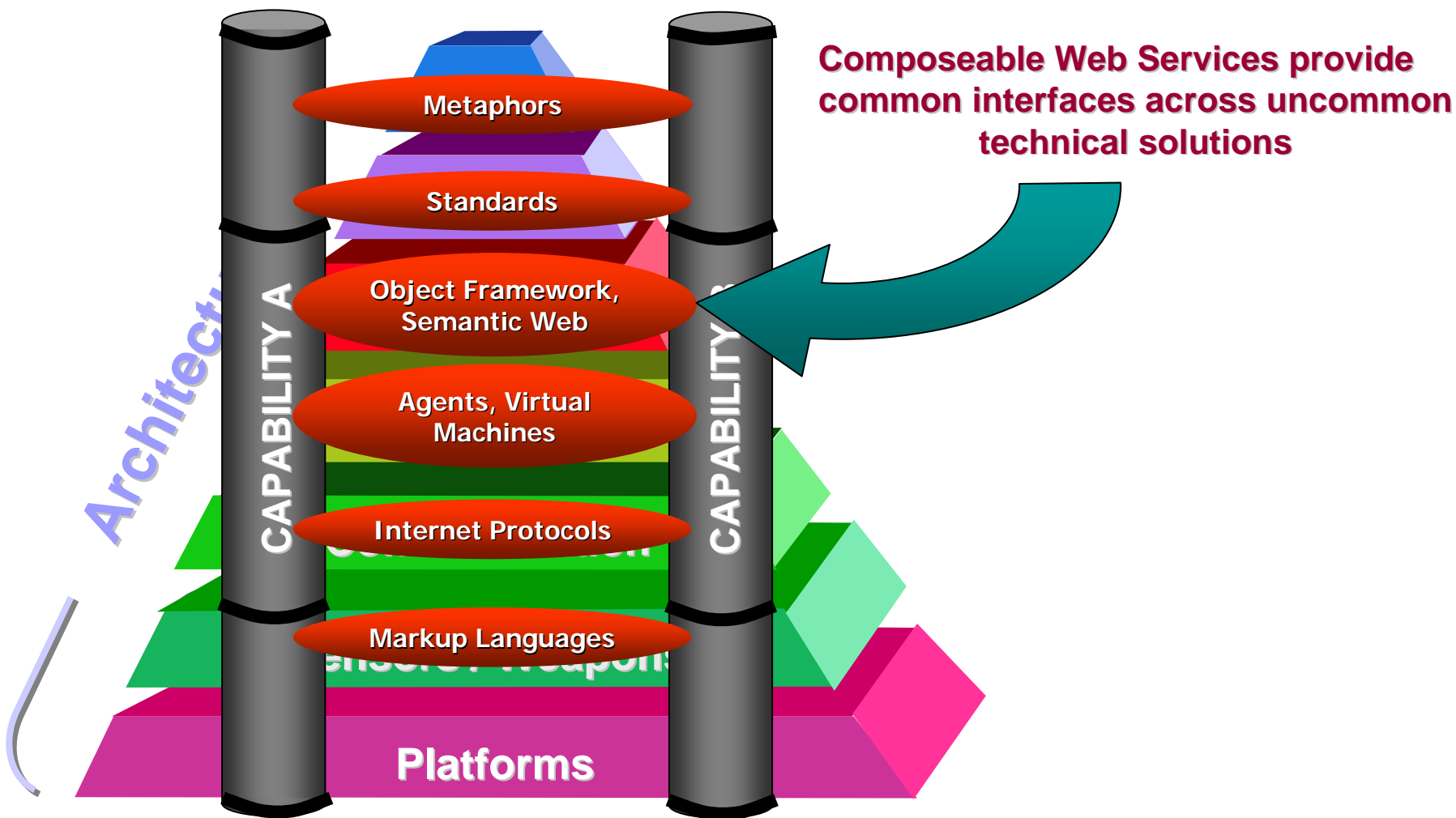
# Building Blocks of Modern C4I System



- **CAPABILITIES** are vertically integrated technologies that are “fixed”
- Horizontal integration is costly and done case by case



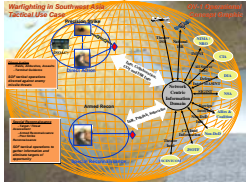
# Interoperability and Access Through Composeability



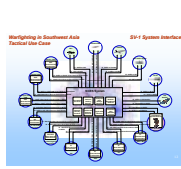


# What are we Architecting?

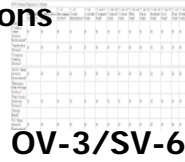
## Architecture Effort Visualizations



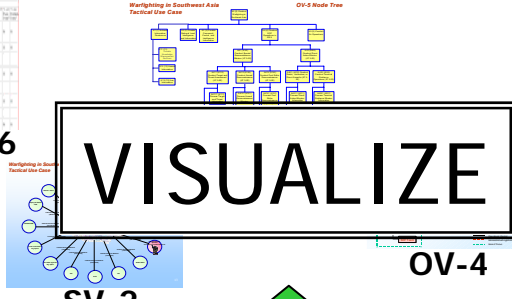
OV-1



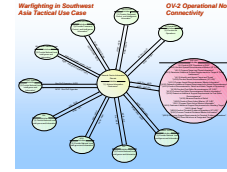
SV-1



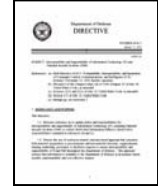
OV-3/SV-6



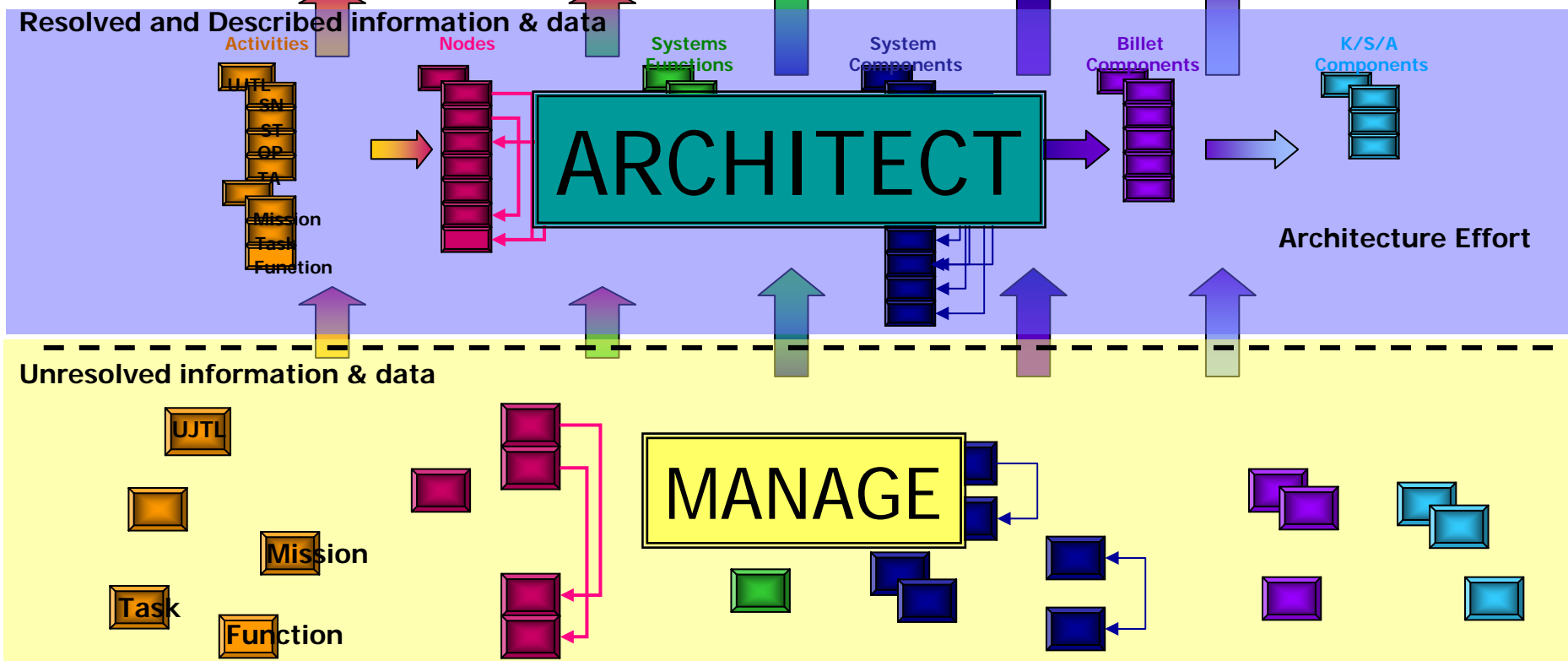
OV-4



OV-2



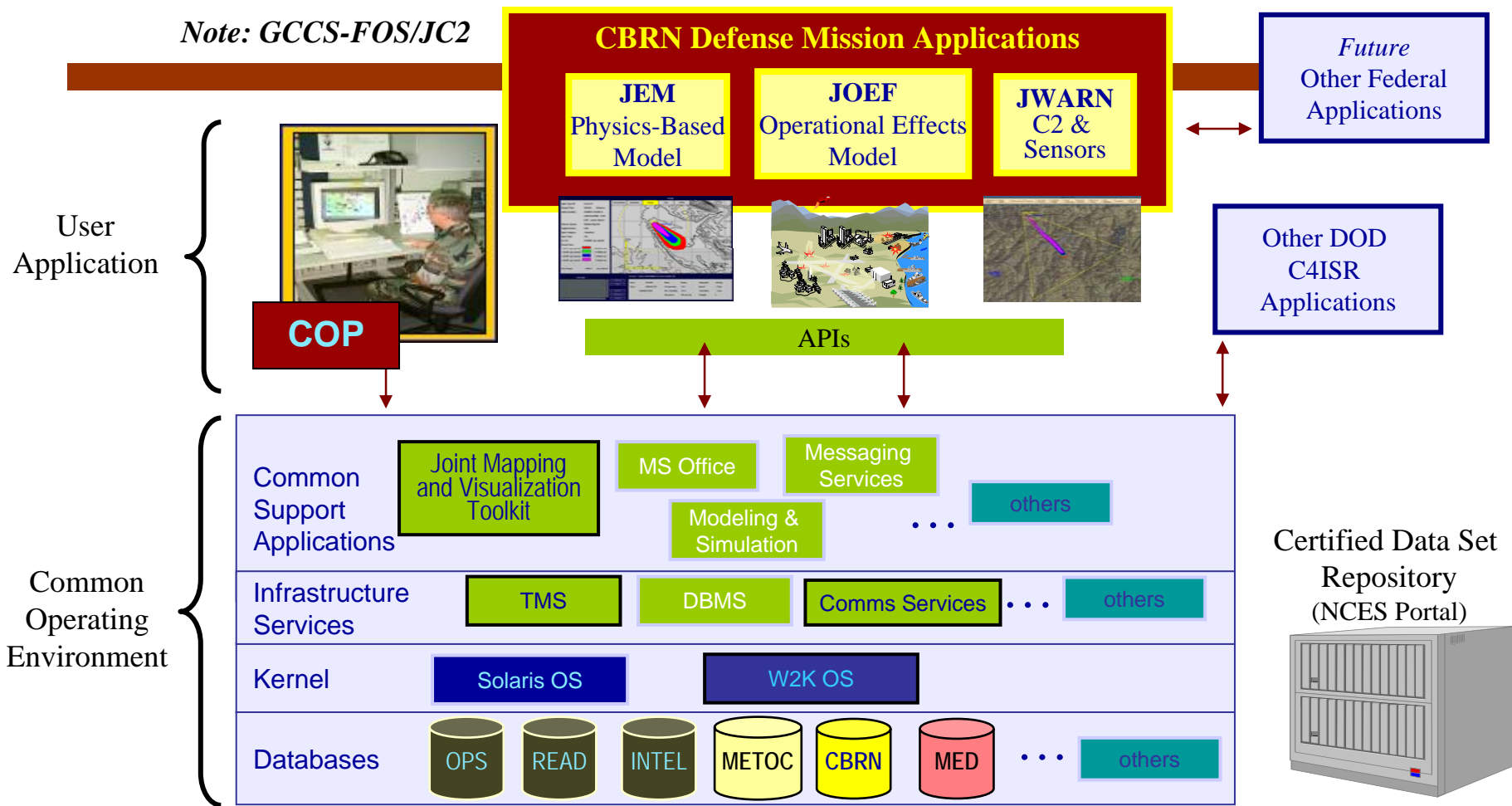
Program Documents & Reports





# CBRN Defense Battle Management Architecture

Note: GCCS-FOS/JC2

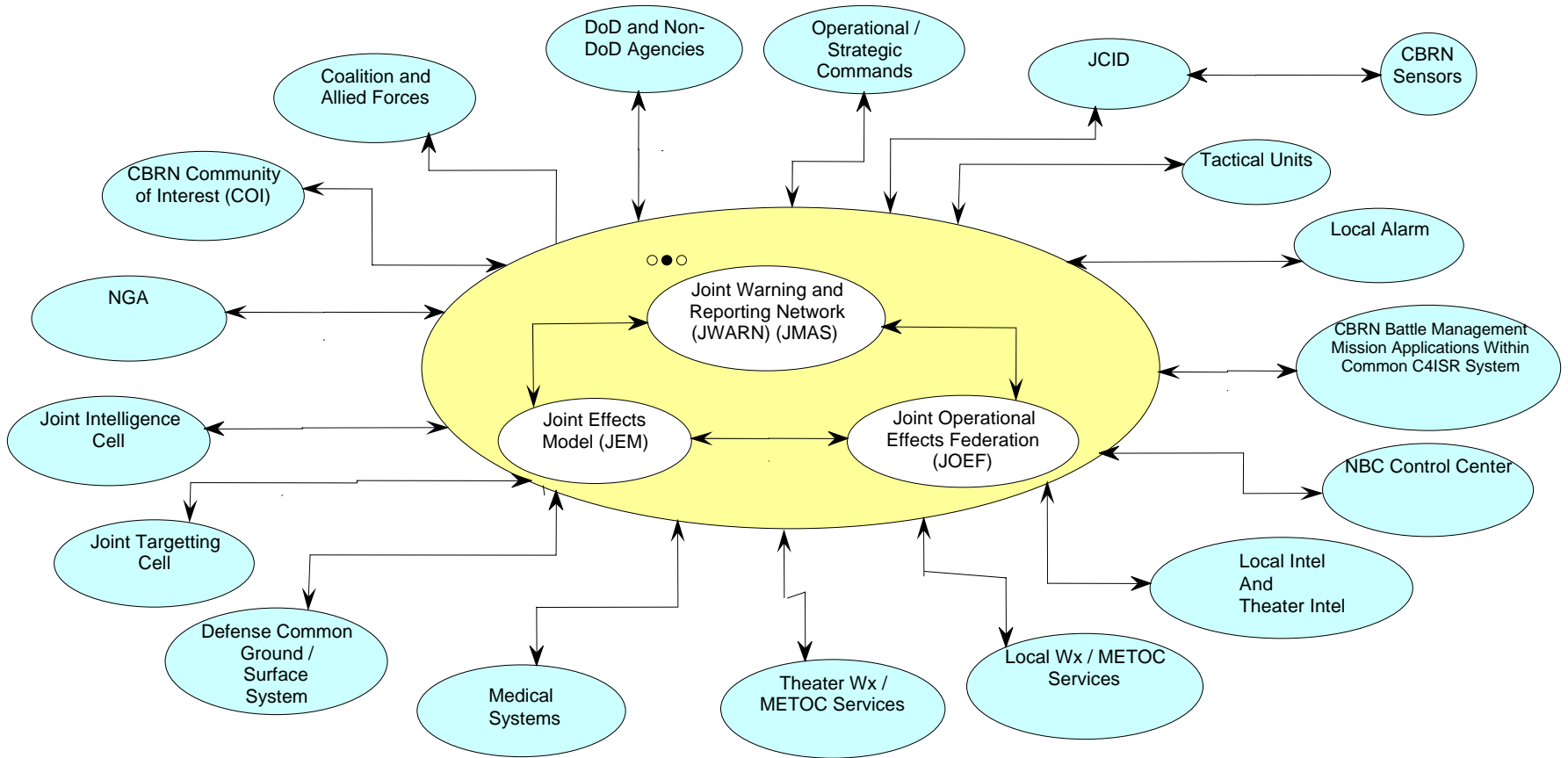


*JPM IS Integration/Interoperability of Core Components for CBRN "Community of Interest" Service*





# CBRN INFORMATION SYSTEMS



**Enterprise Architecture is captured within the DoDAF Products down to the software architecture level of abstraction**

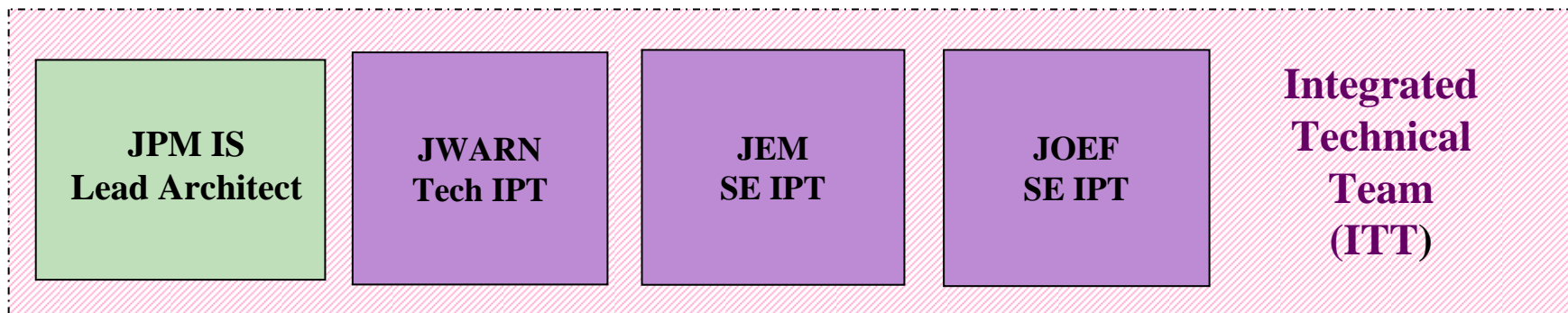


# JPM IS Architecture Goals

- **Focus on the warfighter**
  - **Architecture is invisible, presentation, use, and interpretation of CBD data across the various systems is consistent and seamless**
  - **Architecture supports current and planned requirements**
  - **System is available, robust, and easy to use**
  - **The right system assets are fielded on the right platforms at the right time**
  - **System is flexible to support known and future CONOPS**
- **Focus on the taxpayer**
  - **Build system using enterprise architecture and industry standards**
  - **Build reusable components**
  - **Build a system that can adapt to changing C4I landscape**
  - **Build system that can easily adopt new CBD technologies and unplanned requirements.**



# Architecture Methodology



- **ITT Goals:**

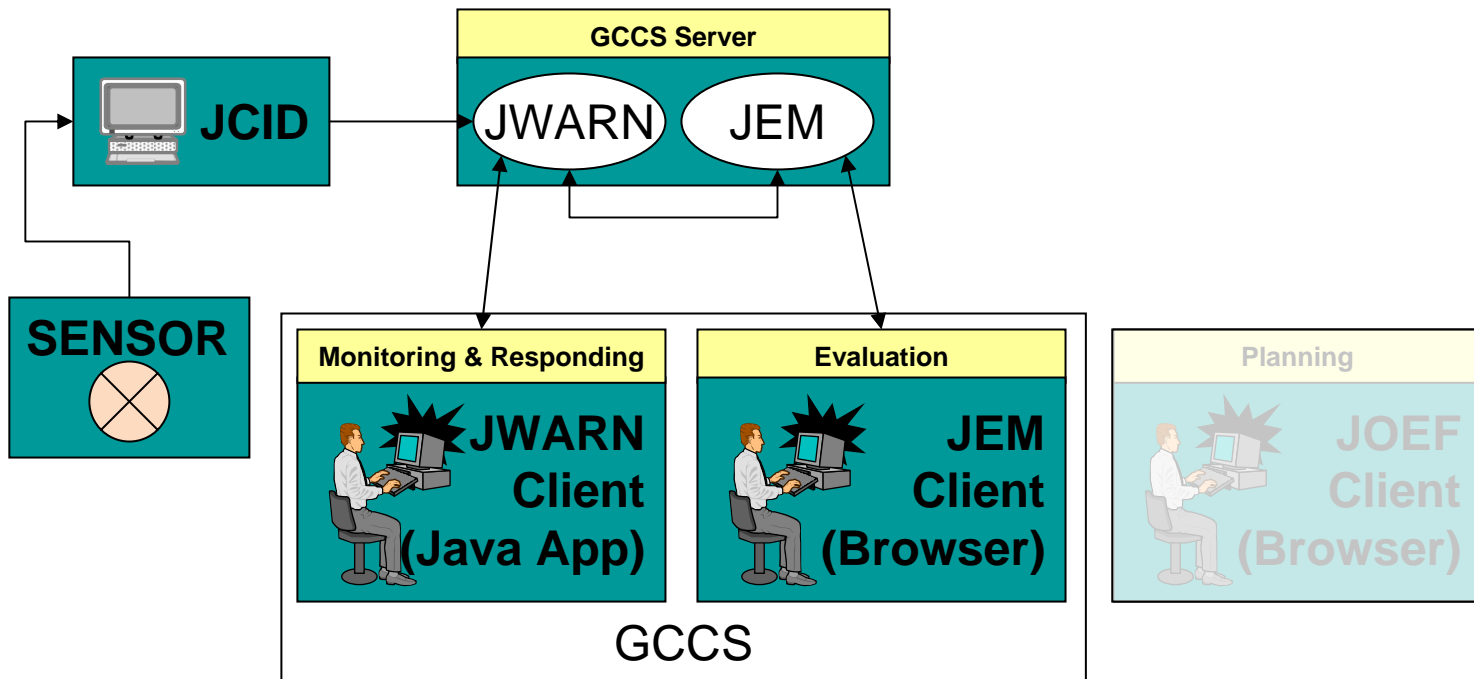
- Build the architecture framework for an integrated CBRN IS
- Ensure common standards for system interface requirements
- Manage data, sensor, and C4I interfaces
- Resolve issues and elevate them when necessary
- Oversee prototype engineering
- Coordinate with the SSA architectural staff
- Stay involved with the S&T efforts and transition of capabilities to meet CBRN requirements



# Integrated Technical Team Sub-Groups

- **Integrated Architecture Development**
- **C4ISR Integration / Transition**
- **Data Model Implementation**
- **Environment Services**
- **HSI /GUI**
- **Information Assurance / Security**
- **System Performance**

# Migration Strategy - Near Term Goal

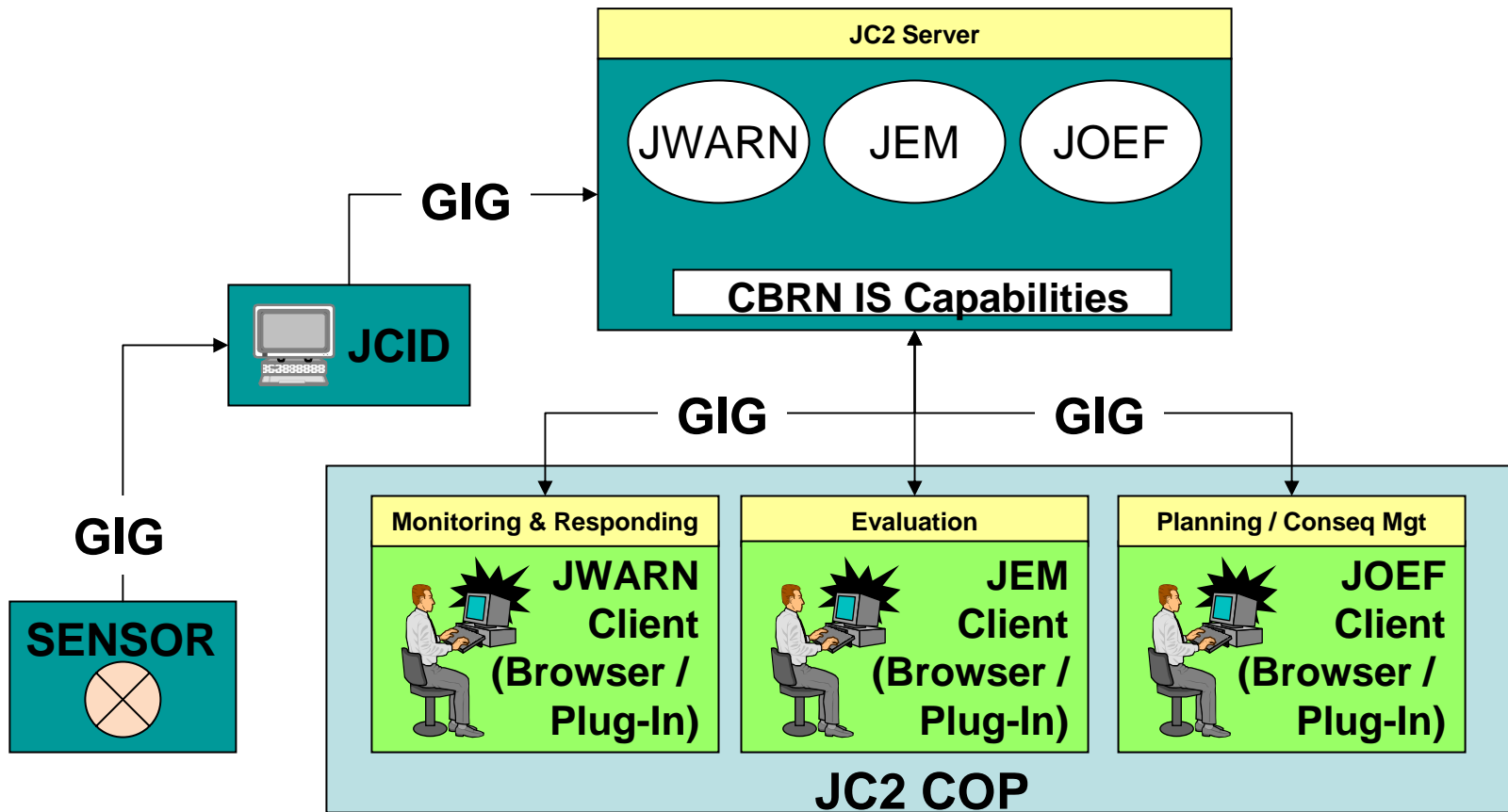


**BUILDING TO WHAT IS REQUIRED AND AVAILABLE NOW AND PLANNING FOR THE FUTURE!**



# Migration Strategy - Long Term

(NCES, JC2, Common Data Models, GIG, etc)

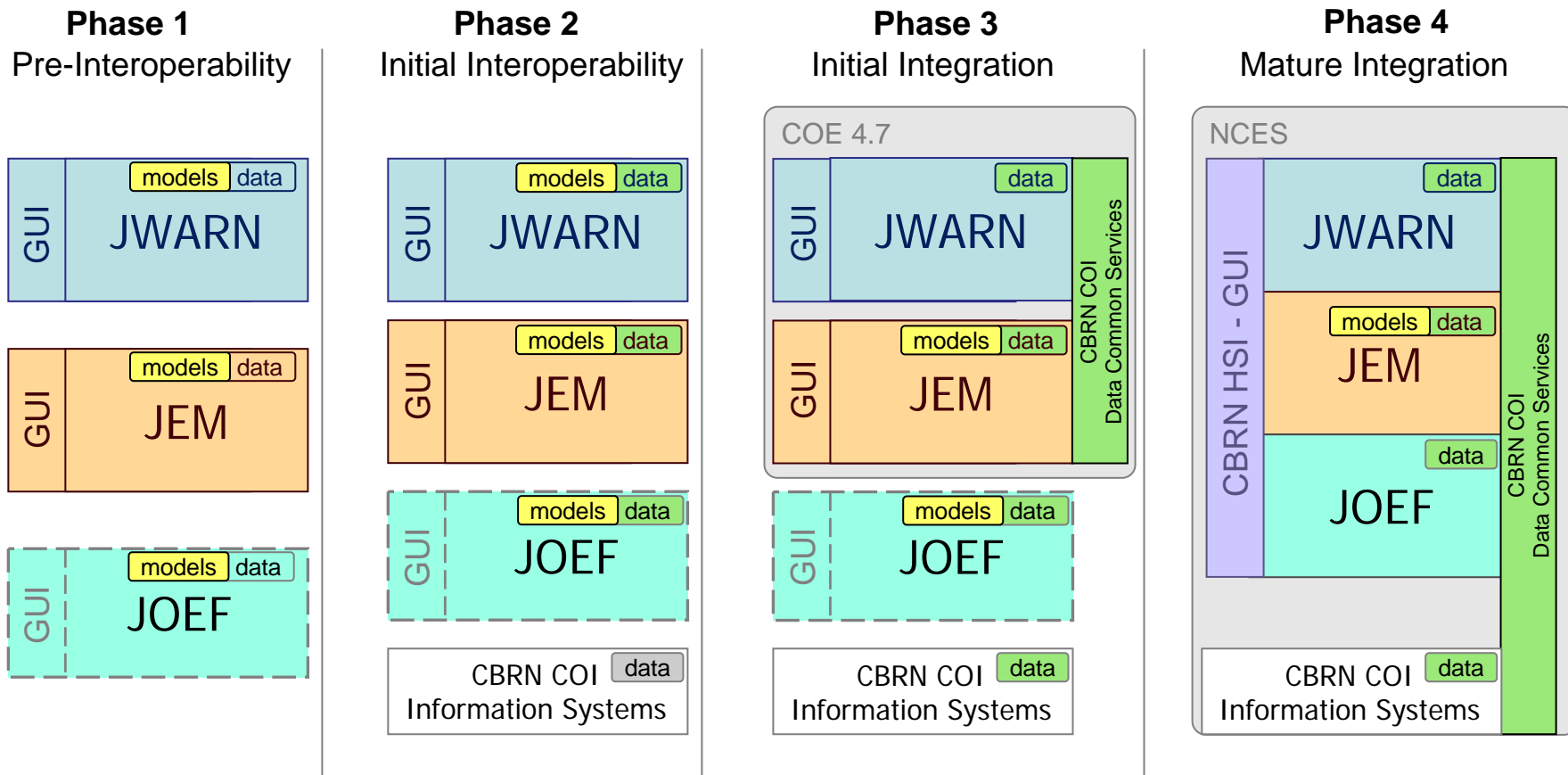


**MIGRATION STRATEGY IN PLACE THAT ALIGNS WITH THE NET-CENTRIC WARFARE VISION!**



# Migration Strategy

## Integration/Interoperability Path to NCES/JC2



**models** CBRN Dispersion and Transport Hazard Prediction Models  
**data** Data Implementations Conforming to the CBRN COI Data Model

*JPM IS Matrix Organization and Enterprise wide SSA will support Interoperability and Integration of CBRN Core Service*



# JPM IS Integrated Architecture Status

- **Developed initial CBRN Data Model Implementation Schema**
- **JWARN/JEM Heuristic GUI Evaluation Completed by NGS / JPM IS**
- **Crafted Integrated Architecture Contract Language**
  - Provides service oriented architecture guidance
  - JPM IS internal staffing complete
  - SSA to staff to external stakeholder organizations
- **Normalizing JPM IS Architecture**
  - Aligned SV- 4s to CBRND OV-5 same level of abstraction
  - Others to follow, including data model integration
  - Supporting JWARN, JEM, JOEF architecture updates
  - Supporting updates to acquisition milestone documentation
- **Building the Integrated Architecture**
  - First spiral complete targeted Mar'06
  - Second spiral complete target Sep'06
- **Integrated Technical Team IPT Re-initiated**
  - Sub team leads identified
  - ITT meeting targeted 8-9 Nov'05





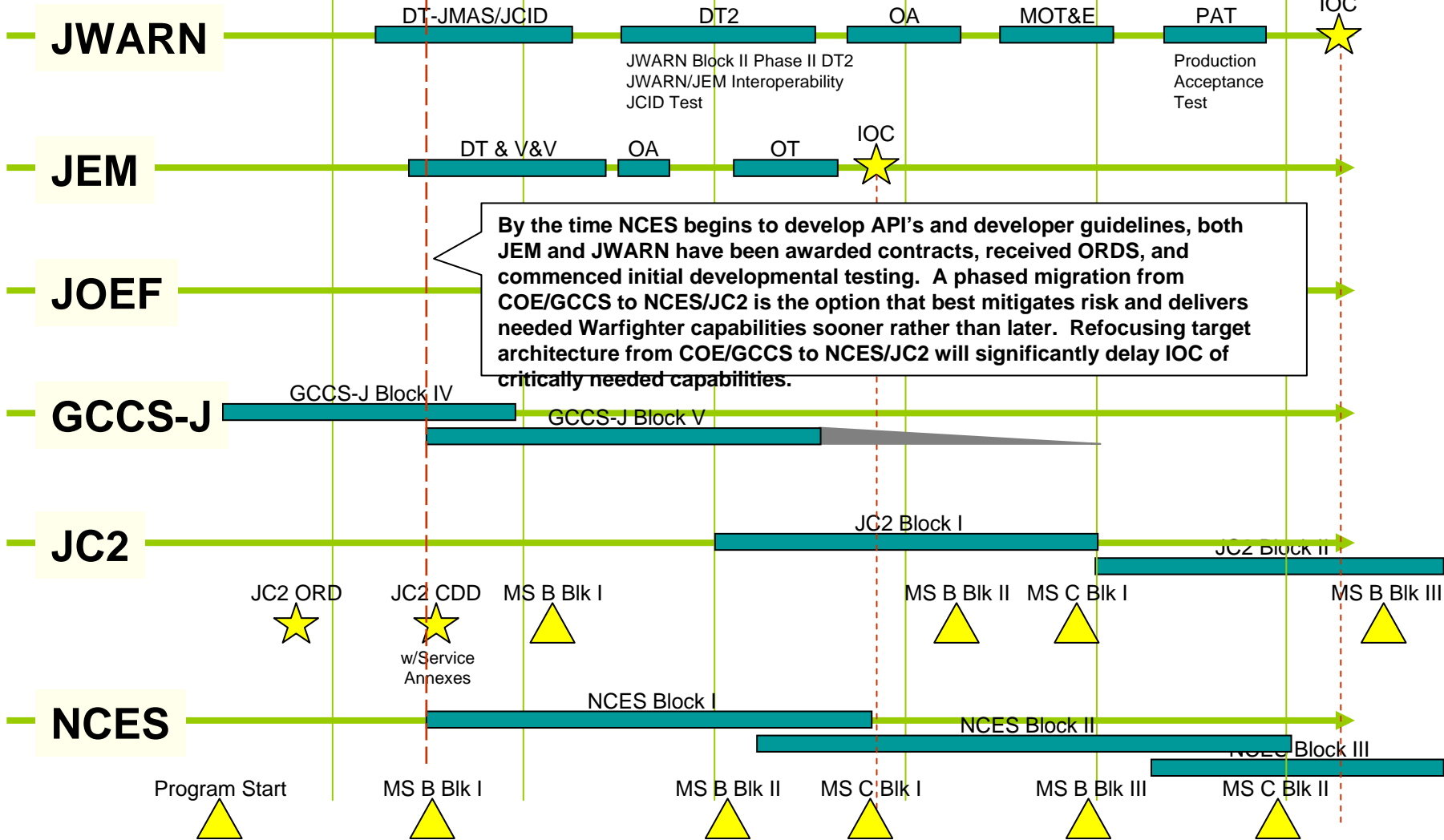
# JPM IS IA Challenges

IOS  
IPV6  
UDDI  
JTA  
FBCB2  
TBMCS  
J2EE  
S&T TRANSITION  
J2SE  
NMTF  
SQL  
ATP-45B  
WIRELESS  
JMTK  
NCES  
XML  
USMTF  
GCOSA  
ADaP-3  
CJMTK  
G2PC  
WebCop  
GCOSA-AF  
GIG  
WSDL  
NET  
MCS  
Weather  
FORCENET  
RMI  
VMIF  
RPC  
GCOSA-J  
XML-schema



# Program Schedule Synchronization

FY04 FY05 FY06 FY07 FY08 FY09



By the time NCES begins to develop API's and developer guidelines, both JEM and JWARN have been awarded contracts, received ORDS, and commenced initial developmental testing. A phased migration from COE/GCCS to NCES/JC2 is the option that best mitigates risk and delivers needed Warfighter capabilities sooner rather than later. Refocusing target architecture from COE/GCCS to NCES/JC2 will significantly delay IOC of critically needed capabilities.

**Capturing all C4I Systems SWB Strategies is a Challenge!!**



# JPM IS Architecture: Top Challenges

- **Staying abreast of 3 programs and the various issues is daunting**
- **Establishing and Maintaining C4I MOAs with Host Systems**
- **Synchronization of C4I host systems software release cycles**
- **Driving toward a common user interface**
- **Describing the Integrated Architecture to the software layer**
- **Transitioning Tech based capabilities**



# Software Support Activity



## SSA Vision

**“The JPEO-CBD SSA is a comprehensive and cost effective single point of contact for users (Customers, Developers, and Warfighters) to receive professional and timely assistance with all CBRN Defense program standards, interoperability, and supportability needs to ultimately facilitate the creation of more efficient, common, and consistently superior interoperable and integrated CBRN systems for the Warfighter.”**



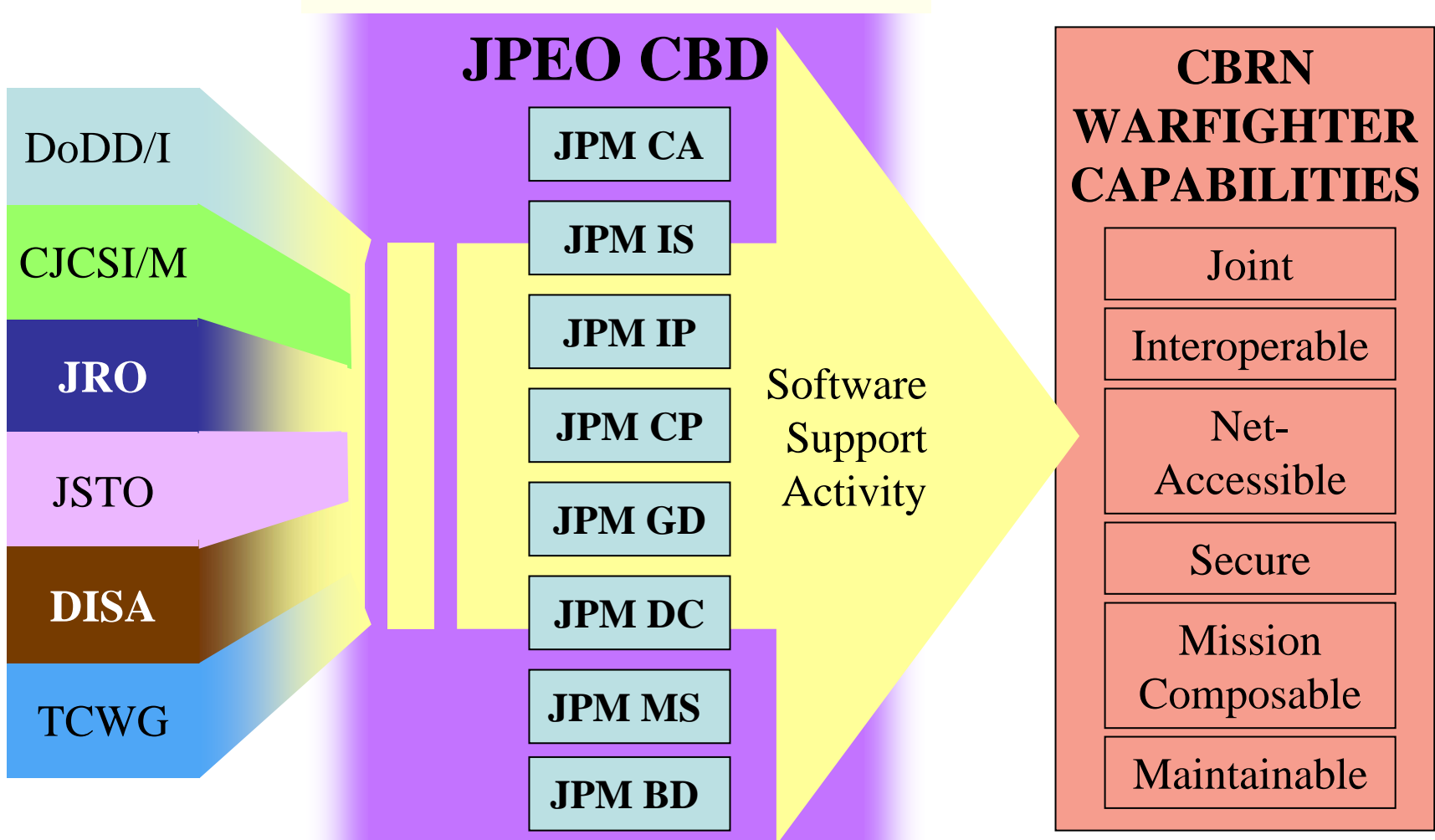
# SSA Objectives

- Coordinate support and development of JPEO CBD Information Systems
- Creating and leveraging commonality across the Enterprise
  - Identifying duplication of effort in existing support activities
  - Making recommendations to support capabilities gaps
  - Directly develop or employ solutions to fill those gaps.
- Create a reusable Enterprise-wide Services framework that ties together and leverages the Software Support Facilities (SSFs) across JPMs

**The SSA spans JPEO CBD**



# JPEO-CBD-SSA



**SSA WORKS TO REALIZE, FOR THE WARFIGHTER, THE VISION OF NET-CENTRIC WARFARE FOR CBRN PROGRAMS OF RECORD**



# Capabilities Language for JRO-CBRND

- **Language for JRO-CBRND ICDs, CDDs, CPDs, ISPs:**
  - **CBRN Programs of Record, and S&T activities shall comply with the following:**
    - **Information Exchanges shall utilize, and extend as necessary, the DoD's CBRN COI Logical Data Model.**
    - **Information storage shall utilize, and extend as necessary, the physical specification of DoD's CBRN COI Data Model.**
    - **Information shall be discoverable and shall have an authoritative source.**
  - **CBRN Test activities shall verify and validate all CBRN information exchanges and storage against the DoD's CBRN COI Data Model.**





# How CBRN Data Complies with COE

- **Data Interoperability**
  - The CBRN Data Model is a key enabler of data interoperability because it provides a vehicle to describe and enforce shared semantics and syntax
  - CBRN Data will not duplicate common data-- a key COE/GCCS requirement for data
- **Data Segmentation**
  - CBRN Data will be separated from the applications (JWARN/JEM/JOEF), as required by COE
  - CBRN Data will not need to have application segments installed on the database server (expressly disallowed by COE)



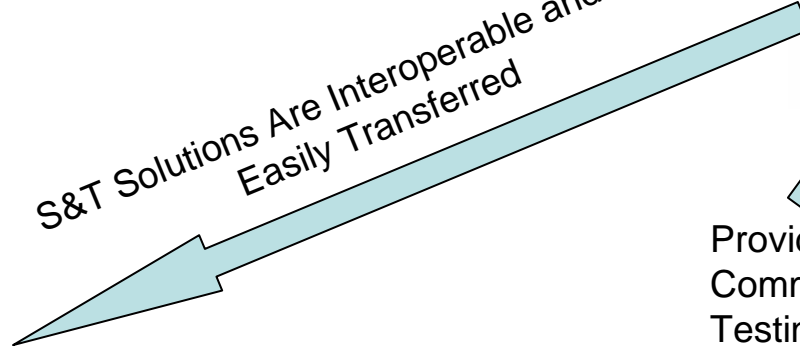
# Requiring CBRN Data for all "M" Systems Which Transmit, Receive, or Store, CBRN Data and/or Connect to the GIG Across the CBDP



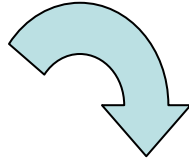
Requires Utilization / Extension of Data Model in S&T



S&T Solutions Are Interoperable and More Easily Transferred



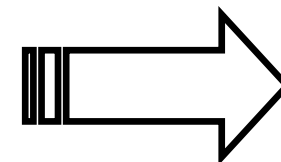
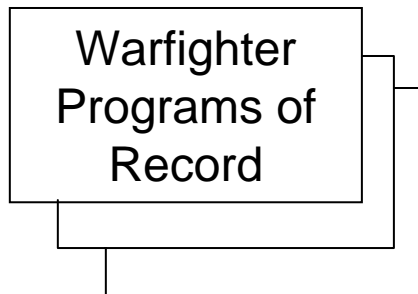
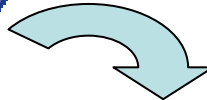
Need same words in every ICD, CDD, CPD, ISP, NR-KPPs to specify the Capability



Provides Common Testing Strategy to Validate use of the Data Model



Need same words in every RFP, RFQ, SOW, P-SPEC (or similar?) for every program of record which will connect to the GIG



**CBRN Capabilities That Can Share Data**

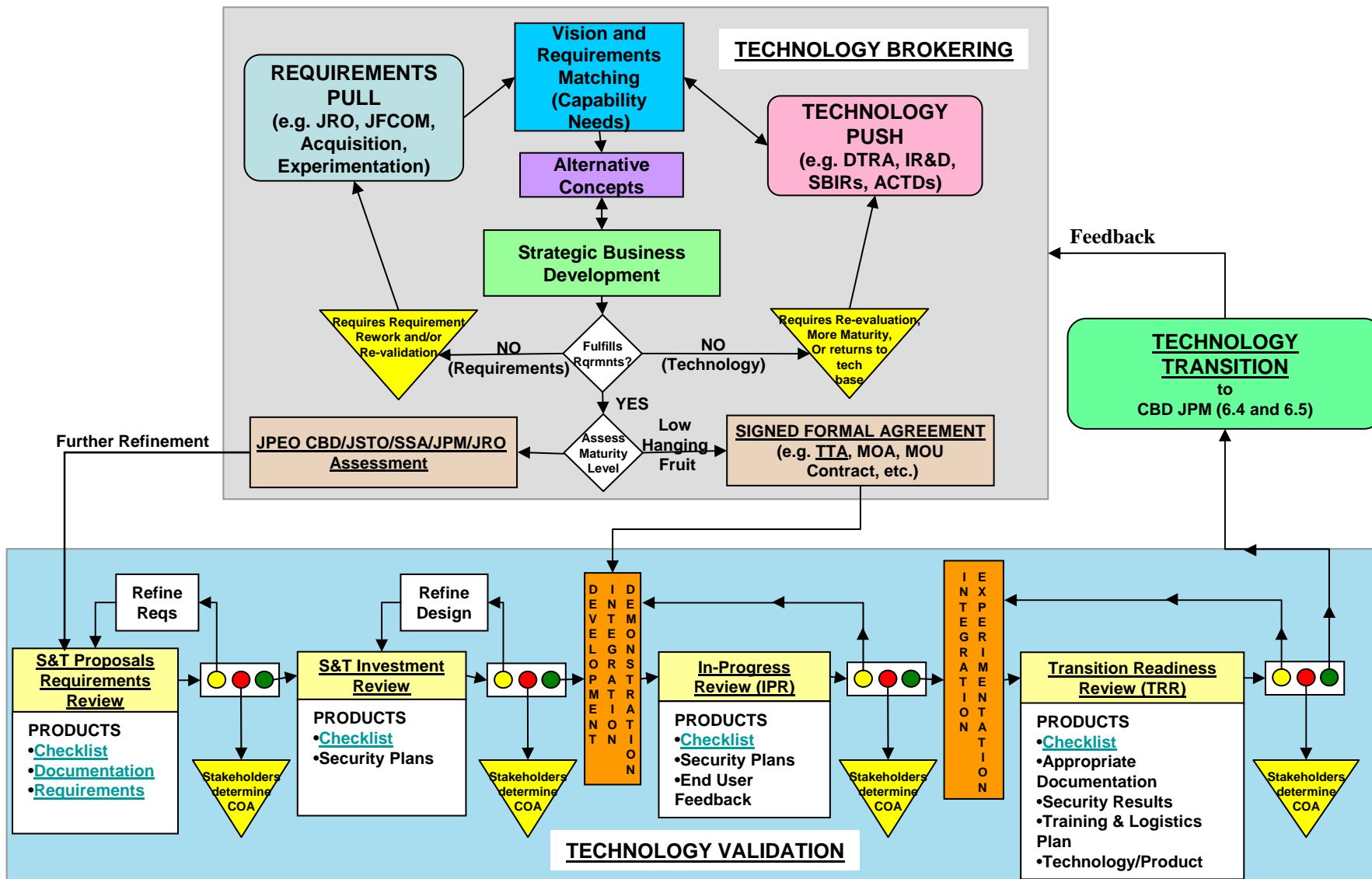


# The JIC Prototype

- **Support early warfighter involvement with JWARN, JEM, JOEF technology**
- **Support user interface requirements**
- **Support technical demonstrations and experiments**
- **Support early integration and data management of an integrated system**
- **Generate operational feedback to JWARN developer**
- **User assessments**
- **Provide a venue to validate and refine MOP's and MOE's**
- **Provide an opportunity to refine service Concept of Operations (CONOPS) and Tactics Techniques and Procedures (TTP's)**
- **Provide a fully functional end to end capability for services to operationally employ if an urgent need arises**



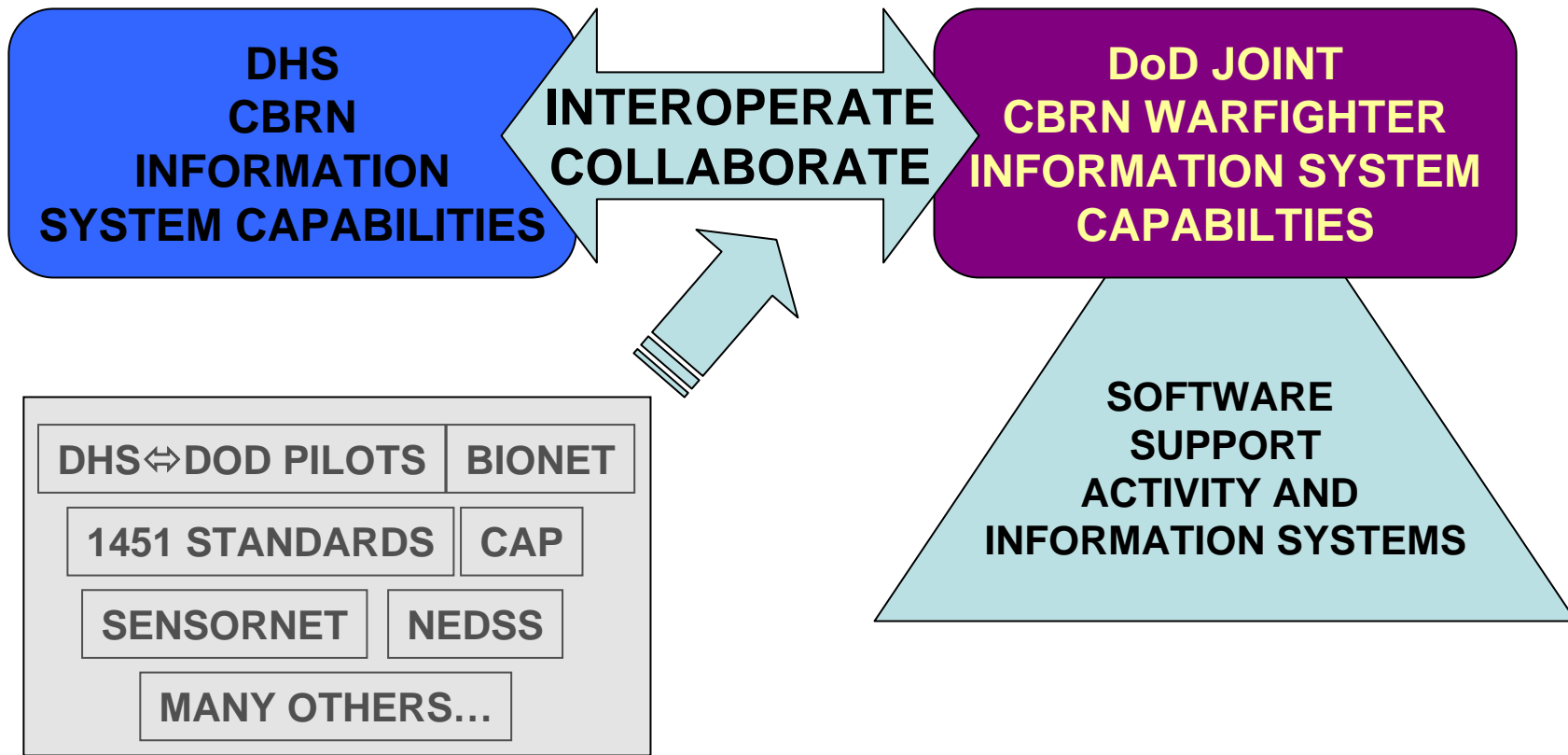
# CBRN PROCESS for IS S&T INSERTION



DOCUMENTS/INFORMATION SHAPED THROUGHOUT LIFECYCLE OF THE TRANSITION PROCESS: CONOPS, Risk Mitigation Plan, Technology Transition Agreement (TTA), POM Inputs, Exit Criteria, Functional/Operational Requirements



# JPM IS – (DHS Focus) WAY AHEAD



**JPM IS - FOCAL POINT FOR THE FUTURE THAT BRIDGES AND ALIGNS DoD CBRN INFORMATION SYSEMS WITH DHS CBRN INFORMATION SYSTEMS MEET THE NATIONAL SECURITY STRATEGY OF GREATER SHARED INTELLIGENCE AND SUPERIORITY!**