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25 October 2005

CB Defense Battle Management

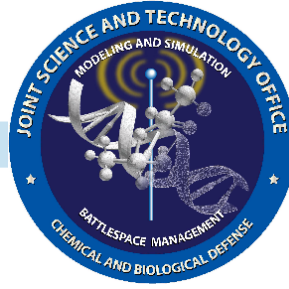
Data Fusion,
Indication and
Warning (FIW)

CB Defense
Battlespace
Management

Automated
Decision Support
(ADS)

- ◆ Data Fusion
- ◆ Warning
- ◆ Alerting
- ◆ Situational Awareness
- ◆ Information Presentation
- ◆ CB Data Standardization
- ◆ Decision Support Software
- ◆ Data Mining
- ◆ Information Filtering
- ◆ Communications

◆ Making it easier for the warfighter to use what we develop!!!!



Thrust Area Foci

Data Fusion, Indication and Warning (FIW)

CB Defense Battlespace Management

Automated Decision Support (ADS)

BAA05MSB0009: CB Weapon Environment Prediction: Fusion of Sensor and Model Data (6.2)

Rapid Response Database Center (6.2)

Rapid Response Sensor Networking (6.2)

B04MSB1010: Next Generation CB Battle Management (6.2)

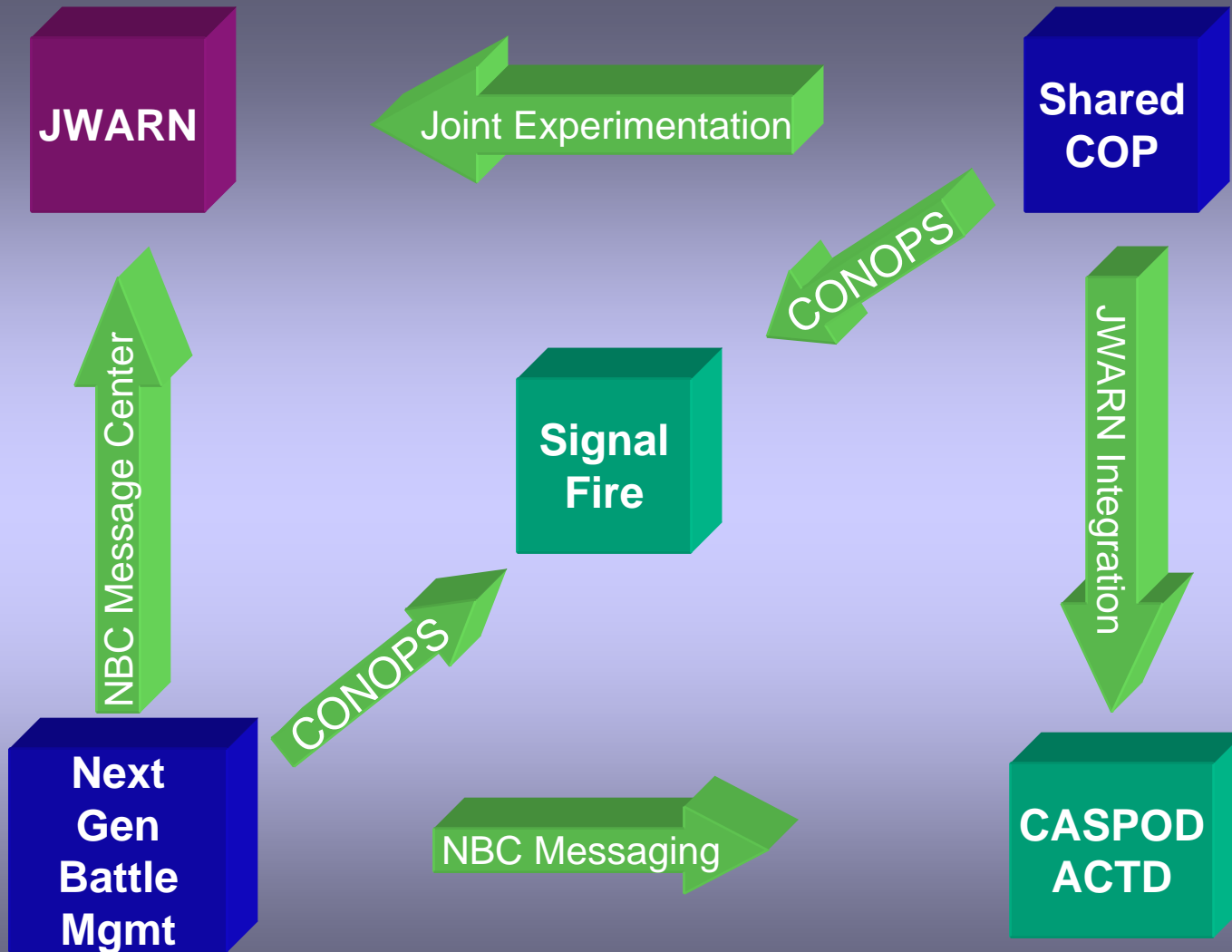
C05MSB0005: Shared Common Operation Picture (COP) for HLS & HLD (6.3)

C05MSB0060: Web Services, NCES, GIG Integration (6.3)

Looking back on the year that was....



Leveraging and Collaboration





Principal Investigator

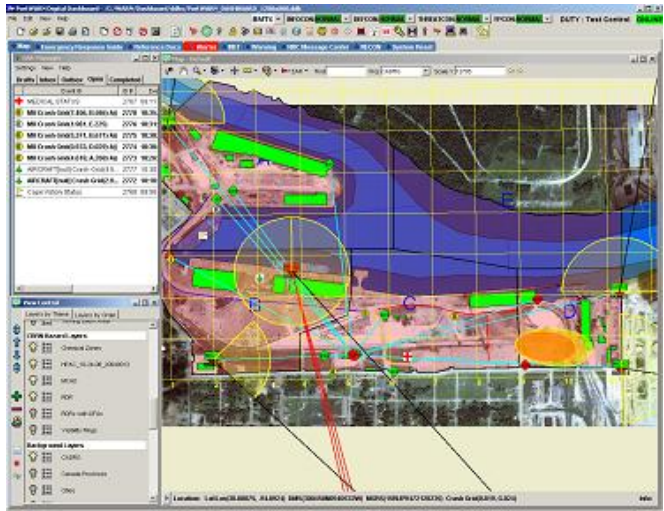
CB Defense
Battlespace
Management

Automated
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B04MSB1010: Next
Generation CB Battle
Management (6.2)

Key Elements:

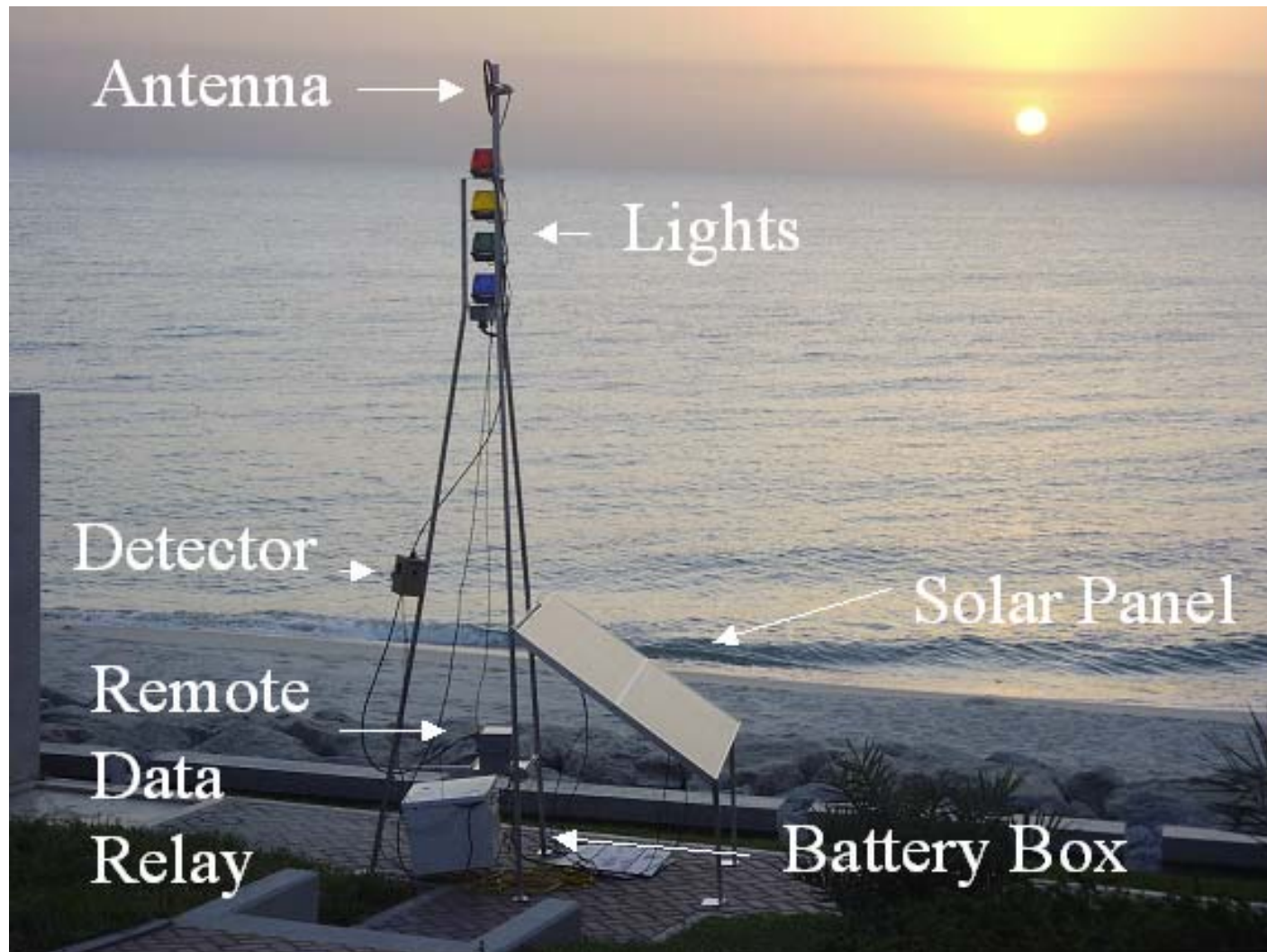
- ◆ Decision Support
- ◆ Multi-Level Networks
- ◆ Active Guidance
- ◆ Intelligent Agents
- ◆ Information Filtering



Description of Effort: Develop a configurable battle management system designed to incorporate modules for data acquisition, contamination region models, mission impact models, information sharing, information display and warning.

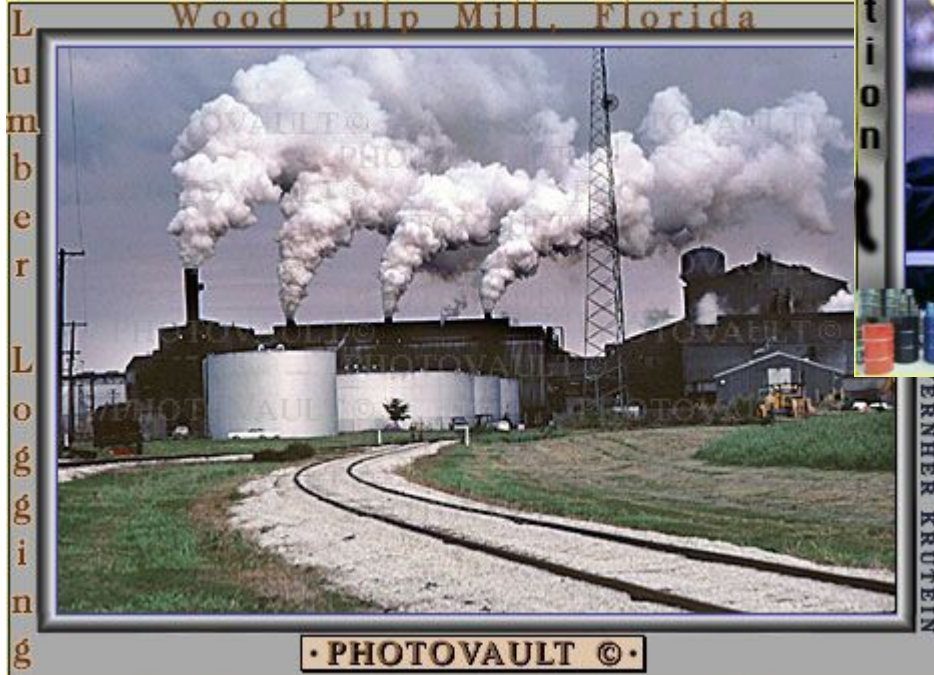
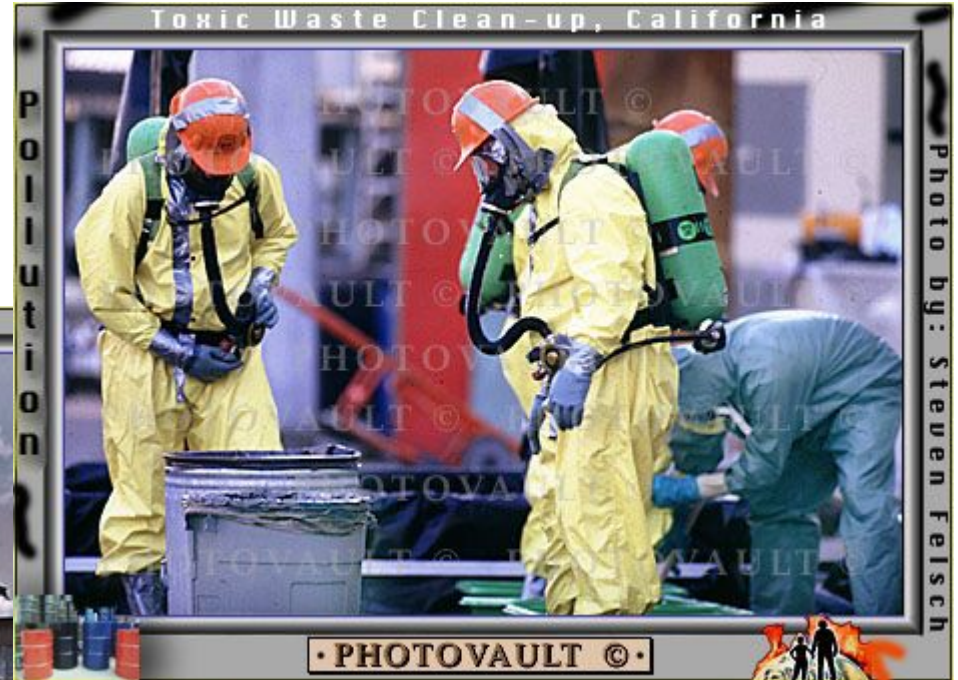
Next Generation CB Battle Mgmt

CASPOD ACTD Node





Battlespace Management is not just for CWA, but



TOXIC INDUSTRIAL CHEMICALS TOO!



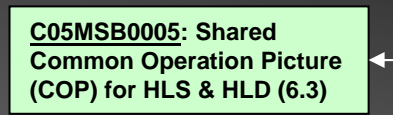
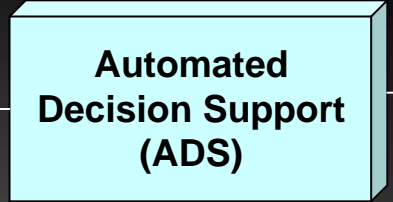
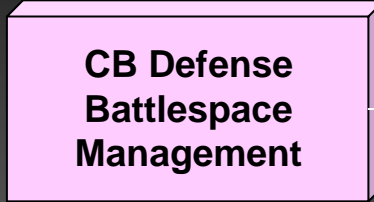
Principal Investigator



SPAWAR
Systems Center
San Diego

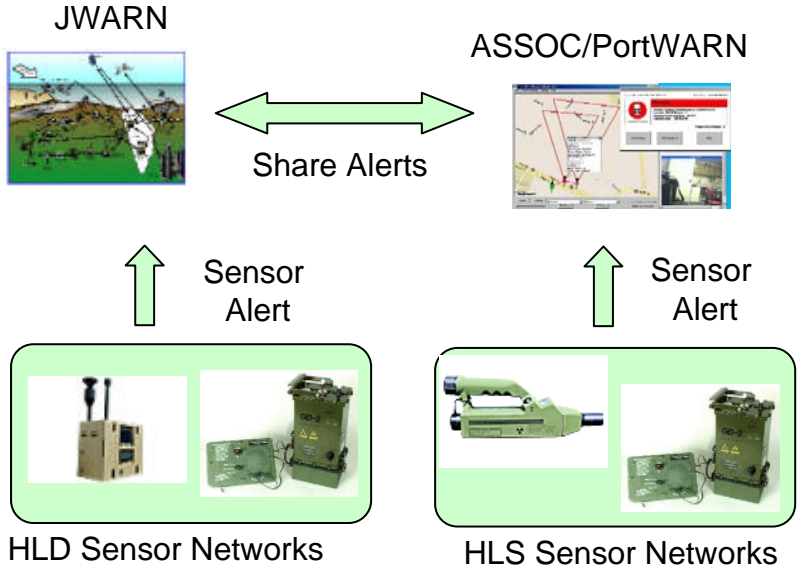


Supporting



Key Elements:

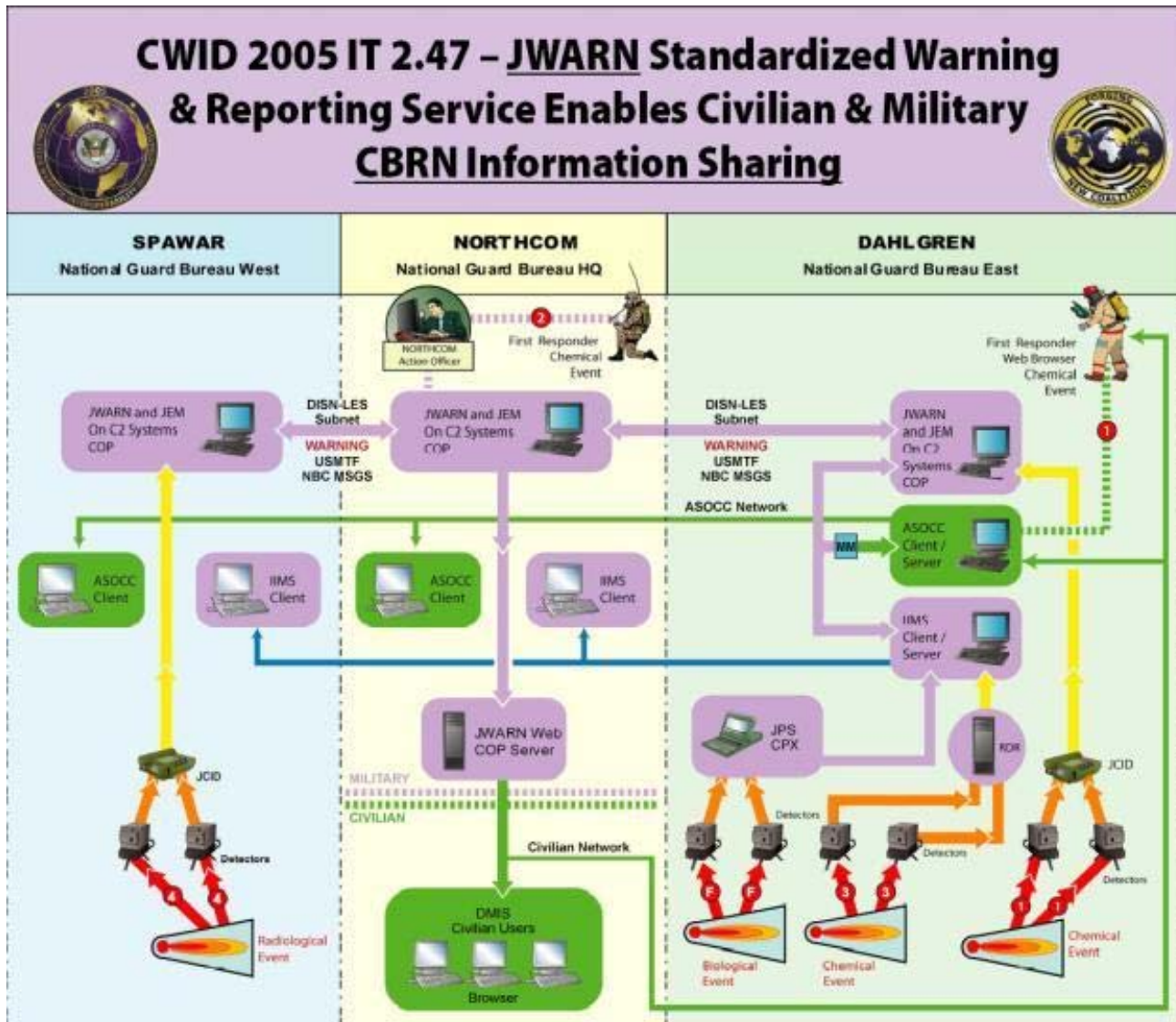
- ◆ Data Filtering
- ◆ Multi-Level Networks
- ◆ CB Data Sharing and Standardization
- ◆ CB Alerts Sharing



Description of Effort: Provide demonstrated interoperability between HLS Early Warning and Reporting targeted Systems Port Warning and Reporting Network (PortWARN) & Area Security Operations Command and Control System (ASOCC) with HLD program of record JWARN.

Shared Common Operating Picture

CWID '05



FY06 Battlespace Management Data Call Topics

1. Develop the concept of **information fusion**. Information fusion includes CBRN detectors, hazard prediction, and incident management. Information fusion should feed decision support applications that are premised on active guidance. **Develop a tool that identifies patterns, trends and relationships that assist the warfare commander in development of a course of action in response to an impending threat.**
2. The Joint Warning And Reporting Network (JWARN) program is building the **JWARN Component Interface Device (JCID)**. With the JCID, the number of detectors that are capable of being networked will rise significantly in the coming years. Detectors will continue to be unit assets. The operational reality is that detectors will join then leave networks as units move through areas. **Develop a program to determine the impact to contamination avoidance, hazard prediction, local situational awareness, and local CB coverage** Ensure that it can function in an operational environment.

FY06 Battlespace Management Data Call Topics

3. The **CBRN data model** is an evolving standard being produced by the Joint Program Executive Office – Chemical/Biological Defense (JPEO-CBD). **Propose exploitation efforts of the CBRN data model** for the purposes of verification and validation of the schema against emerging CB programs
4. Multiple runs of a hazard prediction model typically accomplish the current process of **locating detectors on the battlefield**. This process works fine in an analytical environment but is not operationally suited for field use. **Propose a sensor placement model.**

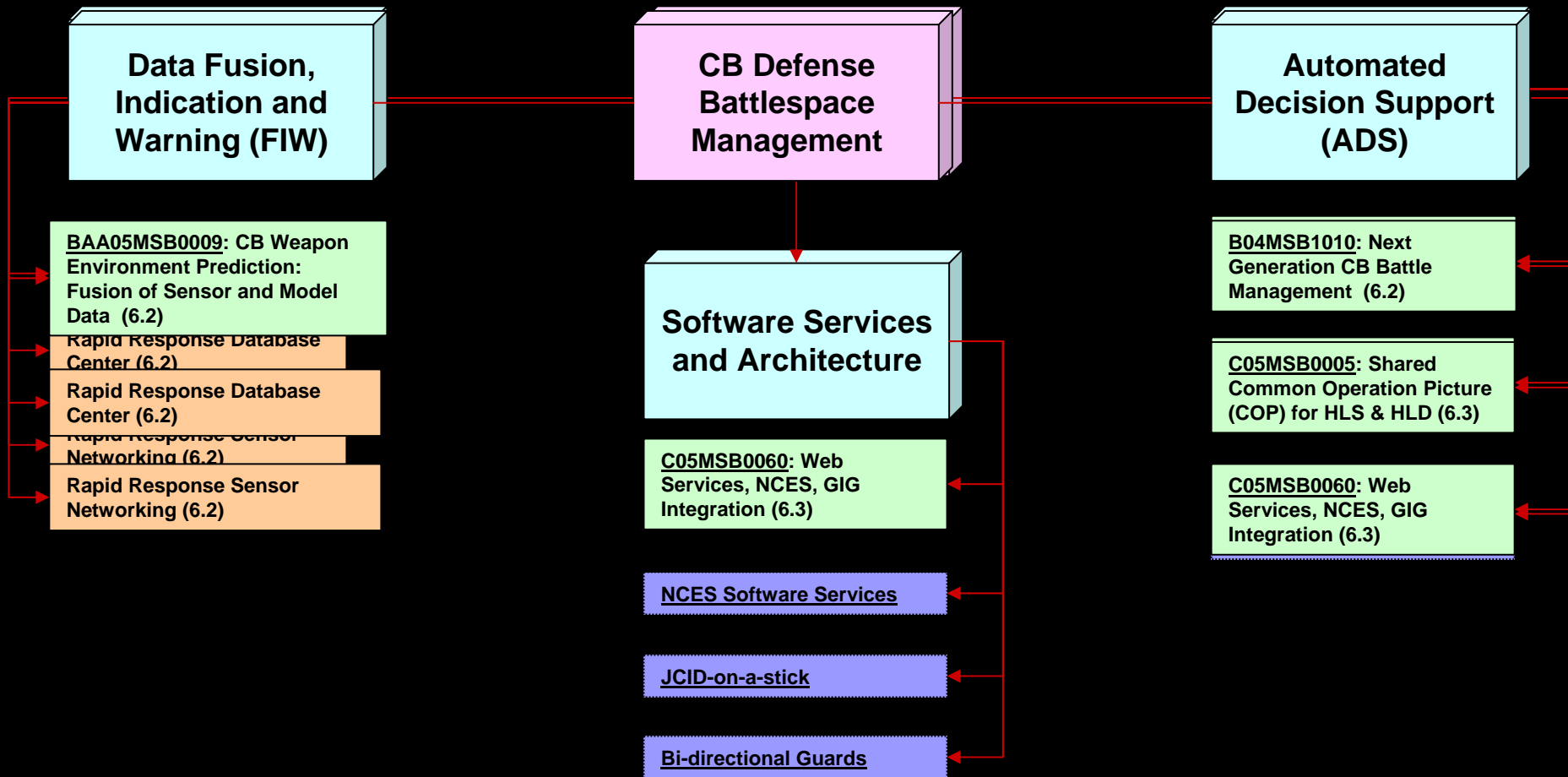
FY06 Battlespace Management Data Call Topics

5. Detector data is tactically reported over networks using commercial wireless technology or tactical radios. The ability to **move** that **data** from the **single channel domain** in which it was transmitted to **classified networks** has not been seriously addressed. **Propose an affordable method for moving sensor data to a classified network that can be certified in an operational environment.**
6. Detector locations in fixed sites typically employ a **node concept**. A node is an integration point where multiple detectors can be plugged in for the purposes economizing on force protection and power. Employing multiple detectors at a node means that the limited assets are pooled and thus leaves other areas uncovered or exposed. **Propose a concept for deploying detectors that avoids the node concept, addresses force protection concerns, and extends the coverage of the fixed site.**

FY06 Battlespace Management Data Call Topics

7. JWARN Component Interface Device (**JCID-on-a-chip**). Field Programmable Gate-Array that has most of the features/functionality **JCID software embedded** into it and has an area that allows COI message sets (personalities/protocols) to be dynamically programmed/loaded. These could ultimately end up in Automated Chemical Agent Detector Alarms (ACADAs), etc. so that the **sensors** ultimately come **off the shelf net ready** and speaking the right data protocol/language.

Looking forward to '06...



FY05 Battlespace Management Program Build

Guidelines for '06 Projects

- Develop cells within digital dashboard
- Java
- Minimal GUI development, use digital dashboard to maximum extent possible
- Technology Transition Agreements
- Data Model
- “We ♥ JEM”™
- Demonstrable progress – Align with DoD exercises where practical

Questions, Comments, Observations,
Complaints, Idiosyncrasies



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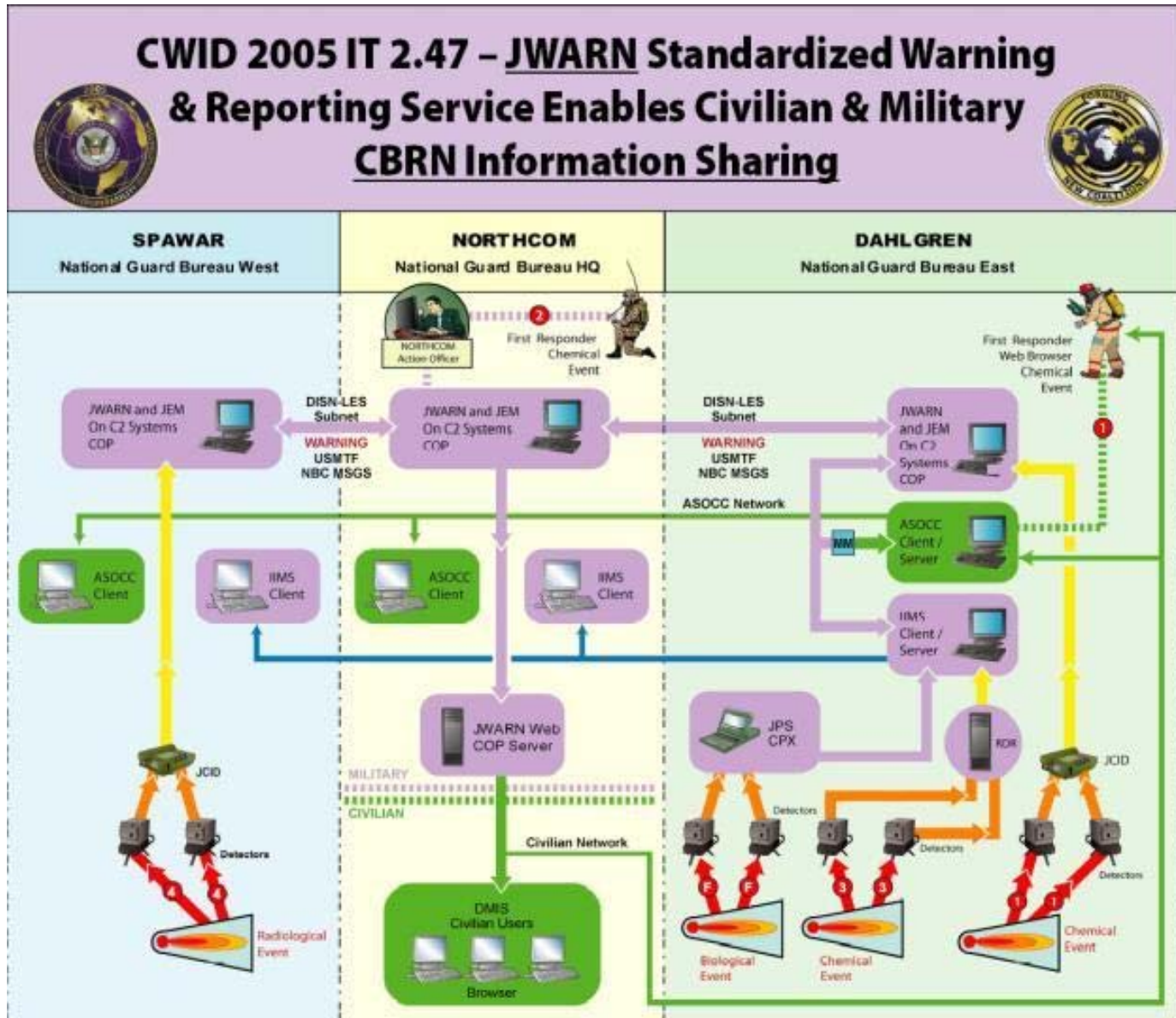
Shared Common Operating Picture



First Year Focus

- Interoperability
- Determining and then providing actionable information between system for local display
- Addressing local domain issues and assessing impacts of working on a common backbone with local security policies

JWARN's Standardized Warning and Reporting Service
Enables Civilian and Military CBRN Information Sharing





Supporting Details

- Active collaboration between SPAWAR, DTRA and ECBC to develop a capability that could serve as the model for interoperability demonstrations.
- Builds on S&T development of Next Generation Battle Management and the Contamination Avoidance at Seaports of Debarkation ACTD
- Provides a blue print to transition efforts from S&T to 6.4

Key Findings

- CAP Messages are emerging, but require further work... Required a message mediator be built to process between them. Simple middleware program to convert
- Common Message Parser very difficult to work with
- Integration points or bridges versus complete integration



Second Year Focus

- Connecting to different security levels and passing data generated by sensor networks operating on local policies and information assurance procedures
- Explore the differences of local domain issues (DHS vs DoD) and discover and solve impediments to passing data