2006 Homeland Security Symposium and Exposition

"Partnership With Industry"

29 - 31 March 2006

Arlington, VA

Agenda

Address: "Department of Health and Human Services: Homeland Security Mission and Programs" Honorable Gerald Parker, Principal Deputy Assistant Secretary, Department of Health and Human Services

Session Two:

Port Security and Maritime Domain Awareness
• Doug Ochsenknecht, Acting Program Executive, Counter-Narcoterrorism Technology Program Office, Department of Defense
• Dana Goward, Director, USCG, Maritime Domain Awareness

Chemical, Radiological and Biological Defense
• John Vitko, Biological Threat Office, Department of Homeland Security
• James Zarzycki, Technical Director, Chemical Biological Command, US Army Edgewood R&D Center
• James King, Deputy Director of the Chemical and Biological Information and Analysis Center
• John S. Parker, Bio-Medical Market Analysis, SAIC

Session Three:

Critical Infrastructure Protection/Cyber Security:
-Establishing Attainable Priorities
-Industry as a Partner and Source
• Tom DiNanno, Deputy Assistant Secretary for Infrastructure Protection, Office of Infrastructure Protection

Information Analysis/Intelligence
-Threat Assessment
-Intelligence Community Organization, Roles, Responsibility and Coordination
-Information Analysis Trends and New Methods
• John B. Noftsinger, Jr., Ed.D., Associate Vice President of Academic Affairs for Research and Public Service

NDIA 2006 Homeland Security Symposium
29-31 March 2006, Hyatt Regency, Crystal City, Arlington, Virginia

Theme: Homeland Security—**"*Partnership With Industry"***

Wednesday, March, 29

5:00 pm -7:30 pm **Registration/ Welcome Reception in Exhibit Area**

Thursday, March 30

7:00 am - 8:30 am **Continental Breakfast**

8:30 am **Welcome and Opening Remarks**
Mike Becraft
Chairman, NDIA Homeland Security Division

8:35 am **Welcome**
Major General Barry Bates, USA (Ret), Vice President Operations, NDIA

8:45 am **Program Overview**
Major General William C. Moore, USA (Ret)
Chairman, Homeland Security Symposium

9:00 am **Keynote Address: "Homeland Security—the National Perspective"**
The Honorable Kenneth P. Rapuano, Deputy Assistant to the President for Homeland Security

9:45 am **Break in Exhibit Area; Tour by Mr. Rapuano and Assistant Secretary Parker (requested)**

10:30 am **Address: "Department of Health and Human Services: Homeland Security Mission and Programs"**
Honorable Gerald Parker, Principal Deputy Assistant Secretary, US Department of Health and Human Services

11:15 am **Panel: "Homeland Security Gaps and Challenges"**
Moderator: Dr. James Jay Carafano, Senior Research Fellow, Defense and Homeland Security, The Heritage Foundation

- Seth Carus, Deputy Director, Center for the Study of Weapons of Mass Destruction, Distinguished Research Fellow, National Defense University
- Frank Cilluffo, Associate Vice President, Homeland Security, George Washington University

12:15 am **Lunch in Exhibit Area**

1:15 am **Move to Seminar Rooms**

1:30 pm **Seminars: High Value Homeland Security Mission Areas**

Conducted in three groups of two topics in each time period in order to give an opportunity for attendees to participate in three of the six mission area discussions

Session One (1:30-2:30):

Border Security—"Increasing Challenge of Defending Our Borders: What We Have Done and What We Still Need to Do"
Coordinator, Mike Becraft
(Regency Ballroom)

- Rear Admiral Brian Peterman, Commander, USCG, District 7
- Jay Ahern, Associate Commissioner for Operations, Customs and Border Protection
- Kevin L. Stevens, Senior Associate Chief – Southwest Border Operations, U.S. Border Patrol, Acting Director PMO, SBInet, US Customs and Border Protection

Emergency Preparedness, Contingency Operations and Readiness-
Coordinator, Honorable Nancy Harvey Steorts
(Washington A/B)

- Chief James Schwartz, Fire Chief, Arlington County, Virginia and Co-chairman Fire Chiefs Committee of Council of Government
- Jack McGuire, President and CEO, American Red Cross
- Major General Donna F. Barbisch, USA (Ret), Director, Global Deterrence Alternatives

2:30 pm-2:45 pm **Move to next Seminar**

Session Two (2:45-3:45)

Port Security and Maritime Domain Awareness
Coordinators, Bob Kelly, Geoffrey Abbott
(Regency Ballroom)

- Dr. Joseph T. Bouchard, Executive Director, ZelTechnologies, Center for Homeland Security and Defense
- Doug Ochsenknecht, Acting Program Executive, Counter-Narcoterrorism Technology Program Office, Department of Defense
- Rear Admiral Craig Bone, USCG, Director of Port Security
- Dana Goward, Director, USCG, Maritime Domain Awareness

Chemical, Radiological and Biological Defense
Coordinator, Ted Prociv
(Washington A/B)

- John Vitko, Biological Threat Office, Department of Homeland Security
- James Zarzycki, Technical Director, Chemical Biological Command, Edgewood R&D Center
- James King, Deputy Director of the Chemical and Biological Information and Analysis Center
- John S. Parker, Bio-Medical Market Analysis, SAIC

3:45 pm-4:00pm **Move to next Seminar**

Session Three (4:00-5:00):

Critical Infrastructure Protection/Cyber Security:
-Establishing Attainable Priorities
-Industry as a Partner and Source
Coordinator, Mark Steiner
(Washington A/B)

- Mr. Tom DiNanno, Deputy Assistant Secretary for Infrastructure Protection, Office of Infrastructure Protection
- Andy Purdy, Director of National Cyber Security Division, US Department of Homeland Security

Information Analysis/Intelligence
-Threat Assessment
-Intelligence Community Organization, Roles, Responsibility and Coordination
-Information Analysis Trends and New Methods
Coordinator, Dr. George Baker, Associate Professor,
Integrated Science and Technology, James Madison University
(Regency Ballroom)

- John B. Noftsinger, Jr., Ed.D.
  Associate Vice President of Academic Affairs for Research and Public Service
- Steve Dennis, Knowledge Technology
  Manager, Department of Homeland Security
- David Moore, Technical Director, Office of the
  NSA/CSS Senior Intelligence Authority
- Charles Allen, Chief Intelligence Officer, Department of
  Homeland Security

5:00 pm - 6:30 pm **Reception, Homeland Security Technology Showcase**
(Exhibit Area)

6:30 pm - 9:30 pm **Awards Banquet**

- Opening Ceremony
- Address: **"Congressional Perspective: Homeland Security and Industry"**
  Representative Peter T. King, Chairman,
  House Committee on Homeland Security
- Dinner
- Awards: **America Secure**
  Governor James S. Gilmore III
  Homeland Security Leadership
  The Honorable Charles McQueary
  Chairman's Award
  Mr. Richard Cooper

Friday, March 31

7:00 am - 8:15 am	**Continental Breakfast**
8:15 am	**Reassembly Remarks** Major General William C Moore, USA (Ret) Chairman, HLS Symposium
8:30 am	**Keynote Address: "Strategy for Homeland Defense-Coordination with Homeland Security"** The Honorable Paul McHale, Assistant Secretary of Defense, Homeland Defense, US Department of Defense
9:15 am	**Break in Exhibit Area, Tour by ASD, HD**
10:00 am	**Address: "Preparedness--Are We Ready for the Next One?"** The Honorable George W. Foresman, Under Secretary for Preparedness, US Department of Homeland Security
11:00 am	**Address: "Budget and Programs"** • Dr. Douglas Holtz-Eakin, Director, Maurice R. Greenberg Center for Geoeconomic Studies • Paul A. Volker Chair in International Economics, Council on Foreign Relations; most recently Director, Congressional Budget Office
11:45 pm	**Tour of Exhibit Area by General Downing** **(Last opportunity to view exhibits)**
12:30 pm	**Lunch** **Address:** General Wayne A. Downing, USA (Ret); Distinguished Chair, Center for Combating Terrorism, United States Military Academy, former CINC, USSOCOM
2:30 pm	**Symposium Adjournment** MG William C. Moore, Chairman, HLS Symposium

National Infrastructure Protection Plan

Overview

March 2006

Prepared By:

Infrastructure Protection Office
Preparedness Directorate

Homeland Security

Vision

The United States will forge an unprecedented level of cooperation throughout all levels of government, with private industry and institutions, and with the American people to protect our critical infrastructure and key assets from terrorist attack.

The National Strategy for Homeland Security
July 2002

Homeland Security

HSPD-7 Requirements

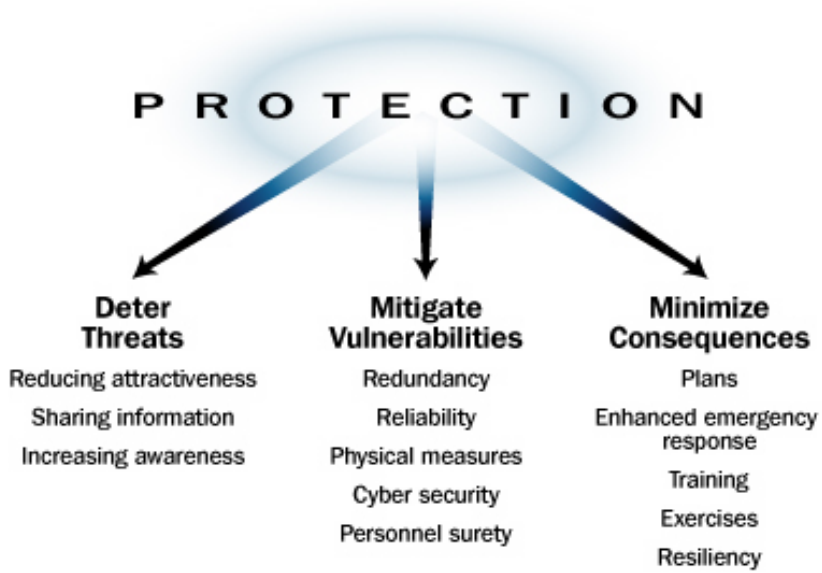
Directs the development of a National Infrastructure Protection Plan (NIPP)

The NIPP is a comprehensive, integrated National Plan for Critical Infrastructure and Key Resources (CI/KR) Protection to outline national goals, objectives, milestones, and key initiatives. The Plan includes the following elements:

- A strategy to identify, prioritize, and coordinate CI/KR protection, including how DHS intends to work with Federal departments and agencies, State and local governments, the private sector, foreign countries, and international organizations;
- Descriptions of activities which: define and prioritize, reduce the vulnerability of, and coordinate CI/KR protection;
- A summary of initiatives for sharing CI/KR information and for providing CI/KR threat warning data to State and local governments and the private sector; and
- Coordination and integration, as appropriate, with other Federal emergency management and preparedness activities

NIPP Goal

Build a safer, more secure, and more resilient America by enhancing protection of the Nation's CI/KR to prevent, deter, neutralize, or mitigate the effects of deliberate efforts by terrorists to destroy, incapacitate, or exploit them; and enabling national preparedness, timely response, and rapid recovery in the event of an attack, natural disaster, or other emergency.



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NIPP Value Proposition

The success of the partnership for CI/KR protection depends on articulating the mutual benefits to government and private sector partners. This value proposition:

- Enables Federal, State, local, tribal and private sector security partners to clearly understand the national CI/KR protection priorities
- Provides CI/KR protection planning, information sharing, risk management, resource coordination, and program implementation processes
- Is intended to be used as a framework for coordinating CI/KR protection efforts across sectors and security partners

HSPD-7 Designated Sectors & Agencies

Critical Infrastructure Sectors	Agriculture, Food	USDA
	Public Health, Healthcare, Food	HHS
	Drinking Water, Water Treatment	EPA
	Defense Industrial Base	DoD
	Energy	DOE
	Banking and Finance	TREAS
	National Monuments & Icons	DOI
	Transportation Systems	DHS
	Information Technology	DHS
	Telecommunications	DHS
	Chemical	DHS
	Emergency Services	DHS
	Postal and Shipping	DHS
Key Resources	Commercial Facilities	DHS
	Government Facilities	DHS
	Dams	DHS
	Commercial Nuclear Reactors, Materials, & Waste	DHS

Sector-Specific Agencies (SSAs)

DHS is responsible for coordinating the overall national effort to enhance protection of CI/KR across Sectors

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Major NIPP Theme: Roles and Responsibilities

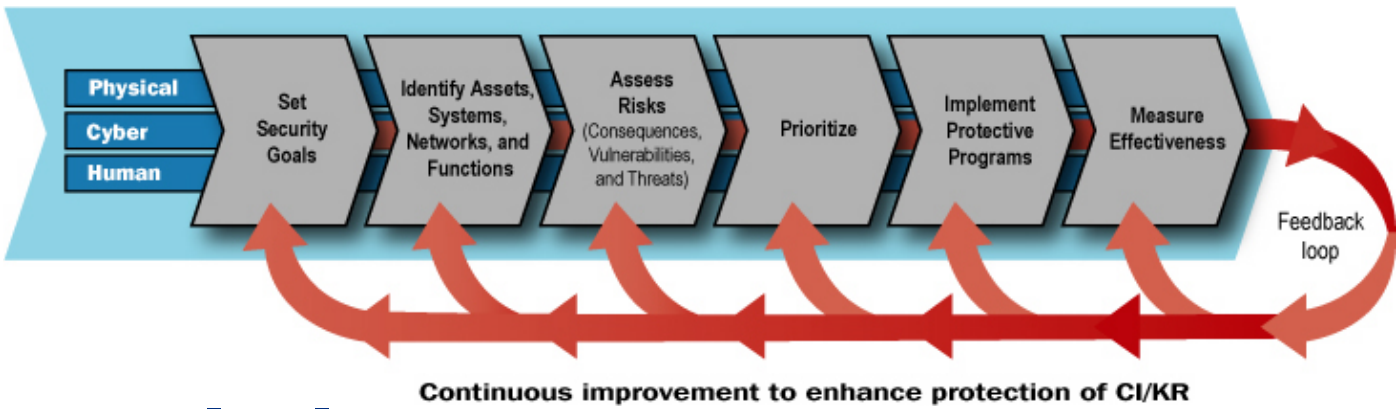
Security Partners:

- **Department of Homeland Security:** Management of the Nation's CI/KR protection framework and overseeing NIPP implementation
- **Sector-Specific Agencies (SSAs):** Implementation of the NIPP and guidance for development of Sector-Specific Plans (SSPs)
- **Other Federal Departments, Agencies, and Offices:** Implementation of specific roles designated in HSPD-7 or other relevant statutes and executive orders
- **State, Territory, Local, and Tribal Governments:** Development and implementation of a CI/KR protection program as a component of their overarching homeland security program
- **Private Sector Asset Owners and Operators:** CI/KR protection, coordination, and cooperation

Major NIPP Theme: NIPP Risk Management Framework

The NIPP and supporting Sector-Specific Plans (SSPs) describe the processes to:

- Set Security Goals
- Identify Assets, Systems, Networks, and Functions
- Assess Risk (Consequences, Vulnerabilities, and Threats)
- Prioritize
- Implement Protective Programs
- Measure Effectiveness



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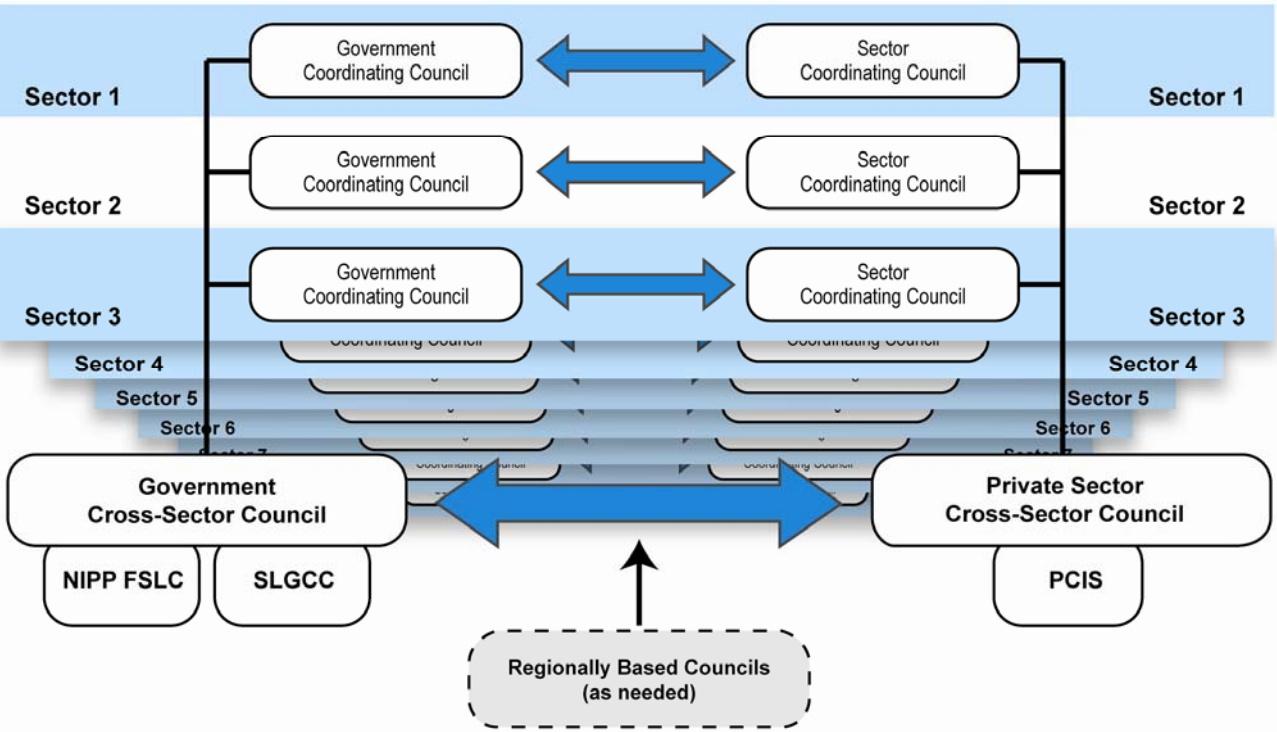
Major NIPP Theme: Sector Partnership Model



Provides the framework for security partners to work together in a robust public-private partnership.

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Critical Infrastructure Partnership Advisory Council

The DHS Secretary established the Critical Infrastructure Partnership Advisory Council (CIPAC)

- Creation of the CIPAC stems from requirements of the Homeland Security Act of 2002 and HSPD-7, from congressional guidance, and from recommendations put forth by private sector advisory councils
- Created to facilitate more effective coordination of Federal infrastructure protection programs with CI/KR activities of the private sector and of State, local, territorial, and tribal governments
- Unlike other advisory councils, the CIPAC role is not strictly advisory in nature, but will engage in the wide range of activities required by the CI/KR protection mission
- Pursuant to Section 871 of the Homeland Security Act of 2002, the DHS Secretary has exempted the Committee from the Federal Advisory Committee Act (FACA) to allow the Department to work more collaboratively with private sector and other CI/KR owners and operators

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Major NIPP Theme: Information Sharing and Protection

The NIPP uses a network approach to information sharing that:

- Enables secure multidirectional information sharing between and across government and CI/KR owners and operators at all levels.
- Provides mechanisms, using “need to know” protocols as required, to support the development and sharing of strategic and specific threat assessments, incident reports and threat warning, impact assessments, and best practices.
- Allows security partners to assess risks, conduct risk management activities, allocate resources, and make continuous improvements to the Nation’s CI/KR protective posture

DHS and other Federal agencies use a number of programs and procedures, such as the Protected Critical Infrastructure Information (PCII) Program, to ensure that CI/KR information is properly safeguarded

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Major NIPP Theme: Providing Resources for the CI/KR Protection Program

Resources must be directed to areas of greatest priority to enable effective management of risk.

The NIPP resource allocation process describes:

- The integrated risk-based approach that will be used to determine how CI/KR protection programs will be prioritized and funded
- How State- and local-level CI/KR protection efforts will be supported through DHS and other CI/KR protection Grant Programs
- How all of these investments, coupled with appropriate incentives, support collaboration among security partners to enhance CI/KR protection

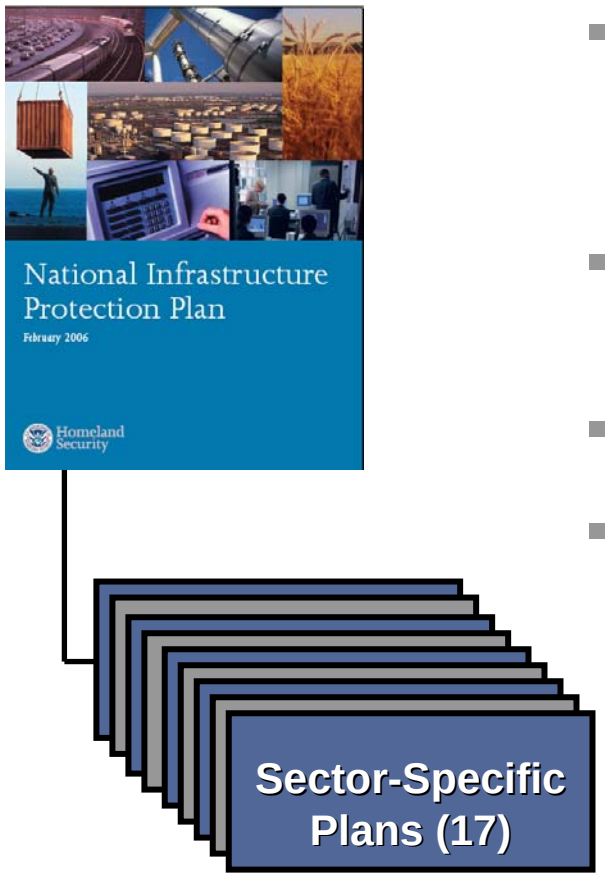
NIPP Development & Coordination

The NIPP was developed as a collaborative process between DHS, SSAs, State, local, and private sector security partners

Review and comment process included broad distribution of the NIPP across all sectors and at each level of government and the private sector and the public to obtain individual comments and input

- Draft NIPP Base Plan was distributed to the following Security Partners:
  - **Federal Government**
    - DHS; Sector-Specific Agencies; HSPD-7 Departments & Agencies; Government Coordinating Councils
  - **State, Local, Territorial, and Tribal Governments**
    - Homeland Security Advisors; State Administrative Agents and Emergency Managers
  - **Advisory Councils**
    - National Infrastructure Advisory Council; National Security Telecommunications Committee; Homeland Security Advisory Committee
  - **Private Sector Partners**
    - Sector Coordinating Councils; Private Sector Security Partners

Sector-Specific Plans (SSPs) Content



- SSPs detail the application of the NIPP risk management framework in each of the 17 CI/KR sectors
- Sector-Specific Agencies partner with their sector to develop the individual SSP
- SSPs are annexes to the NIPP Base Plan
- Finalized SSPs are to be submitted to DHS within 180 days after the NIPP is issued by the Secretary of Homeland Security

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Next Steps

- **Finalize the NIPP Base Plan**
  - Based on review/comment by HSC Policy Coordination Committee, Deputies Committee, Principals Committee, and DHS Leadership (Deputy Secretary and Secretary) reviews
- Achieve **Final Approval and Sign-off** on the NIPP Base Plan
- Finalize **NIPP Campaign Plan & Rollout Strategy**
- Coordinate with and support SSA efforts to finalize the SSPs
  - **SSPs are due 180 days from the final signature on the NIPP Base Plan**
- **Implement the Risk Management Framework** nationally and across all CI/KR Sectors

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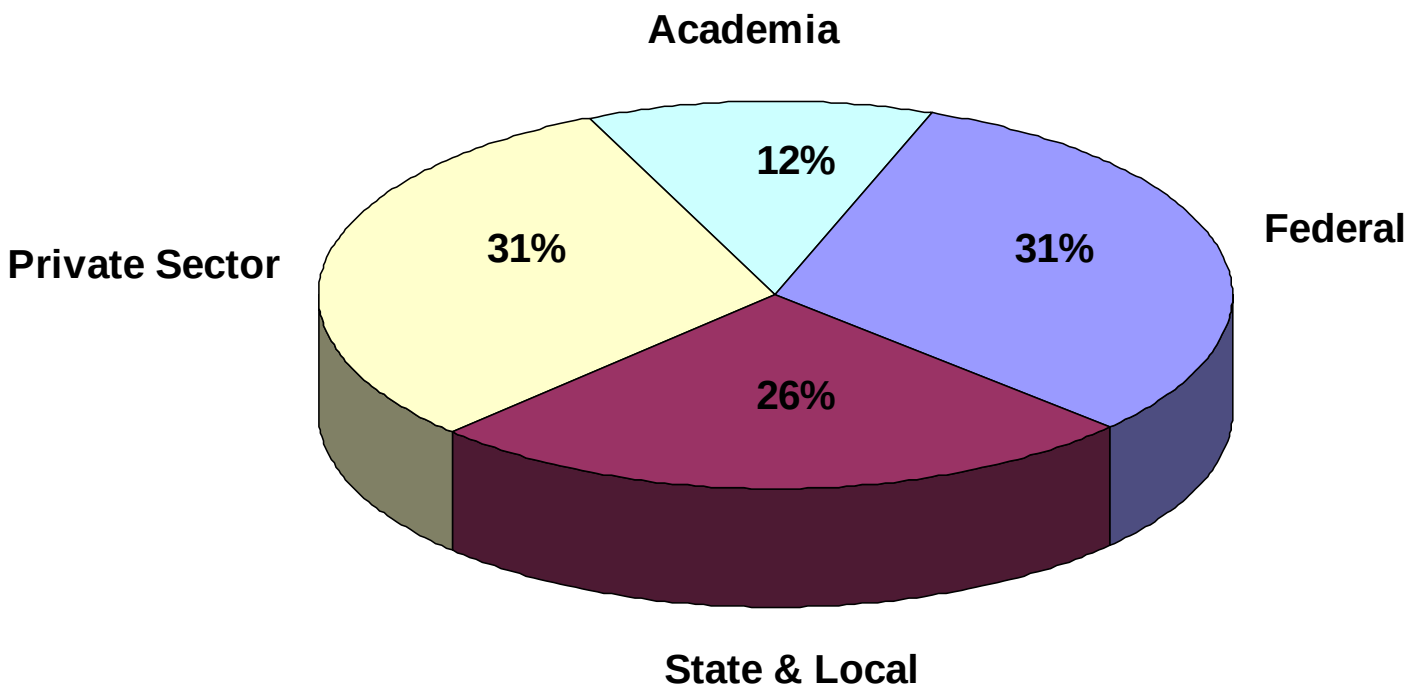
NIPP Comments Process

- **Nearly 10,000 comments** received and adjudicated
  - First Round: nearly 6500 comments from more than 300 individuals
  - Second Round: nearly 3000 comments from more than 200 individuals

- Timeline
  - Draft 1: Released November 2, 2005
  - Draft 2: Released January 20, 2006
  - **Final: Secretarial approval and HSC coordination – March/April 2006**

NIPP Comments Received from Security Partners



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Comments: Themes and Resolution

- **All Hazards Considerations – Strengthened the linkage between the NIPP and incident management**
- **Goals & Objectives – Additional information on the "value proposition" and "end state" for private sector participation**
- **Roles and Responsibilities – Formed the State and Local Homeland Security Coordinating Council to provide State and local participation in the partnership model**
- **Risk Tools & Criteria – Strengthened the risk management framework, including:**
  - **Detail on assets, systems, networks, and functions**
  - **Greater flexibility for SSAs to utilize a top down/bottom up approach**
- **Information Protection – Strengthened information sharing and protection to include the "information sharing life-cycle"**
- **Resource Allocation – Clarified the resource process and annual reporting requirement**

The Overall Classification of this Briefing is:
UNCLASSIFIED

Maritime Domain Awareness: The Missing Piece of the Security Puzzle

NDIA/HIS Port Security

Mr. D.A.Goward, Director USCG MDA

30 March 2006

Willing to strike …

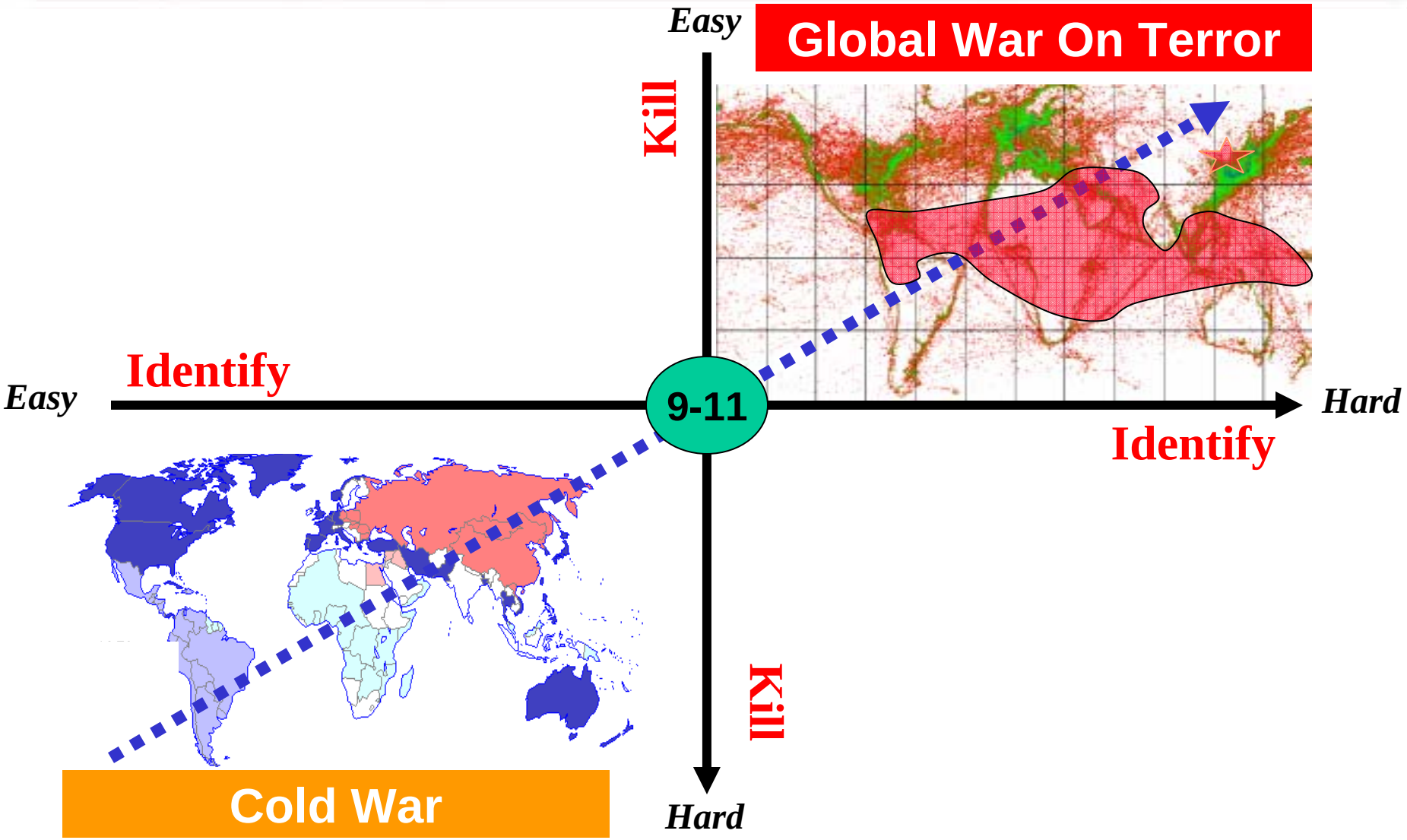
Vessels as:

- Direct Weapons
- Delivery of WMD
- Delivery of Terrorists
- Targets

US Maritime interests:

- High economic impact
- Much critical infrastructure
- Near large, dense population centers

The New Competitive Landscape



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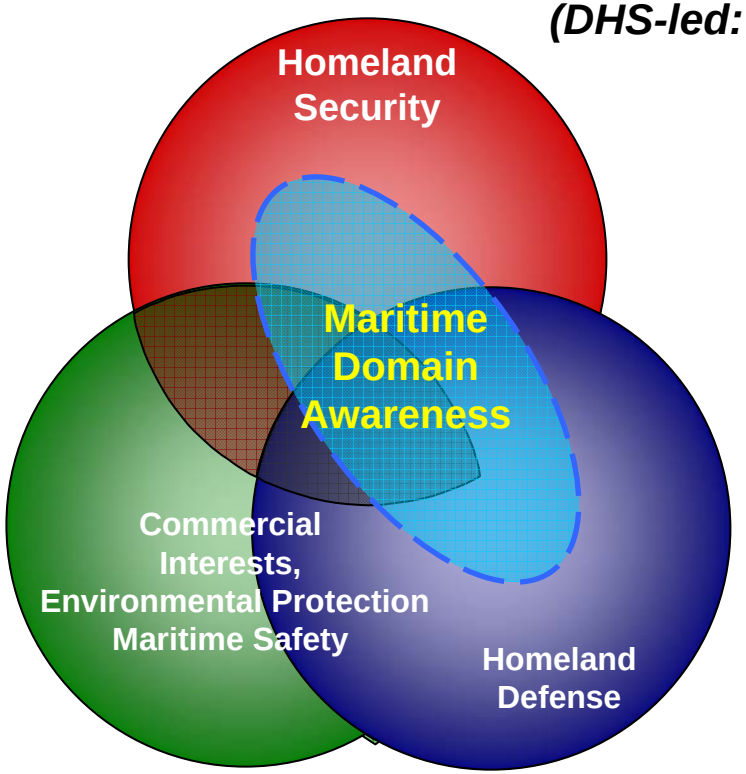
MDA Defined

"…the effective understanding of anything associated with the global Maritime Domain that could impact the security, safety, economy, or environment of the United States."

- ***NSPD 41 / HSPD 13, 21 Dec 04***

Maritime Homeland Security
(DHS-led: USCG)



Maritime Homeland Defense
(DoD-led: USNORTHCOM)

Maritime Domain Awareness

Observables	*Collect*	*Fuse*	*Analyze*	*Disseminate*	Decide/Act
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather	• Sensors • Operators & field personnel • Intel. agencies • Open source • Private sector data • Law Enf • Intl Sources	• Tracks w/ tracks • Data w/ data • Tracks w/ Data	• Anomaly Detection • Pattern Recog & analysis • Compare w/ rules • Research tools	• Networks • Displays (COP/UDOP) • Command Centers	• Strategic • Operational • Tactical

Situational Awareness

Current & Predictive Intelligence

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Maritime Domain Awareness

Observables	*Collect*	*Fuse*	*Analyze*	*Disseminate*	Decide/Act
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather	• Sensors • Operators & field personnel • Intel. agencies • Open source • Private sector data • Law Enf • Intl Sources	• Tracks w/ tracks • Data w/ data • Tracks w/ Data	• Anomaly Detection • Pattern Recog & analysis • Compare w/ rules • Research tools	• Networks • Displays (COP/UDOP) • Command Centers	• Strategic • Operational • Tactical

Situational Awareness

Current & Predictive Intelligence

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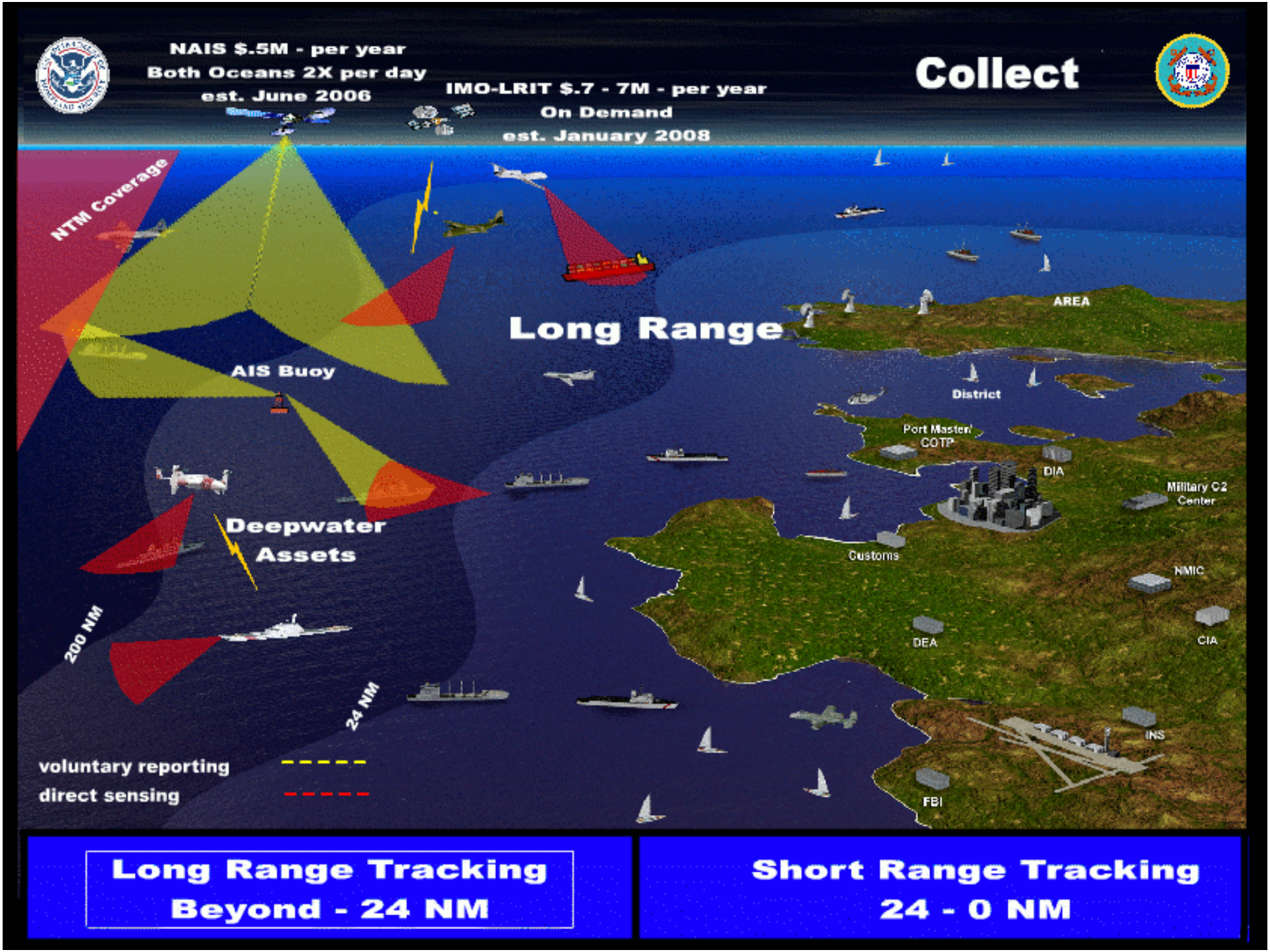
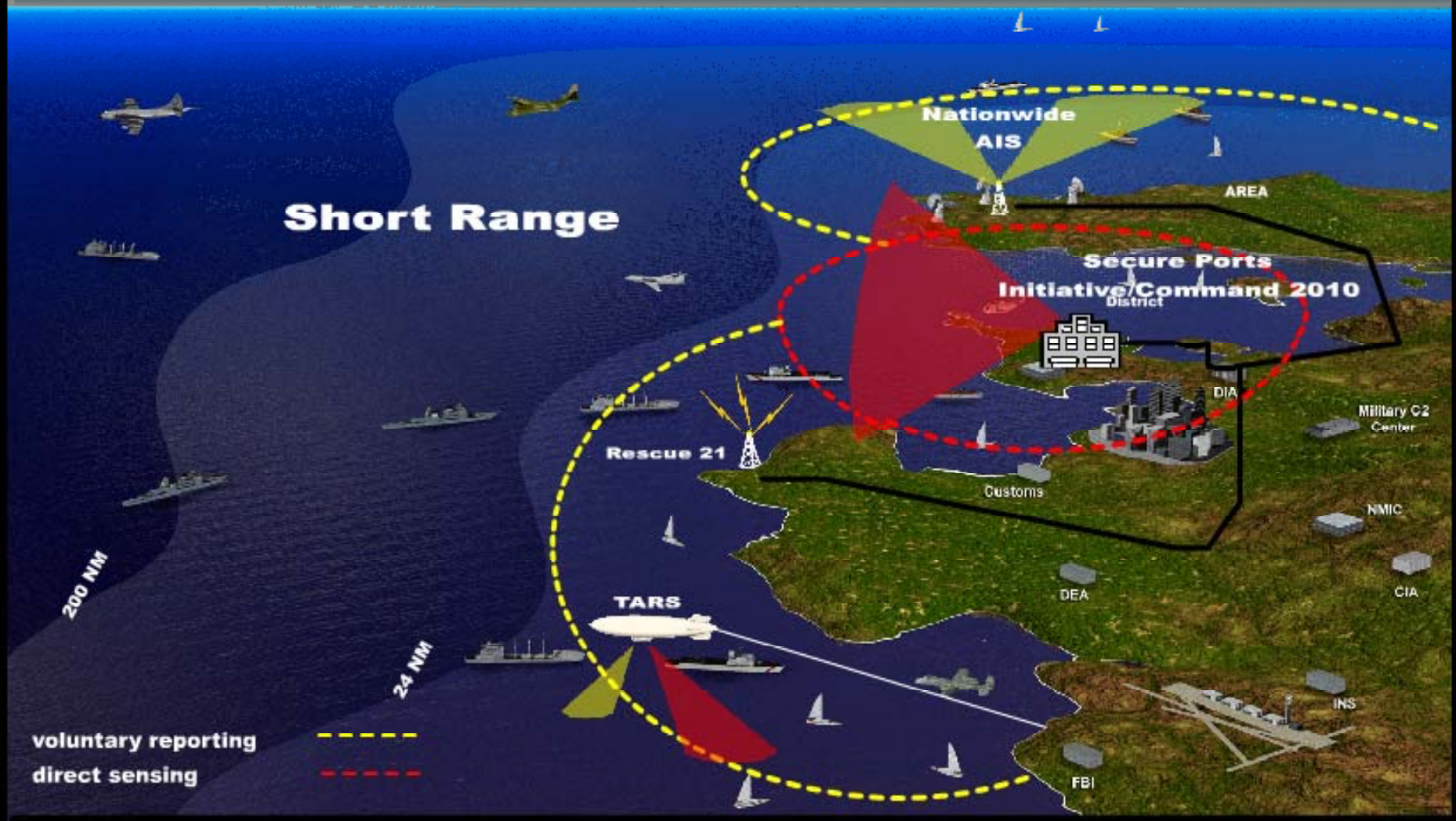
Collect – Vessel Tracks

		LARGE (> 65')			MEDIUM (25' - 65')			SMALL (< 25')		
		COOP	EMIT	DARK	COOP	EMIT	DARK	COOP	EMIT	DARK
Shore (12 nm)	In Place	1	2	2	3	2	2	3	2	2
	Available									
	Risk									
Approaches (12 - 90 nm)	In Place	1	7	7	7	7	7	7	7	7
	Available									
	Risk									
Off Shore (300 nm)	In Place	9	9		9	9				
	Available									
	Risk									
Global Maritime Domain	In Place	9	9		9	9				
	Available									
	Risk									

1 Coastal / National land based AIS receivers and data fusion
2 No extensive coastal radar systems deployed except around VTS and Hawkeye / JHOC ports
3 No AIS or other beacon requirement for smaller than SOLAS - technology is readily available
7 No persistent sector surveillance capability today
9 National Technical Means


NAIS $.5M - per year
Both Oceans 2X per day
est. June 2006
IMO-LRIT $.7 - 7M - per year
On Demand
est. January 2008
Collect
NTM Coverage
Long Range
AIS Buoy
Deepwater
Assets
200 NM
24 NM
AREA
District
Port Master/
COTP
DIA
Military C2
Center
Customs
NMIC
DEA
CIA
INS
FBI
voluntary reporting
direct sensing
Long Range Tracking
Beyond - 24 NM
Short Range Tracking
24 - 0 NM

Collect



Long Range Tracking
Beyond - 24 NM

Short Range Tracking
24 - 0 NM

Collect – Data Sources

- **Vessel** – Lloyds, photos, historical movement, SANS, MISLE, Pathfinder, VIS, Seawatch
- **Cargo** – CBP, e-manifests, Tradebytes, Global Trader
- **People** – NTTC, MISLE, TECS, APIS (CPB)
- **Infrastructure/Facilities** – PISRAT, ESRI GIS, CEU
- Intelligence Community data/info
- Multiple classification domains (HAGs)

Maritime Domain Awareness

Observables	*Collect*	*Fuse*	*Analyze*	*Disseminate*	Decide/Act
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather	• Sensors • Operators & field personnel • Intel. agencies • Open source • Private sector data • Law Enf • Intl Sources	• Tracks w/ tracks • Data w/ data • Tracks w/ Data	• Anomaly Detection • Pattern Recog & analysis • Compare w/ rules • Research tools	• Networks • Displays (COP/UDOP) • Command Centers	• Strategic • Operational • Tactical

Situational Awareness

Current & Predictive Intelligence

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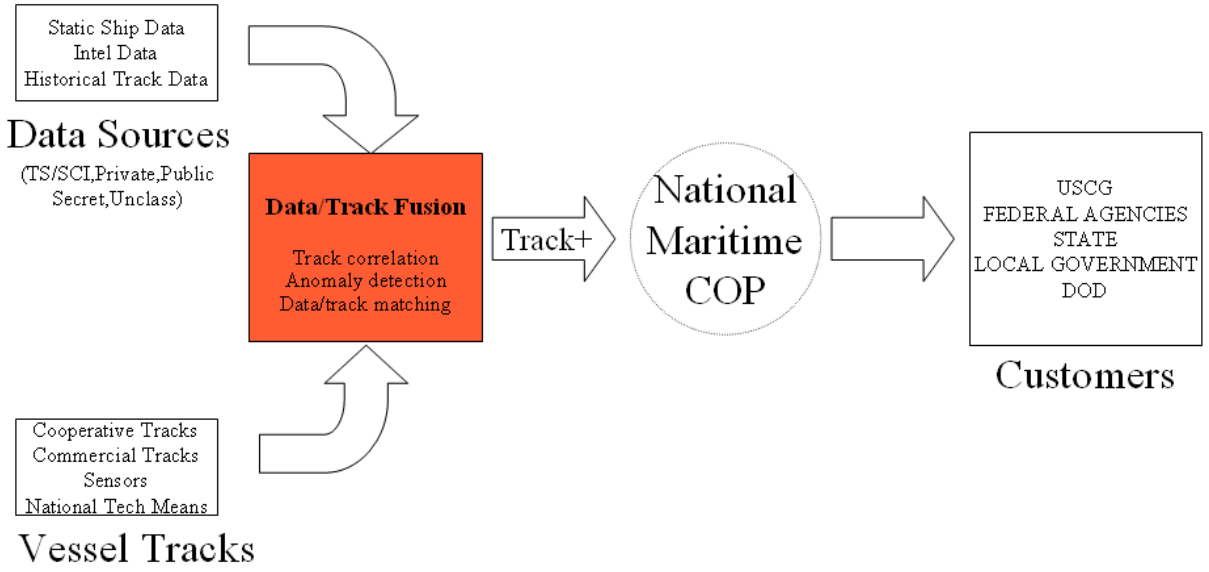
Fuse

"The process of combining data or information to estimate or predict entity states."

Revision to the JDL Data Fusion Model, 1998 NATO/IRIS Conference

- **Detect and track maritime objects**
  - **Data Discovery**
  - **Separate the noise from the signals**
- **Combine data sources**
  - **Public**
  - **Commercial**
  - **Government**
- **Identify Threats**
  - **Fusion**
  - **Anomaly detection**
  - **Alerts**



Vessels, Cargo, People, Infrastructure

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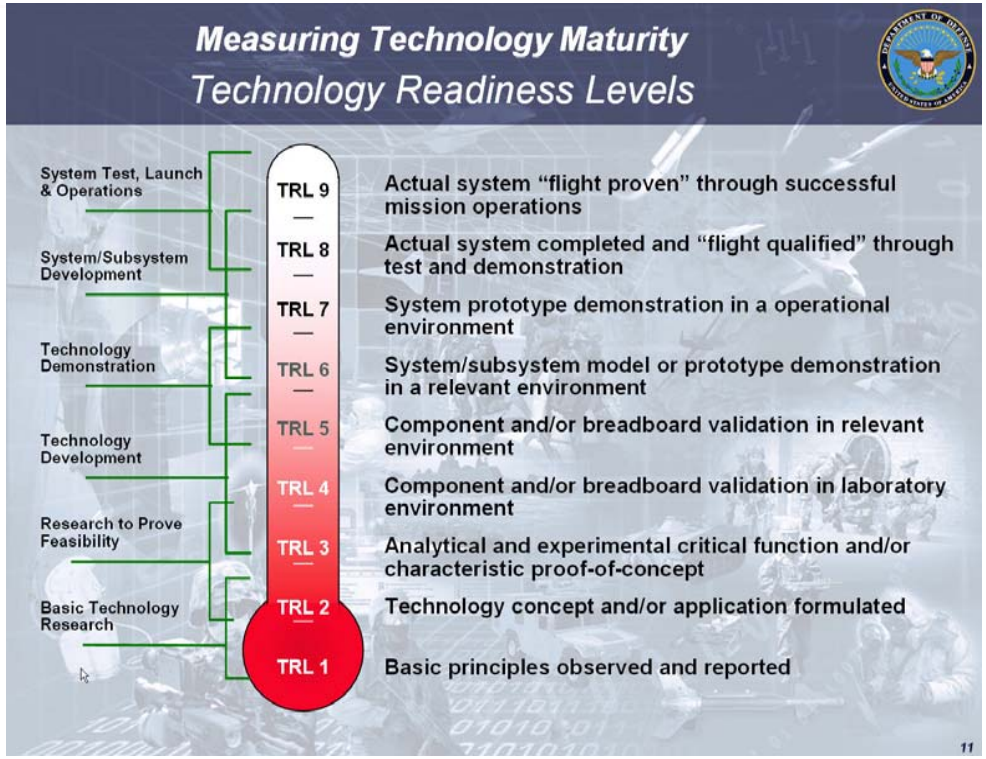
Fusion - Operational to System Functionality Matrix

Multi-INT Data Fusion: Operational Capability to System Functionality Matrix

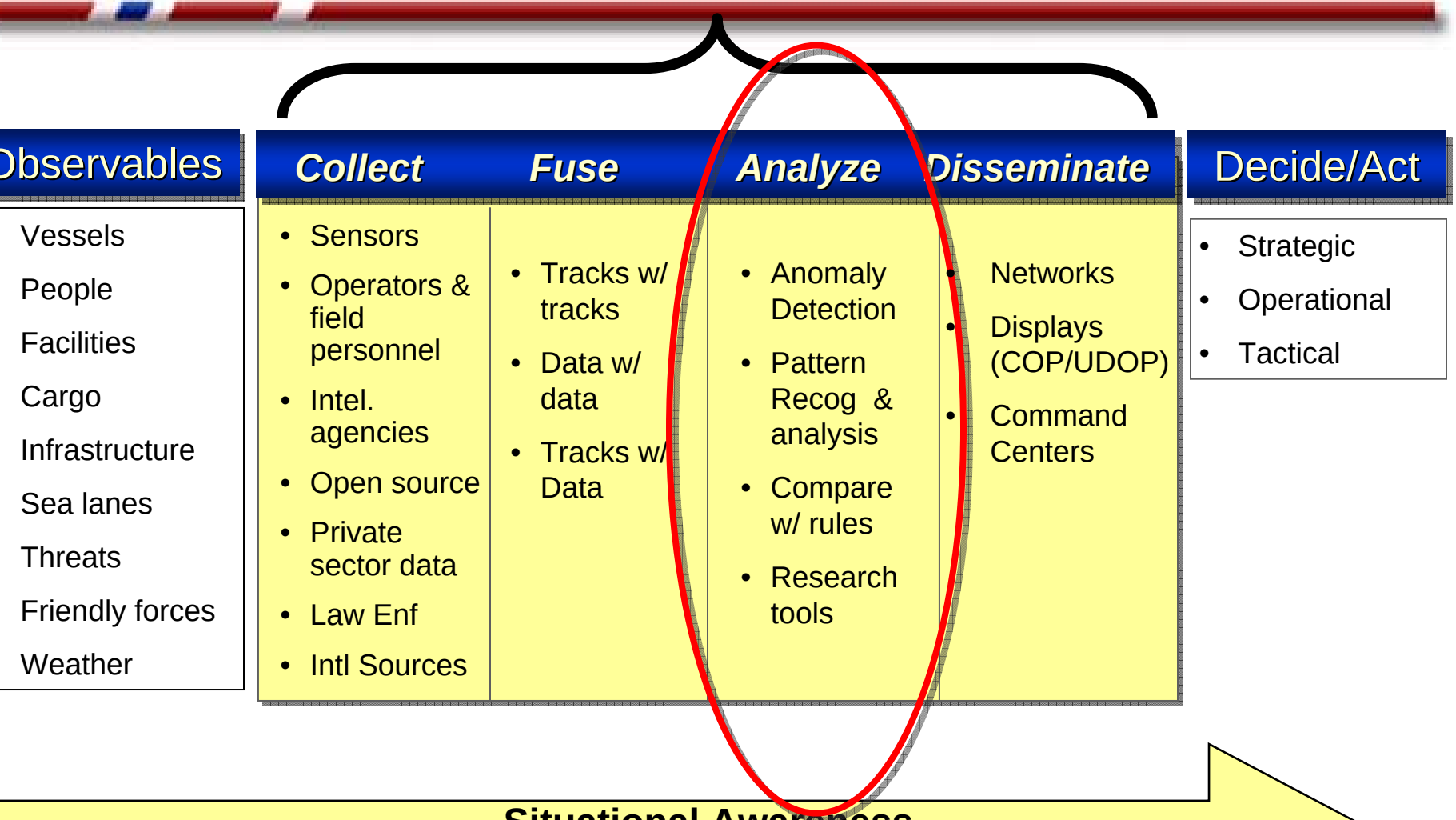
	Feb 13, 2006, Ver 10.7	Detect, identify, and track individual entities of interest			Assess and describe communities and processes of concern involving maritime entities (vessels, cargo, people)			Determine and assess threat level of maritime entities (vessels, cargo, people)	
		Detect, Identify, and Track Vessel(s)	Identify and Track Cargo	Identify and Track People	Generate Associations	Identify Association Clusters	Analyze Associations to Identify COC/POC	Recognize Anomalous Behavior in the Context of Normal	Identify All Entities Associated with Threat
System 1	**Data Processing/Analysis**								
	Associate Similar Data Types								
	Associate Dissimilar Data Types								
	Automatic Data Registration								
	Process Unstructured Textual Data								
	Semantic Processing/Analysis								
	Entity Analysis								
	Process Kinematic Data								
	Process Attribute and Feature Data								
	Generate Alternate Hypotheses								
	Automatic Identification								
	Automatic Track Generation								
	Provides Track Quality								
	Provides Confidence Levels								
	Process Vessel Data								
	Process Cargo Data								
	Process People Data								
	Situation & Threat Analysis								
	Co-Process Textual and Other Data								
	Prediction								
	Generate Alternate Hypotheses								
	Provides Confidence Levels								
	Process Political and Economic Data								
	Process Physical Environmental Data								
	Automatic Anomaly Detection								
	Automatic Threat Identification & Classification								
	Multidimensional Analysis								
	Contextual Analysis								
	Semantic Processing/Analysis								
	Ontology-based Processing/Analysis								
	Operator Alerts for User-Defined Requests								
	Multidimensional Analysis								
	Data Mining								
	Spatial Analysis								
	Temporal Analysis								
	Spatiotemporal Analysis								

0	Functionality not developed
1	TRL 1-3
2	TRL 4-6
3	TRL 7-9



- Generated for each fusion project
- Government and Industry projects
- Attributes (rows) help categorize fusion automation capabilities

Maritime Domain Awareness



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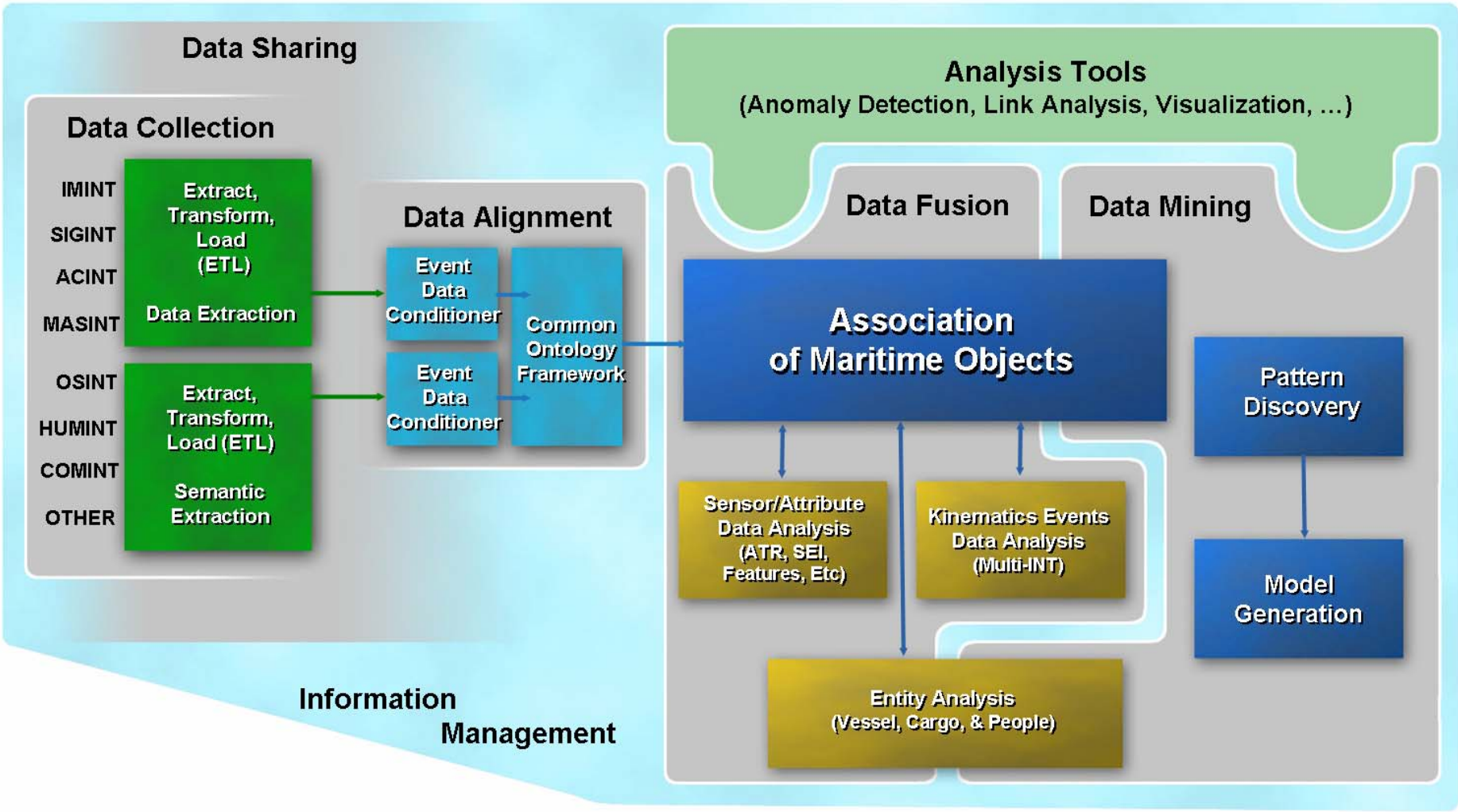
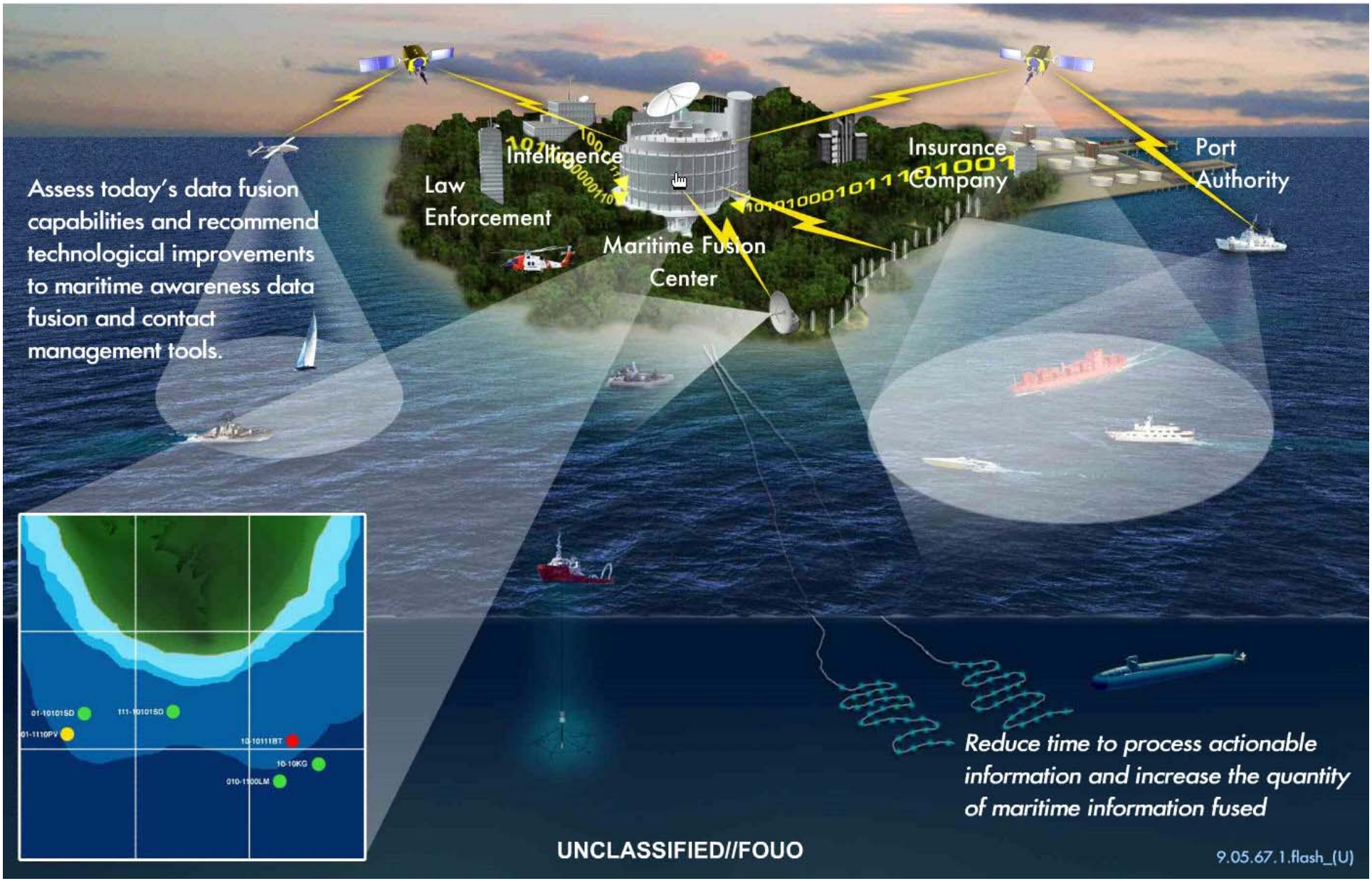
Notional CG Enterprise Framework



Fuse & Analyze



Maritime Domain Awareness

Observables	*Collect*	*Fuse*	*Analyze*	*Disseminate*	Decide/Act
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather	• Sensors • Operators & field personnel • Intel. agencies • Open source • Private sector data • Law Enf • Intl Sources	• Tracks w/ tracks • Data w/ data • Tracks w/ Data	• Anomaly Detection • Pattern Recog & analysis • Compare w/ rules • Research tools	• Networks • Displays (COP/UDOP) • Command Centers	• Strategic • Operational • Tactical

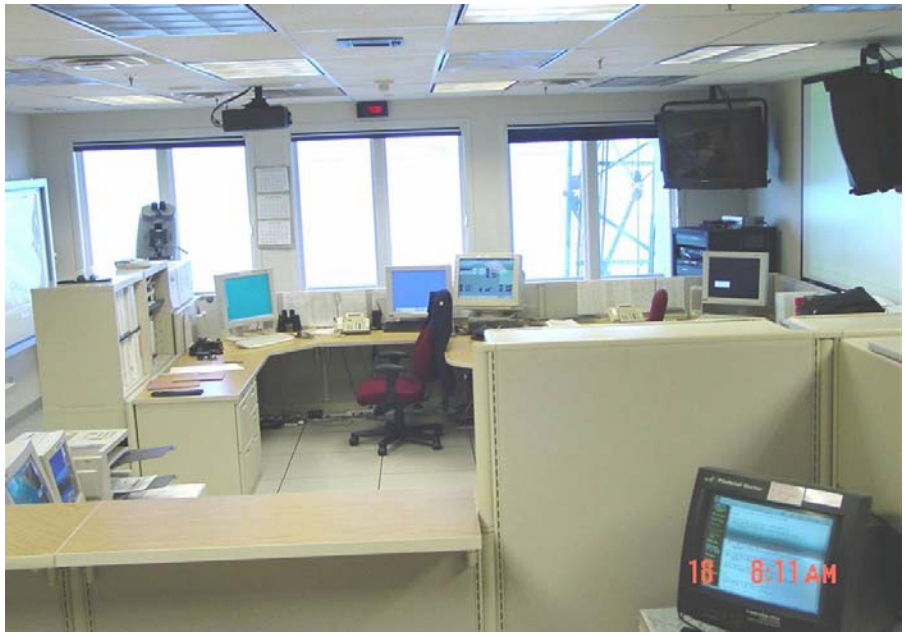
Situational Awareness

Current & Predictive Intelligence

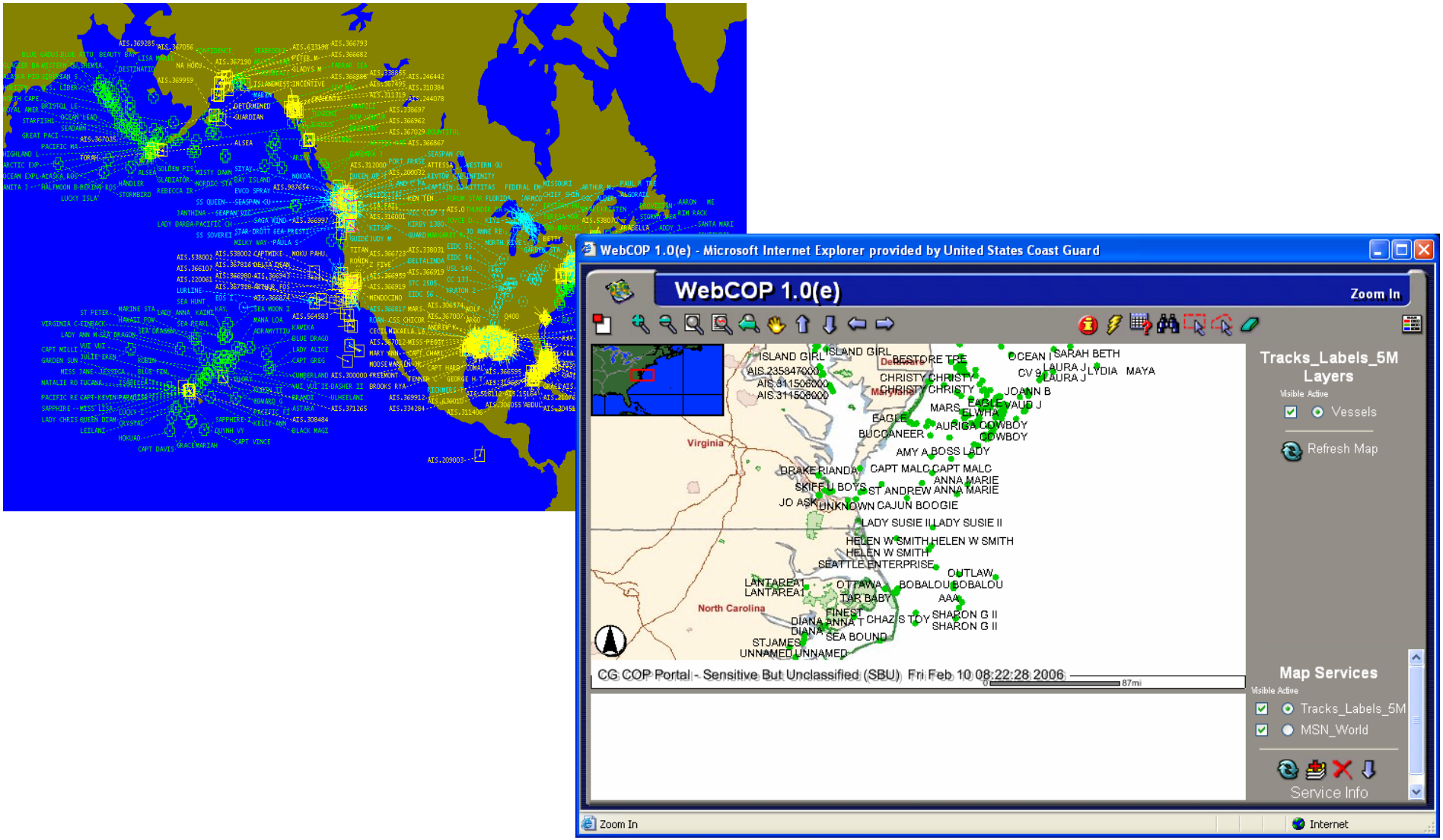
UNCLASSIFIED

Disseminate - Networks

- CGDN+/ DHS One Net
- SIPRNET
- JWICS
- Broadcasts
- IWN
- Internet
- MAGNet/ High Assurance Guards



Disseminate – COP/ UDOP



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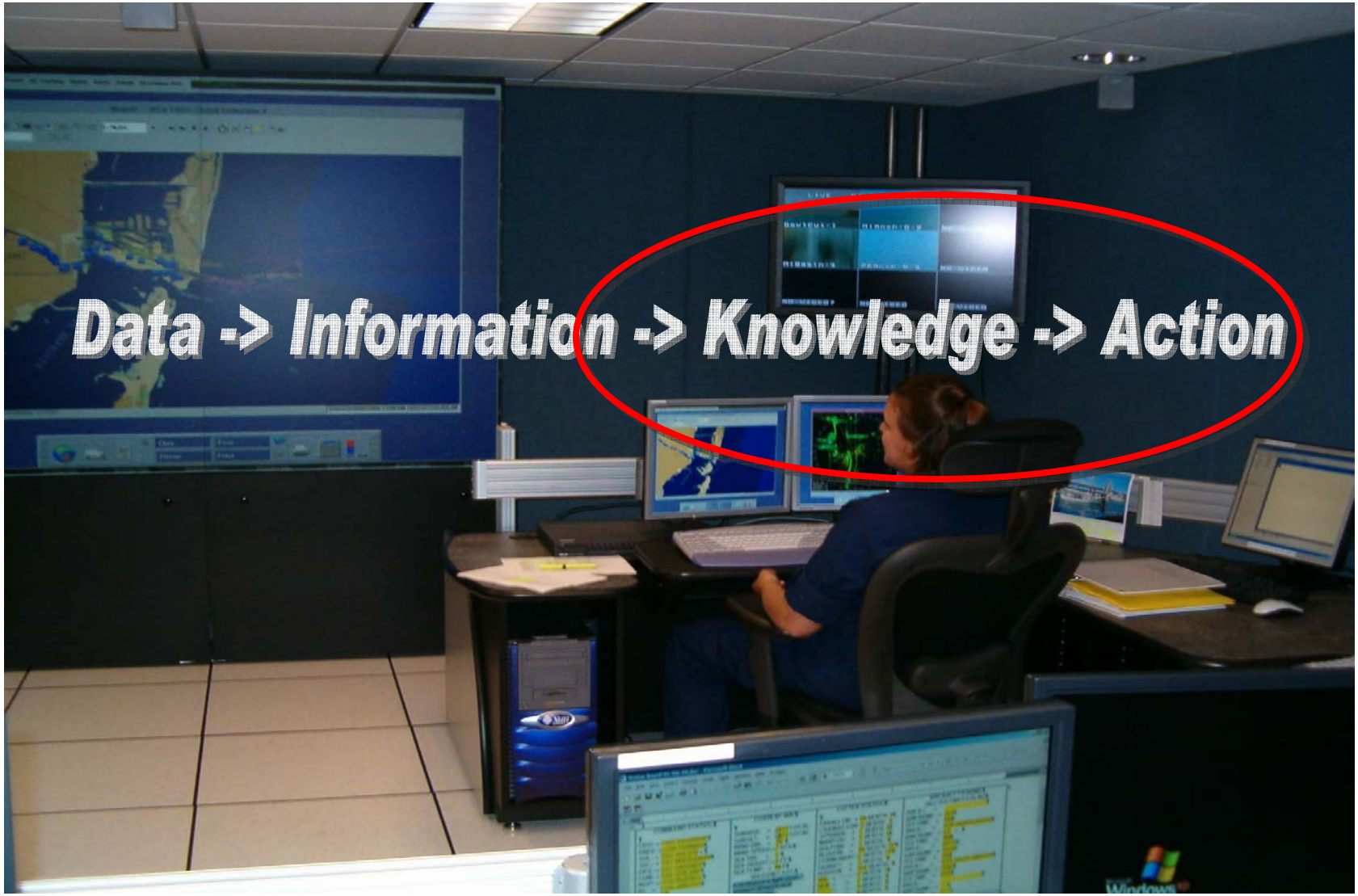
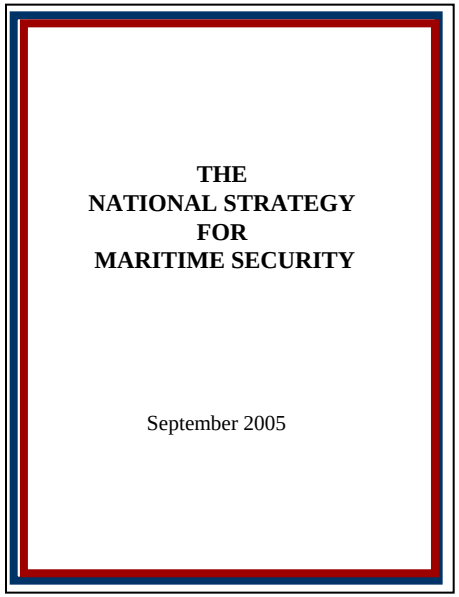
Disseminate – Command Centers



National Strategy for Maritime Security



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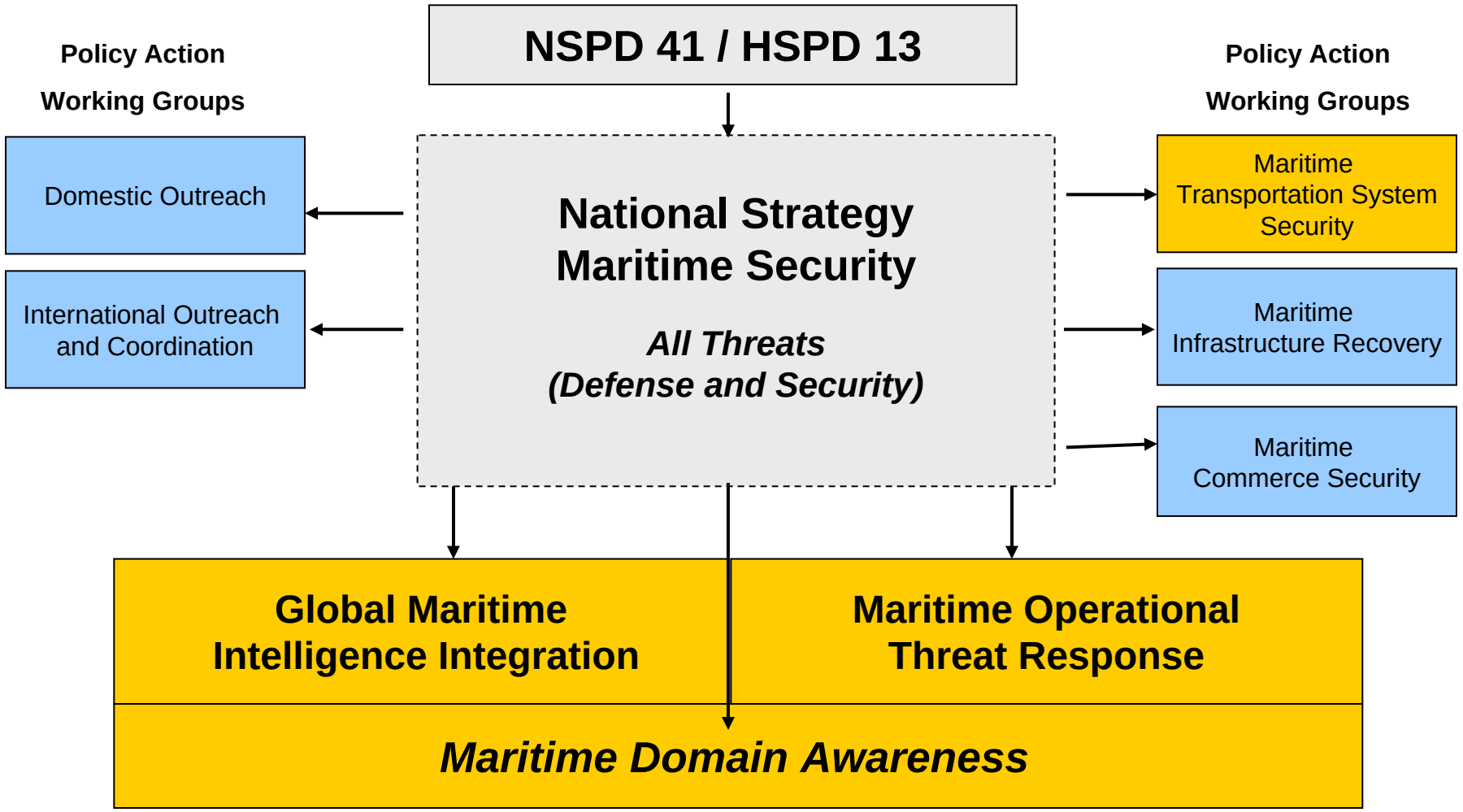
Maritime Security Policy and MDA



Requires Unity of Effort

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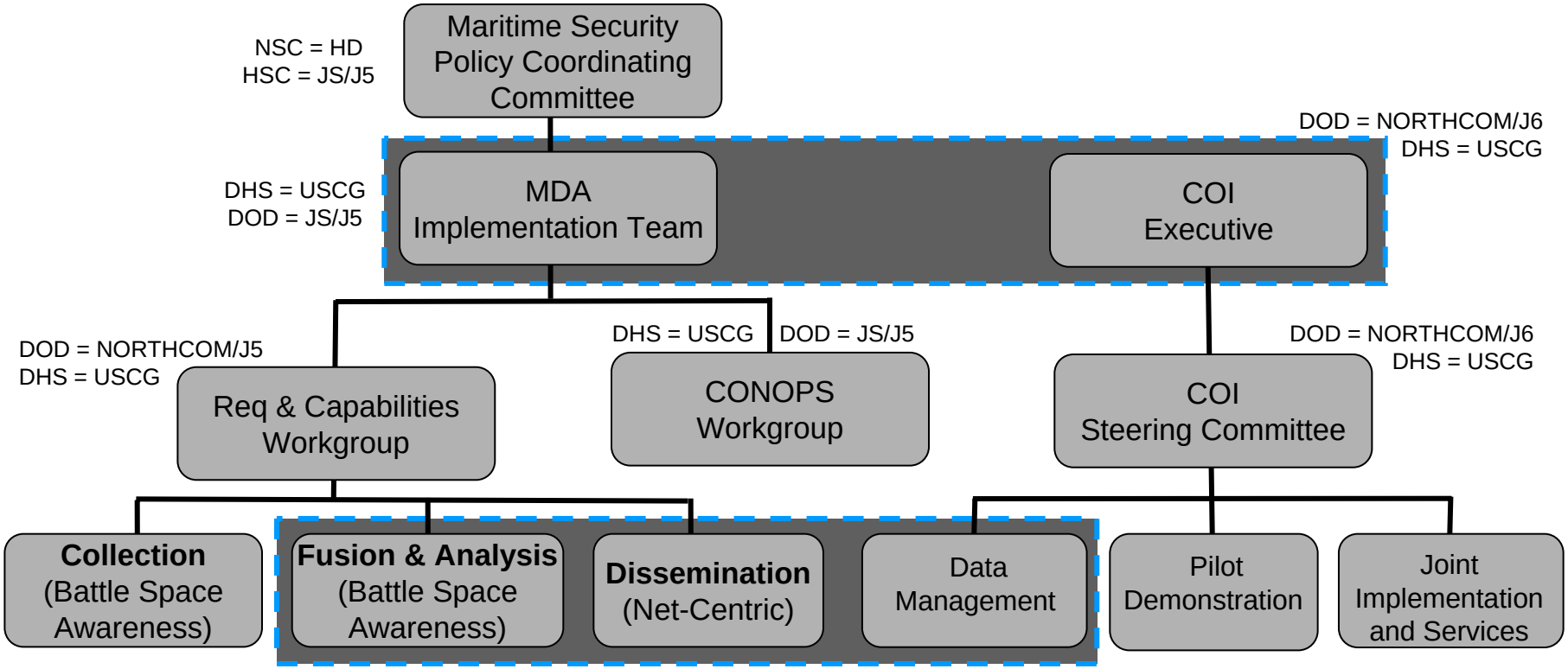
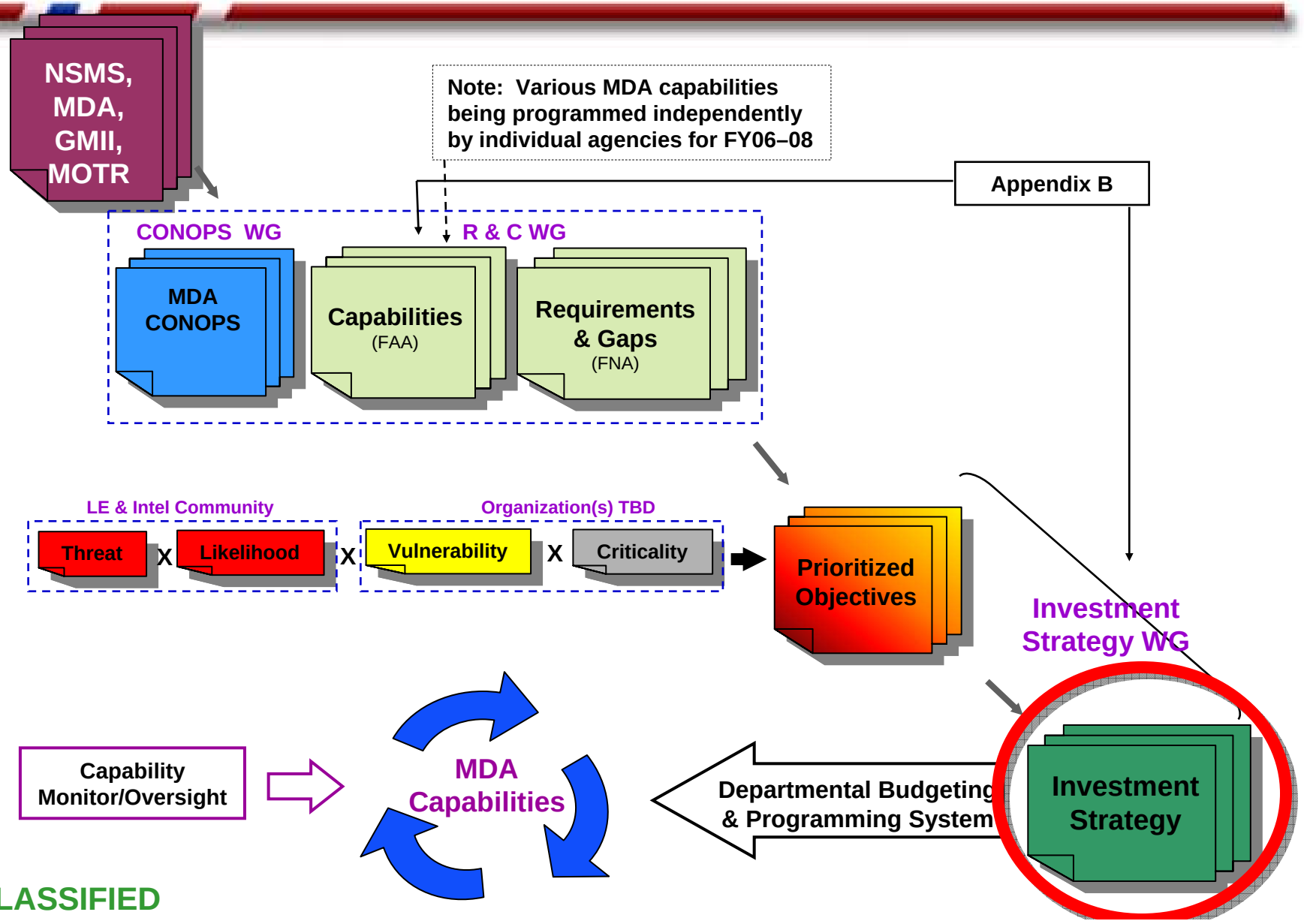
National MDA Implementation



National MDA Implementation Process



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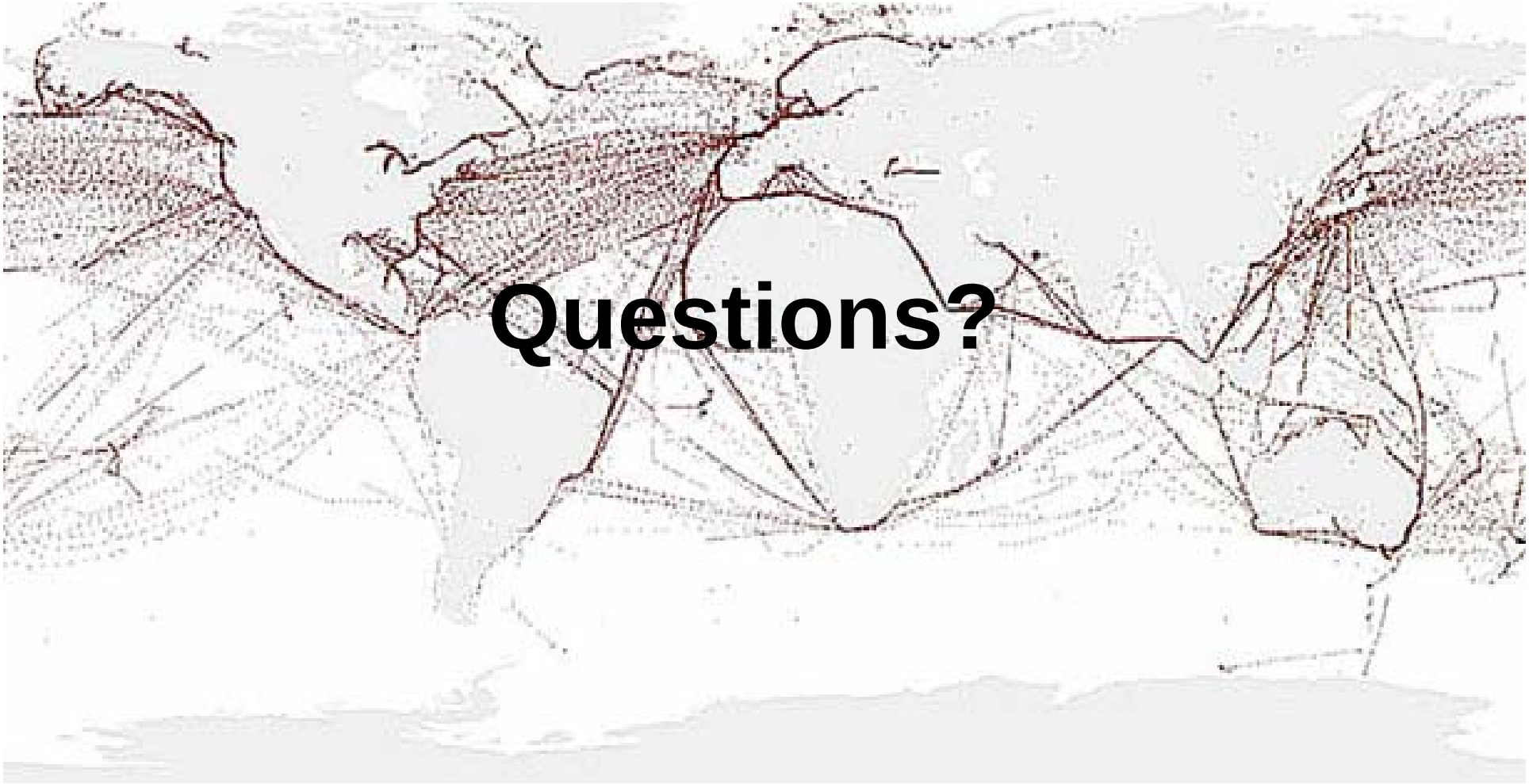
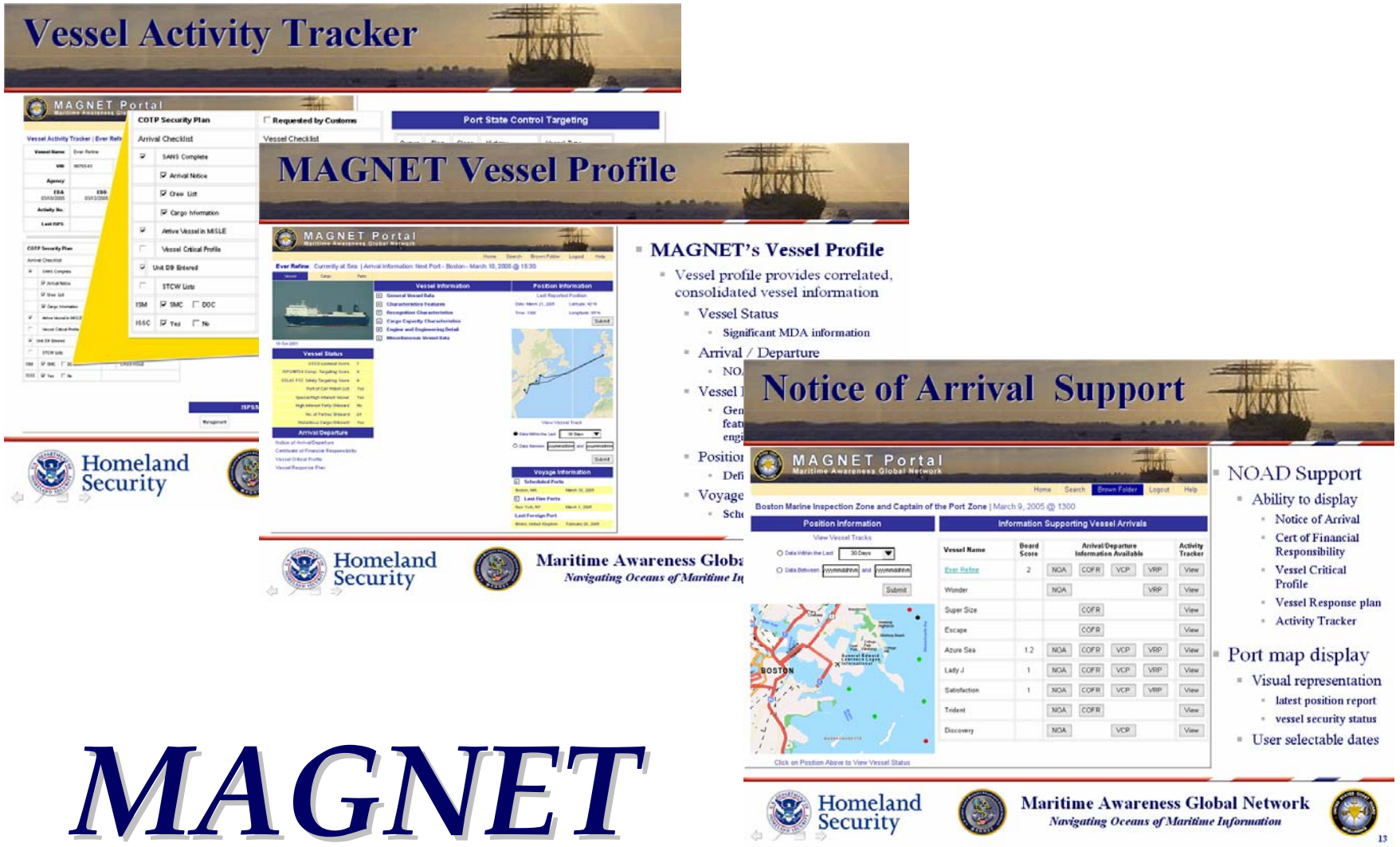
MDA – Connecting the Dots




Collect
Long Range Tracking
Beyond - 24 NM
Short Range Tracking
24 - 0 NM

Fuse & Analyze



MAGNET

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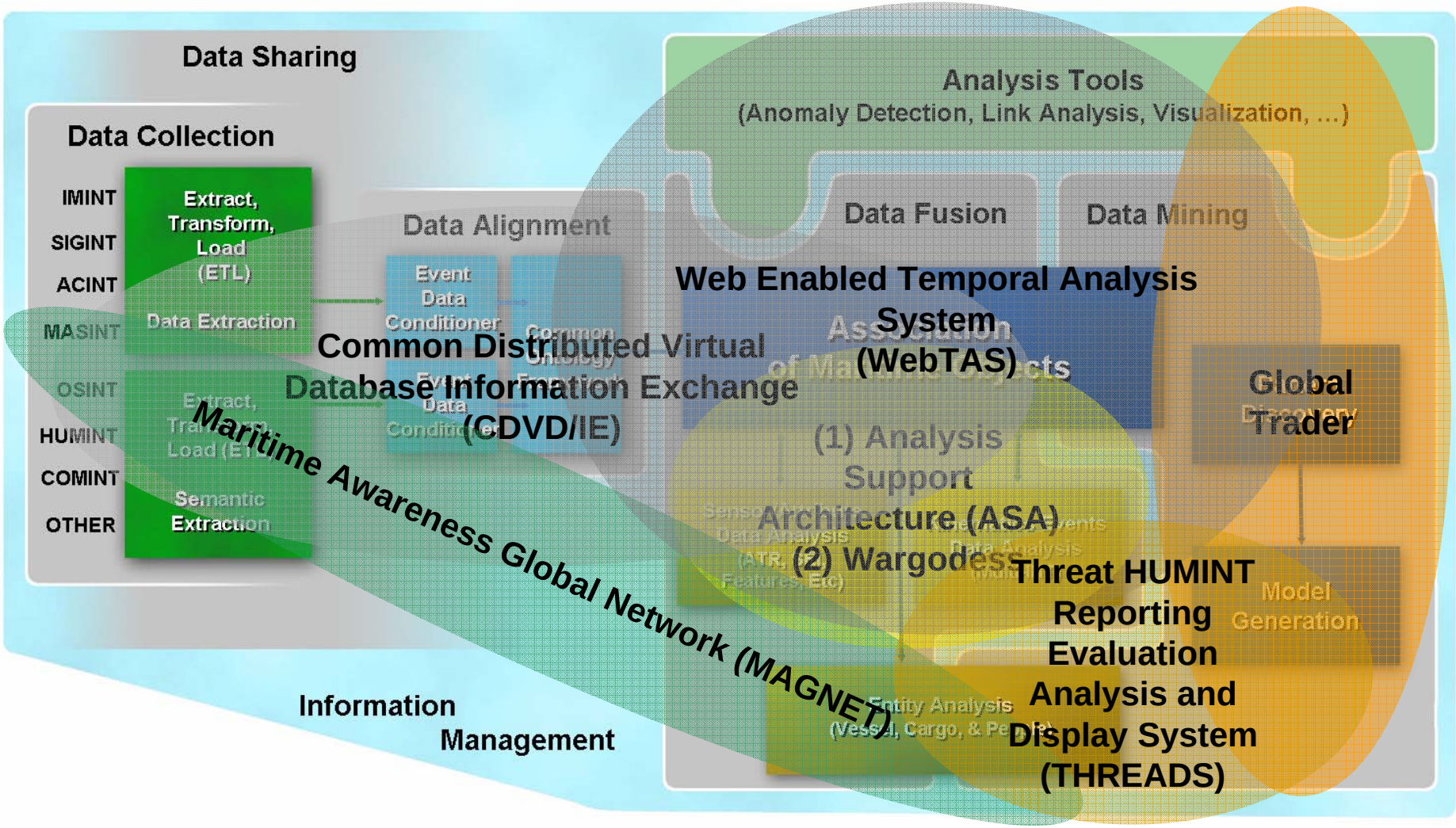
CG Enterprise Framework



Chemical and Biological Defense Information Analysis Center (CBIAC)

James M. King, Ph.D.

Deputy Director

Chemical and Biological Defense
CBIAC
Information Analysis Center

Information Analysis Centers (IACs)

- Chartered by DoD to generate, collect, analyze and disseminate scientific and technical information
- Provide comprehensive databases, analysis, tools and techniques, and reach-back
- Contractor operated under Defense Technical Information Center (DTIC)
- Support DoD, Other Federal Agencies, Contractors, and State and Local Governments and Emergency Responders

- Chemical and Biological Defense
- Survivability/Vulnerability
- Reliability
- Advanced Materials, Manufacturing, and Testing
- Sensors
- Information Assurance
- Weapon Systems Technology
- Data and Analysis Center for Software
- Chemical Propulsion

CBIAC Mission

Generate, Acquire, Process, Analyze and Disseminate CBRN Defense Science and Technology Information (STI) in Support of the Combatant Commanders, Warfighter, the CBRN Defense Research, Development and Acquisition Community, Other Government Agencies, and the Homeland Security Community

Anticipate and Prepare Solutions to Customer Requirements for CBRN Defense STI

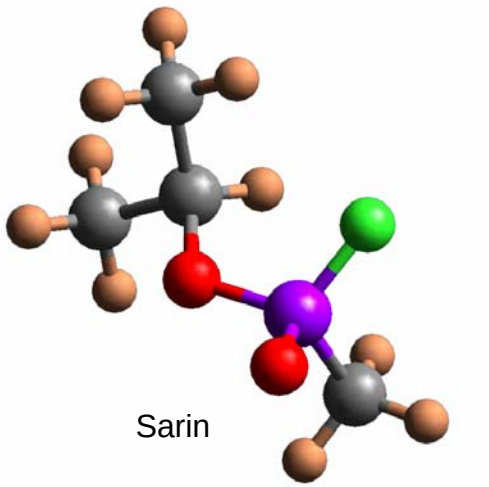
Identify and Reach Out to New CBRN Defense and Homeland Security Customers to Support National Security

Maximize Customers' Return on Investment

Technical Scope

- Chemical and Physical Properties of CW/CBD Materials
- Toxicology
- Warning and Identification
- Medical Effects and Treatment
- Treaty Verification
- International Technology, Proliferation and Control
- Individual and Collective Protection
- Chemical Identification
- Environmental Fate and Effects
- Decontamination
- NBC Survivability
- Combat Effectiveness
- Smoke and Obscurants

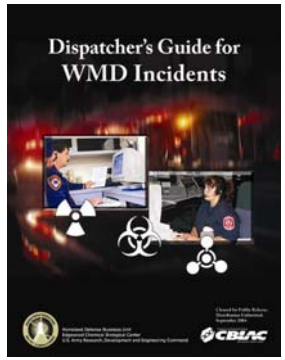

Ebola

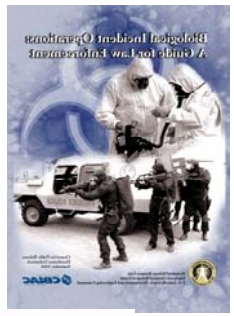

Sarin

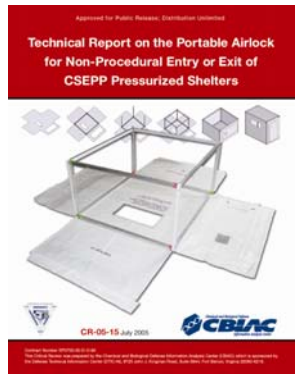
- Demilitarization
- Analysis of Manufacturing Processes for NBC Systems
- Defense Conversion & Dual use Technology Transfer
- Domestic Preparedness / Homeland Security
- Force Protection
- Counterterrorism
- Counterproliferation
- Toxic Industrial Chemicals/Materials (TICs/TIMs)
- Radiological and Nuclear Defense

Core Program Services and Products

- **Inquiries (Free)**
  - Information
  - Technical
  - Bibliographic
  - Referrals
  - Gateway to CBIAC reach-back
- **CBIAC Website (http://www.cbiac.apgea.army.mil)**
  - Access to CBRN START
  - Access to Inquiries, Products, Newsletters, etc.
- **Newsletters/Brochures**
- **Products (examples)**
  - Portable Airlock for Shelters
  - Dispatchers Guide for WMD Incidents
  - Law Enforcement Bio Guide
  - CBR Simulant Training Kit
  - CB Medical Treatment Symposium
  - Obscuration and Aerosol Research Proceedings



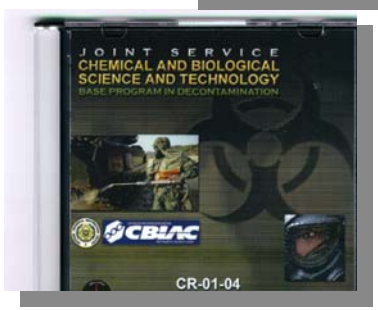


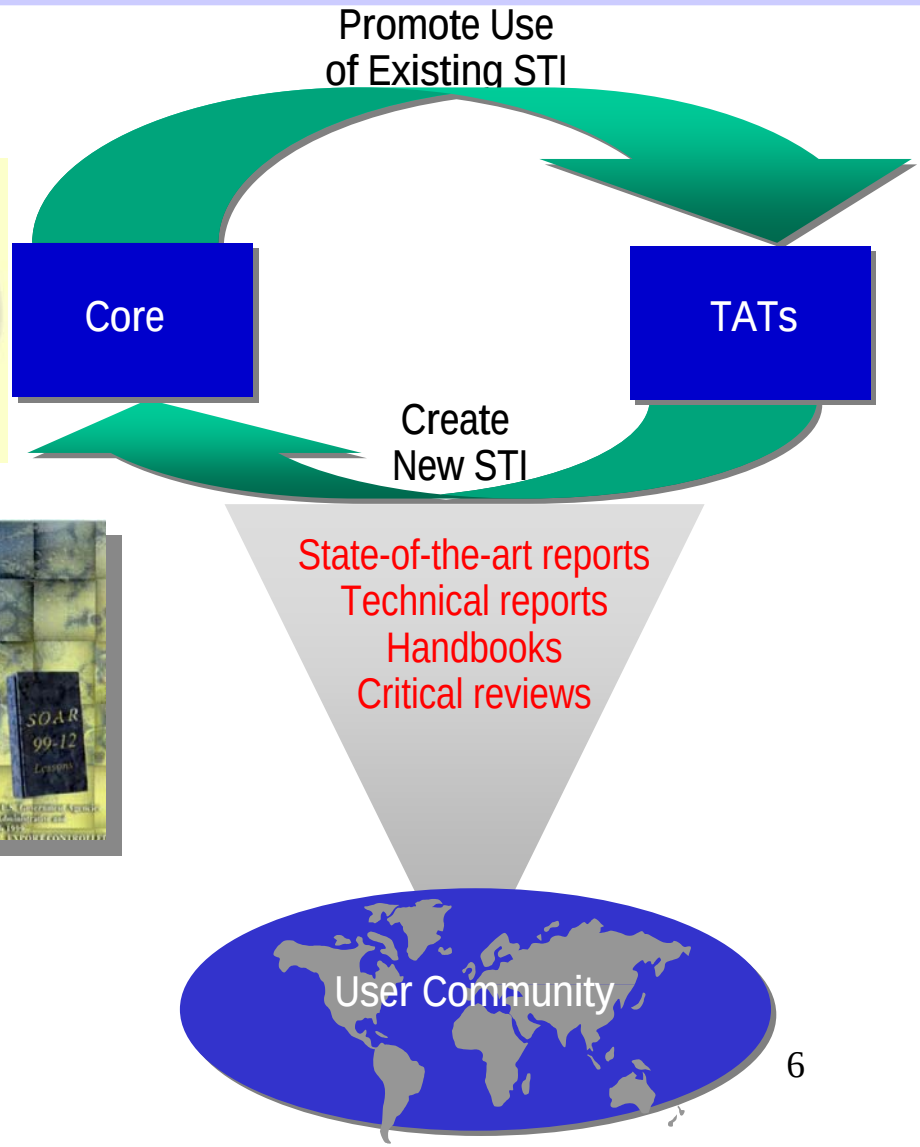


Technical Area Task Program Concept

- Utilize existing CBRN Defense STI to support TAT program
- Create new STI to meet immediate user requirements
- Ensure TAT STI is incorporated into CBIAC CBRN Defense repository
- Leverage TAT STI to support broader user needs/ applications

CBRN Defense Repository





Working Together

- How we can help you:
  - Respond to inquiries
  - Manage limited distribution materials
  - List your events on our Calendar of Events
  - Publish newsletter articles on relevant topics
  - Provide TAT support and KM&D services
- How you can help us:
  - Refer colleagues to us for inquiries, newsletters, website, products, KM&D support, TATs, etc.
  - Submit materials for inclusion in our collection
  - Share expertise and support our reach-back

Summary

- CBIAC addresses CBRN Defense and Homeland Security issues
- Core Program
  - No Cost Inquiry Support
  - Comprehensive Databases
  - Newsletters
  - State-of-the-Art Products
  - Gateway to CBIAC reach-back
  - “One-Stop Shop” Website
- Technical Area Tasks
  - Responsive
  - Easy to Use
- Knowledge Management Capabilities
- CBIAC Focuses on Customer Service

Your “One Stop Shop” for CBRND/HLS Support

Information Analyst Curriculum Program at James Madison University

Dr. John B. Noftsinger, Jr.
Associate Vice President
James Madison University

National Defense Industry Association
Homeland Security Symposium and Expo
Hyatt Regency Crystal City
March 30, 2006

The purpose of the proposed Information Analyst program is to develop skilled practitioners who can translate data and information into useful knowledge for decision making in the public and private sectors. Currently the Federal Government has un unmet need of 29,000 Analysts.

Program History

- Deliverable for Critical Infrastructure Protection Program
- Interdisciplinary team of faculty members formed in January 2004 to develop the curriculum.
- Focus Group of leaders from government and industry met to provide insight to curriculum development in May 2004.
- Curriculum proposal developed and submitted to ISAT Curriculum and Instruction Committee- September 2005.

The program focuses on:

- Critical Thinking
- Pattern Matching
- Data Fusion
- Technical Communication
- Creating Intelligence from existing data
- Ethical Components

Three Tracks of Study:

- National Security
- Competitive Analysis
- Modeling, Simulation, Visualization, and Emergency Management

Support

The program has been reviewed and supported by:

- The National Security Agency
- The Central Intelligence Agency
- The Federal Bureau of Investigation
- IBM
- Intel Corporation
- Office of Senator John Warner

Objectives

- Identify, formulate, analyze, and solve complex, real-world problems and understand their societal implications using a variety of critical thinking tools and methodologies.
- Access and critically analyze data from multiple sources.
- Use computer-based and mathematical tools to effectively analyze and display information.

Objectives

- Analyze problems within broader global, political, economic, technological and social contexts.
- Work effectively in a variety of roles on multidisciplinary teams.
- Communicate problem analysis effectively, including social, economic, political, scientific, and technical matters.
- Understand and apply the principles of professional ethics.

Critical Thinking

- Through the Department of Philosophy, new courses have been developed to be included in the existing IA curriculum
  - Causal Thinking
  - Counterfactual Reasoning
  - Rational Decision Theory
- Collaboration with the NSA to establish standards for critical thinking across the intelligence community
- Assessment tool developed to test critical thinking abilities based on the Cornell Critical Thinking Test

Tools

- Causeway: Designed to assist people in analyzing complex problems and issues, especially when empirical information is sparse or uncertain.

Structured Analysis Evidentiary System (SEAS): A software tool developed for intelligence analysts that records analytic reasoning and methods, supports collaborative analysis across contemporary and historical situations and analysts, and has broad applicability beyond intelligence analysis

Foreign Language

- JMU will develop a language learning lab utilizing up-to-date language learning software and staffed by professionals skilled in language acquisition.
- Students would learn languages in a self-paced lab environment, augmented by periodic study groups, conversation sessions with native speakers, and followed in some cases by short language immersion programs in other countries

Personnel

- Dr. John B. Noftsinger, Jr., Associate Vice President
- Dr. A. Jerry Benson, Dean
- Dr. Stephen H. Stewart, Director – External Relations
- Dr. Ronald Kander, Department Head
- Dr. Robert Kolvoord, Professor – Integrated Science and Technology
- Dr. Noel Hendrickson, Assistant Professor - Philosophy
- Mr. Kenneth F. Newbold, Jr. Associate Director

Project ATHENA Overview

March 30, 2006

What is Needed...
Maritime Domain Awareness

"Wide Area Surveillance" of maritime environment

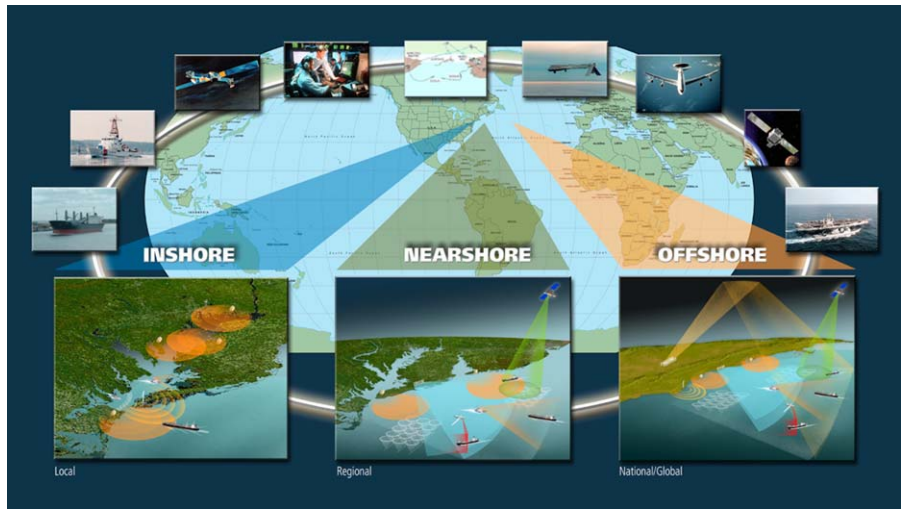
- Cooperative and non cooperative tracking and analysis for long range/early warning

ISR data integration to determine intent

- Information from ports of origin, AIS, shipping manifests, intelligence sources

Common Operating Picture of maritime environment

- All participants (NORTHCOM, USN, USCG, First Responders, etc) provide relevant information as needed
- Disseminate actionable Intelligence to respond to threats



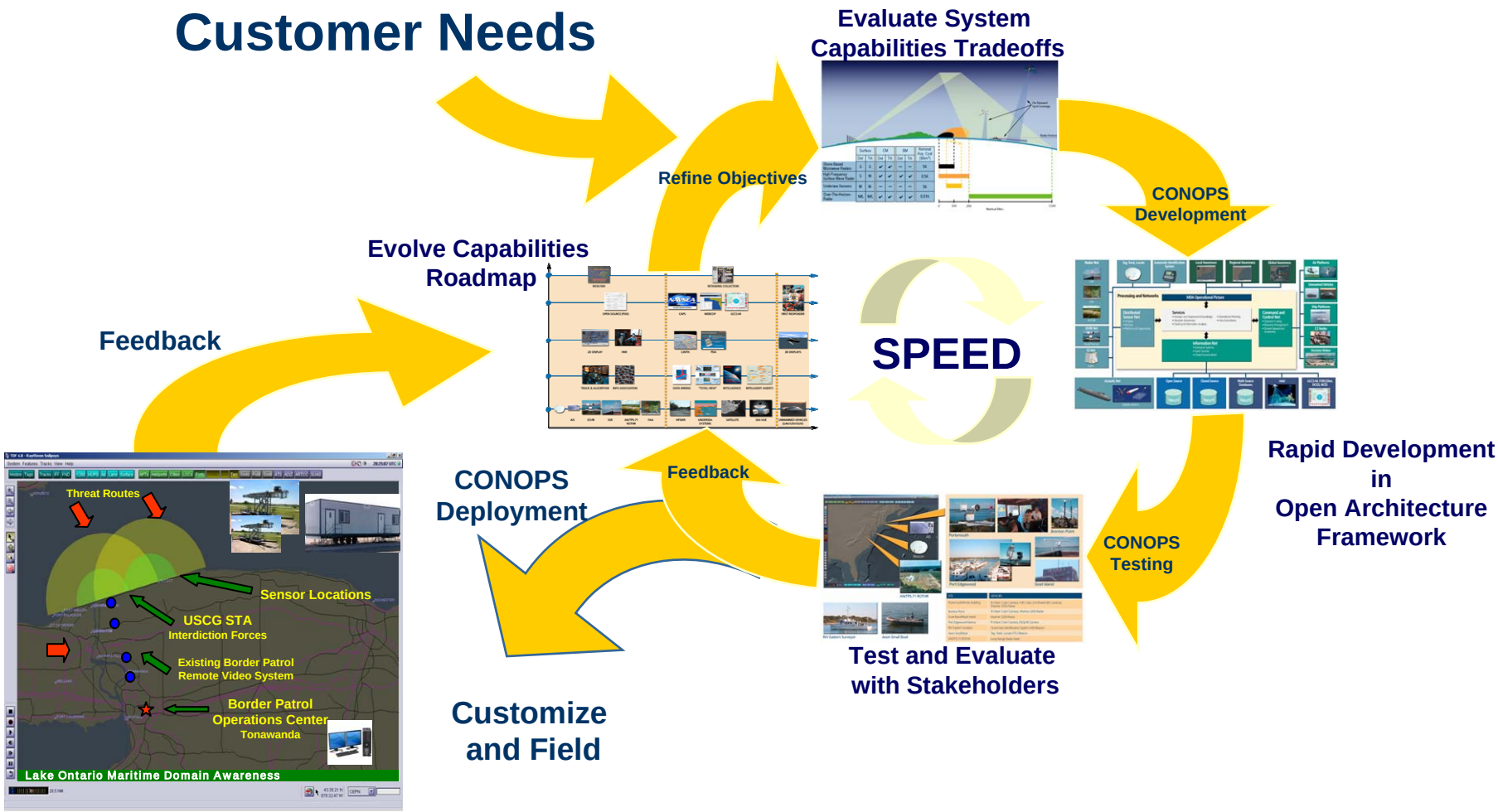
Build a North American "Maritime Picture"

Approach

Project ATHENA provides a National Domain Awareness test bed that:

- Evaluates system concepts and operational doctrine
  - Define and evolve the capability roadmap
  - Demonstrations planned to evaluate current feasibility and build future roadmap
- Integrates local, regional and long range surveillance and communications to first responders
  - Integrated sensor system for comprehensive identification, detection, monitoring and interdiction
  - Detect, identify, track, fuse and disseminate actionable intelligence to appropriate responders concerning threats originating within the maritime domain
  - Scaleable and flexible, integrating proven Off-The-Shelf investments
- Integrates Sensors and Systems that contribute to a National Maritime Domain Awareness System

Spiral Development in a Test Bed Environment

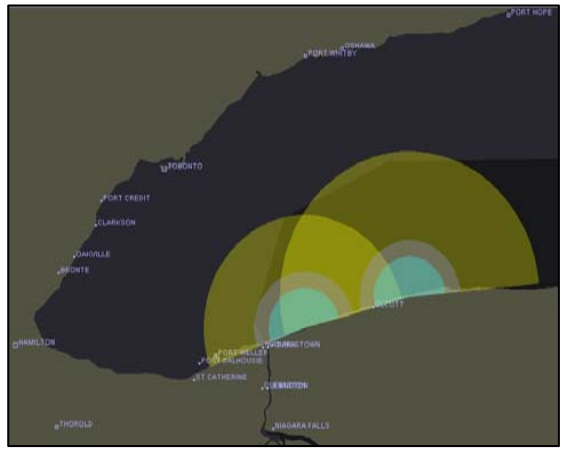


Fielding Project Athena: Operation Lakeview

Project Athena capabilities fielded in Buffalo NY in support of Joint Task Force-North operations

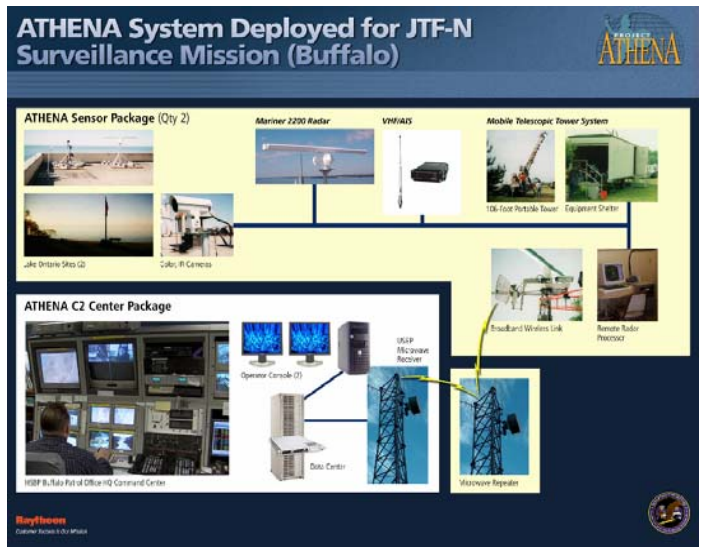
- System fielded in 3 weeks
- Operation 24/7 Jul-Sep 05

Provided situational awareness of maritime traffic in Lake Ontario



Mobile platform deployed to provide coverage on Lake Erie

Integrated into existing command and control facilities of the Border Patrol



Fielding Project Athena: Operation Gulf View

Provide shared situational awareness to facilitate synchronization and coordination of enhanced Homeland Security efforts in the Joint Operations Area – maritime, air and ground domains.

- System fielded in 3 weeks
- Operation 24/7 Feb -Mar 06

Provide information and intelligence on the void of knowledge regarding illicit narcotics trafficking.

Demonstrate the operational capability to integrate multi-sensor and multi-source information to detect, identify, track, fuse and disseminate actionable intelligence to appropriate responders, primarily concerning threats originating from the maritime domain.

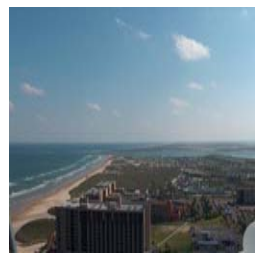
Kings Ranch

Gas Platform

Mansfield

Ranger Station

Tethered Aerostat Radar System



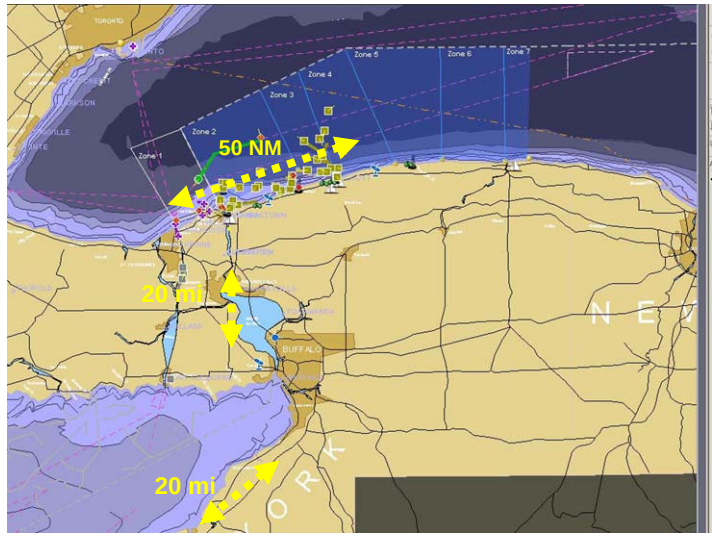
Bridgeport Condo

Results:
Operations Lake View & Gulf View

Lakeview

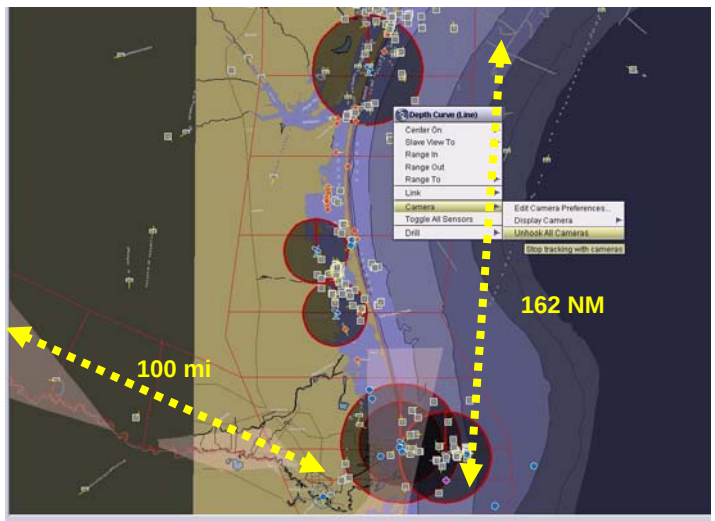
- During 3 Months Jul – Sept 05
  - 7905 Vessel Tracks Monitored
  - 843 Designated Vessels of Interest
  - 278 Passed to Canadian LEAs
  - 110 Intercepted by U.S Authorities for Boarding/Interviews

(During 2004, Zero Vessels Monitored or Boarded)



Gulf View

- During 6 Weeks Feb – Mar 06
  - 8115 Vessel Tracks Monitored
  - 157 Designated Vessels of Interest
  - >1790 Apprehensions – 2 ASIC
  - 10 Seizures – 3259 lbs Marijuana; 106.1 lbs cocaine



Summary

The National Security Threat… dictates a firm understanding of what is occurring within the maritime domain

Athena delivers:

- System of systems approach for fast and flexible maritime domain awareness
- Speed and accuracy of maritime threat information as far from our shores as possible
- Integrated MDA demonstration model for international and national use

Athena demonstrates maritime domain awareness today that is extendable to "all domain" (land, sea, air) capabilities, which can be brought to bare against a variety of narco-terrorist threats.

United States Department of Health & Human Services

Department of Health & Human Services

Health and Medical Services: Strategic Perspectives

Dr. Gerald Parker

Principal Deputy Assistant Secretary

Office for Public Health Emergency Preparedness

National Defense Industry Association

30 March 2006

SCOPE: HHS Strategic Perspectives

- HHS/OPHEP Mission & Roles
- National Response Plan Overview
- Emergency Support Function #8 Overview
  - Medical & Health Services Functional Areas
  - Response Capabilities & Organizations
- HHS Major Initiatives
  - Bioterrorism Preparedness
  - Public Health and Medical Preparedness
  - Pandemic Influenza
- Working to support shared goal

Department of Health & Human Services

Office of the Secretary

- Secretary
- Deputy Secretary
- 6 Assistant Secretaries
- Other Key Officials

12 Operating Divisions

- Administration for Children & Families
- Administration on Aging
- Centers for Medicare & Medicaid Services
- Agency for Health Care Policy & Research
- Centers for Disease Control & Prevention
- Agency for Toxic Substances & Disease Registry
- Program Support Center
- Food and Drug Administration
- Health Resources and Services Admin.
- Indian Health Service
- National Institutes of Health
- Substance Abuse & Mental Health Services Administration

U.S. Department of Health & Human Services
Emergency Preparedness / Response

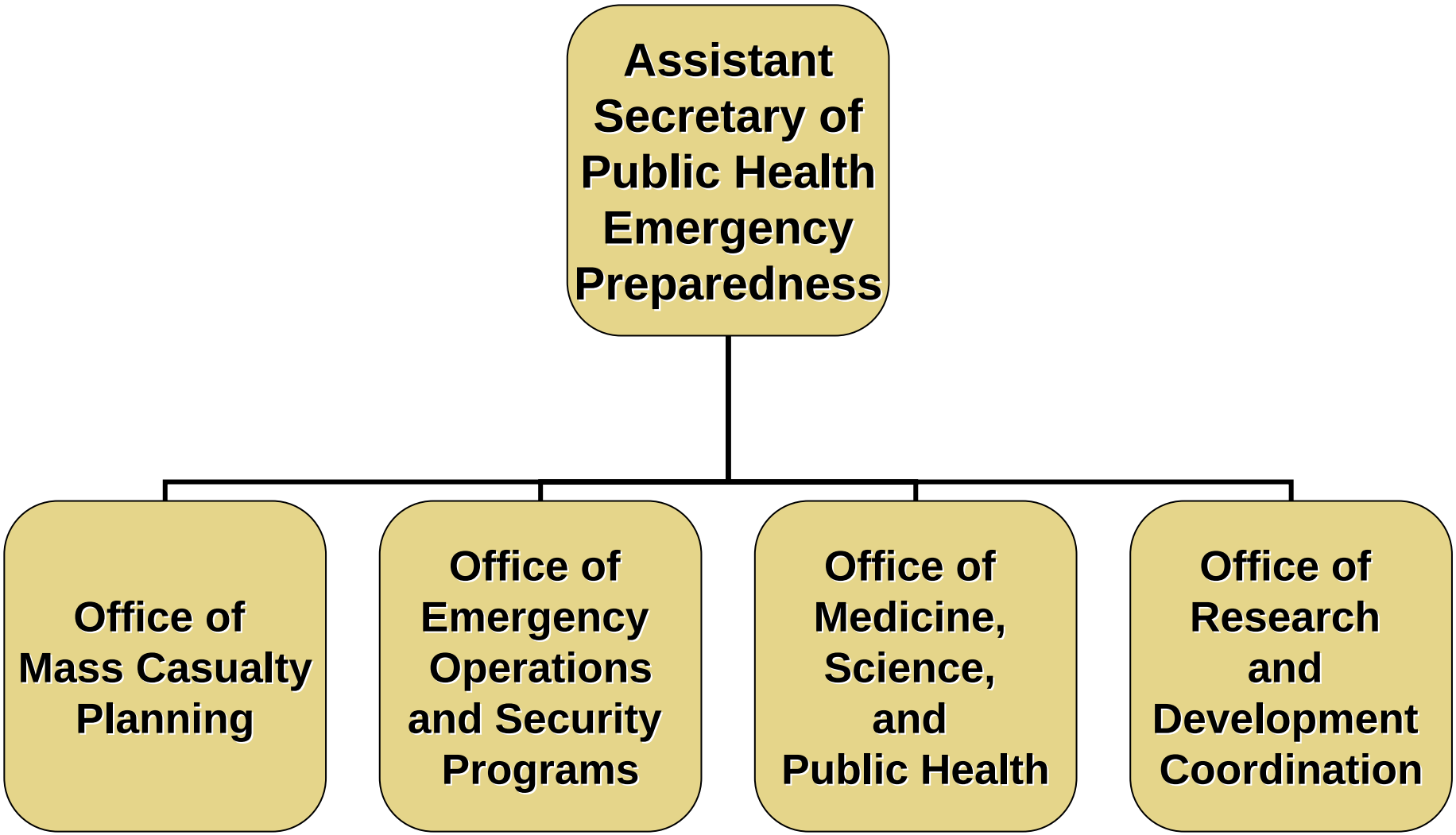
Responsible Official

Secretary

Executive Agent

Assistant Secretary for Public Health Emergency Preparedness

Office for Public Health Emergency Preparedness (OPHEP)



Mission of the Office for Public Health Emergency Preparedness (OPHEP)

- Coordinate and direct medical and public health efforts to prepare for, protect against, respond to, and recover from all acts of bioterrorism and other public health emergencies that affect the civilian population

- Serve as the single focal point for senior level coordination between HHS and other Departments and agencies for these activities

- Engage all HHS programs in meeting the Secretary's vision of preparedness to meet the health needs for the Nation

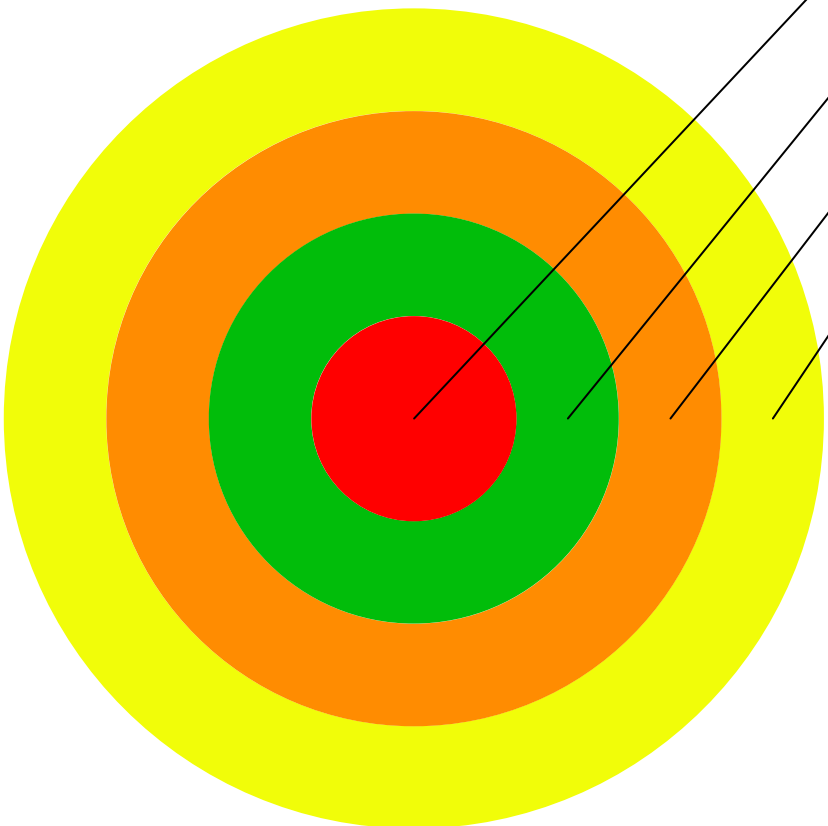
- Respond to the Lessons Learned Report and address its recommendations

- Re-engineer ESF-8 capabilities and responsibilities in partnership with DHS and other strategic partners

- Brand the HHS Mission in preparedness and response

Assessment of Capabilities and Span of Preparedness

Preparedness Task Force



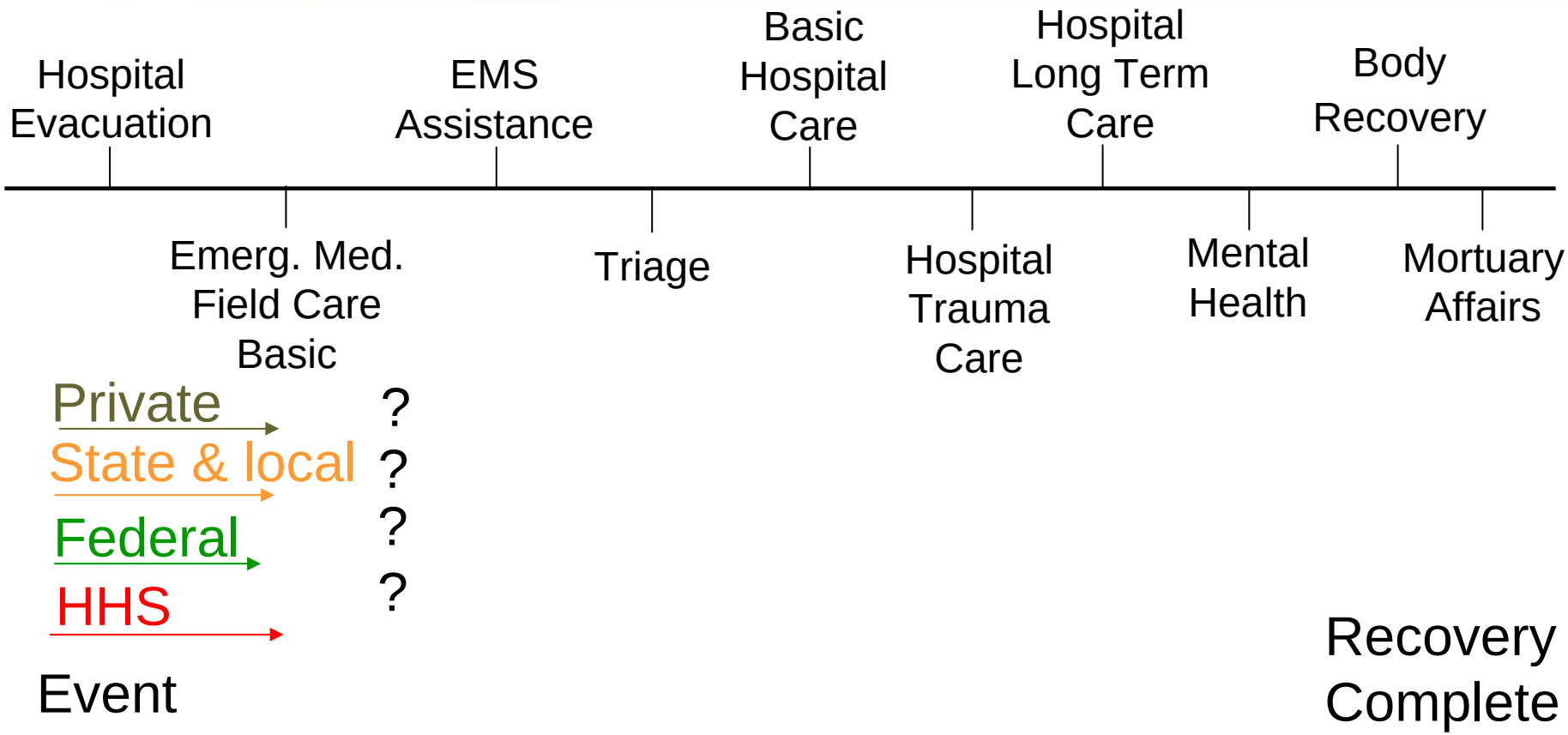
HHS

Federal (e.g., DOD, FEMA, VA, etc.)

State and local (public sector capabilities)

Private (hospital systems, medical & other provider groups, faith-based & community assets, etc.)

Health & Medical Response & Recovery



Health & Medical Response

Health & Medical Recovery

RESPONSE CHARACTERISTICS

BOTTOM-UP, NOT TOP DOWN

RAPID AND APPROPRIATE

AUGMENT

HEALTH NEEDS FIRST

PROTECT THE INFRASTRUCTURE

“ BE PREPARED ”

National Response Plan (NRP)

ESF #1	Transportation
ESF #2	Communications
ESF #3	Public Works & Engineering
ESF #4	Firefighting
ESF #5	Emergency Management
ESF #6	Mass care, housing, human services
ESF #7	Resource Support
ESF #8	Public Health & Medical Services
ESF #9	Urban Search & Rescue
ESF #10	Oil & HAZMAT Response
ESF #11	Agriculture & Natural Resources
ESF #12	Energy
ESF #13	Public Safety & Security
ESF #14	Long-term recovery
ESF #15	External Affairs

- Coordination mechanism for providing assistance to state, local, or tribal governments or to Federal departments conducting missions that are Federal responsibility
- Are selectively activated as needed
- Provide staffing for incident management organizations

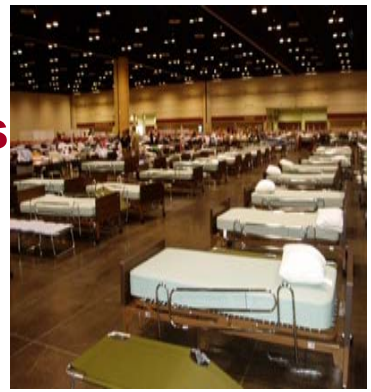
ESF #8 Federal Response Authority

HHS is the primary federal agency for public health and medical emergency planning, preparations, response, and recovery when:

- **Federal health/medical assistance has been requested by the appropriate State, local or Tribal authorities**
- **A Federal department or agency acting under its own authority has requested the assistance of HHS (including the DHS via the Robert T. Stafford Act)**
- **The Secretary of HHS, using his authorities, declares a public health emergency**

ESF #8: General Scope

HHS, as the primary agency for ESF #8, coordinates with its Federal partners to provide assistance to state, local, and tribal governments in identifying and meeting public health and medical requirements resulting from incidents of national significance.



Assessment of public health/medical needs

-Includes mental health

Public health surveillance

Medical personnel

Medical equipment and supplies

ESF #8: Deployable Public Health & Medical Assets

Public Health Response

- CDC
  - Health/medical infrastructure assessors
  - Infectious disease epidemiologists
  - Occupational Health & Safety consultants
  - HAZMAT toxicologists
  - Sanitation, water safety engineers
  - Insect vector control experts
  - Public Information Officers
- FDA
  - Food, drug, medical device safety experts

Medical Response

- **National Disaster Medical System (FEMA)**
  - DMAT, DMORT, VMAT, others
  - Patient Evacuation with DoD, VA
- **Secretary's Emergency Response Team**
  - OPHEP-trained USPHS responders
  - Lead by Regional Emergency Coordinators
- **US Public Health Service (Commissioned Corps)**
  - MD's, RN's, dentists, mental health providers, administrators, hospital/medical engineers
- **Strategic National Stockpile**
  - Pharmaceuticals, equipment, supplies
  - Federal Medical Contingency Stations
- **Dept of Defense**
  - Mobile, field, ship-based hospitals
  - Health care providers
- **Dept of Veterans Affairs**
  - Health care providers
- **Federalized volunteers**
  - Self-sufficient teams with mobile units
  - Individuals rostered, credentialed, deployed by HHS

ESF #8: Sequence and Structure of Emergency Response

$Time_0$ (or Pre-deployment with Warning)

- **Federal interagency ESF #8 response by HHS**
  - OPHEP Rep to National Response Coordination Center **(NRCC)** ***FEMA/DHS lead***
  - Secretary's Rep to Interagency Incident Management Group **(IIMG)** ***Sec DHS lead***
  - Public Affairs Rep Joint Information Center **(JIC)** ***OPA/DHS lead***
- **HHS HQ Response**
  - ASPHEP designates IMT
  - IMT and interagency ESF #8 liaisons staff SOC
  - Office of Surgeon General alerts USPHS personnel
  - Coordinate placement of NDMS assets with FEMA
  - Deploy or pre-position SNS and FMCS caches, staff

- **Regional ESF #8 response by HHS**
  - REC to Regional Response Coordination Center **(RRCC)** ***FEMA/DHS lead***
  - Rep's to Emergency Response Team-Advance Element **(ERT-A)** ***FEMA/DHS lead***
    - Rapid Needs Assessment Team **(RNA)** ***FEMA/DHS lead***
    - Medical Needs Assessment Team **(MNA)** ***NDMS/FEMA lead***
- **Local ESF #8 response by HHS**
  - Rep to Joint Field Office (REC typically moves from RRCC) ***FEMA/DHS lead***
  - SERT member to State/City Emergency Operations Center (ERT-A) ***State/City lead***
  - SERT member to State/City Dept of Health Operations Center (ERT-S) ***State/City lead***

ESF #8: Sequence and Structure of Emergency Response

Requirement-Specific Response

- Health & Medical Needs Assessments
- Health Surveillance
- Medical Care Personnel
- Medical Equipment & Supplies
- Patient Evacuation
- Patient Care
- Technical Assistance
- Behavioral Health Care
- Health & Medical Information
- Vector Control
- Potable Water & Sanitation
- Mortuary Services

HHS/OPHEP: Major Actions/Initiatives

- Surveillance
- Public Health and Medical Preparedness
- Medical Countermeasures Research, Development and Acquisition
- Pandemic Influenza Preparedness

BioDefense Preparedness Principles and Programs: Objectives

Pandemic Objectives – Bioterrorism Objectives

Pandemic	Bioterrorism
Monitoring disease spread to support rapid response	Surveillance
Developing vaccines and vaccine production capacity	Product development and procurement
Stockpiling antivirals and other countermeasures	
Coordinating federal, state and local preparation	Public health preparedness
Enhancing outreach and communications planning	Leadership and coordination

BioDefense Preparedness Principles and Programs: Surveillance

Surveillance—Intensifying surveillance and collaborating on containment measures, both international and domestic, through:

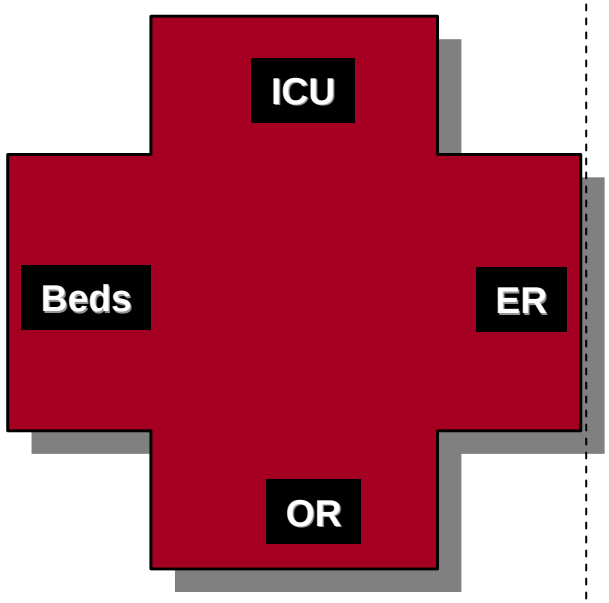
- **Principles:**
  - early detection
  - containment where feasible
- **Program Examples:**
  - BioSense and AHIC
  - Quarantine and Isolation
  - CDC programs (LRN, HAN, Labs)
  - International - EWIDS

BioDefense Preparedness Principles and Programs: Public Health and Medical Preparedness

Public Health Preparedness—Creating a seamless network of Federal, state and local preparedness, strengthening mass prophylaxis capabilities, including increasing health care surge capacity, through:

- **Principles:**
  - Federal – state partnership
  - Risk-based investment
  - Seek double benefit (public health and biodefense)
  - Ensure effective communication
  - Performance and accountability
  - Transcend ordinary political boundaries (regional not just city)
- **Program Examples:**
  - State, local, and hospital grants
  - CRI
  - Surge capacity (Commissioned Corps, FMS, NDMS)
  - Volunteers–training, credentialing, deployment, liability (ESAR-VHP, MRC)
  - Product distribution (Medkit)

Federal Medical Shelter Concept



Patients

Site

Acute Care Centers

FMS Type III

Bed surge

Quarantine

Special needs

FMS Type II

Isolation

Burn care

Ventilator care

ICU/OR

FMS Type I

Definitive care

Trauma/Triage

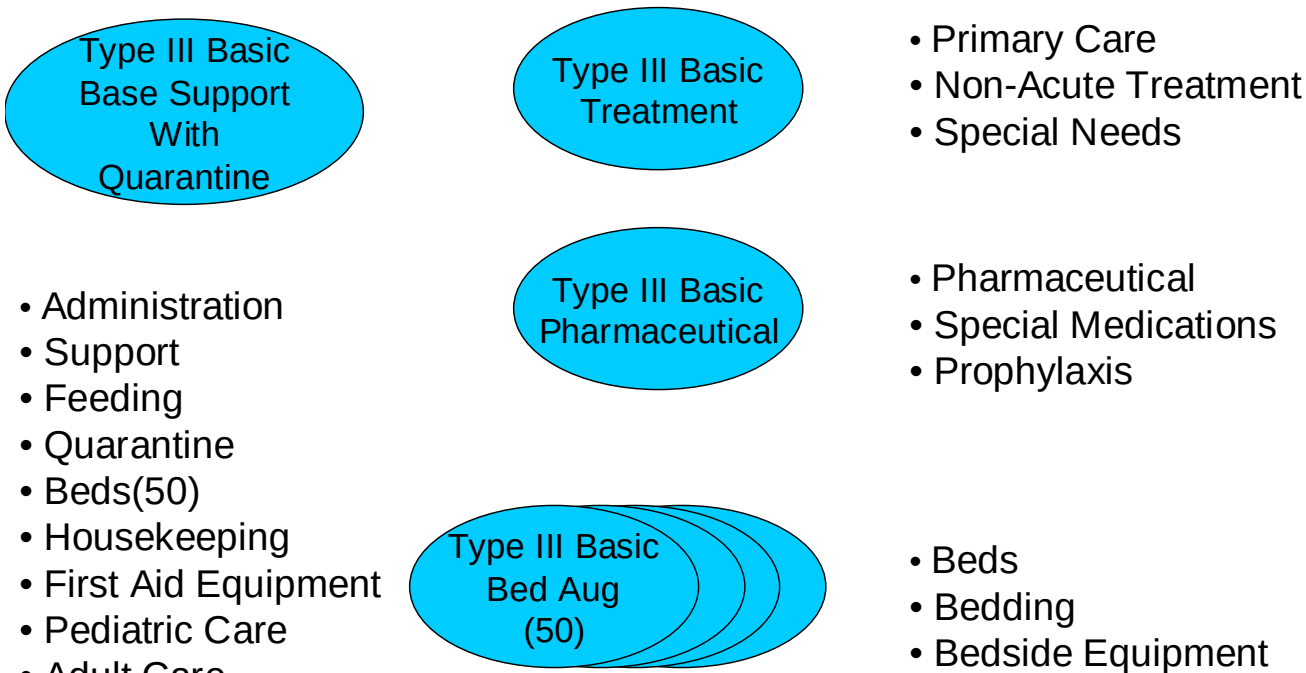
ER/ICU/OR

Isolation

Basic Concept:
HHS Federal Medical Shelter

Type III (Basic) 250 Bed Module

Configuration



- Administration
- Support
- Feeding
- Quarantine
- Beds(50)
- Housekeeping
- First Aid Equipment
- Pediatric Care
- Adult Care
- Personal Protective Equipment

- Primary Care
- Non-Acute Treatment
- Special Needs

- Pharmaceutical
- Special Medications
- Prophylaxis

- Beds
- Bedding
- Bedside Equipment

Emergency Systems for Advance Registration of Volunteer Health Professionals (ESAR-VHP) Program

ESAR-VHP System is an electronic database of healthcare personnel who volunteer to provide aid in an emergency.

- An ESAR-VHP System must::
  - Register health volunteers
  - Apply emergency credentialing standards to registered volunteers and
  - Allow for the verification of the identity, credentials, and qualifications of registered volunteers in an emergency
- Essential component of health care preparedness
- Each State is asked to have a system that meets standard criteria

Cities Readiness Initiative (CRI)

- CRI: a pilot program aimed at strengthening medical surge and mass prophylaxis capabilities
- Targeted funding to continue CRI in the 21 pilot cities provided to States in the CDC grants + 15 new cities
  - This year a total of $40M was awarded to CRI cities
- Goal: to ensure the selected cities are prepared to provide oral medications during a public health emergency to 100% of their affected populations
  - Enhance each city's dispensing plans with trained staff
  - Ensure plans for alternate means of delivery

Commissioned Corp Transformation

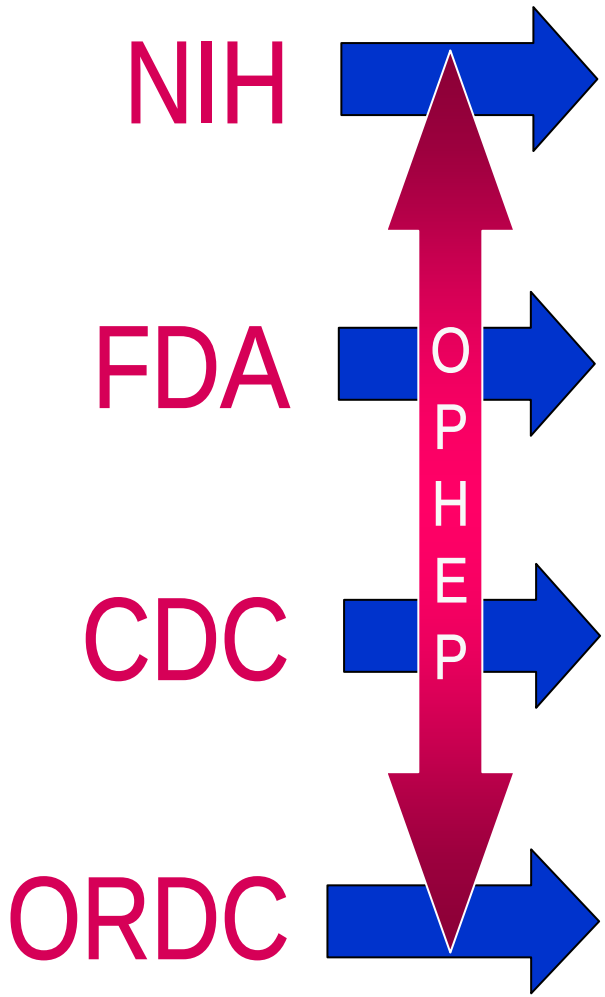
- 6000 Public Health Service officers
- Transformed Corp will be able to:
  - Increase deployability
  - Increase number of Commissioned Corp Officers to meet the response needs of the nation
  - Assign PHS officers to areas of greatest need

BioDefense Preparedness Principles and Programs: Research, Development, and Acquisition / Procurement

Product Development/Procurement—Supporting advanced research and development, manufacturing, procurement and stockpiling of medical countermeasures, through:

- **Principles:**
  - Transparent process
  - Multi-source procurements
- **Program Examples:**
  - Basic and Discovery Research
  - Advanced Product Development (NIH)
  - Project BioShield
  - Strategic National Stockpile

Project BioShield: HHS Roles in Implementation



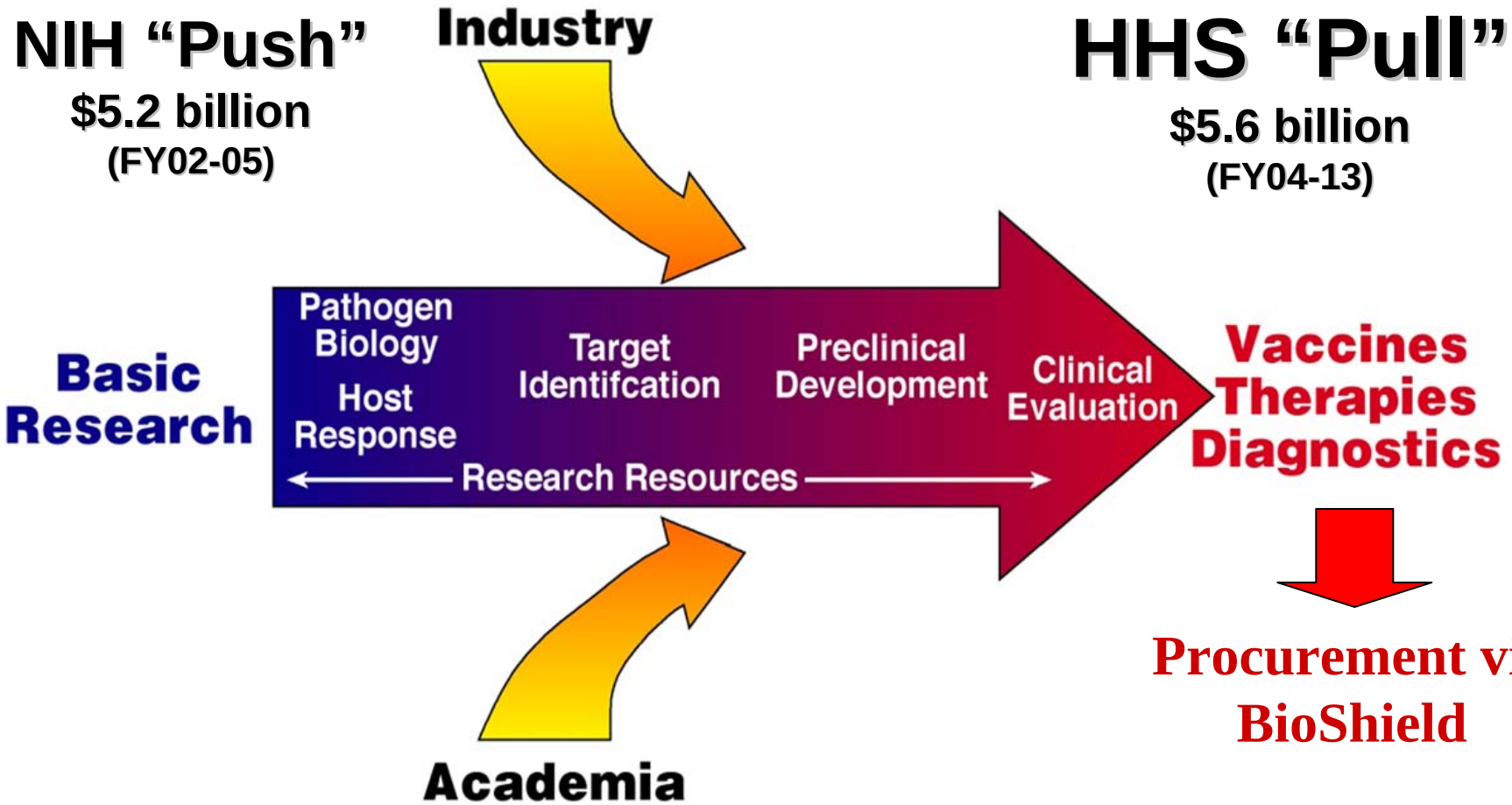
- Build Research Infrastructure
- Conduct Basic Research
- **Develop Medical Countermeasures**

- **Regulatory Approval**
  - Vaccines, Therapeutics, Diagnostics

- **Strategic National Stockpile (SNS)**
- Train Local Response Teams
- Surveillance and Detection

- **Acquire Medical Countermeasures**
  - ***Execute Project BioShield***

Medical Countermeasures Pipeline



Strategic National Stockpile

Pandemic Influenza Preparedness

- *National Strategy for Pandemic Influenza*
- Emergency Supplemental Budget Request
- Preparedness Objectives
  - Monitoring disease spread to support rapid response;
  - Developing vaccines and vaccine production capacity;
  - Stockpiling antivirals and other countermeasures;
  - Coordinating Federal, State and local preparation; and
  - Enhancing outreach and communications planning.

Preparedness Principles and Programs: Leadership and Coordination

Leadership and Coordination

- **Principles:**
  - Ensure single point of leadership for responsibility and vision
  - Continue building intra-Department, multi-disciplinary team for breadth of expertise
  - Improve inter-department communication and capacity
  - Clarify federalism responsibilities for Federal, State and local governments
  - Ensure accountability and collaboration among state and local on emergency preparedness needs and measures

United States Department of Health & Human Services

Office of the Assistant Secretary for Public Health Emergency Preparedness

Department of Health and Human Services

Hubert H. Humphrey Building, Room 636G
200 Independence Avenue, SW
Washington, DC 20201
Tel (202) 205-2882; Fax (202) 690-6512
www.hhs.gov/ophep

Secretary's Command Center

Tel (202) 619-7800; Fax (202) 619-7870

2006 NDIA – HOMELAND SECURITY PARTNERSHIP WITH INDUSTRY

March 30, 2006

John S. Parker, MD, FACS, FCCP
SAIC Technical Fellow

SAIC®
An Employee-Owned Company

Objective

REVIEW BROAD ASPECTS OF THE BIODEFENSE PROGRAM – PROVIDING A BACKGROUND FOR QUESTIONS AND DISCUSSION

Working Definitions

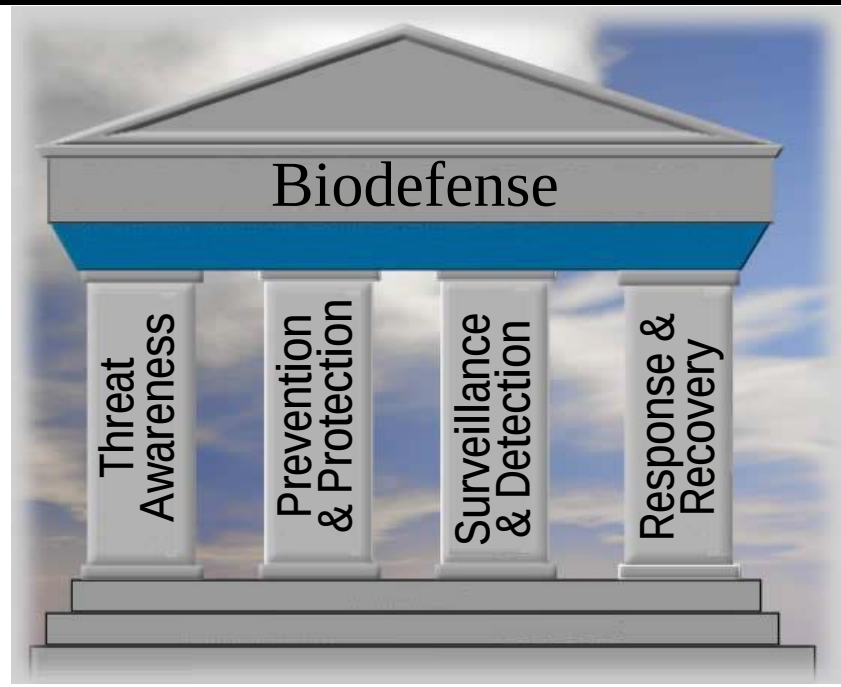
- **Biodefense**: A key part of the U.S. government's overall homeland security effort. Its purpose is to improve the nation's ability to defend itself against bioterrorism, the deliberate use of microorganisms or toxins derived from living organisms to induce death or disease in humans, animals, or plants. Biodefense aims to prevent the development and use of biological weapons as well as assuage the human suffering that would result if prevention fails.

Working Definitions

- **Bioterrorism**: The deliberate use of microorganisms or toxins from living organisms to induce death or disease. Biological and chemical agents that could be used include anthrax, small pox, West Nile virus, cholera, ebola, dengue fever, botulism, Lyme disease, pneumonia and tuberculosis.

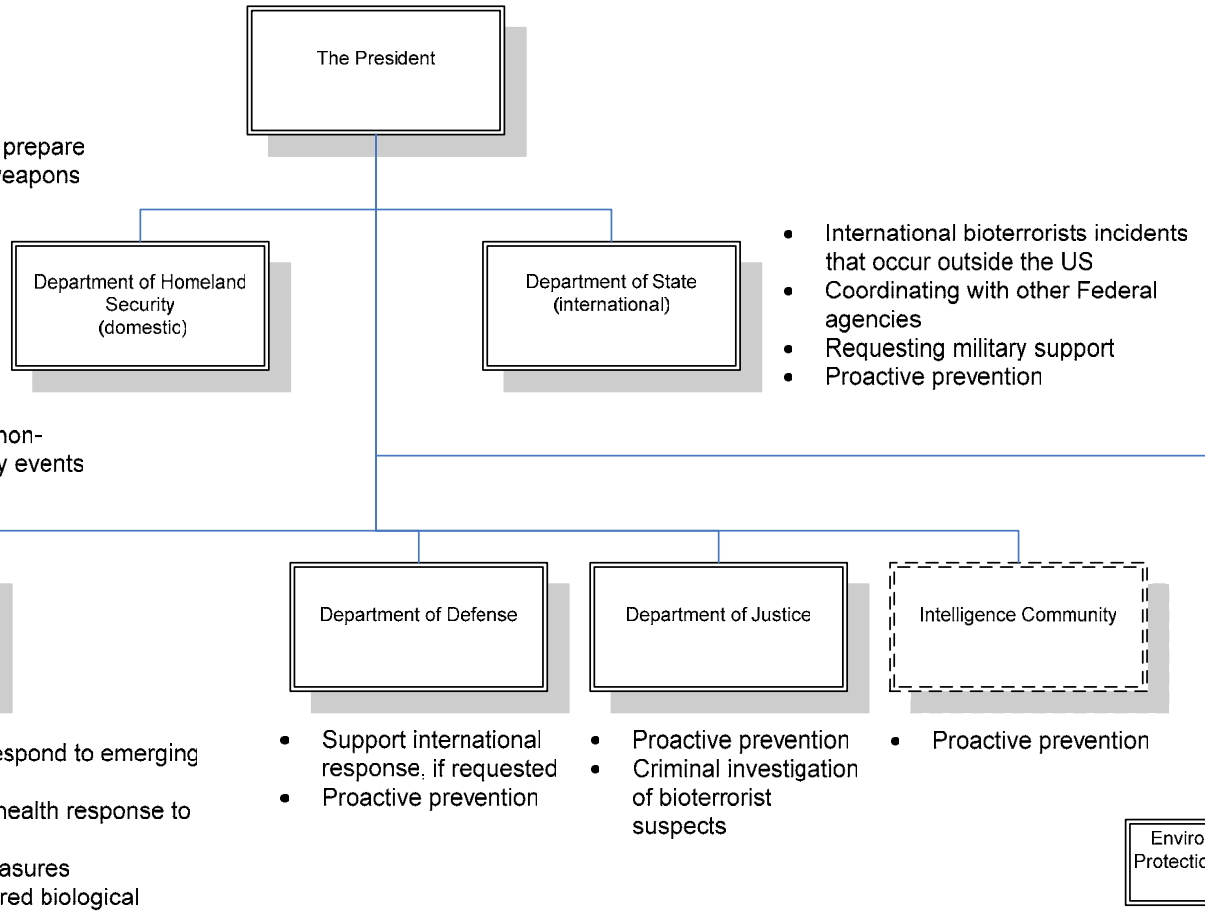
Essential Pillars of Biodefense*

- Threat Awareness
  - Biological Warfare Related Intelligence
  - Assessments
  - Anticipation of Future Threats
- Prevention & Protection
  - Proactive Prevention
  - Critical Infrastructure Protection
- Surveillance & Detection
  - Attack Warning
  - Attribution
- Response & Recovery
  - Response Planning
  - Mass Casualty Care
  - Risk Communication
  - Medical Countermeasure Development
  - Decontamination



*The White House. *Biodefense for the 21st Century.* April 28, 2004. Available from http://www.whitehouse.gov/homeland/text/20040430.html

Biodefense Command Structure



- Domestic incident management
- Coordinating domestic Federal efforts to prepare for, respond to, recover from biological weapons attacks
- Threat assessment
- Critical infrastructure protection
- Biodetection technologies
- Decontamination methodologies
- Integration of attack warning
- Technical forensic analysis
- Response planning
- Coordinating Federal assets supporting non-health-related response to mass-casualty events
- Risk communications

- International bioterrorists incidents that occur outside the US
- Coordinating with other Federal agencies
- Requesting military support
- Proactive prevention

- Preparedness efforts to anticipate and respond to emerging biological weapons threats
- Coordinating Federal assets supporting health response to mass-casualty events
- Research to develop medical countermeasures
- Research re novel & genetically engineered biological weapons agents
- Research re scenarios that could require broad-spectrum countermeasures
- Test & evaluation, assessment, and support for production of countermeasures
- Stockpiling of medical countermeasures

- Support international response, if requested
- Proactive prevention

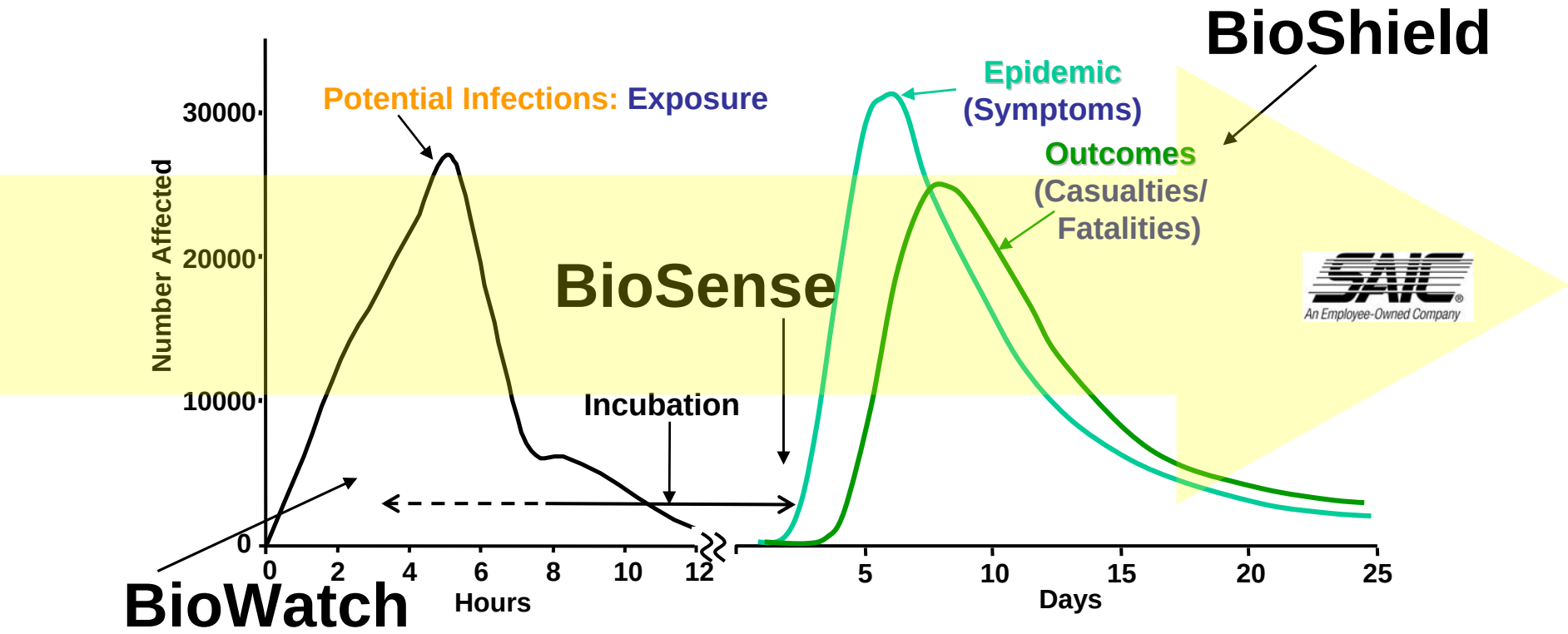
- Proactive prevention
- Criminal investigation of bioterrorist suspects

- Proactive prevention

- Decontamination

National BioDefense Programs Coverage

Example of Programmatic Penetration



Prevent	Warn	Protect	Contain / Decon	Treat
Intel	Facilities Transport	Wide area monitoring	Restoration Portable detection	Early diagnostics

Public Health & Medical Care Orgs.

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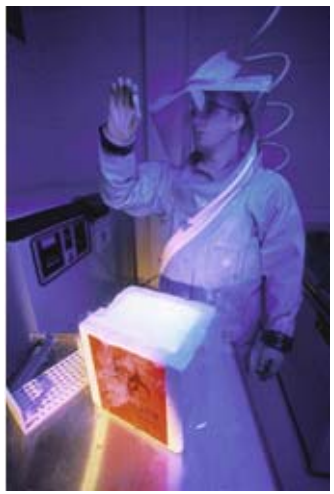
Biological & Chemical Defense Science & Technology at DHS

Dr. John Vitko, Jr

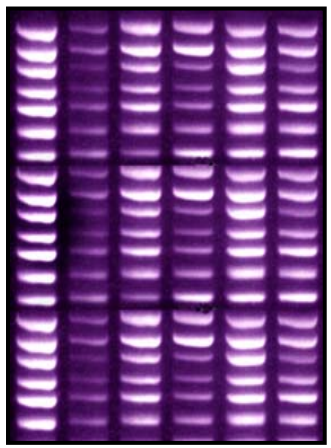
Key areas of emphasis in Bio Portfolio

Surv & Det'n



Threat Awareness

Agro-defense vs. FADs



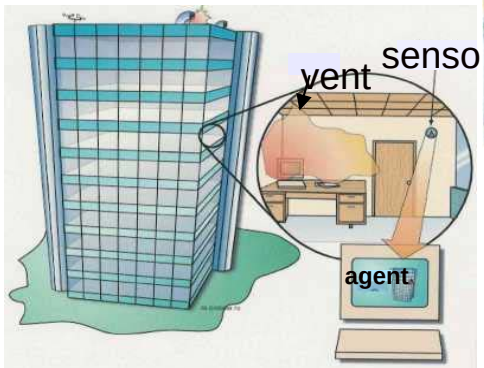
Bio-Forensics

Homeland Security

Key areas of emphasis in Chem Portfolio

Threat Awareness

Det'n



Contamination Assessment

Decon & Restore Critical Facilities

Interagency Consortium of Laboratory Networks

Contact information:

For funding opportunities:

- HSARPA: hsarpabaa.com
- HSARPA CBRNe Manager: Dr. Keith Ward (keith.ward@dhs.gov)

For overall program structure:

- Bio Portfolio: Dr. John Vitko (john.vitko@dhs.gov)
- Chem Portfolio: Dr. Randolph Long (randolph.long@dhs.gov)

EDGEWOOD CHEMICAL BIOLOGICAL CENTER

Homeland Security – *"Partnership with Industry"*

Chemical, Radiological and Biological Defense

NDIA 2006 Homeland Security Symposium

Jim Zarzycki
Director, Edgewood Chemical Biological Center

30 March 2006

Edgewood Chemical Biological Center

Mission

Provide integrated science, technology and engineering solutions to address chemical and biological vulnerabilities

Vision

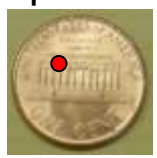
A premiere national resource for chemical and biological solutions

Core Competence

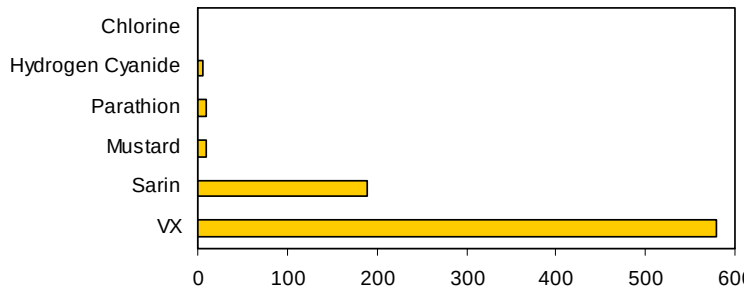
Working with chemical and biological agents at all stages of materiel lifecycle

Scientists working in ECBC's Biological Safety Level 3 Laboratory

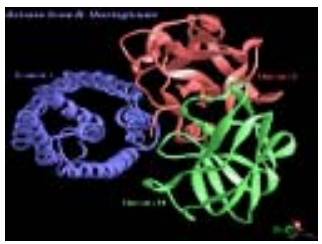
- Primary DoD technical organization for **non-medical CB defense**
- **Support over the entire lifecycle**: Basic research through technology development, engineering design, equipment evaluation, production support, sustainment, field operations, and disposal
  - **Detection**
  - **Protection**
  - **Decontamination**



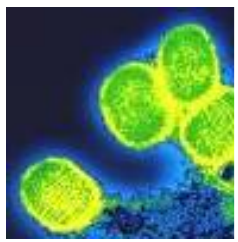
CW agents are on average 200-600 times more toxic than toxic industrial chemicals



Bacteria



Toxins



Viruses

Location and Organization Relationship/Reporting Chain

Aberdeen Proving Ground, Aberdeen Area

Aberdeen Proving Ground, Edgewood Area

Department of the Army

GEN Benjamin Griffin
Army Materiel Command
★★★★

MG Roger Nadeau
Research Development and Engineering Command
★★

Jim Zarzycki
Director
Edgewood Chemical Biological Center

Activities at ECBC enabling industry to better support CB Defense and Homeland Security

Enabling Activities at ECBC

Basic & Applied Research | Engineering | Field Services and Operations

Supporting Science: Answering the fundamental CB questions

Common reference point for all

New Developments in CB Technology

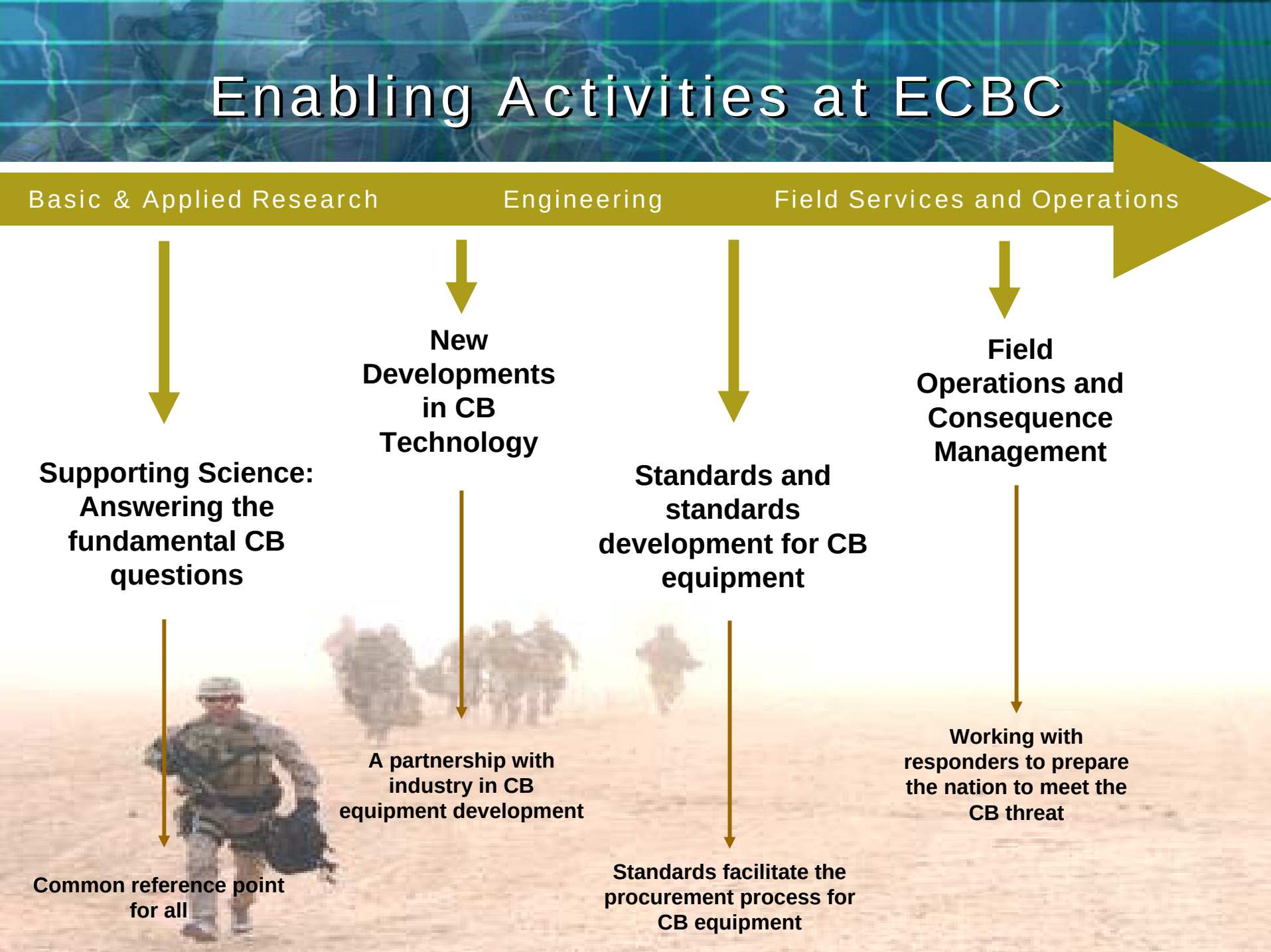
A partnership with industry in CB equipment development

Standards and standards development for CB equipment

Standards facilitate the procurement process for CB equipment

Field Operations and Consequence Management

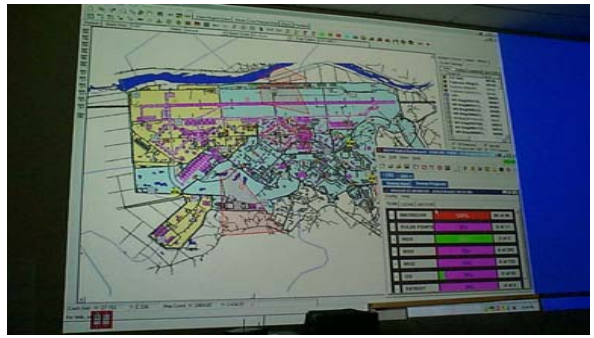
Working with responders to prepare the nation to meet the CB threat



Field Operations and Consequence Management

PortWARN

- Provides a commander with situational awareness: detector data, hazard prediction
- Incident management software
- Integrates nuclear, biological, chemical and meteorological sensors
- All port events included and tracked: medical emergencies, intruders, facility damage and road blocks
- Sends reports to higher headquarters
- Notifies port workers via visual and audible alarms
- Installed at PACAF bases in 2004-2005. Being installed in Kuwait
- Industry Partners: **SENTEL** (Hardware), **ITT Industries, NGI Systems, and Optimetrics** (Software)



Above: PortWARN "Electronic Data Wall"

Above and below: PortWarn installed at Port of Ash Shuaybah in Kuwait

Licensing of Technology in Support of Consequence Management

Enzymes

- Enzymes for destruction of nerve agents, sulfur mustard, BW agents and toxins developed at ECBC and patented
- Nerve agent enzymes licensed to **Genencor** for large-scale production and commercialization
- DEFENZ™ 120G marketed and produced for civilian emergency response

Above: Enzymes packaged and distributed in dry form

Biological Sampling Kit (BiSKit)

- Human engineered, efficient device that can collect biological contaminants from surfaces
- Licensed to **Quicksilver Analytics** for manufacture
- Allows multiple samples to be taken in quick succession, minimizes potential for operator exposure and cross-contamination

Above: BiSKit is easy to handle, even with protective gear

Automated Decision-Aid System for Hazardous Incidents (ADASHI)

- Portable, computer-based decision-aid for improving response to hazardous or CB incidents
- Patented by ECBC and licensed to **OptiMetrics**
- Designated by Department of Homeland Security as a qualified anti-terrorism technology and placed on the approved products list

Above: ADASHI provides emergency responders incident decision-making tool

Standards Development for CB Equipment

- Initiative underway to develop industry-wide standards for CB equipment
  - DHS oversight
  - Close collaboration among DHS, domestic agencies, DoD, and industry
  - Involvement of independent standards development organizations – ANSI, ASTM, NFPA
- DoD policy requires acquisition of equipment certified to these standards
- ECBC supporting interagency community in CB standards development

National Fire Protection Association
The authority on fire, electrical, and building safety

Assures users of suitability of equipment and levels the playing field for industry

Standards Development for CB Equipment

Respiratory Equipment

- Established: Self contained breathing apparatus (2001), air purifying respirators (gas masks) (2003), and escape hoods (2005)
- In Process: Powered air purifying respirators (Due 2006) and closed circuit SCBA (Due 2007)

Personnel Protective Ensemble

- Established: NFPA 1994: Standard on protective ensembles for CB terrorism incidents
- In Process: TIC performance requirements and material test methods; Update of NFPA 1994: Standard on protective ensembles for CB terrorism incidents (2006)

Chemical Detectors

- In Process: ASTM Committee E54.01 Homeland Security Applications CBRNE Sensors and Detectors continues to refine a Chemical Warfare Vapor Point Detector Performance Standard with support from **Battelle Memorial Institute** and ECBC
- In Process: Chemical agent detection methods and testing procedures being developed by ECBC

Decontamination

- Established: ASTM Three-step method to determine sporicidal efficacy of liquids and vapor or gases on contaminated surfaces
- In Process: Decontamination Support Equipment Standards have been submitted to ASTM E54.03 Homeland Security Applications

A Partnership with Industry in CB Equipment Development

- Redesign of USPS postal processing systems
  - ECBC responded to October 2001 anthrax incidents by evaluating postal processing equipment in test chambers
  - Determined where detection and risk mitigation systems could be built into process
  - **Northrop Grumman** built prototypes
  - ECBC and Northrop Grumman evaluated and refined technology
  - Systems now embedded in postal facilities nationwide

- DHS BioWatch Program
  - ECBC supporting DHS Homeland Security Advanced Research Projects Agency
  - Design and execute test and evaluation programs needed to validate future BioWatch technologies
  - ECBC is evaluating commercial approaches and has TSAs with **Northrop Grumman, General Electric, S3I, InnovaTek, Lockheed Martin, SESI, Hatch, Ultra Analytics, and Smiths Detection**

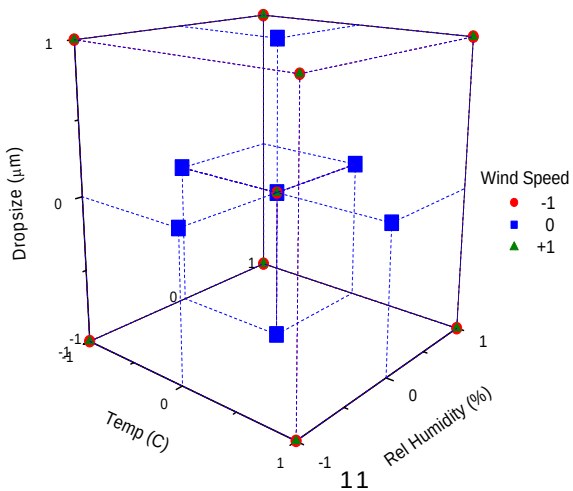
Answering the Fundamental Questions About CB Materials

How clean is safe?

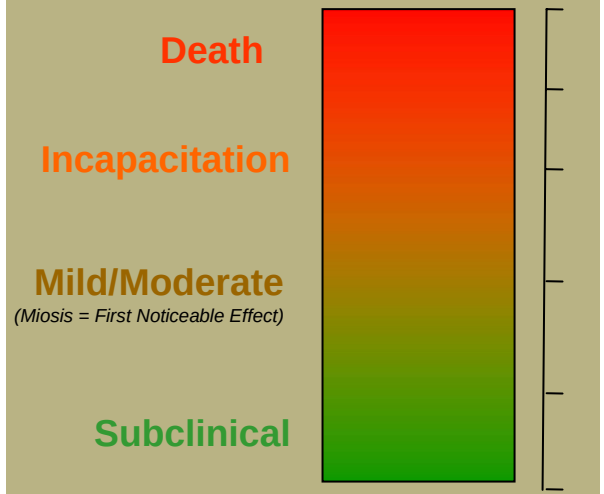
- Effects of low level exposure
- Persistence of agent over time on/in various surfaces
- How environmental factors affect contamination and clean-up

What should be requirements for detection, protection and decontamination equipment?

What materials can be utilized to simulate an agent property?



Potency and the problem of "less than lethal"

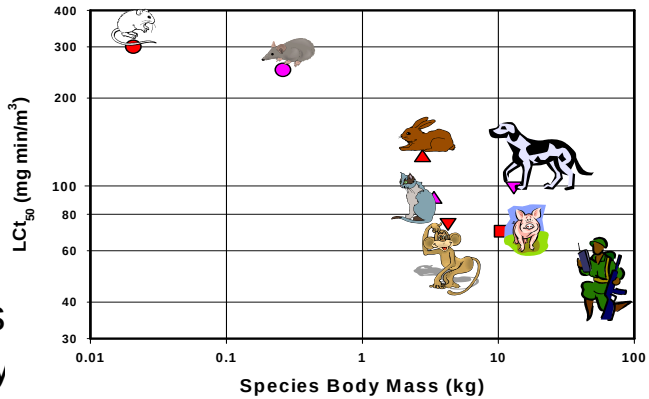


Valid and defendable toxicity data -- the foundation for detection, protection and decontamination requirements

Supporting Science: Low Level Operational Toxicology

Studies Conducted

- Dose-Response
- Conc-Time Profile
- Miosis and ChE
- Parenteral Studies
- Sublethal, Systemic
- Persistent/Delayed Effects
- Biomarkers/Physiologically Based Pharmacokinetics (PBPK)
- Route/Species Extrapolation

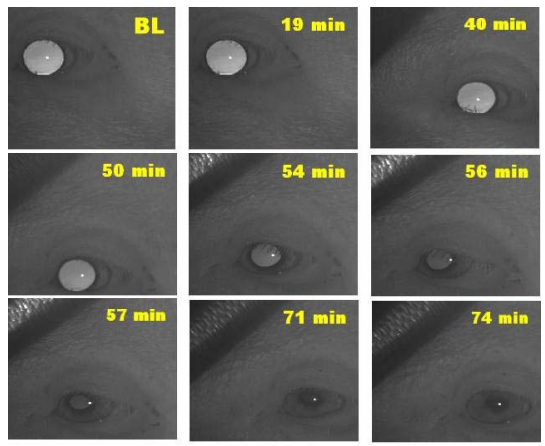


Agents Studied

- German Agent B, Cyclo-sarin, VX, Soman

Status

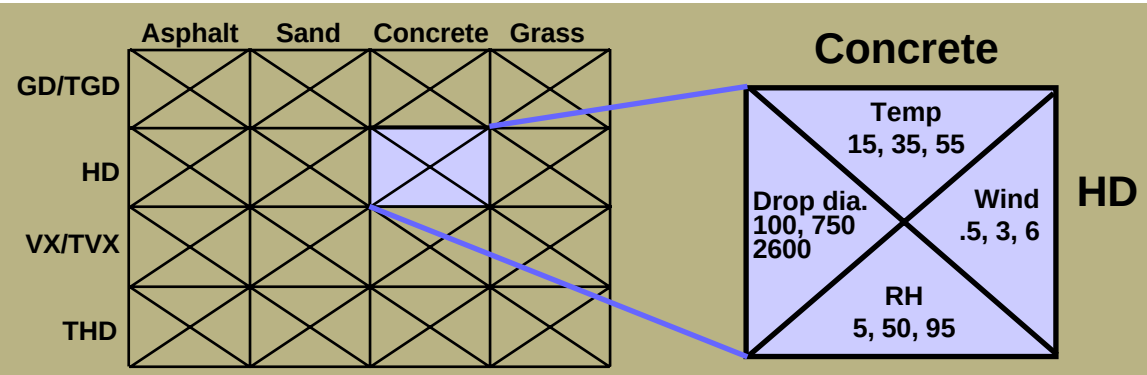
- Confirmed that miosis is the first noticeable effect of exposure
- Full understanding of the levels of exposure that mark the onset of miosis
- Refined human operational exposure standard for GB
- Refined human exposure standards for GF and VX



– **Salem, Harry. *Inhalation Toxicology, Second Edition*; CRC Press: Boca Raton, 2006.**

– **Abstracts from The Toxicologist, SOT 2006 Annual Meeting.**

Supporting Science: Environmental Fate of Agents



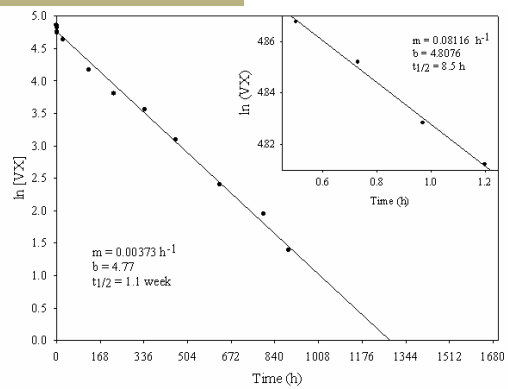
- **About 10,000 experiments for full factorial approach – not feasible**
- **Experimental design techniques brings us to conducting about 1300 experiments**
- **24 agent/substrate combinations (3 levels for each parameter (temp., drop dia., wind speed, humidity)**

Wind Tunnel Tests

- Primary source of model development data
- Controlled environment
- Factor effects on evaporation
- Limited scrutiny on agent/substrate interaction effects

Lab Experiments

- Agent/substrate interaction
- ID substrate parameters affecting evaporation
- Expands wind tunnel model to surfaces beyond those tested



– **Wagner, George. W.; *Degradation and Decontamination of VX in Concrete*, December 2004. NTIS AD-A433-144. Preliminary study published in Journal of American Chemical Society, June 2001.**

Inactivation of Threat Virus by Solar Radiation

- Ultraviolet radiation from the sun – primary germicide; few data points available regarding survival of viruses following exposure to solar UV radiation
- Discovered that viral agents remain infectious after release from the host for several days with continued risk for re-aerosolization and human infection, depending on the geographic location

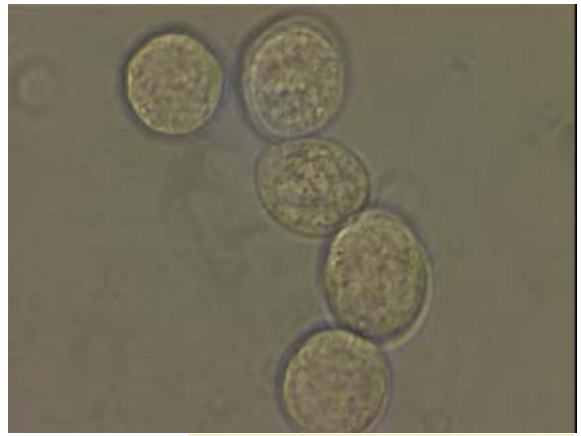
Virus	Virus Family	Data for related virus	Predicted sensitivity D37(J/m^2)	UV for 1 Log inactivation (J/m^2_{254})
Ebola Marburg	Filoviridae	None	7.4	17.0
Variola (Smallpox)	Poxviridae	Vaccinia	11	25.3
Hanta RiftValley	Bunya-viridae	None	12	27.6
Lassa Junin	Arena-viridae	None	13	29.9
WEE VEE	Toga-viridae	VEE	19	43.7
West Nile	Flavi-viridae	None	24	55.2

- Developed predictive model to estimate survival of a wide variety of viruses after their release at any location and time of the year

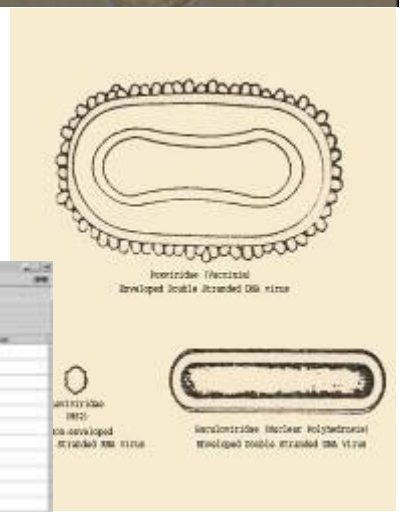
– **Sagripanti, Jose-Luis. "*Predicted Inactivation of Viruses of Relevance to Biodefense by Solar Radiation* ," Journal of Virology, November 2005, p. 14244-14252, Vol. 79, No. 22.**

Simulant Development

- Goals of Simulant Development Program
  - Mimic a specific chemical or physical property of the chemical or biological warfare agent
  - Easy and affordable to produce
  - Acceptable for release in the environment
  - Non-pathogenic, non-toxic, and non-allergenic
  - Detectable by both fielded and laboratory instruments



- **O'Connell, Kevin; *Native and Engineered Simulants for DNA Virus Threat Agent*, December 2004. Available from NTIS as AD-A433-121.**



- Agent Simulant Knowledge (ASK) Database
  - TICS, chemical agent, virus, toxins
  - Will be available through the Chemical and Biological Defense Information Analysis Center (CBIAC)