Acquisition Directorate
Research & Development Center

Maritime Domain Awareness Data Sharing

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Presentation to USCG MDA Day
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Topics

Data Sharing Overview
Spiral 1 and 2 Update
Spiral 3 Planning
Discussion
Current Environment

Crises create unanticipated data needs…

Look to recent events:
  – 2000 Terrorist Attack on USS Cole in Yemen
  – 9/11/2001 Terrorist Attack in USA
  – 2004 Tsunami in Southeast Asia
  – 2005: Hurricane Katrina Devastation in USA

Intergovernmental Federal Cooperation is essential

Current infrastructure is not responsive…
The Current Paradigm

...point-to-point data sharing...
Purpose

Wanted – Net-centric data sharing for the maritime community

Benefits:

Scalable and adaptable to the community
Flexible and agile decision-making and execution
Efficient in cost, schedule, and performance
Improves community partnerships across boundaries
Maritime Fusion Challenge

Current Tasking: Corresponds with MDA Essential Tasks: Find, ID, track

Gather data from disparate sources:
- Commercial
- Law Enforcemer
- Foreign Partners
- Military

Develop Maritime Situational Awareness:
- Reconcile data sensitivities
- Fuse data into information
- Display for info for human understanding (User-Defined Operational Picture - UD)

Establish Maritime Situational Awareness:
- Understand the “normal” situation
- Recognize the anomalies
- Direct the operational actions

Data

Information

Operationally Actionable Information

Vessels

Cargo

People

Infrastructure
A collaborative group of people that must exchange information in pursuit of its shared goals, interests, missions, or business processes and therefore must have a shared vocabulary for the information it exchanges ... DOD Directive 8320.2
Services-Oriented Architecture (SOA)

Net-Centric Enterprise Services (NCES)
- Developed by Defense Information Services Agency (DISA)
- SOA for Department of Defense agencies & users
- Allowances made for non-DoD agencies & users

Homeland Security Information Network (HSIN)
- Developed by Department of Homeland Security
- Portal for non-DoD agencies & users

Coalition Warrior Interoperability Demonstration (CWID) and Trident Warrior (TW)
Spiral 1 & 2 Overview

Spiral 1

– Kickoff 22-23 February 2006
– Unclassified AIS Net-centricity (MDA $300K, CG-66 $600K)
  • 4 Publishers in DoD, DHS, DOT
  • 4 Subscribers (UDOP) from DoD, DHS, DOT
– NCES, HSIN Infrastructures Leveraged

Spiral 2

– Funded by USN N6 & USCG NAIS Program
– Adds Capability Enhancements & Data Services
  • Enhance Security, Low-bandwidth users, High-Data Publishers, New publishers & data types (e.g., METOC, Imagery)
  • Historical Archiving, Anomaly Detection, Data Augmentation
Legacy Viewer (iMap Data)
COI Collaboration site
Site for Developers & Users
USCG NAIS
NAVY & AMRS
MSSIS – Volpe
Coalition Warrior Interoperability Demonstration 07

NORTHCOM HQ

NSWC Dahlgren, VA

FalconView

NATO

New Zealand

NCES/SIL (MDA DS COI)
Subscribe/Publish
AIS info Worldwide &
Publish SeaHawk Products

SeaHawk
Charleston SC

HSIN

500’ Cape Chalmers

SeaHawk 900 MHZ Wireless LAN
“Reach-back” Network
video/voice/data

Biometrics
- Onboard Boarding Team
  - capture of photos &
    fingerprints
  - compare w/ US-VISIT

Boarding Team Comms
- Below decks network
  - voice
  - video
  - data

CWID 2007 – 12-22 JUN 07
- Exercise actual boarding team C2
  processes and information exchanges

FalconView
&
Back-End data
connection to/from
SeaHawk system

HSIN
COI
SeaHawk
CWID (Internat’l)
Spiral 2 & 3 Governance

**Spirals 2&3**

**DS COI Executive Board**
- DOD = RADM Deutsch
- DHS = RDML Glenn

**DS COI Steering Committee**
- DOD = CAPT King-Williams
- DHS = CAPT Macaluso

- **Data Management WG**
  - DOD = Mark Andress
  - DHS = Jay Spalding
  - Intel = Frank Sisto

- **Pilot Technology WG**
  - DOD = Chris Raney
  - DHS = Jay Spalding
  - Intel = Frank Sisto

- **Policy WG**
  - GMSA – RDML Metcalf
  - GMAII – Tim Phillips
  - DHS = Donna Roy
Spiral 3 Recommendation

Advance Notice of Arrival (ANOA) – CG-26

Single Integrated Look Out List (SILO) – ONI

ANOA – Sensitive Data Challenge – Develop Policy and Attribute-Based Access Control (ABAC) to enable Need-to-Share

SILO – Policy Challenge – Aggregation of Lists; Security Challenges (GENSER, SIPRNet)

Broadens & Augments Scope of Data Sharing; Beyond AIS

Catalyst Events – Trigger Higher-Level Data Services

Complement Efforts of Other Organizations (CBP, ICE)
Spiral 3 Recommendation

**ANOA**

Federal Regulation that ALL Vessels inbound or departing from the U.S. file a Notice of Arrival at least 96 Hours in advance

ANOA contains vessel, voyage, cargo, crew, passenger, equipment condition, etc.

Collected by USCG; currently shared with intel and operations centers through manual web interaction, fax, and point-to-point data connections.

**SILO**

“Maintain in coordination with cognizant authorities and centers, a single, integrated lookout (SILO) list of all vessels of domestics and global interest.”

- GMII Plan
Attribute-Based Access Control

With Leverage of ABAC, Spiral 3 will continue to expose data sources and allow the DS COI to:

– Move beyond unrestricted sharing and ensure secure sharing of ANOA and SILO data to:
  
  • Law Enforcement
  
  • DHS (beyond USCG)
  
  • Coalition Partners

– Ensure greater level of control of data in accordance with information sharing laws, policies, and agreements.

– Federated: Publishers maintain attribute store for published data.

– Provide risk reduction for future PORs by proving out ABAC as an early user within NCES

The DS COI is monitoring the CMA JCTD development of a Maritime Information Exchange Model. Our intent is to adopt best practices from the MIEM in the DS COI information exchange schema.
Risk Reduction/Mitigation

Leveraging and Investigating Emerging SOA Infrastructures
  – DISA NCES
  – DHS HSIN

Interagency data sharing and interoperability (need to share)

DoD Exercise Environments for MUA
  – Coalition Warrior Interoperability Demonstration (CWID) – Joint
  – Trident Warrior – Navy
  – SeaHawk – Law Enforcement (Depts of Justice & Homeland Sec’y)

C&A in a Net-centric environment

Security and Access Policy (federal, non-federal, coalition)

Global Maritime Situational Awareness
Conclusion

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