Military Roles in Response to the Terrorism Threat

Dr. Harry E. Crisp
Director, Naval Collaborative Engineering Environment
Office of the Chief Engineer
Assistant Secretary of the Navy (Research, Development and Acquisition)
Traditional Military Roles

- Provide for the Defense of the Country
- Protect National Interests Abroad
- Support Civilian Agencies During National Emergencies
- Posse Comitatus Act
  - Limitation on Use of the Military as a “Civilian Police Force”
Military Response to Sept 11 Attacks

- Immediate Deployment of Aircraft and Ships
  - Air Patrols over New York, Washington
  - Surface Combatant Ships Deployed Along East Coast of US
- Interactions with FAA to Coordinate Air Picture
- Coordination with Local Civilian Agencies
Military Response Subsequent to Sept 11

- Operation “Enduring Freedom”
- Northern Command Created to Centralize Military’s Role in Defense of U.S.
  - “Defend the American People Where They Live and Work---Functioning in a Supporting Role to Civil Authorities” (Secretary of Defense Donald Rumsfield, April 17, 2002)
Needs in Aligning Military and Civilian Capabilities

- Streamlined, Efficient Organizational Structure
- Coordination and Sharing of Intelligence Information
- Coordination and Sharing of Sensors
- Appropriate, Effective Allocation of Resources
Key Issue in Aligning Military and Civilian Resources

- Definition of an Overarching SE Process that Provides
  - Means to Protect Sensitive Military Information While Sharing Significant Information on Activities of Terrorist Organizations
  - Integration of Multi-Source Intelligence and Sensor Data to Provide a “Coherent Operational Picture”
  - An Integrated Data Base Approach to Support Military and Civilian Activities
  - Alignment of Multiple Levels of Command and Control
  - Effective Allocation of Resources
Can the U.S. DOD C4ISR Architecture Framework Version 2.0 be Used as the Basis for an Overarching SE Process?
Using Architectures in Systems Engineering

Operational Concept

The Role of Engineering and Technology

System Functional Mapping

System Interface Mapping

SoS Evolution

Architecture Performance and Behavior

Architectures Provide the Framework for SoS Systems Engineering & Acquisition

OV-1 High-level Operational Concept Graphic
OV-2 Operational Node Connectivity Description
OV-3 Operational Information Exchange Matrix
OV-4 Command Relationships Chart
OV-5 Activity Model
OV-6C Operational Event/Trace Description
SV-1 System Interface Description
SV-2 Systems Communication Description
SV-3 Systems Matrix
SV-4 System Functionality Description
SV-5 Operational Activity to System Function Traceability Matrix
SV-6 System Information Exchange Matrix
SV-7 System Performance Parameters Matrix
SV-8 System Evolution Description
SV-9 System Technology Forecast
SV-10 System Activity Sequence & Timing
TV-1 Technical Architecture Profile
TV-2 Standards Technology Forecast

DRM: Design Reference Mission
OpSit: Operational Situation
TTP: Tactics, Techniques, Procedures
FoS: Family of Systems
SoS: System of Systems

Note: There are dependencies between the Architecture products that are not shown in the System Engineering flow. Many of the products are developed concurrently.
Provides for a Seamless Flow of Information Between Tools

*Implemented in the Naval Collaborative Engineering Environment*
Integrated Engineering Environment
SE Process & Products

**Requirement Documents**
- SPG
- MNS
- ORD
- SPD

**Requirement Analysis Tool**
- DOORS

**Function Analysis Tool**
- CORE

**Project Repository**
- Structured Requirements
- Functional Baselines

**Interchange (Server)**
- CEDAR

**Authoritative Data Bases**
- Experimental Data
- System Data
- Interface Data

**Architecture Information**
- Rational Rose
- DIAD
- JMAAT

**Architecture Representation**
- Operational View
- System View
- Technical View

**Mission Analysis**
- NSS

**Interchange Client**
- LSSE

**Physical Implementation Information**
- Systems Spec
- Resource Constraint

**Function Information**
- Activity Model
- Functional Model
- Simulation Model

**Experimental Data**
- Interchange

**System Data**
- Interchange

**Interface Data**
- Interchange

**Interchange (Server)**
- Life Cycle Traceability
- Change Agent Notification
- System Representation
- Configuration Management
- Tools Integration

**TRIMS**
- M&S
- COST MODELS
- HSI
- CAD/CAM
SE Data and Products

Information Requirements

- SOS Oper. Objectives
- SOS Characteristics
- SOS Perf. Profile
- Platform/System O&M Cost Profile
- Platform/System Manning Profile
- Platform/System C4ISR Info. Views

Capture SOS Information in Data Base Management System

- Life Cycle Traceability
- Change Agent Notification
- System Representation
- Configuration Management
- Tools Integration

Naval CEE Function

Outputs/Integrated Database

- Integrated SOS Requirements
- SOS C4ISR Arch. Framework Views
- Integrated SOS Perf. Specifications
- SOS Oper. Functions
- Platform/System Interfaces/ICDs
- Platform/System Manning & Task Profiles
- Platform/System Ownership Costs
- FOS Effectiveness & MOEs/MOPs

CRD
CRD/SPD
SPD
SPD
SPD
PPBS
TEMP
Summary

- Military Assets Play a Vital Role in Responding to the Terrorist Threat
  - Need to be Appropriately Aligned and Coordinated with Civilian Agencies

- An Overarching SE Process is Needed to Provide the Basis for Coordination/Integration of Multiple Agency Assets
  - The DoD C4ISR Architecture Framework has been Successfully Applied by the Navy to Similar Requirements
  - An Integrated Engineering Environment has Also Been Successfully Deployed to Support the Navy Process