LCS Mission Module Acquisition

Brief to ONR Industry Day
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Agenda

- Concept of Operations
- LCS Design Concept
- Modularity
- Mission Package Definitions
- Mission Package Spiral Baseline
- Fielding Approach
- Mission Package Integrator
- Spiral Development

Creating Access in MIW, ASW & SUW Mission Areas
LCS Concept of Operations

Networked Unmanned Vehicles / Sensors / Effectors distributed in the enemy’s littoral

LCS networked with Strike Group and surface combatant family of ships

Improving enemy anti-access defenses highlighted specific capability gaps

LCS design optimized for the littoral fight

Data Sharing:

Control Net:

UAV

LCS

USV

UUV

Anti-Access Patrol Boats

Diesel / Electric Submarines

Mines

RMS
LCS Design Concept

- Fast, Maneuverable, Shallow Draft Hull
- Total Ship Computing Environment
- Air and Watercraft Capability
- Core Systems
- Core Crew

Core Capabilities
- MOB, SOF
- ISR, MIO
- HLD, AT/FP

Focused Capabilities
- MCM
- ASW
- SUW

Common Interface Control

Mission Systems
Mission Modules
Mission Crew
Mission Packages and Modularity

- **Containerization / Transportation Level**
- **Mission Package Level**
- **Vehicle Level**
- **Sensor / System Level**

ISO STDs

Published ICD

- **BPAUV**
  - MCM
- **RMS**
  - MCM, ASW
- **USV**
  - MCM, ASW
- **VTUAV**
  - MCM, ASW, SUW

- **AQS-20A**
  - Mine Hunting, Mine Identification
- **MPCE**
  - Software
- **RTAS**
  - Bi-Static ASW
Mission Package Defined

Mission Systems + Support Equipment = Mission Modules

Support Containers
Support Equipment
Standard Interfaces
MPCE Software

MPCE Hardware

VTUAV
Mission Crew
H-60

Crew & Support Aircraft = Mission Package
Mission Package Fielding Approach

Mission Package Integrator

Hardware

Software

C3

In-Service Support Tools

Products

Mission Package Computing Environment

SUW MP

ASW MP

MIW MP

Defined Architecture & Interfaces

Facilitating Spiral Development

Truck

Plane

Rail

Ship

Transportable

Staged

Deployed

LCS-1

LCS-2

Facilitating Spiral Development
Mission Package Integrator (MPI) Contract

1. Spiral development/new technology
2. Spiral Alpha to Beta transition
3. Test and certification
4. In-service support (e.g., training, CM, transportation, maintenance)


“system-engineering partner responsible for bringing the systems and technologies of the mission modules together under the integration and interface requirements”
A Rigorous Process for Spiral Development to Achieve Mission Wholeness

**Operational Requirements**

Derived Requirements

**Scenarios, MCO**

- Spectrum of Conflict
- Concepts of Operation
- Phases of War
- Rules of Engagement
- Joint & Allied Contributions

**Measures of Effectiveness:**

- Maximum speed/TOS
- Maximum range/endurance
- Targets engaged (%)
- Targets neutralized (%)
- Neutralization time
- Time to deploy/recover

**Platforms/Systems**

- Ship
- Modules

**Mission Capabilities**

- Current
- Gaps

**Emerging Technology**

- Capability
- Supportability

**Cost Modeling**

- Life Cycle Cost (LCC)
- Total Ownership Cost (TOC)

**Performance/Sensitivity Analysis**

- Mission Time, hr
- Speed
- Depth

**Goal % Neutralization**

**Deployed to the Fleet**
• MP acquisition on track
• LCS is a new concept – opportunity + risk
• Spiral Development yields agility.
• MPI Key player.
• Open Architecture & Modularity are key enablers
• Questions?