



# ***PEO IWS: Vision for the Future***

***ASNE Combat Systems Symposium  
RDML Mike Frick***



# PEO IWS Organization

FY 2003 → FY 2006  
 17 MPMs → 7MPMs  
 528 PERSONNEL → 333

★ PEO RDML Frick PEO IWS  
 EXECUTIVE DIRECTOR (SES) IWS B  
 Dr. Meeks

CHENG (SES) IWS T  
 Ms. Emery (Acting)

CHIEF OF STAFF (GS-15) IWS D  
 Mr. Joyce

DIRECT REPORT STAFF (CORP OPS; SECURITY; ACIO; LEAN)

DIRECTOR, ABOVE WATER SENSORS (SES) IWS T  
 Mr. Smerchansky

DIRECTOR, SURFACE SHIP WEAPONS (SES) IWS T  
 Mr. Johnson

CHIEF FINANCIAL OFFICER (O-5) IWS CFO  
 CDR Carty

PAO CONGRESSIONAL LIAISON

MPM, INTEGRATED COMBAT SYSTEMS (SES) IWS 1.0  
 Mr. Bray

DIRECTOR, COMBAT SYSTEM PROGRAMS  
 DIRECTOR, STRIKE FORCE SE (O-6)

- COMBAT SYS/DDG/CG
- FUTURE WARFARE SYS
- C/S SHIP INT
- AMPHIB / COAST GUARD WARFARE SYS
- CVN WARFARE SYS
- LCS WARFARE SYS

- TRAINING SYS
- MGR SYS ACQ
- MGR CM & SHIPMAIN PROCESS
- MGR COMBINED T&E
- MGR BUSINESS & FINANCE

MPM, ABOVE WATER SENSORS (O-6) IWS 2.0  
 Mr. Kolb (Acting)

- RADAR SYS
- EW / EO / IR / DECOY SYS
- ADV RADAR
- COBRA JUDY REPLACEMENT

MPM, SURFACE SHIP WEAPONS (O-6) IWS 3.0  
 CAPT Murdoch

- STANDARD MISSILE
- RAM / PHALANX (US)
- NAVAL SURFACE FIRE SUPPORT
- NATO SEASPARROW (US)
- SURFACE LAUNCHERS

INTERNATIONAL & FMS (O-6) IWS 4.0  
 CAPT Russel

- FMS PROGRAMS
- INTERNATIONAL COMBAT SYSTEMS
- INT'L PROGRAMS

MPM, UNDERSEA SYS (O-6) IWS 5.0  
 CAPT Rosbolt

- ADV DEVELOPMENT
- SURFACE SHIP USW COMBAT SYS
- ASW SYS ENGINEER
- TASK FORCE ASW ACQ
- ASW COMBAT C2

MPM, COMMAND & CONTROL (O-6) IWS 6.0  
 CAPT Nardi

- TRACK MNGMT
- DISPLAYS / PRCSRS
- NAVIGATION

MPM, FUTURE C/S OA & HSI (O-6) IWS 7.0  
 CAPT Shannon

- ADV TECH INT
- OPEN SYS
- HUMAN SYS INT
- TOTAL SHIP TRNG
- NIFC-CA
- FORCE SYS ENG

# ***Why Open Architecture?***



# ***Navy Sinks Aegis Cruiser Ex- USS Valley Forge***

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# ***Open Architecture: A Leadership Priority***



***“As Aegis expands to Open Architecture it will be introduced throughout our fleet...When I say open, I mean open systems, open competition and open the throttle. I want to move as fast as we can.”***

**-Admiral Mike Mullen, CNO  
28 November 2006**

***“We are transforming our acquisition organization and culture by making open architecture a business strategy, not just a philosophy. We have a responsibility to deliver these critical capabilities for our Navy of today and tomorrow.”***

**-Dr. Dolores Etter, ASN(RDA)  
28 November 2006**





# OA Business Model... Radically Different

## Mil Spec

Requirements driven  
Specification focus  
Rigid requirements  
Unique architecture  
Owner controls evolution  
Stable design  
Ignore evolution  
Cost emphasis  
Make custom hardware  
Develop software  
Obsolescence  
Waterfall-style development

DoD leads  
computer  
technology  
development

## Open Architecture

Market driven  
Business plan focus  
Flexible requirements  
Open system architecture  
Market controls evolution  
Constant changes  
Design for evolution (tech refresh)  
TOC emphasis  
Buy from catalog  
License software  
Early-managed obsolescence  
Spiral development

Industry  
leads  
computer  
technology  
development

1st IBM PC (1981)  
4.77 MHz processor

USS Ticonderoga (CG-47) c. 1983  
AN/UYK-7 processor

Intel Pentium Extreme (2005)  
1066 MHz processor



1950 – 1970

1980

1990

Today



# **Surface Domain OA Goals**

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- ◆ **Development of OA combat systems:**
  - Supports future ship classes: DDG 1000, CVN 21, CG(X)
  - Supports backfit for ship classes with OACE: LCS, CG, DDG, amphibs, carriers
  - Interoperable with current combat systems
  - Modular to the component level
  - Achieves commonality with other communities where practical: Sub, C4I, Air, etc.
  
- ◆ **Rapid and more affordable fielding of COTS refreshes and capability “block” upgrades**
  - Incremental forwardfit and backfit software reuse
  - Periodic hardware and software upgrades at independent intervals



# PEO IWS Enterprise Initiatives

Implementation of key enterprise initiatives and consolidation of product lines has defined our evolutionary path since 2002. The Surface Warfare Enterprise was established in 2005.

## IWS Enterprise Initiatives

- Open Architecture implementation in all combat systems
- Enterprise solution for Test & Evaluation efforts
- Integrated Warfare Systems Way Ahead Process and Products

## SWE Goals/Functions

- Produce warfighting capability more efficiently
- Readiness  
Cost
- Coherent and prioritized investment in the right capabilities

### BMD

- CG(X) Advanced Radar
- Cobra Judy Replacement (CJR)
- Multi-function Radar: X-Band and Volume Search Radar (VSR) (S-Band)
- COTS Multi-Mission Sig Pro(V)

### Joint Integrated Fire Control (JIFC)

- NIFC-CA
- IABM: Joint Track Management (JTM) solution
- Cooperative Engagement Capability (CEC)
- SM-6

### Transformational ASW

- Task Force ASW
- ASW OA: Common S/W and Architecture
- SQG-89A(V)15
- Improved Performance Sonar (IPS)

### Surface Domain Warfare Enterprise

- Development of OA Combat Systems
- Future Ship Classes
  - DDG-1000, CVN-21, CG(X)
- Support Backfit with OACE
  - LCS, CG, DDG, Amphib, CVN
- RCIP/COTS refreshes

**Providing enhanced warfighting capability by alignment of IWS initiatives and the Surface Warfare Enterprise**



# ***Enterprise Ship Self Defense T&E Strategy***

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- ◆ **Integrated test approach merging common ship, element, and system requirements into the optimum set of tests**
- ◆ **Maximize use of the Combat System Ship Qualification Trial (CSSQT) process**
- ◆ **Focus on combat system variant vice the platform**
- ◆ **Drive down cost of redundant T&E**

***Requires cultural change***

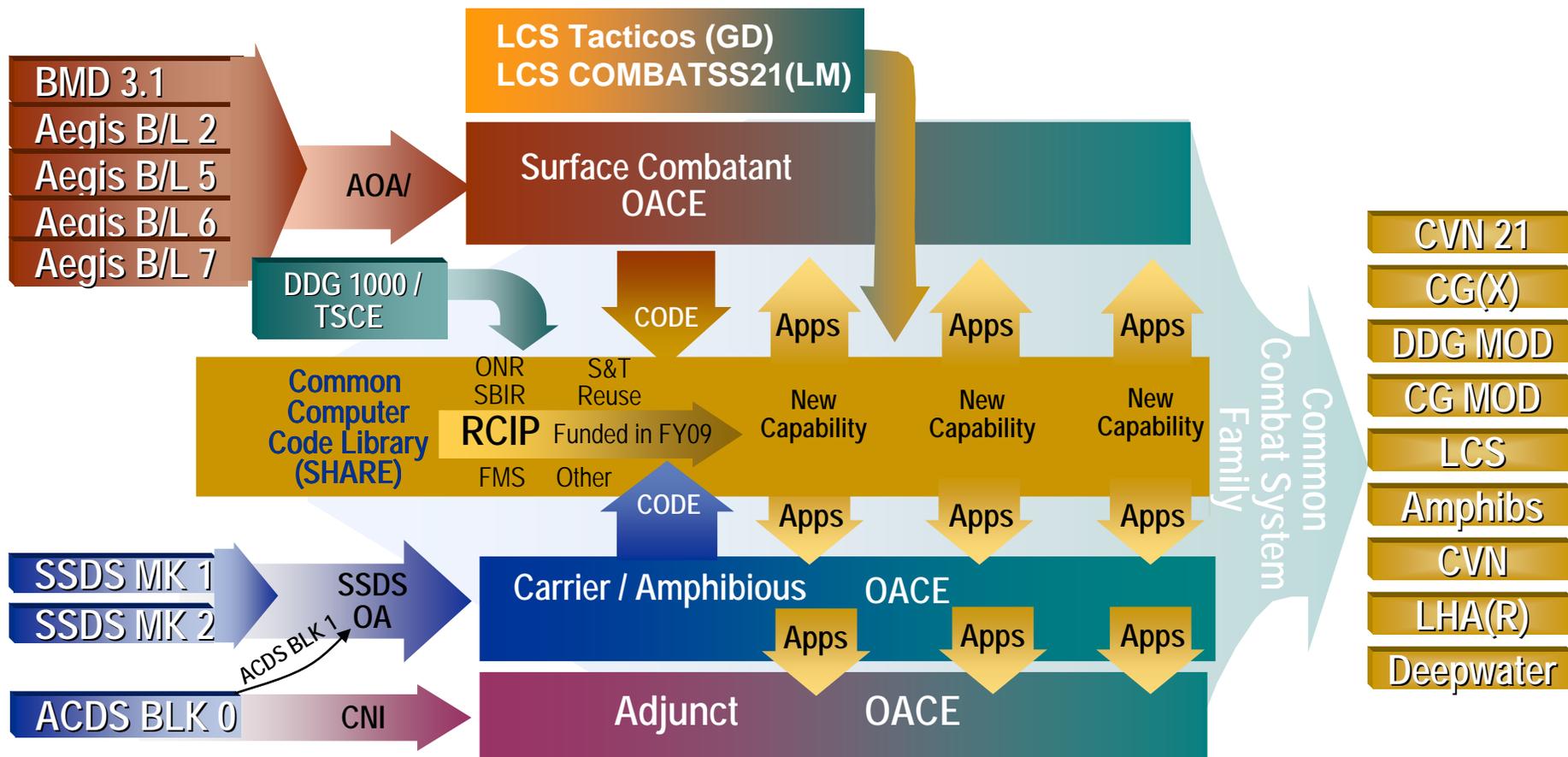


# ***Neck Down of Combat Systems, Elements and Weapons***

- ◆ **Product line consolidation**
  - Warfare Systems “Neck Down” - Reduce development and lifecycle cost
- ◆ **Enterprise solutions used across platforms vice platform specific**
- ◆ **Eliminates redundant capability investment**
- ◆ **Enable through Open Architecture**



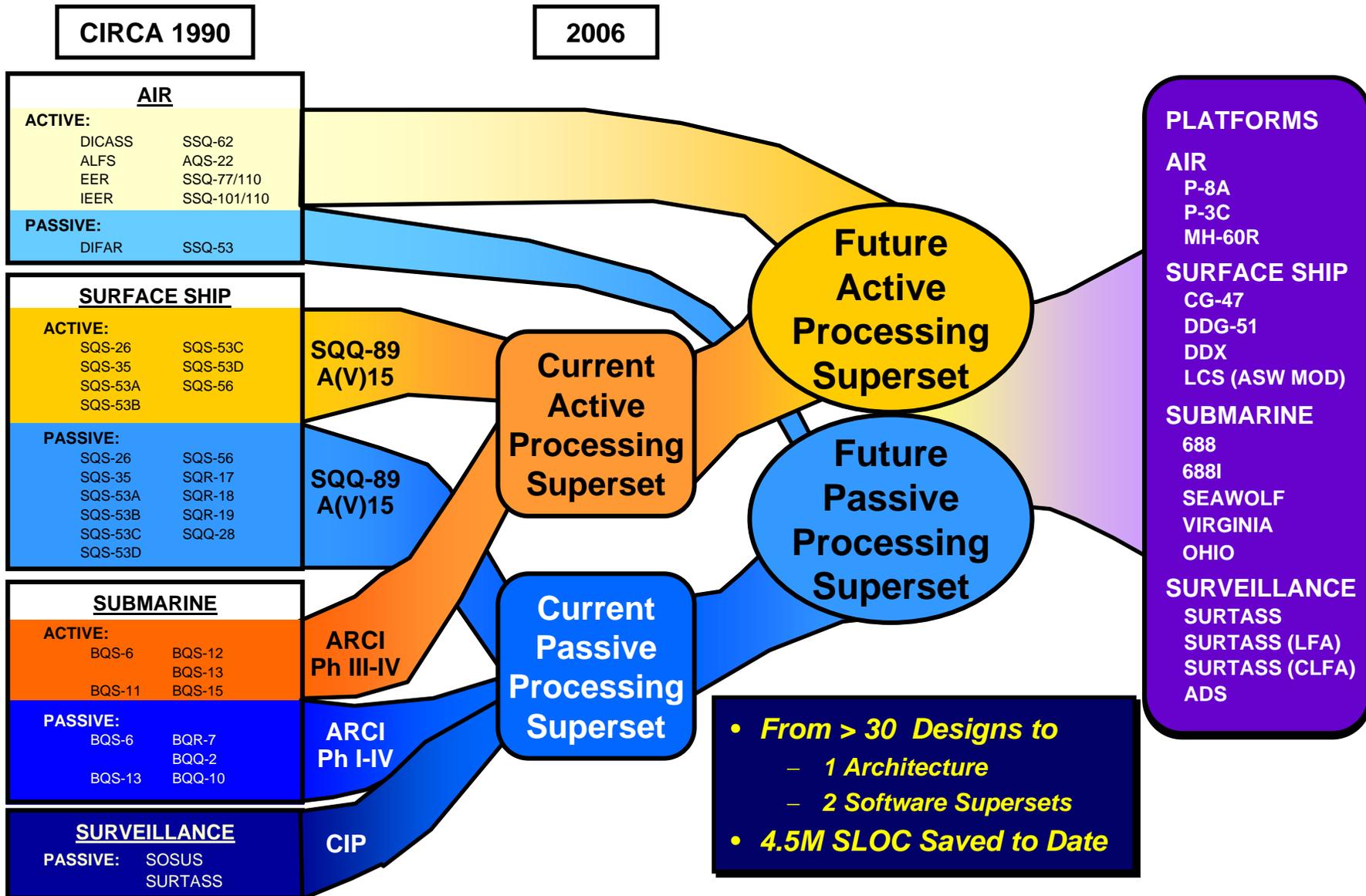
# OA Enabled Combat Systems Neck Down



**OA enables future combat systems neck down**



# ASW Open Architecture







# International Cooperation in Support of CNO's "1000 Ship Navy" Vision



US-Japan cooperation for Multi-Mission Theater Air & Ballistic Missile Defense

## ◆ Ongoing work

- US-Spain C/S MOU and project agreements (CSSQT)
- US-Japan BMD Open Architecture Research

## ◆ Projected new work

- US-Spain project agreement (Combat System maintenance)
- US-Japan BMD Open Architecture Development
- Aegis OA solution for the Australian Air Warfare Destroyer (AWD)

***FMS programs of the past are evolving into cooperative programs of the future***



***Questions?***