



Acquisition Research Program:
Creating Synergy for Informed Change

Comparing Acquisitions Strategies

Open Architecture vs. Product Lines

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A Call to Action

- Systems Cost Too Much
 - And getting more expensive
- Downward Pressure on the Budget is Coming
- Warfighter Capability Demands are High

Strategic Reuse Will Save Money
Enterprise Investment Strategies are Needed



Overview

- Leadership Engagement
- Platform-Centric Acquisition
- Case for Product Lines
- Why Open Architecture Principles are Key
- Best of Breed Approach



A View from the Bridge

**Secretary
Gates:
May 8**

- “[A]s a matter of principle and political reality, the Department of Defense cannot go to the America’s elected representatives and ask for increases each year unless we have done everything possible to make every dollar count. **Unless there is real reform** in the way this department does its business and spends taxpayer dollars.”

**Secretary
Mabus:
May 5**

- “On time and on budget is a baseline, not a target,” he declared. And if programs can't meet the new goals, he said, **I’m not going to hesitate to cancel programs.**
- “[T]he **fiscal environment has changed** and we're going to have to be serious about the acquisition process because if we're not we're not going to be able to build the fleet that we and America need.”

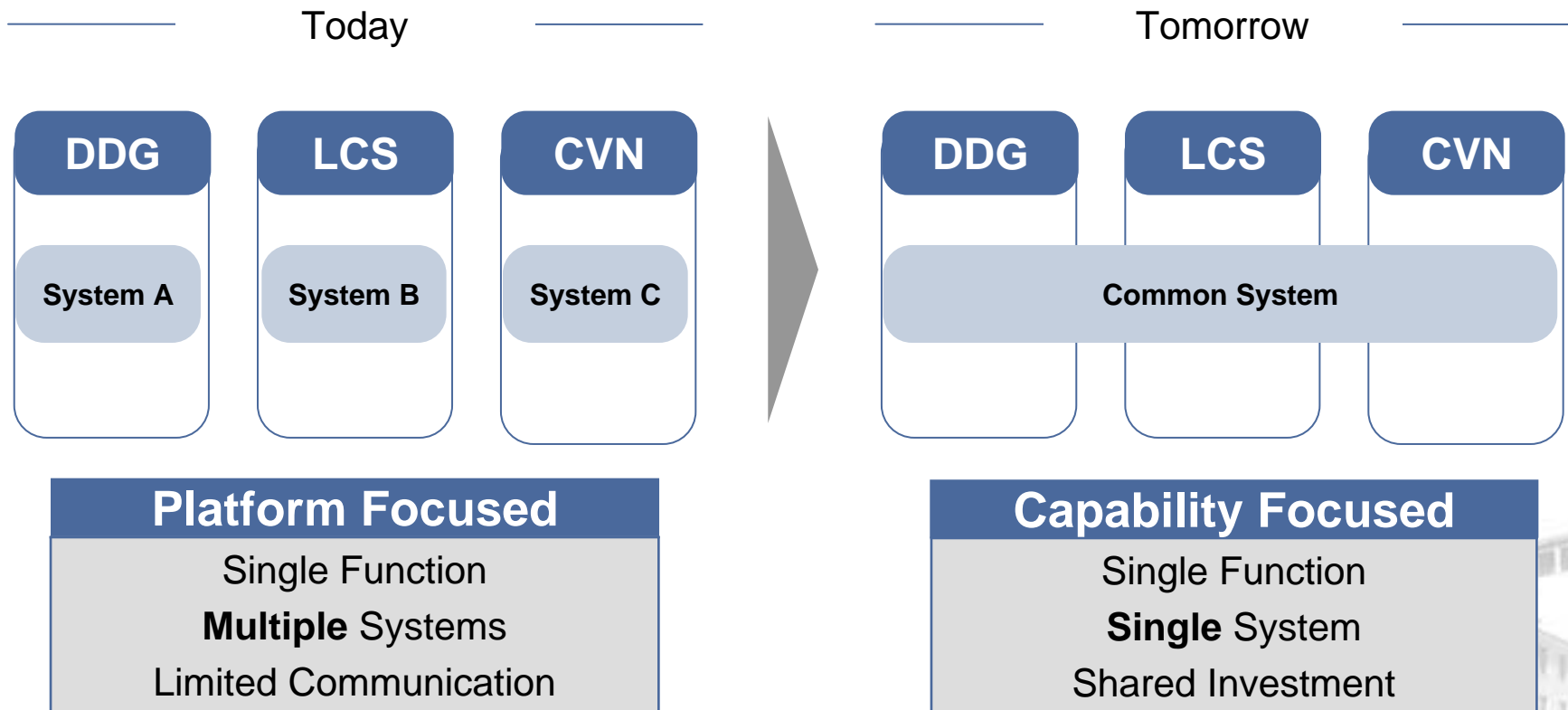
**ASN
RD&A
Stackley:
May 6**

- “[W]e are looking at various **ways to control the cost** of these ships, including leveraging technology and lessons learned . . . and by considering sustainment issues earlier in the design process than we have in the past.”



Acquisition Evolution

Strategic reuse becomes the central focus that drives OA and Product Line success



Proven Acquisition Advantage

Open Architecture (OA) and Product Line strategic reuse has demonstrated value

National Reconnaissance Office	Reduction in cost and schedule	50%
Department of Army	Reduction in development cost	67%
PEO Submarine	Estimated cost savings	80%



Acquisition Method Comparison

Open Architecture

Capability and knowledge is shared

- Increases Competition
- Drives Innovation
- Fosters Reuse
- Encourages Collaboration
- Discloses Artifacts Broadly

Product Line

System Reuse is planned

- Identifies Reusable Core Assets
- Builds Products From Core
- Amortizes Costs Across Products
- Manages Coordinated Development

OA principles are essential ingredients to the product line approach



Enterprise Advantage

Acquisitions should leverage both OA and Product Line principles as one



Path Forward

The challenge and power to achieve advantage lies in the acquisitions community

- **Transform** government to government collaboration
 - Open Architecture **Business Practices**
 - **Sustain** our commitment and dedication
- **Change** the way that government and industry interact
 - Cross-program **collaborative** development
 - Contracts
- Build an **Enterprise Development** Framework
 - **Product Line** Methodologies
 - Open Architecture **Technical Practices**



Product Line Tools and Resources

- **SEI Models and Guidance:** www.sei.cmu.edu/productlines
 - “A Framework for Software Product Line PracticeSM”
 - Product line adoption roadmap
 - Book: *Software Product Lines: Practices and Patterns*
- **SEI Curriculum and Certificate Programs**
 - Five courses and three certificate programs
 - Product Line Executive Seminar
- **Conferences and Workshops**
 - Software Product Line Conference (SPLC); DoD/Army Product Line workshops
- **Published case studies for DoD Product Line efforts:**
 - **NRO/Raytheon** – CMU/SEI-2001-TR-030
 - **NUWC** – CMU/SEI-2002-TN-018
 - **U.S. Army** – CMU/SEI-2005-TR-019



Open Architecture Tools and Resources

- Open Architecture Enterprise Team (OAET)
- <https://acc.dau.mil/oa>
- Naval OA 101 Continuous Learning Module
- Software Reuse Continuous Learning Module
- Open Architecture Assessment Tool (OAAT) Version 3.0
- Key Open Sub-Systems (KOSS) tool
- SHARE II / NESI asset repositories
- *OA Implementation Guide* (forthcoming)
- *OA Contract Guidebook for Program Managers, Version 2.0*



Naval Open Architecture Contract Guidebook For Program Managers

Version 2.0
28 April 2010



*Greater Value, Innovative Solutions
For the Warfighter*

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What's New in Naval OA Contract Guidebook Version 2.0

- Extended list of OA-related Data Item Descriptions
- Extended Statement of Work language
- A new appendix discussing contractors' licensing of contract deliverables
- A new H clause that requires contractors to identify open source software
- New SOW language for accepting software deliveries
 - Enables third-party reuse
- Additional SOW language regarding conducting software code walkthroughs and for using integrated development environments

