



# Engineering the Army Common Operating Environment (COE)

**Presentation To:** 



## **COE Architecture Guidance**





DEPARTMENT OF THE ARMY WASHINGTON DC 20310

OCT 2 0 2010

SAIS-AEA

#### MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Common Operating Environment Architecture Guidance

- 1. References:
- Memorandum, Vice Chief of Staff of the Army (VCSA), subject: Achieving Army Network and Battle Command Modernization Objectives, dated 28 December 2009
- b. Document, CIO/G-6, titled: Common Operating Environment Architecture, (Appendix C to Guidance for 'End State' Army Enterprise Network Architecture), dated 1 October 2010
- 2. The CIO/G-6, in close coordination with ASA(ALT) Systems of Systems Engineering (SOSE), has developed the Common Operating Environment (COE) Architecture concept, framework and standards for the Army Enterprise Network. In addition, in order to inform Program Objective Memorandum 13-17 investment decisions, ASA(ALT) will publish a complementary Implementation Plan that describes the steps and schedule for bringing Army systems into compliance with the COE Architecture guidance. Henceforth, compliance with the COE Architecture and Implementation Plan will be mandatory for all programs under the purview of the Army Acquisition Executive.
- 3. The ClO/G-6 and ASA(ALT) are committed to enabling the Army to produce high-quality applications rapidly while reducing the complexities embedded in the design, development, testing and deployment cycle. The COE Architecture and Implementation Plan will provide direction to our industry partners regarding our framework standards. Both documents are considered to be living instruments and will continue to evolve in a coordinated manner in order to keep up with the rapid changes in technology.
- Our points of contact for this memorandum are: COL Anthony Howard, Sr., (703) 664-2068 or anthony,howarder@us.army.mil; and Mr. Phillip Minor, (703) 604-7133 or phillip.minor@us.army.mil.

JEFFREY A. SORENSON Lieutenant General, GS Chief Information Officer/G-6

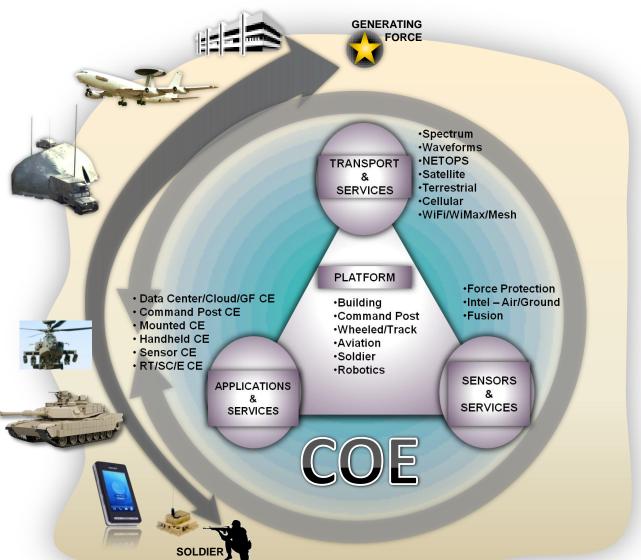
Malcolm R. O'Neill
Assistant Secretary of the Army
(Acquisition, Logistics and Technology)

- CIO/G-6 in close coordination with ASA(ALT) Systems of Systems Engineering (SOSE) has developed COE Architecture Guidance
- COE Architecture Guidance:
  - Defines the COE and Computing Environments
  - Describes the CEs architecture and services
  - Specifies COE principles and technical architecture standards
  - Details a maturity model for cost-benefit analysis trades and to evaluate programs' alignments with COE
- ASA(ALT) will develop COE Implementation Plan:
  - Inform Program Objective Memorandum (POM) 13-17 investment decisions
  - Identify the implementation strategy, time lines, effective dates and key milestones for moving Army systems to the COE



## WHAT IS THE COE?





COE is an approved set of computing technologies and standards that enable secure and interoperable applications to be rapidly developed and executed across a variety of **Computing Environments** 

**Source:** Army CIO/G6

COE App C

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## Message from the AAE

## **ASA(ALT) COE Implementation Plan..**

"It is our strategy for not only addressing interoperability within the Force, but to......"

- Achieve agility on how we deliver capabilities to the Warfighter faster (Vice Chief of Staff, 14 Apr 2011)
- Reduce the life cycle cost of development and sustainment of our IT systems (DoD Efficiency Initiatives, 16 Aug 2010)
- Promote an Open Architecture that is standards based which leverages industries best practices and products while reserving government purpose rights (Implementation Directive for Better Buying Power, 3 Nov 2010)
- Build on a foundation that is cyber hardened and secure (ARCyber)

"Our strategy for implementing this COE vision is transformational that will change how we define requirements, resource, acquire, test and deliver capability to the Warfighter. It will require all of us to look within our current business practices and become agents of change." - Ms. Heidi Shyu





# **Overview: COE Implementation for Applications & Services**



Current State

- Interoperability painful and costly
- Unnecessary duplication and inefficient sustainment
- Process inconsistent with rate of change of technology--slow to provide new capability to field

CIO G6 COE Vision

• Set of standards, products, architectures, and processes that enable agility and interoperability

**Organize** Computing **Environments**   Cluster COE implementation into manageable groups based on mission environment (e.g. SWAP, bandwidth, mobility)

**APPLICATIONS SERVICES** 

**Develop Implementation** Plan

 Develop action plan to address technical challenges, schedule, and Governance needed for implementation of 6 Computing Environments (CE)

**Evolve** Common **Foundation** 

 Based on assessment of each CE; selection of best software packages (e.g. OS, interfaces, apps) for each CE

Obtain authority for execution of strategy

6 Execute the DM/ADM (Oct 2011)



- Conduct NIR/NIE Assessments
- Align with ARFORGEN Cycle
- Phased Implementation Across FY12-18

Incrementally **Implement COE** 

**Phased Approach to Executing COE Vision** 

- Interoperable System of Systems
- Application Agility
- Lower Life Cycle Costs
- Open Architecture/Standards
- Cyber-hardened





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## **Apps & Services COE Building Blocks:**

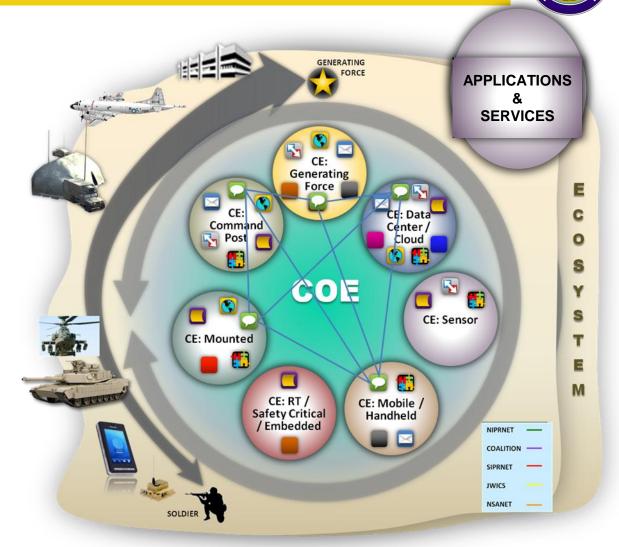
**Vision and Computing Environments** 

#### <sup>2</sup>CIO G6 COE Vision

 CIO G6 Vision: Set of standards, products, architectures, and processes that enable agility and interoperability

# 3 Organize Computing Environments

- Scope of COE implementation requires systematic and manageable approach
- Clustering similar systems based on mission environments to facilitate implementation



COE Architecture – Appendix C to Guidance for 'End State' Army Enterprise Network Architecture, 1 October 2010



## Goals



- Standards-based / Industry-driven solutions
  - IAW the CIO/G6 Technical Architecture
- Strategic approach to software re-use
  - Single Foundation within a Computing Environment (CE)
- Reduce lifecycle cost and improve supportability
  - Abstract software applications from HW/SW infrastructure
- Make the data visible, understandable and accessible
- Encourage direct user involvement in Apps development
- Foster an agile environment that enables direct user involvement and 3<sup>rd</sup> party App development
- Improve speed to market
  - Reduce testing and certification timelines
- Leverage government labs/support structures to fullest extent

Promote innovation and aggressively pursue efficiencies



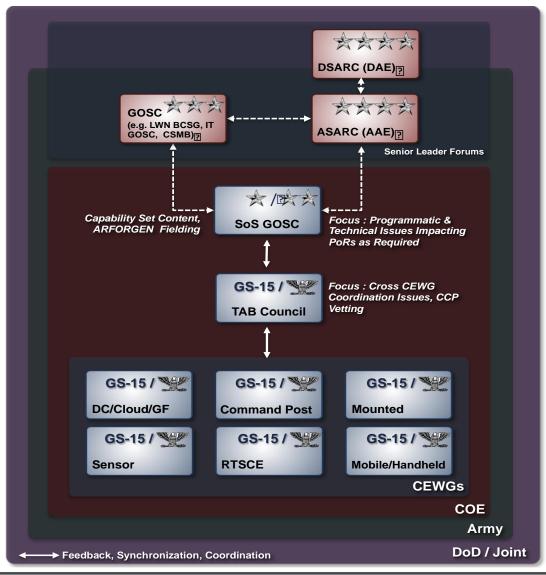


### Governance



- Governance applies to all ASA(ALT) SoS activities – in this case COE
- Minor updates by MG Brown and sent out to PEOs for review S- 5 Oct
- Adjudication at lowest levels
   elevate as required
- COE Proposals provide traceability and structure
- Acknowledges authorities of ASA(ALT) and non-ASA(ALT) organizations
- Highlights role of the AAE and DAE

Governance is key to the success of the COE

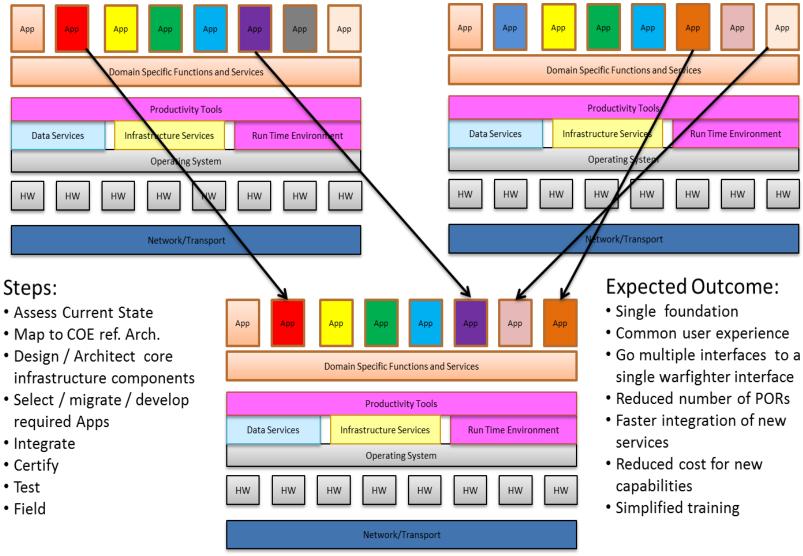




## Reference Architecture Framework

#### What Will We Use It For







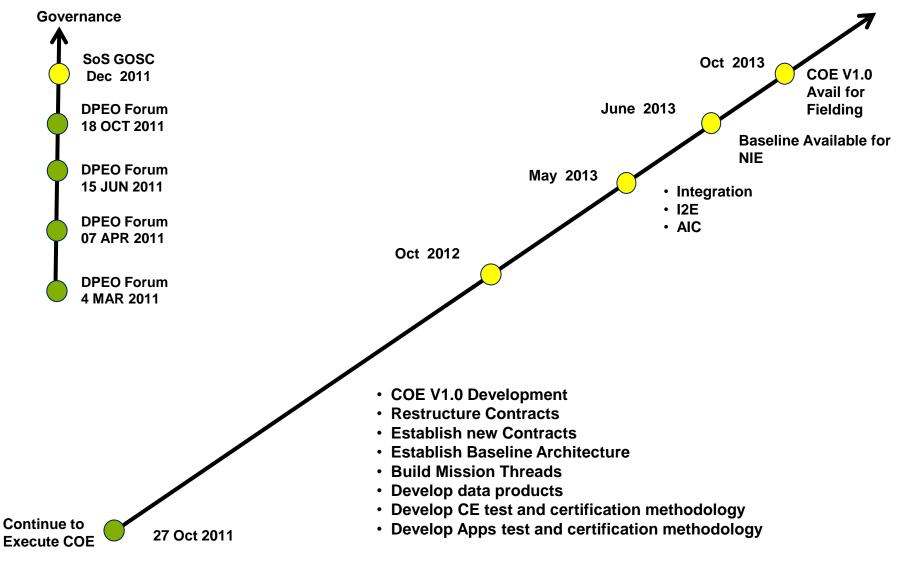
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## **COE V1.0 High-Level Timeline**







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# **Discussion**

