NDIA Chief Systems Engineer Panel

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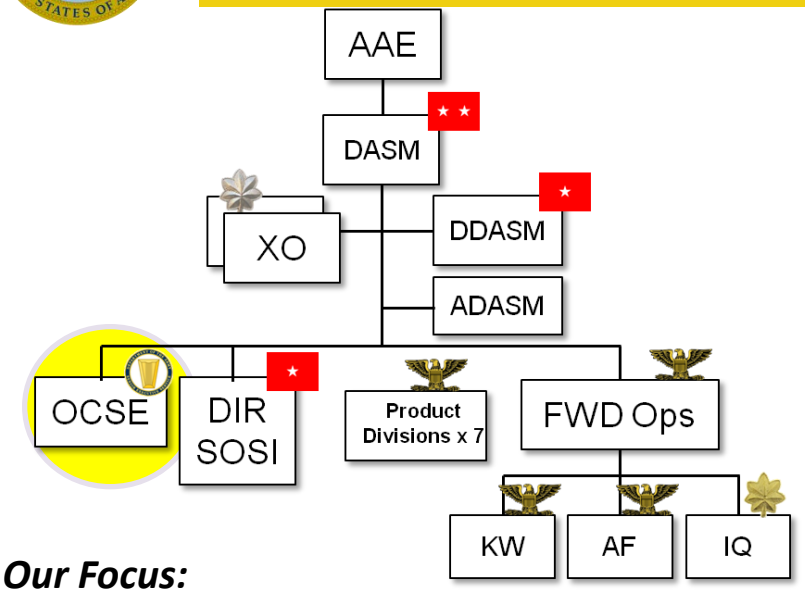
Army Office of the Chief Systems Engineer



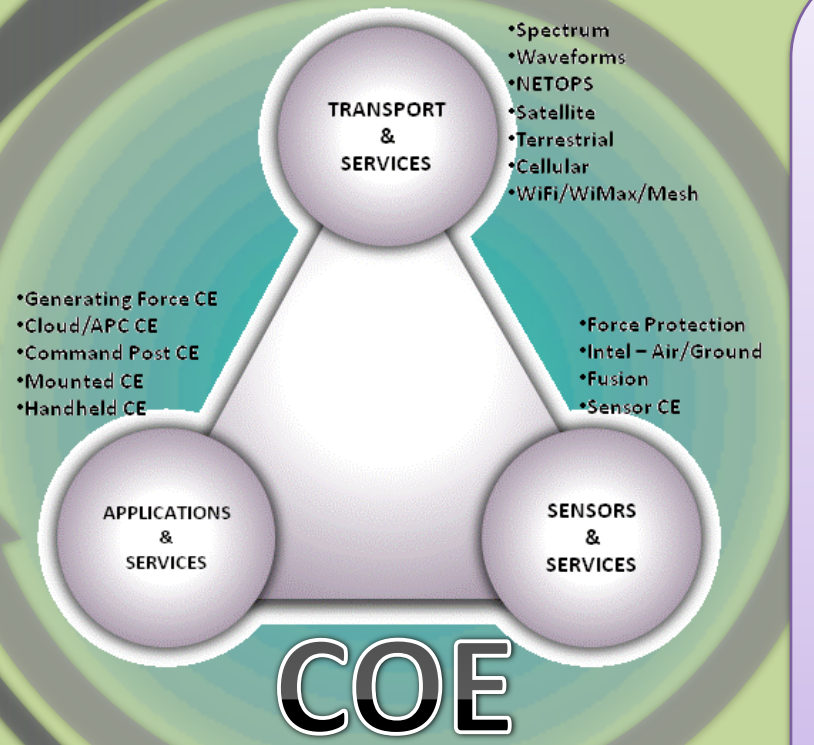
The Mission of ASA(ALT) OCSE: ***Provide the Army's leadership and materiel developers with the necessary engineering/architectural products to manage and shape the Army's materiel portfolio, to ensure a System Engineering discipline across the Materiel developer community throughout the acquisition life cycle and grow the System Engineering capability within the Army – through education, engineering policy, guidelines and adoption of best industry practices,...."Build the Bench".***

Our Focus:

- **Deliver strategic level System of Systems Engineering (SoSE) and architectural analysis for current and future force capabilities.**
- **Conduct technical trades to gain efficiencies and shape Army investments.**
- **Identify science and technology opportunities that will enhance the SoS capability.**
- **Foster the environment for information transparency and collaboration for all architectural and engineering data.**
- **Conduct program reviews to ensure compliance to established architectures and standards.**
- **Shape SoS engineering organizational structure and processes across the PEOs to ensure consistence in implementation.**
- **Establish engineering policy, guides, best practices templates and metrics to insure SoS discipline across ASA(ALT).**
- **Promote education and personnel development model to cultivate the SoSE capability across the ASA(ALT)/Army.**

The Army Common Operating

Mission Command requires a coherent network of *Soldiers*, *Command Posts, and Platforms*, linked via a robust *Infrastructure*



The Common Operating Environment (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**

Computing Environments Building Blocks

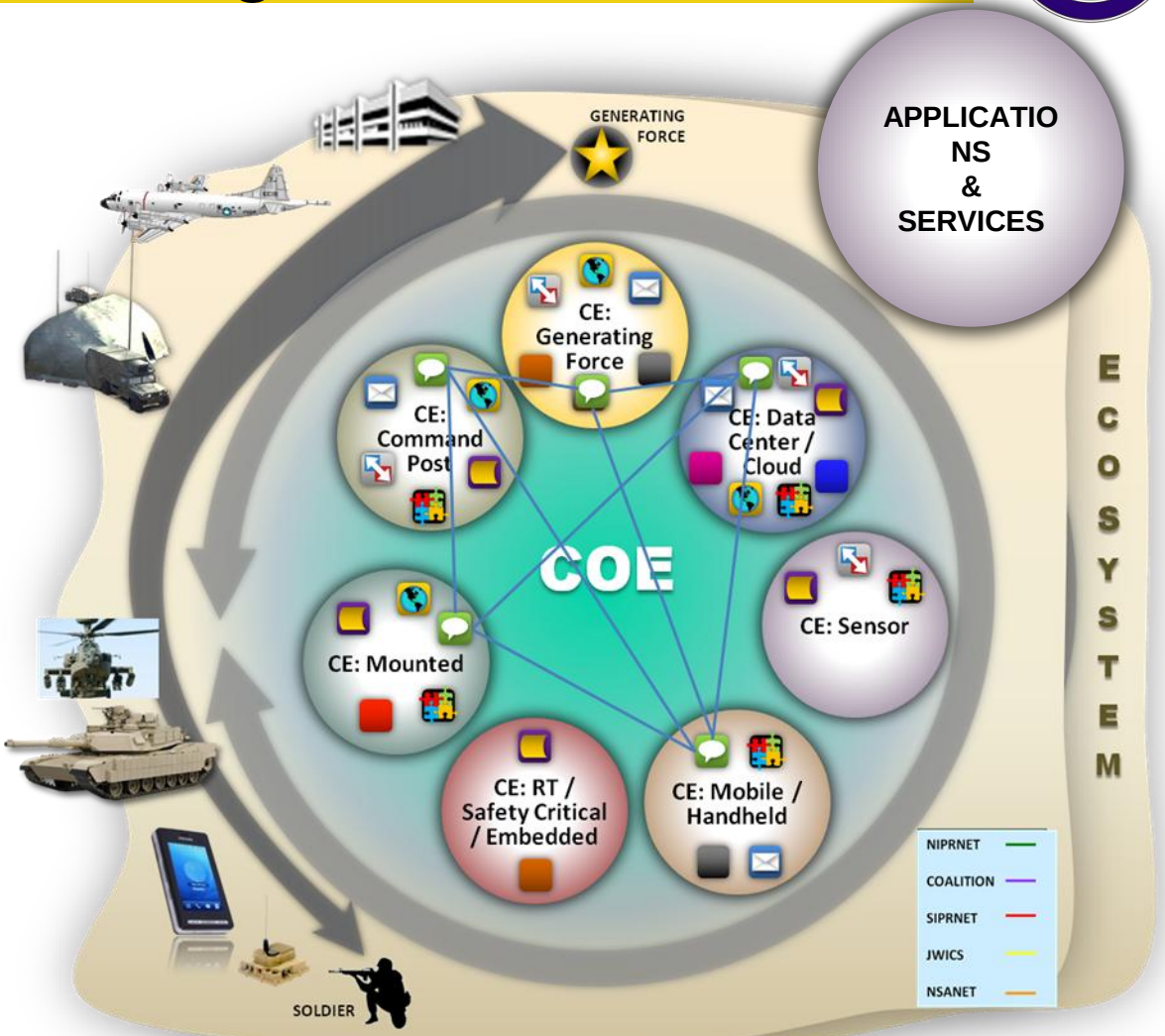
CIO G6 COE Vision

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

Organize Computing Environments

- Scope of COE implementation requires systematic and manageable approach

- Clustering similar systems based on mission environments to facilitate implementation



The Army Agile Process

http://www.bctmod.army.mil/

Continuous Cycle in Phases 0-I

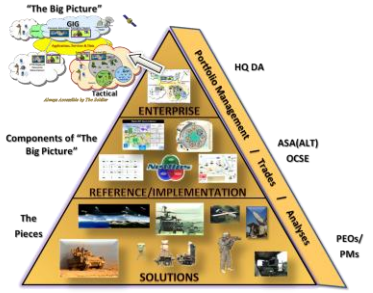
6 Months

Phase 0	Phase I	DP1	Phase II	DP2	Phase III	Phase IV	Phase V	DP3	Phase VI
Define Near Term Requirements Lead: TRADOC	Solicit Potential Solutions Lead: ASA(ALT)	1-2 Star GOSC	Candidate Assessment Lead: ASA(ALT)	1-2 Star GOSC	Evaluation Preparation Lead: BMC	NIR Lead: ASA(ALT)	NIE Lead: BMC	GOSC/AR2B/CDRT	Network Implementation Plan Lead: ARSTAF
• Identify requirements / gaps • Prioritize List • Develop initial vision • Consider feasibility • Develop Assessment Criteria	• Stakeholder participation/buy-in • Obtain funding and support • Initial requirements vision • Initial architecture vision • Viable candidate list		• List of solutions that meet gaps • Collaborative development • Execute evaluations • Validation testing • Legal and contracting • IA, safety, interoperability, Spectrum, Arch		• Finalize test plans (training, material, combat) • NET/NEF Plan • Vulnerability assessment - ARCYBER • DOTMLPF collection plan • Assessment report for DP2/GOSC • SoS	• DA Directives • Validate Players • Finalize Assessment Plan • Collection / Instrumentation Plan • Capabilities / Limitations List • Certs and Accreditation • Execute Event	• Safety Release • Integrate Systems • Trained and Ready Unit • Approved T&E Plans • OTRR/ERR • Updated IRL • Certification/ Joint Cert	• Implement systems • Determine CS • IOTE = FUE • Determine BOI • Funding

The Agile process puts integrated capabilities into the hands of the Soldiers faster

SE Activities-Drive Program Success, Mission Accomplishment and Capability Deliver

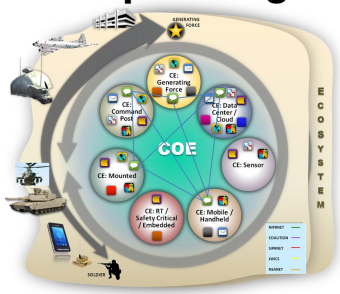
System-of-Systems Architectures



Network SoS Design Reference Architectures

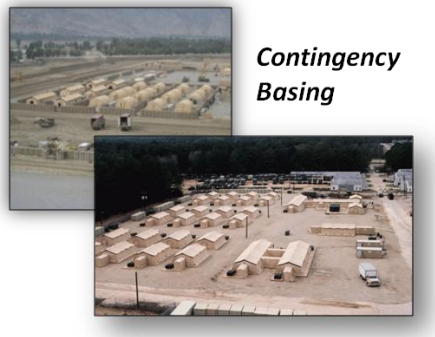
- Link acquisition SE to portfolio review process
- Link acquisition SE to capability requirement
- Synchronize acquisition program planning, execution and fielding process
- Shaping of S&T investment strategy

Common Operating Environment



- Establish the framework and the implementation plan to execute the vision of the COE
- Reference Architectures (VICTORY, FACE, SPIE) to standardize platform integration
- Agile application development and delivery model
- Reduce total life-cycle costs

Analysis & Trades



Contingency Basing

- Army Development Planning Pilot
- Integrated Base Defense, Basing * Comms & Computing
- Cost informed trade analysis for GCV
- Platform Integration SWaP Study
- Network design trades for BCT
- Transport (Satellite) convergence
- Aerial Tier Analysis

SE Challenges

- Making Architectures relevant to the SoS space
  - Aligning the Architectures to the Decision Forums
  - Right product for the right questions
  - Build redundancy, flexibility and adaptability into the architecture
- Changing institutional culture
  - SE approach must complement a culture change
- Establishing Systems/SoS engineering discipline consistently across our programs and architectures
- Communicating the return on investment of System/SoS engineering across the enterprise
- Building the Bench of engineering competencies
- Resources … Resources … Resources…

Acquisition Objectives – for the COE

The Army's COE Implementation Strategy is ..

not only addressing fixing interoperability within the Force, but also accounts for critical strategic level goals as well

- 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)*

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