System of Systems Engineering for Army Battle Command Convergence (Common Operating Environment Focus)

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ASA(ALT) SoSE
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**SoSE Mission**

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”.

**Scope**

- **Tactical Domain**
- **Business Domain**
- **Infrastructure Domain**

**Build the Bench**

- Organize the Army Engineering Community
- Establish Technical Authority and engineering expertise/capability
- Pursue accreditation and certifications of organic workforce & organizations

**Create Data Transparency**

- Establish CM and an authoritative repository for products
- Establish a collaboration environment
- Establish a common operating environment for engineering products

**Enable the Process**

- Establish the engineering process to deliver synchronized capability
- Establish the analytical structure with models & simulations
- Establish the engineering compliance structure/process for acquisition execution excellence
- Deliver engineering support to HQ staff and acquisition community

**Product**

- **Capability**
- **Cost**
- **Time**
- **Technology**
- **Maturity**

**Manage the Portfolio**

- Support the prioritization of capabilities within the portfolio
- Set the baseline architecture roadmap over time
- Support the resourcing process
- Synchronize and align the S&T, systems integration, test, and certification activities

**Capability Sets**

- 2011/12
- 13/14
- 15/16

**Manage the Army’s Portfolio**
The Challenge

• Multiple common computing environments are duplicative and life cycle costs are unsustainable

• Disparate and fragmented architectures are key contributors to operational inefficiencies

• Technology progression in fielded PORs is limited and insufficient

• Development, certification, and deployment processes are not sufficiently flexible / agile

• Governance and strategic decision-making are lacking
Value Proposition

• Common Operating Environment Enables
  – Operational Adaptability / Capability Agility
  – Reduced Life Cycle Costs through standardized applications and Unity of Effort
  – Flexible Infrastructure to Evolve to Rapidly Emerging Standards
  – Cyber Protection

Requires Unified Strategy and Synchronized Execution
The Common Operating Environment 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 (i.e., Server(s), Client, Mobile, Sensors, and Platform).

Source: Army CIO G6 Appendix C
The Mission Environments in which Soldiers operate are differentiated by Network Bandwidth, Computing power, Environmental factors, and location permanence.

<table>
<thead>
<tr>
<th>Mission Environments</th>
<th>Computing Environments</th>
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<tbody>
<tr>
<td>Enterprise - Post/Camp/Station</td>
<td></td>
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<tr>
<td>- High bandwidth</td>
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<tr>
<td>- High availability server-class machines</td>
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<tr>
<td>- Highly controlled environment</td>
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<tr>
<td>- Fixed location</td>
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<tr>
<td>Command Post</td>
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<tr>
<td>- Moderate to high bandwidth</td>
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<tr>
<td>- Server-class machines</td>
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<tr>
<td>- Semi-controlled environment</td>
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<tr>
<td>- Temporary location</td>
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<tr>
<td>Mounted</td>
<td></td>
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<tr>
<td>- Low to moderate bandwidth</td>
<td></td>
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<tr>
<td>- PC-class machines</td>
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<tr>
<td>- Minimally controlled environment</td>
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<tr>
<td>- Dynamic location</td>
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<tr>
<td>Soldier/Sensor</td>
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<tr>
<td>- Low to moderate bandwidth</td>
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<td>- Smartphone and tablet-class devices</td>
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<tr>
<td>- Uncontrolled environment</td>
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<td>- Dynamic location</td>
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Source: Army CIO G6 COE Appendix C
Benefits of COE Initiatives

- Increased operational relevance (i.e. user experience)
- Reduced development, testing, certification, training, and deployment timelines
- Increased interoperability between systems – internal and external to the enterprise
- Strategic approach to reuse (“build once use many”) framework
- Improved data collection and sharing (collect once / use many)
- Reduced Life Cycle costs
- Rapid deployment of additional capability
- Mechanisms to enforce standards development, integration and conformance
Army COE and Modernization

Common Frameworks, Strategies, and Services

Today  Individual Transformation Strategies  Near Term (12-13)  Future COE (14 →)

- Intel Family of Systems
- BC and Log Systems
- Dis-/Mounted Systems
- Sensors
- Network

- ISR Modernization
  - COE Initiatives
- BC Collapse
  - COE Initiatives
- Platform Collapse
  - COE Initiatives
- Common Interfaces
  - COE Initiatives
- Network Modernization
- Integrated Network

Intel Conv
BC Conv
Platforms Conv
Data & Infrastructure

Operational Base
TOCs
Interoperable
Mount/Dismount/Sensors

MC
GIG
Way Ahead

- Develop ASA(ALT) COE Implementation Plan, to include Computing Environment Execution Plans, to include roles and responsibilities and resourcing
- Establish COE engineering, integration, test/validation, deployment synchronization, and Governance activities
- Establish Ecosystem
- Establish Federated Development and Test / Integration Environments
- Establish Widget Marketplace
- Develop COE Investment Profile

Work With Industry Partners
Discussion