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MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Common Operating Environment (COE) Directive for Program Executive Offices (PEOs)

1. References:

   a. Appendix, Chief Information Officer (CIO)/G-6, 1 October 2010, subject: Common Operating Environment Architecture-Appendix C to Guidance for "End State" Army Enterprise Network Architecture.

   b. Memorandum, Department of the Army (SAIS-AEA), 20 October 2010, subject: Common Operating Environment Architecture Guidance.

   c. Implementation Plan, Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)), October 2011, subject: Draft-Common Operating Environment.

   d. Initial Capabilities Document, 4 March 2011, subject: Net-enabled Mission Command (NeMC) Army Requirements Oversight Council (AROC).

   e. Memorandum, Office of the Deputy Chief of Staff, G-3/5/7 (DAMO-LB), 4 October 2011, subject: Army Operational Guidance on the Common Operating Environment (COE) and Application Development.

2. On 28 December 2009, the Vice Chief of Staff, Army directed the CIO/G-6 to develop "as is" and "end state" network architectures to set the vision for the evolution of network procurements and enhancements. The COE Architecture-Appendix C to Guidance for "end state" Army Enterprise Network Architecture, dated 1 October 2010, was written in response to that direction. On 20 October 2011, an endorsement memorandum signed by the Army Acquisition Executive (AAE) and the CIO/G-6, codified a joint commitment on COE development.

3. As a result of the endorsement memorandum, the AAE directed the development of the COE Implementation Plan, which includes the next level of technical and programmatic specificity, to position ASA(ALT) for execution and informing Program Objective Memorandum (POM) 2014-2018 investment decisions. All PEO/Program Managers (PMs) shall implement capability in accordance with the COE Computing

Environment (CE) Execution Plans, under the Governance process described in the
COE Implementation Plan.

4. To create efficiencies, eliminate redundant activities and to inform POM investment
decisions, I direct:

    a. All Mobile/HandHeld (M/HH) CE software architecture and CE development
efforts converge under the COE M/HH CE lead, PEO, Soldier.

    b. All Command Post (CP) CE software architecture and CE development efforts
converge under the COE CP CE lead, PEO, Intelligence, Electronic Warfare and
Sensors (IEW&S). PEO, Command, Control and Communications (Tactical) (C3T) will
serve as the supporting co-lead.

    c. All Mounted CE software architecture and CE development efforts converge
under the COE Mounted CE lead, PEO, C3T.

    d. All Data Center (DC)/Cloud/Generating Force (GF) CE software architecture,
development, design and process efforts converge under the COE DC/Cloud/GF CE
lead, PEO, Enterprise Information Systems.

    e. All Sensor CE software architecture and CE development efforts converge under
the COE Sensor CE lead, PEO, IEW&S.

    f. All Real Time/Safety Critical/Embedded (RT/SC/E) CE software architecture and
CE development efforts converge under the COE RT/SC/E CE lead, PEO, Aviation.

    g. All CE leads to:

    (1) Synchronize and coordinate the CE related efforts of the PMs and facilitate
decisions through the Governance process.

    (2) Be responsible for ensuring that the hardware, CE software architecture and
infrastructure, software solutions and ecosystems the Army will use to fulfill CE
requirements are compliant with the COE. To ensure that platform constraints (i.e.,
Size Weight and Power-Cost, environmental, interfaces, etc.,) are adequately
addressed, the CE hardware selection will be done collaboratively between the CE
leads/PEOs/PMs within a Platform Integrated Product Team structure that spans CEs.
This will further ensure that integrated, affordable, platform and CE-supportable
solutions are procured, and that all issues are properly vetted and resolved. In addition,
all software developed must adhere to the specifications of the CE and target hardware
platforms to ensure that the selected hardware can host the software and meet

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performance requirements. Any organization can develop applications to operate on
the objective computing platforms, in compliance with the applicable CE Execution
Plan(s).

(3) Complete their CE Execution Plan with the information outlined in
enclosure 1, paragraph 2, within 60 days of this memorandum being signed.

(4) Complete the task identified in enclosure 1, paragraph 3, within 90 days of
this memorandum being signed.

(5) Coordinate with PEO, Simulation, Training and Instrumentation to enable
CE-compliant systems to embed, integrate or interoperate with test and training
applications and systems.

h. CE implementation is to be done within the scope described in enclosure 2.

i. Within 30 days of this memorandum being signed, Platform IPTs be formed as
stated in enclosure 3.

j. The Deputy for Acquisition and Systems Management serves as my lead,
coordinating all ASA(ALT) Headquarters activities, to include COE Orchestration,
Verification and Validation, Governance and establishment of the Chief Software
Architects Forum.

5. All PEOs will provide support to the CE leads. Acquisition Decision Memoranda will
be issued based on the analysis of the execution strategies.

Encls

Heidi Shyu
Acting Assistant Secretary of the Army
(Acquisition, Logistics and Technology)

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Enclosure 1

Common Operating Environment (COE) Technical and Programmatic Information

1. The following COE Technical and Programmatic Information will be provided. If the required technical and programmatic information cannot be identified within the required timeframes, Computing Environment (CE) leads will indicate why and identify the strategy that will be used to satisfy these requirements, to include a schedule.

2. Within 60 days of this memorandum being signed, each CE lead, in coordination with impacted Program Executive Officer (PEOs) and Program Managers (PMs), will:

    a. Present an overview of their CE to the Army Acquisition Executive (AAE), to include member systems, integrated architectures, execution roles and responsibilities, schedule and costs.

    b. Provide a schedule of capability to be developed for Fiscal Years 2012-2018 (FY12-18).

    c. Identify, by PEO and PM, the Program of Record (PORs) included in the CE.

    d. Define the roles and responsibilities necessary for CE execution.

    e. Provide a detailed programmatic risk assessment, to include risk mitigation strategies.

    f. In coordination with the U.S. Army Training and Doctrine Command (TRADOC), state recommended disposition plan for each POR (i.e., migrate capability a, b and c to CE x, terminate in FYxx, stay as is and enhance, etc.).

    g. Identify what is being leveraged from base, initiatives, Quick Reaction Capabilities (QRC), Science and Technology efforts and other agency investments (Department of Defense, Joint, Intelligence Community).

    h. Estimate costs for FY14 through FY18, but also include FY12 investments in progress, and FY13 plans. If costs cannot be identified now, indicate why not and identify the strategy that will be used to identify costs and when they will be provided.

    (1) Identify FY12 and FY13 costs which must be adjusted in order to achieve the capability planned for FY14-18. Cost information will be submitted on the requested cost templates from the COE Implementation Plan, as well as backup spreadsheets where applicable.

    (2) Estimate cost by capability and by POR/non-POR within capability. Aggregate cost estimate by CE.

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 (3) Estimate cost to support the ecosystem, i.e., the infrastructure, productivity and development tools, specifications and staff (use the template provided in the COE Implementation Plan, for consistency across the CEs).

 (4) Clearly delineate software licensing costs, if available.

 (5) Identify life cycle cost by major category-design, validation, training, fielding/sustainment, color of money needed Research, Development, Test and Evaluation, Other Procurement, Army and Operations and Support. Identify funded and validated unfunded requirements.

 (6) Identify the variance from the current base plan due to COE.

 (7) Identify what additional funding is required to meet the COE Implementation Plan. If additional funding is required, state if it is needed to achieve COE compliance.

 (8) Identify the traceability to existing funding documents (POM Files).

 i. Ensure that the following questions are answered for the systems in their CE:

 (1) What capabilities are already planned that will be part of the CE baseline?

 (2) What are new capabilities?

 j. Provide an updated standards list aligned with the COE Technical Reference Model components as well as a crosswalk of the CE standards to the Chief Information Officer/G-6 Appendix C standards tables with recommendations for update.

 k. Provide an integrated master schedule with critical path identified. The schedule should include key milestones and programmatic and technical reviews and should highlight dependencies between CEs.

3. Within 90 days of this memorandum being signed, each CE lead, in coordination with impacted PEOs and PMs will:

 a. Conduct POR/QRC (migration, termination, transition to sustainment) assessment in coordination with TRADOC to recommend disposition and capability migration.

 b. Document requirements traceability and de-confliction across all systems within the CE.

 c. Identify detailed engineering analyses/trades required to be performed to support key milestones and decisions.

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Information

    d. Define preliminary CE architecture, design and control points, and conduct
appropriate technical reviews.

    e. Identify the criteria for compliance with the CE.

Computing Environment (CE) Scope

CE scope in accordance with the Common Operating Environment (COE) Implementation Plan, follows:

1. Data Center/Cloud/Generating Force (DC/Cloud/GF) CE: Provides a service-based infrastructure for hosting and accessing enterprise-wide software applications, services and data. Consists of common services and standard applications for use by a large number of users over wide area networks. This CE includes, but is not limited to, Enterprise Resource Planning (ERP) and non-ERP business systems. The Program Executive Office, Enterprise Information Systems (PEO, EIS) will ensure that all DC/Cloud/GF system requirements are compliant with the COE as described in the DC/Cloud/GF CE Execution Plan.

2. Command Post (CP) CE: Provides client and server software and hardware, as well as common services (e.g., network management, collaboration, synchronization, planning, analysis) to implement mission command capabilities. Per the Net-enabled Mission Command Initial Capabilities Document, a Command Post is defined as a unit or sub-units' headquarters where the Commander and the staff perform their activities. In combat, a unit or sub-units' headquarters is often divided into echelons; the echelon in which the unit or sub-unit Commander is located or operates is called a CP. The CP CE details are described in the COE CP CE Execution Plan.

3. Mounted CE: Provides operating and run-time systems, native and common applications and services, (e.g., awareness, execution functions, integration of local sensors) software development kits (SDK), and standards and technologies to implement mission command. Mounted systems are integrated onto ground and airborne platforms, as described in the COE Mounted CE Execution Plan. Those mission command applications subject to a Real Time/Safety Critical/ Embedded (RT/SC/E) constraint or requirement will adhere to the appropriate design elements identified by the RT/SC/E CE.

4. Mobile/HandHeld (M/HH) CE: Provides operating and run-time systems, native and common applications and services, SDK, and standards and technologies for handheld and wearable devices with an initial focus on implementation of mission command capabilities. M/HH CE standards including associated hardware specifications will be coordinated with the RT/CE/E CE to determine potential for future convergence for remote control and other fires related M/HH capability solutions in that portfolio. Additionally, M/HH CE standards, including associated hardware specifications, will be coordinated with the Data Center/Cloud/Generating Force CE to determine potential for future convergence of current Generating Force specific M/HH capability solutions in that portfolio. The M/HH CE capability solutions, also known as Personal Electronic Devices and Commercial Mobile Devices, are described in the COE M/HH CE Execution Plan.

5. Sensor CE: Provides a common interoperability layer, implementing standards and technology for data services, NetOps and security for specialized, human-controlled or unattended sensors. Sensor systems, as described in the COE Sensor CE Execution Plan, include specialized, human-controlled or unattended sensors and sensor systems. The Sensor CE does not specify hardware and software for the core functions of the sensor or sensor system devices (i.e., sensor is treated as a "Black Box"). PEO, IEW&S will be responsible for ensuring that the interfaces that the Army will use to fulfill sensor requirements are compliant with the COE, as described in the COE Sensor CE Execution Plan.

6. Real-Time/Safety Critical/Embedded CE: Defines a common operating environment for systems operating in either a real-time, safety critical or embedded environment while ensuring that opportunities for commonality and interoperability with other CEs are maintained to the fullest extent possible. The RT/SC/E systems are described in the COE RT/SC/E CE Execution Plan. The PEO, Aviation will be responsible for identifying the systems in this portfolio and for the evolution of the Future Airborne Capability Environment and Vehicular Integration for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance/Electronic Warfare Interoperability architectures.

Platform Integrated Product Team (IPT)

1. The Platform IPT is a cross-functional, Council of Colonels-equivalent IPT that has the primary responsibility of identifying platform constraints and resolving the standard hardware to be procured for each Computing Environment (CE) based on CE-provided specifications and other factors, including derived requirements, hardware interface standards, integration requirements, environmental constraints and integration feasibility and affordability.

2. The CE hardware selection will be done collaboratively between the CE leads, Program Executive Offices (PEOs) and Program Managers. Critical and substantive non-concurrences will be elevated through Governance for final decision. An IPT charter shall be developed with sub-IPT leads identified as:

    a. Soldier as a Platform: PEO, Soldier.

    b. Aviation Platforms: PEO, Aviation.

    c. Ground Platforms-Combat: PEO, Ground Combat Systems.

    d. Ground Platforms-Tactical: PEO, Combat Support and Combat Service Support.

    e. Ground Platforms – Fires: PEO, Missiles and Space.

    f. Command Posts: PEO, Command Control and Communications Tactical.

    g. Forward Operating Base Installation/Fixed Base: PEO, Enterprise Information Systems.