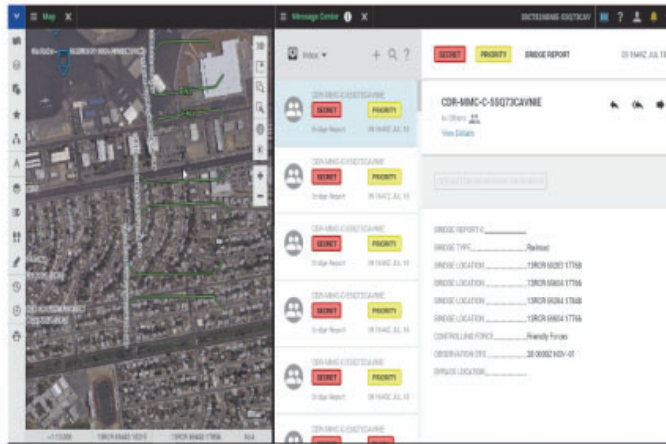


Command Post Computing Environment (CPCE)



Command Post Computing Environment (CPCE) Increment 1 is operationally effective in supporting commanders and staff with improved situational awareness and mission command. CPCE Increment 1 is not operationally suitable due to problems with reliability, training, and usability. CPCE Increment 1 is survivable and demonstrated an enhanced defensive posture within a cyber-contested environment. The Army conducted a CPCE Increment 1 full deployment decision (FDD) in December 2021 and approved the fielding of CPCE Increment 1 in a January 2022 acquisition decision memorandum (ADM).

SYSTEM DESCRIPTION

CPCE Increment 1 is a server-based software system that provides server hardware and mission command software to support commanders and staff using general-purpose client computers, located within battalion through corps Tactical Operations Centers. CPCE Increment 1 is the

Army's planned evolution of the fielded CPCE Increment 0. The Army intends CPCE Increment 1 to improve the soldier's user experience, interface with more data sources, and correct deficiencies noted with CPCE Increment 0.

The server hardware to support CPCE Increment 1 includes two variants: a Tactical Server Infrastructure Large, a full server

stack designed to support headquarters at brigade level and above, and a Tactical Server Infrastructure Small, a laptop-based server designed to support battalion headquarters and provide back-up capabilities for higher echelons. The CPCE Increment 1 software provides a common operational picture, a suite of web-based collaboration tools, and messaging capabilities to support the commander and staff's

execution of the Army operations process.

The Army designed CPCE Increment 1 to share information with joint and coalition partners utilizing the Multilateral Interoperability Programme standard. CPCE Increment 2 provides convergence of additional Army mission command systems, and additional joint and coalition interoperability through an expanded set of message standards.

MISSION

The Army intends for commanders and staff at battalion through corps level to use CPCE to conduct mission command throughout all four phases of the Army operations process, to include planning, preparation, execution, and continuous assessment of unit missions. As the Army further develops its Common Operating Environment, commanders and staff will use CPCE as a collection point for data from sensors, aviation, logistics, fires, intelligence, and safety information, including mounted, dismounted, and home station command units.

PROGRAM

The Army designated the CPCE program as an Acquisition Category II program and delegated Milestone Decision Authority to the Program Executive Officer, Command Control Communications – Tactical. The Army conducted a CPCE Increment 0 IOT&E in November 2018. In

June 2019, DOT&E published a CPCE Increment 0 IOT&E report, which assessed the system as not effective, not suitable, and not survivable. The Army conducted a CPCE Increment 0 FDD and approved the fielding of CPCE Increment 0 in July 2019. The Army conducted a developmental test in November 2019 to demonstrate the correction of several CPCE Increment 0 deficiencies.

DOT&E approved the CPCE Increment 1 Test and Evaluation Master Plan in November 2019. The Army completed a June 2021 CPCE Increment 1 FOT&E in accordance with a DOT&E-approved test plan. DOT&E published a CPCE Increment 1 FOT&E report on December 10, 2021. The Army conducted a CPCE Increment 1 FDD in December 2021, and approved the fielding of CPCE Increment 1 in a January 2022 ADM. The program initiated an improvement plan to correct the deficiencies noted during the CPCE Increment 1 FOT&E and demonstrate these corrections during a fielding, Warfighter Exercise or CPCE Soldier Touch Point event. The program has completed a CPCE Increment 2 Test and Evaluation Master Plan which is in Army staffing for delivery to DOT&E for approval.

» MAJOR CONTRACTORS

- Weapons Software Engineering Center – Picatinny Arsenal, New Jersey

- Systematic USA/Systematic AS – Centreville, Virginia/Aarhus, Denmark

TEST ADEQUACY

The Army conducted a CPCE Increment 1 FOT&E and an adversarial assessment at Fort Carson, Colorado from June 7-24, 2021, and a cooperative vulnerability and penetration assessment, at Fort Bragg, North Carolina from April 5-9, 2021. Operational testing, executed by elements of the 4th Infantry Division and allied partners operating within a command post exercise environment, was adequate to evaluate the CPCE Increment 1 operational effectiveness, suitability, and survivability. The Army conducted the operational test in accordance with a DOT&E-approved test plan, and observed by DOT&E.

The Army completed a partial verification and validation of data instrumentation prior to the CPCE Increment 1 FOT&E due to problems with their data collection, reduction, and assessment process. DOT&E approved the operational test plan with the condition that the Army would complete the verification and validation effort following testing. The Army completed the verification and validation of CPCE Increment 1 data instrumentation, and initiated an effort to improve future CPCE data instrumentation by adopting more current, commercial standards-based applications following the CPCE Increment 1 FOT&E.

PERFORMANCE

» EFFECTIVENESS

CPCE Increment 1 is operationally effective, enabling commanders and staff to share a single common operational picture and common operations data across staff elements, and experience an improved ability to share information with joint and coalition partners. Commanders and staff experienced improved mission execution and situational awareness, but experienced difficulties when using CPCE Increment 1 to execute the full Army operations process. Soldiers' problems were related to poor collective and individual training provided by the Army, software functions requiring improvements, and limited troubleshooting procedures. Soldiers were not able to share plans between current and future operations cells, and had difficulty sharing plans between different servers supporting staff elements. When staffs could not employ CPCE Increment 1, they reverted to previous methods such as collaboration using paper maps to complete their mission.

» SUITABILITY

CPCE Increment 1 is not operationally suitable, experiencing problems with reliability, training, and usability:

- CPCE Increment 1 did not meet its derived reliability requirement. CPCE Increment 1's poor reliability reduces its support for commanders and staff and increases the unit's

requirements for maintenance support and field service representatives.

- Training provided to soldiers did not prepare them to make full use of advanced features, troubleshooting, and employment of CPCE Increment 1 in a collaborative manner. Soldiers viewed CPCE Increment 1 as easy to use for basic features, but regarded CPCE Increment 1 as difficult to use for advanced functions, such as troubleshooting software problems and sharing operations orders.
- Soldier system administrators experienced difficulty using CPCE Increment 1 tools intended to configure and maintain CPCE software and hardware. These maintainers found CPCE Increment 1 difficult to troubleshoot and more manpower intensive than CPCE Increment 0.

» SURVIVABILITY

CPCE Increment 1 demonstrated enhanced survivability in a cyber-contested environment compared to CPCE Increment 0. CPCE Increment 1 maintained a strong cybersecurity defense posture when employed with trained Army cyber defense soldiers using integrated cyber defense tools. The full description of CPCE Increment 1 cybersecurity survivability against an operationally realistic cyber threat is included in a classified annex to the December 2021 CPCE Increment 1 FOT&E report.

RECOMMENDATIONS

The Army should:

1. Complete the improvement plan to correct deficiencies noted during the CPCE Increment 1 FOT&E, and demonstrate fixes in future CPCE test events.
2. Demonstrate training improvements to correct deficiencies noted during the CPCE Increment 1 FOT&E in a future fielding, Warfighter Exercise or CPCE Soldier Touch Point event.
3. Complete the improvement of CPCE data instrumentation to support test adequacy and confidence in data collection during future developmental and operational tests, and demonstrate its effectiveness in a CPCE test event.