

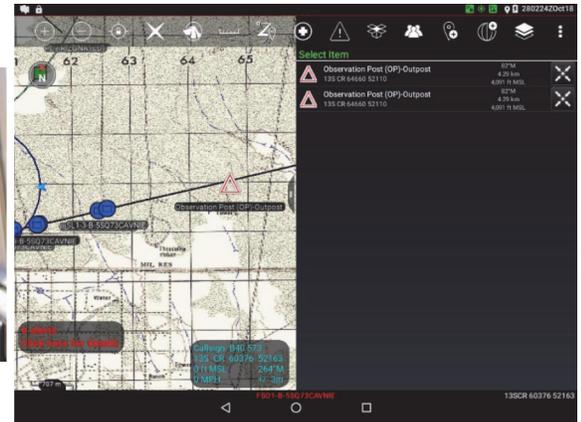
Mounted Computing Environment (MCE)

Executive Summary

- In November 2018, the Army conducted a Mounted Computing Environment (MCE) Customer Test (CT) to evaluate two candidate MCE software systems: Mounted Mission Command (MMC) and Mounted Android Tactical Assault Kit (MTAK). The MCE CT consisted of three armored cavalry troops conducting operationally realistic missions at Fort Bliss, Texas, and White Sands Missile Range, New Mexico.
- The MCE CT provided the following assessment of the candidate MCE software solutions:
 - Neither candidate system provided on-the-move mission command support equivalent to the fielded Joint Battle Command – Platform (JBC-P).
 - Both systems demonstrated the need for further development in the areas of performance, reliability, training, and cybersecurity.
- The Army is producing an MCE Test and Evaluation Master Plan (TEMP) to provide a test strategy that includes lab- and unit-based development, and an MCE IOT&E planned for FY22.



Mounted Family of Computer Systems (MFoCS)
Hosting Mounted Computing Environment (MCE)



Mounted Tactical Assault Kit (MTAK) Software

System

- The Army designed the MCE as an on-the-move, networked mission command information system that enables units to:
 - Share near real-time friendly and enemy situational awareness information
 - Share common operational maps and graphics
 - Transmit and receive command and control messages
 - Conduct interactive communications via chat rooms
- MCE will interface and share data with other computing environments as part of the Army's Common Operating Environment, such as the Command Post Computing

Environment, and interoperate with joint, allied, and coalition forces.

- The Army intends for MCE to replace the following fielded capabilities:
 - JBC-P
 - Force XXI Battle Command Brigade and Below family of systems
- The Blue Force Tracker 2 (BFT2) satellite network supports the MCE for mobile operations.

Mission

Army tactical commanders will use MCE to provide integrated, on-the-move, mission command information and situational awareness to maneuver platforms throughout the unit's area of operations. Brigade and battalion-level units will employ MCE to gain near real-time situational awareness and mission command capability to assist in the accomplishment of their combat missions.

Major Contractor

Combat Capabilities Development Command, System Simulation, Software and Integration – Huntsville, Alabama

Activity

- The Army began this program in FY16, and DOT&E put it on oversight in FY17. This is the first time DOT&E has included this program in its annual report.
- In November 2018, the Army conducted an MCE CT as part of the Network Integration Evaluation (NIE) 18.2. The operational test consisted of three armored cavalry troops

of the 5th Squadron, 73rd Cavalry Regiment conducting operationally realistic missions at Fort Bliss, Texas, and White Sands Missile Range, New Mexico. The 1st Battalion, 508th Infantry Regiment augmented with electronic warfare and cyber capabilities served as a realistic opposing force.

FY19 ARMY PROGRAMS

- The Army conducted the MCE CT in accordance with a DOT&E-approved operational test plan.
- The Army conducted the MCE CT to evaluate two candidate MCE mission command software systems:
 - MMC, similar to the Mission Command Information System employed in the Command Post Computing Environment
 - MTAK, similar to the Android Tactical Assault Kit (ATAK) employed in the Nett Warrior program
 - During FY19, the Army conducted laboratory-based integration testing of MCE solutions, and intends to publish the results in 2020.
 - The Army is producing an MCE TEMP to provide a test strategy that includes lab- and unit-based development, and an MCE IOT&E planned for FY22.

Assessment

- During NIE 18.2, neither MMC nor MTAK provided on-the-move mission command support equivalent to the fielded JBC-P. Unlike JBC-P, both candidate MCE systems displayed stale Common Operational Picture information without indication of data currency, did not support the creation and transmission of field order messages, and produced excessive bandwidth demands upon the low-bandwidth BFT2 satellite network. The Army did not assess

satellite bandwidth usage for either variant of MCE employed during test.

- MTAK was more reliable, available, and maintainable than the MMC. MTAK met its maintainability requirement and was close to meeting its availability requirement, but did not meet its reliability requirement. The MMC did not meet its reliability, availability, and maintainability requirements.
- Soldiers used chat rooms as primary MCE communications, and experienced chat rooms that often froze and required the creation of new chat room sessions.
- Training afforded soldiers the knowledge to complete simple tasks, but did not support complex tasks or troubleshooting. Soldiers viewed MTAK as intuitive, and were able to improve their operation and troubleshooting skills as the test progressed.
- MCE demonstrated cybersecurity vulnerabilities that reduce mission success.

Recommendations

The Army should:

1. Complete the MCE TEMP to support future integrated testing of MCE.
2. Continue the development of an MCE solution that addresses the deficiencies found during the MCE CT.