

PEO C3T — Engineers Learn About the Users' Experience

Joshua Davidson

During *Operation TOCFEST*, what normally would be warfighter tasks in theater — fueling generators, maintaining the network, and keeping the Battle Command (BC) systems humming — often fell on *TOCFEST*'s engineer participants. “We tried to make *TOCFEST* as similar to what the units do out in the field as possible, so that they [engineers] understand how this stuff is being used in the field and what it's like for Soldiers in a command post [CP],” said Mark Mitcham, who served as the *TOCFEST* Executive Officer.

TOCFEST established the need for better organization of TOC contents for more effective storage and shipping to assist in short- and long-haul moves. Here, CPT Don Jamoles, Commander of Co. D, 4th Battalion, 31st Infantry Regiment, 2nd BCT, 10th Mountain Division (Mtn. Div.) (Light), gives a situational report to the 4-31 TOC after establishing a battle position in Qarghulli Village, Iraq. (U.S. Army photo by SSG Angela McKinzie, 2nd BCT Public Affairs, 10th Mtn. Div.)

As they converged for 6 weeks earlier this year at Fort Indiantown Gap, PA, to standardize the CP and validate the setup of the equipment that resides inside, many engineers didn't just gain an enhanced perspective of the warfighter's experience as system users; they learned more about the other engineers and systems with which they share the Army's network. "We wanted to use *TOCFEST* as an event where we could bring people together, because the power of having people interact with each other across their domains of

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expertise is just powerful," said BG Nickolas Justice, Program Executive Officer Command, Control, and Communications Tactical (PEO C3T).

"In general, most of these engineers don't intermingle across product lines on a normal basis," said MAJ Todd Curtis, S3 plans lead for the *Operation TOCFEST* task force. "This is a great opportunity for them to work through problems together and live the dream to actually do what they propose."

"The engineers didn't experience live-fire combat, full body armor, or meals, ready-to-eat. However, they were exposed, firsthand, to what it takes to use the systems they produce. It gave them the experience of what it's like to use their equipment in the field under rainy conditions, under the sun, and out in the wind and the rain," Justice said.

TOCFEST Mission

TOCFEST provided a different perspective from the separate, frequently held integrated process team (IPT) meetings where engineers discuss processes and improvements for the systems they support. "When you have the hardware on the ground and you're trying to perform a mission, such as a complete sweep engineering analysis across the whole CP, it provides a different flavor," said Steve Levy, who served as the *TOCFEST* engineering IPT lead. The exercise let Levy prepare for future training exercises and experiences in

theater. "I think helping set up and knowing exactly how these capabilities come together will definitely help us in our current jobs that we're doing with respect to reset and synch conferences," Levy said.

"Presently, more than 600 CPs exist across Army echelons," said LTC Terry Wilson, the task force's chief of operations and product manager (PdM) CP Systems and Integration

(CPS&I). "*TOCFEST* was our laboratory not only to determine the gaps in terms of compatibility, but also to understand the complexity that we have placed on the warfighter," Wilson said. "It was also our laboratory to work our engineers and for them to experience what they have built."

What the engineers have created could be either a capability or a liability for the warfighter. "This gives our engineers, as we go back to the four corners of program development, a foundation to stand on as they direct the evolution of our BC systems and answer the challenges associated with BC mobility, especially when considering brigade combat teams [BCTs] and battalions," Wilson added. *TOCFEST* planners injected Solider-like activities into the scenario they used. The management of equipment, decision-making processes, planning, and after action reviews purposely mirrored the warfighter's experience in theater.

A thorough daily battle rhythm consisting of Battle Update Briefings, white cell meetings, and multiple engineering working group meetings allowed the engineers to stay synchronized. During the white cell meetings,



A WIN-T Increment 1 KU trailer is shown during *Operation TOCFEST*. (U.S. Army photo by Richard Mattox, PEO C3T.)



MAJ Marguerite Irvine and SFC Anthony Elliot, both of the U.S. Army Operational Test Command, receive a demonstration from Mike Sendzia of PM WIN-T during *Operation TOCFEST*, which began on March 9, 2008, at Fort Indiantown Gap. (U.S. Army photo by Richard Mattox, PEO C3T.)

engineers representing each system simultaneously reviewed each trouble ticket, integration challenges, change recommendations, doctrine analysis, new technology, prototype integration, and much more. Together, they examined interoperability issues that existed within the CP. They scanned the entire collection of *TOCFEST* data and documentation and collaborated to determine a solution to issues that arose. Data analyses will continue in upcoming months.

“Fueling the generators on their own gave the engineers a firsthand idea of what it is like to fuel numerous combustion engine-type power generation systems in a crowded CP area,” Curtis said. The engineers also participated in the same type of war games and rehearsals that Soldiers partake in during their training exercises.

CP Standardization Lessons

Scenarios, which included on-the-move and at-the-quick-halt setup of systems, allowed for a thorough examination of the sequences, steps,

and processes used during a CP setup. The set up and tear down of Tactical Operations Centers (TOCs) took place repeatedly throughout, with step-by-step documentation, video, and photographs gathered on each occasion. One battle drill involved a mass grave demonstration. Soldiers and civilian role players were not involved in any of the exercises.

Separate systems, such as those that allow warfighters to digitally locate one another’s position over a topographical map, plan logistics and fires, track airspace corridors, share intelligence, and collaborate in a white-board environment, were set up in both stationary CPs and mobile CPs, such as Mounted Battle Command on the Move and CP Platform Light. “*TOCFEST* served as an engineering effort to validate the baseline of how a present CP is set up,” said Dave Mock, the Task Force’s S3

Current Operations Lead. The setup of the 56th Brigade, Stryker BCT-6 was validated. Its Soldiers, however, did not participate in the exercise.

“The standardization brought about by *TOCFEST* will provide a starting point to commanders, even those who wish to tailor the CP to their needs,” said many of the engineers who participated. “They don’t have to start from scratch,” said Kenneth Broom, a Joint Automated Deep Operations Coordination System (JADOCS) field support representative. JADOCS processes, stores, and manipulates information shared by commanders across the battlefield. It provides users with an integrated set of tools for data management and analysis and mission planning.

“The standardization of the CP is a combat multiplier and a capability that is expected under a modular expeditionary force executing combat operations under an Army Force Generation model,” Justice said. Modularity is a major restructuring of the entire Army, involving the creation of BCTs that will have a

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common design and will increase the pool of available units for deployment. With CP standardization, one combat formation can be relieved by another combat formation by replacing a unit’s

Soldiers rather than equipment. “Because the CPs are standard, the equipment in the brigades are modular and standard,” Justice said. “So, I can fly in a formation and I can relieve a combat formation that’s ready to come off the line and use their equipment.”

Standardization allows the Army to fleet equipment and thus deploy forces

more rapidly. “I can pre-position equipment in different critical places around the world, knowing full well that the unit is trained and ready to fight with that equipment set because the equipment is not tailored just to that one formation in the Army, but to all formations,” Justice said.

TOCFEST also allowed PEO C3T System Engineering (SE) IPT members who collaborate regularly on SE-related issues, to move from a conference room to field environment. The SE IPTs are now playing an essential role in analyzing the *TOCFEST* data and partaking in a cross-organization effort to integrate capabilities as the CP is developed further.

“The whole system-of-system engineering process has matured quite a bit over the last couple of years, where it’s now the standard for engineers to go talk to each other and collaborate on issues across a much broader spectrum than they did before,” Justice said. *TOCFEST* actually lets them go out into the field and learn whether there are better engineered solutions more applicable to what the unit needs in the field. It gives them another access in which they’re beginning to consider integration efforts.

Lessons Learned

Based on lessons learned from *TOCFEST*, a need was identified for better organization of TOC contents for more effective storage and shipping to assist in short- and long-haul moves. PdM CPS&I will play a role in providing a palletized loading system that will consolidate and organize storage containers that Soldiers use. This will decrease the amount of small cases and boxes with which Soldiers travel. Executing this concept will involve container packing and load plans that will facilitate TOC setup, order, and rhythm, and a plan for logistics labeling and inventory.

The *TOCFEST* effort was organized and orchestrated by PdM CPS&I, formerly known as PdM TOC, led by Wilson. PdM CPS&I is part of Project Manager (PM) CP, which was formerly known as PM Tactical Radio Communications Systems, and assigned to PEO C3T. The event included all of Army Team Command,

Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance and U.S. Army Training and Doctrine Command (TRADOC)

Capabilities Managers. TRADOC writes the requirements for fielded capabilities.

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you’ll find that words are often not descriptive enough to provide a full understanding of what your end state is,” Justice said. “That’s why we have conversations; so you get that back-and-forth trade.”

The next iteration of the event is expected to be held in the 2009-2010 timeframe and will possibly include participation by the 101st Airborne Division (Air Assault). The test will focus on BC virtualization, further integration of sensor connectivity, integration into the current CP, and integration of Warfighter Information Network-Tactical (WIN-T) Increment 2 into the Current Force.

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Brian Stone, a JADOCs System Engineer, explains a fire support system to John Willison and COL David Moore, PM BC, during *Operation TOCFEST*. (U.S. Army photo by Jason Bock.)