Mission Command Applications
‘Ebb and Flow’
With Army’s Network

By Scott R. Gourley
Mission Command is certainly art and science, but from both perspectives it is tied to specific applications running across the U.S. Army’s evolving network. Within the Army it is the mission of the project manager for Mission Command to develop, integrate, field and support the core collaborative environment and maneuver applications to enable operating force commanders to make timely and effective decisions, while delivering capabilities on time and within budget to achieve acquisition program objectives.

As project manager (PM) Mission Command, COL Jonas Vogelhut acknowledges an ebb and flow between an emphasis on new hardware developments to expand and strengthen the Army network—integrated and validated through processes and events like the semi-annual Network Integration Evaluations [NIE]—and an emphasis on the applications that will run over that strengthened network.

“From a historical basis, our PM brought together a lot of the ‘warfighting function’ PMs,” COL Vogelhut explained. “For example, more than 10 years ago, AFATDS [Advanced Field Artillery Tactical Data System] was under its own 0-6-level PM for fires, and the Battle Command/Mission Command PM was really the
combat command and control PM. They were brought together with the logistics people when the combat support/combat service support applications were brought in.

We have tried to bring all of those warfighting functions together under Mission Command.

m aneuver side, sustainm ent side and fires side, but most of all that integrating role in the middle,” he said. “Our focus is the commander’s ability to fight on the battlefield and collaborate across the warfighting functions, decide the information he needs to run the battle and then be able to lead. We work with the network to make sure our information flows—and WIN-T (Warfighter Information Network-Tactical) provides that great product. We also work just as closely with the Joint Battle Command-Platform people, because at the end of the day when you leave the command post you’re not bringing all the systems with you, except if you have a point of presence or a Soldier Network Extension vehicle.

The rest of the systems that are out there really use that Joint Battle Command-Platform information.”

COL Vogelhut outlined an evolutionary process surrounding the Army’s introduction of Mission Command approaches and capabilities.

“When the applications first came out they were all stand-alone elements,” he explained. “The AFATDS box sat in one corner, and when the commander wanted to do something

he still went to the map board and wrote with a grease pencil. The Army Battle Command System [ABCS] made data sharing possible—which was great when you compared it to what you had before—but it was really not enough. ‘Collapsing’ that challenged us to get this infrastructure together, but it was CPOF [Command Post of the Future]-based. We wanted everything on that one visualization tool that CPOF is. CPOF came out of DARPA [Defense Advanced Research Projects Agency]. It’s a great product, but it was based on the maneuver application. Where we are going now says, ‘Why are you focusing on the maneuver application? Why not make it generic so that everybody can operate on it, so that all the warfighting functions can come together and it’s not based on one?’ Instead, it’s based on the Mission Command centerpiece.”

Focusing on the Mission Command centerpiece has led to Command Post Web, a strategic and tactical operational and intelligence data sharing tool, allowing visualization and collaboration through Web applications.

Looking to the Future

“That’s really the short term,” COL Vogelhut said. “I don’t want people to lose focus that once the network exists and you do all the ‘behind the curtain cleaning,’ then you need the next-generation capability. The Army is already looking out to 2030, and we have to look on the applications side to providing more robust applications to work on the network. You have a certain subset of capabilities today. You want more to come.”

He added, “We’ve laid it out over the POM [program objective memorandum] because Future Combat System [FCS], I think, tried to do it all at once, and that was hard to achieve. I won’t say it was impossible, because there were some things that came out of FCS that were good, but it was hard to do financially all at once. What we are saying is: In the shorter term, focus on collaboration so that the people who are operating the maneuver applications and the fires applications can talk together and share data.

“Then we move to the idea of all going to one map base,” COL Vogelhut continued. “Whether it is actually one map or not could be irrelevant. … Standard interfaces with a map [have the advantage] that no matter what map you bring up—whether that’s NASA World Wind, which is free, or Google, which a lot of soldiers like for its ease of use, or whatever new product comes out there—every application can use it and it is all geo-referenced to the same kind of data.”

Looking slightly further into the future, COL Vogelhut said, “We can simplify the data so that rather than each program having to translate the data that comes in, it is one data standard. That’s really hard to do because when we were all back at that stand-alone system phase, we all had different [software standards].

“How do we get to one standard so that you don’t need 15 different translation devices? Finally, as we can afford it outside the POM, we want to address the ‘on the move’ capability so that the commander driving around the battle-

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field can see all the warfighting functions come together. You see in Force XXI Battle Command Brigade and Below—now renamed Joint Battle Command-Platform—the idea of seeing the ‘blue picture.’ He can see the blue icons on his map and maybe a little bit of the significant activities with the Tactical Ground Reporting System, but he hasn’t brought in the other warfighting functions: the artillery, the sustainment, the intel. That’s the stuff we want to get to as the network continues to evolve, so a commander who has a point of presence [vehicle] gets more of that information. We don’t have those everywhere, though, so as that network continues to evolve and maybe the Soldier Network Extension [vehicles] give us more capability we can see more warfighting functions.”

Summarizing the synergy between the Army’s network and the Mission Command applications, COL Vogelhut said, “We are trying to lay out the capability over time so that the applications we develop for the warfighting functions take advantage of the more robust network that we are developing.”

**Product Directorates**

Within PM Mission Command, the responsibilities for implementing and evolving specific applications are organized under four product directors who offered a few representative examples of their ongoing activities.

Calvin Pilgrim serves as product director for Sustainment System Mission Command (S2MC). He highlighted how the evolutionary Mission Command process is reflected in some S2MC applications, offering the early example of the transition from Army’s Combat Service Support Control System to the Battle Command Sustainment Support System between 1995 and 2004, with parallel hardware migration through three UNIX-based computers to a Windows laptop platform.

Pointing to current directions toward Web-enabled services, he said, “You will no longer get a computer that specifically only deals with ‘the product,’ … You can find on the Web … and pull down all the information that you would

Left, a soldier monitors the network during NIE 12.2 Mission Command applications. Below, the Tactical Ground Reporting System enables soldiers to obtain, share and analyze data. Units can also post information about their movement that can help other units who are following the same route.
have previously found on your laptop computer. We call it Web enablement, and it is part of the Mission Command path forward.”

“For many years we were the Army’s joint command and control project manager, providing the Global Command and Control System-Army (GCCS-A) as well as the Defense Readiness Reporting System-Army (DRRS-A). Those were our big programs. Recently, we were reassigned additional missions,” said LTC Brian Lyttle, product manager for Strategic Mission Command.

DRRS-A provides a vital role in helping the Department of the Army determine which units are ready to deploy and helping to facilitate their readiness for deployment, while GCCS-A has been at division and higher headquarters to provide a situational understanding to joint task force-capable commands. In addition to its joint mission contributions, the product management office also supports the CJ-6 or S-6.

One representative product within the Strategic Mission Command family is the Battle Command Common Server (BCCS), which serves warfighters in a complex environment combined with other programs of record, providing the majority of the servers that go into the command post to support CPOF, to help support WIN-T’s needs and to help support other software products that require a server operating in the background.

“We basically have five different programs in our directorate,” said LTC Larry Glidewell, product director for Fire Support Command and Control. “The major one is the Advanced Field Artillery Tactical Data System [but] it has changed a lot over the last 20 years.”

In addition to AFATDS, directorate programs include the Joint Automated Deep Operations Coordination System (JADOCS) as well as three handheld programs: PFED (Pocket-sized Forward Entry Device), Lightweight Forward Entry Device and Gun Display Unit Replacement.

In terms of PFED activities, for example, although the device itself is entering the sustainment phase, LTC Glidewell said that his office activities include “continuing to develop the software that will be a ‘fires software package’ for the next-generation handheld device.” The new software will reportedly provide future handheld devices with a look and feel more like AFATDS than current software packages.

“We are going to migrate our systems into the CPCE [Command Post Computing Environment],” he added. “AFATDS will become a ‘widget’ [on the Ozone Widget Framework] in the 2015–2019 program objective memorandum period. Basically, AFATDS right now is a hardware/software program, but it is going into a fully functional software-only program, in which AFATDS becomes an application that will live on the common CPCE platform that will be part of the Army’s common operating environment.”

Along with AFATDS, LTC Glidewell noted that JADOCS will also “widgetize” and become part of the CPCE.

“For the handheld devices, we will make those software packages conform to a look and feel like an AFATDS package,” he added. “When you have one of our fires people out there using that software, they’re not looking at future fires software and seeing something foreign to them. It will feel like AFATDS, making it easier for them to use.”

“CPOF is our flagship product,” explained LTC Thomas Bentzel, product manager for Tactical Mission Command. “It’s the product that we are currently fielding and deploying across the force. We are about two-thirds to three-quarters deployed right now across the Army.”

“Basically, the purpose of CPOF is to provide commanders and their staffs with information that they can use to make good tactical decisions,” he said. “The second thing that CPOF provides is the ability to collaborate across unit boundaries and within units so that users—commanders, staff members and individual soldiers using the system—can each see what the other users are seeing. So when you talk about a common operating picture, often people think that just means a map with some icons on it, but CPOF does a lot more than that. CPOF allows you to actually share the view of the map for the situation you are looking at—with all of the graphics, control measures, icons, information and other things. ... When you change something, it changes on everyone else’s view as well.”

Looking toward the future, LTC Bentzel projected full CPOF deployment in September 2018.

One representative follow-on effort is Command Post
Web, which LTC Bentzel described as “a Web-based way of deploying capabilities similar to CPOF and other capabilities as well. It is a product that resides on the Ozone Widget Framework, which is a Web framework for deploying capabilities: ‘widgets.’ It is a future implementation of capability that we are working on right now and have actually demonstrated at NIE 12.2 and again at NIE 13.1. It allows individual capability managers to build widgets that put their capabilities into a Web-based framework.”

Along with the representative examples just cited, each of the product managers offered additional examples of application activities riding the network.

**Critical Industry Support**

COL Vogelhut credited industry innovation for the success of the Mission Command application evolution to date, a relationship that he has supported through the use of “industry days” to provide interested parties with an understanding of where the overall process is heading.

“We recently had one that was focused on the next generation of the Mission Command Workstation [next-generation CPOF],” he said, “but I took advantage of the session to start with where the vision of Mission Command is going. I can’t speak for the whole Army, but at least from the software side I described the guidance I’m getting from MG N. Lee S. Price [Program Executive Officer for Command, Control and Communications-Tactical], the G-8, and from others. I told industry: ‘This is where I think we’re going, so as you understand the vision over the years, here’s where I think we are going to put out contracts, and in parallel if you are able to invest your IR&D [independent research and development] that’s great. If not, we will still put out contracts and have competitions for the best products.’”

**Tomorrow’s Challenges**

The ebb-and-flow relationship between applications and the network is also evident in challenges for the future. Specifically, when asked about challenges on the horizon, COL Vogelhut said, “Making sure that we continue to test our product with the network, I think, is a challenge, because [the network] will incrementally grow, and if I develop products in front of [it] that require more of the network, I have to slow up. If [it] has more capability than I am using, then I am not giving enough capability to the warfighter. To me, though, that’s a good challenge.”

Other identified challenges included unforeseen adversaries, developmental timelines and the time mandates of the contracting process.

“The last challenge involves really understanding where the next generation of capability will be needed,” he concluded. “I work closely with my TRADOC capability manager, COL Mike Higginbottom, to understand it, but if the government decided that we needed to do more in homeland defense, or more in space, or more in training on the joint force, the challenge would be how to capitalize on that before we are asked. So we are trying to build products like Command [Post] Web that give you that ability, so when that unforeseen question comes up later, my cycle time to deliver capability is much shorter.”