

## SENIOR ARMY LEADERS PRAISE SUCCESSFUL NETWORK INTEGRATION EXERCISE

*Kris Osborn*

The Army's Brigade Combat Team (BCT) Integration Exercise at White Sands Missile Range, NM, successfully connected Soldiers, sensors, unmanned aircraft systems, networked vehicles on-the-move, command posts, and other nodes over long distances using satellite and software-programmable radios, allowing the Army to evaluate the progress of the battlefield network, senior Army officials said.

"The Army's battlefield network is showing itself to be extremely relevant to today's operational environment. The ability to connect the dismounted Soldier to networked vehicles on-the-move at the battalion level and above to higher headquarters provides an enormous advantage to the warfighting effort," said Under Secretary of the Army Dr. Joseph Westphal, who observed portions of the exercise from Aberdeen Proving Ground (APG), MD. "The BCT Integration Exercise showed that moving more combat-relevant information faster, farther, and more efficiently across the force will greatly enhance our Soldiers' ability to prevail in current and future conflicts."

The exercise, designed to help validate the concept of the objective network planned for 2017, used satellite links to connect units and extended line-of-sight radio systems through an aerial tier. With the aerial tier, units did not have to place a

relay team on the top of a mountain ridge or reposition a command post to ensure communication between ground units over extended distances.

"We are building an Army that is a versatile mix of tailorable and networked organizations; the network is critical to this Army, and I am encouraged by the significant progress we have made in developing it," said Army Chief of Staff GEN George W. Casey Jr., who also observed the exercise from APG.

The idea was to connect multiple echelons and to move information from the dismounted Soldier on the tactical edge up to the platoon and company level, and all the way up to higher headquarters, said COL Michael Williamson, Deputy Program Executive Officer Networks, Program Executive Office Integration.

"This is designed not just to highlight technology, but to identify the gaps that we need to fill as we mature the network through 2017. This will help us shape how we bring networking capability to the field," said Williamson.

The exercise was aimed at informing the developmental cycle of the Army's network. The goal was to connect nodes through one seamless network wherein Soldiers, commanders, and sensors could share voice, video, data, and images across the force in real time.

"This is about the ability to move data and imagery down to the point where it is needed in a timely manner," said Williamson.

A terrestrial network of sensors sent voice, images, and data through Joint Tactical Radio System (JTRS) software-programmable radios using high-bandwidth waveforms such as Soldier Radio Waveform (SRW) and Wideband Networking Waveform. The information sent and received by the terrestrial layer was connected to Warfighter Information Network-Tactical (WIN-T), a satellite network able to send information over long distances.

Vehicles with Network Integration Kits (NIKs) served as key hubs connecting the terrestrial and satellite layers of the network. The NIKs consist of an Integrated Computer System, JTRS Ground Mobile Radio, and Blue Force Tracker display.

By connecting the echelons, with dismounted Soldiers carrying either a JTRS Rifleman Radio or JTRS Handheld, Manpack, Small Form Fit radio, the Soldiers shared information instantly across the squad, platoon, company, and battalion levels and, if needed, all the way up to commanders at higher headquarters or command posts.

"What allows this [network connectivity] to integrate is the fact that we have stable hardware and stable software," said MG John Bartley, Program Executive Officer Integration. "This is about platoons that are isolated reaching back for their support such as MEDEVAC [medical evacuation], food, water, logistics, ammunition, and resupply. How do you enable those folks so that they have assured communications moving forward?"

The BCT Integration Exercise showed that moving more combat-relevant information faster, farther, and more efficiently across the force will greatly enhance our Soldiers' ability to prevail in current and future conflicts.

Sending voice, video, and images via the SRW, sensors such as Unattended Ground Sensors, Small Unmanned Ground Vehicle robots, and Class 1 unmanned aircraft instantaneously disseminated information across the force. In addition, the NIKs showed an ability to view and share the sensor information in real time on Blue Force Tracking display screens in vehicles on-the-move. WIN-T then beamed the images over longer distances.

The data were shown on a Command Post of the Future display screen,

a battle command application that organizes and displays a wealth of relevant battlefield information.

The U.S. Army Test and Evaluation Command (ATEC) assigned a 32-person team with 21 data collectors and observers to the exercise; the command is preparing an executive summary of its findings.

“We will continue to learn from this type of exercise. This is not an isolated event, and our success here provides tremendous momentum moving forward. We are going to

continue this. ATEC has been a key contributor to this process,” said LTG William N. Phillips, Principal Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT). “This is a real Army Team effort!”

**KRIS OSBORN** is a Highly Qualified Expert for the ASAALT Office of Strategic Communications. He holds a B.A. in English and political science from Kenyon College and an M.A. in comparative literature from Columbia University.

Technical Support Facility, Fort Hood, TX; the Future Force Integration Directorate; and personnel from the WSMR and APG installations.

### Stressing the Network

At WSMR, Soldiers maneuvered various platforms at vast distances away from one another to see if they could maintain network connectivity. The network was stressed during the numerous operational vignettes and in the

diverse temperatures, environments, and altitudes of White Sands.

The Army’s three network waveforms were established based on the amount of information passed across each, said Rick Cozby, PEO Integration’s Associate Director for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Testing. Smaller echelons share less information, which

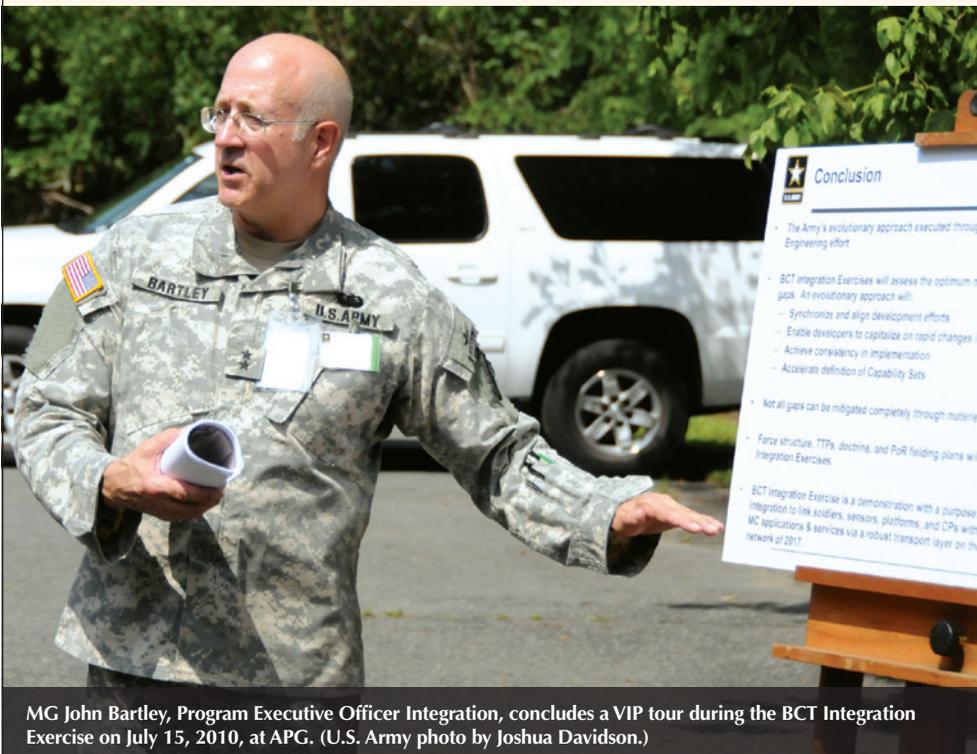
reduces bandwidth requirements. This allows Soldiers to operate successfully with smaller, more portable radios than those needed at higher echelons.

In today’s tactical environment, the Soldier Radio Waveform (SRW) operates at the lowest level, providing information to individual Soldiers or teams within a company.

As echelon levels increase, more tactical data are shared, and the large communications pipe of Wideband Networking Waveform (WNW) is required. Connectivity is achieved through an aerial layer using JTRS attached to unmanned aircraft systems and other components such as airships and Rapid Aerostat Initial Deployment towers.

The Network Centric Waveform (NCW) is the satellite layer. It allows warfighters to access the Internet and share voice, video, and data around the globe.

Today, WIN-T Increment 1 provides warfighters at battalion level and above with the ability to connect to the Army’s digitized systems, voice, data, and video via satellite. WIN-T Increment 2 will build upon these capabilities by extending satellite communications down to the company level and providing



MG John Bartley, Program Executive Officer Integration, concludes a VIP tour during the BCT Integration Exercise on July 15, 2010, at APG. (U.S. Army photo by Joshua Davidson.)