



# BUILDING THE ARMY NETWORK

‘A revolutionary new approach’

*by Kris Osborn*

The U.S. Army has vigorously undertaken an ambitious, far-reaching Network Integration Evaluation (NIE) at Fort Bliss, TX, and White Sands Missile Range, NM, designed to simultaneously test programs of record and assess a host of emerging network technologies, Army senior leaders said.

**T**he NIE, which began the first week of June and includes formal limited user tests (LUTs) of six programs of record and evaluation of a host of emerging or developmental technologies, is a key part of the Army’s network strategy. The NIE is structured to assess the scope and readiness of emerging technologies and, where appropriate, integrate new capability before sending it downrange to Soldiers in combat.

A key aim of the NIE is to help the Army field current technology faster, to ensure that Soldiers maintain the technological edge over our adversaries. At the heart

of the exercise is an overarching effort to develop a single battlefield network able to connect dismounted Soldiers to other units in real time, linking them to command posts, vehicles on the move, and higher headquarters. The Army wants to use the best available technologies to move more information, voice, video, data, and images faster, farther, and more efficiently across the force.

“The network will literally redefine how we fight,” said GEN Peter W. Chiarelli, Vice Chief of Staff of the Army. “Ultimately, the network will connect leaders and Soldiers, Sailors, Airmen, and Marines at all levels, at every echelon of command,

in any formation, and across the entire team, with the right information quickly and seamlessly. And in doing so, I am confident it will make our various formations more lethal, faster, and survivable in today’s battlefield.”

## TARGET TECHNOLOGIES

Central to the NIE is the continued evaluation of nonproprietary high-bandwidth waveforms such as Soldier Radio Waveform (SRW) and Wideband Networking Waveform (WNW), which use a larger portion of the available spectrum than legacy waveforms to move voice, video, images, and data in real time across multiple nodes in the force.

## NETWORKED FIREPOWER

Soldiers from the 2nd Brigade Combat Team, 1st Armored Division practice a fire mission during Week 2 of the Army’s NIE at White Sands Missile Range. (U.S. Army photo by Claire Heining Scherwin, Program Executive Office Command, Control, and Communications-Tactical (PEO C3T).)

“ AS WE DELIVER THE COMMON OPERATING ENVIRONMENT IMPLEMENTATION PLAN AND WE TALK ABOUT THE TECHNOLOGY STANDARDS THAT WE ARE GOING TO PUT IN THERE AND ARTICULATE TO INDUSTRY, WE’RE NOW GOING TO SCOPE WHAT OUR CAPABILITY GAPS ARE ON THE BATTLEFIELD. ”

The waveforms, and indeed many of the technologies, are designed with standards aimed at meeting the needs of all the services in order to accommodate the potential for joint service involvement in the network.

“We’re working very closely with partners up at OSD [Office of the Secretary of Defense] in laying this out. I’ve invited them all [the other services] out to see what we’re doing. I see this evolving very, very quickly into a test bed that can be used not just by the United States Army, but by all services,” Chiarelli said.

Overall, the technologies being evaluated include a wide range of capability, such as software-programmable radio, satellites, sensors, and smartphones. Some of the programs undergoing formal LUTs are:

- Joint Tactical Radio Systems Handheld, Manpack, and Small Form Fit radio, a multi-channel, Soldier-mounted, software-programmable radio able to transmit voice, video, data, and images using high-bandwidth waveforms such as SRW and WNW.
- Joint Capabilities Release, next-generation software for Force Battle Command Brigade and Below display screens, featuring Army-Marine Corps interoperability and advanced mapping tool kits.

- Mounted Soldier System, a combat vehicle-Soldier ensemble that integrates advanced gear, such as a helmet-mounted display.
- Network Integration Kit, a vehicle-mounted communications hub.
- SPIDER, a remote munitions delivery system.

In addition to these five systems undergoing formal LUTs, the NIE is experimenting with more than 25 emerging technologies, such as smartphones and personal digital assistants, to zero in on the best emerging technologies that can benefit Soldiers in combat.

“The reality is, these NIEs are as much about learning as they are about testing. After all, the only way to fix problems is to accurately identify them. Likewise, the most effective means for developing new, relevant doctrine and tactics is to conduct integrated network-enabled training exercises,” Chiarelli said.

**‘REVOLUTIONARY’**

The rationale for the NIE is to evaluate all of these technologies in relation to one another from a system-of-systems perspective in a combatlike environment.

“We can evaluate new capabilities across the potential spectrum of conflict. We can evaluate them in terrain that our

units are really having to deal with today in line-of-sight and non-line-of-sight challenges,” said MG Keith C. Walker, Commanding General, Brigade Modernization Command, who oversees the Network Integration Center at Fort Bliss. “If there is a capability that has merit, we can evaluate it and get feedback, not just on the material, the technical material piece, but what are the implications of this equipment on our doctrine, on how we organize, how we train, and how we develop leaders.”

The NIE is aimed at refining the acquisition of new technologies and blending programs of record with commercial-off-the-shelf solutions, as part of an agile process designed to keep pace with rapid technological change, Army leaders explained.

“The Army will buy what it needs, when it needs it, for those who need it. This allows us to buy less, more often, and incrementally improve network capability over time. Simply stated, I see these NIEs not as evolutionary events but as representing a revolutionary new approach that will potentially change how we provide new capabilities in the future,” Chiarelli said.

**STANDARDS SET**

Furthermore, new and emerging technological solutions will have to adhere to the standards articulated by the Army’s



### JTRS CAPABILITY

A Soldier from the 2nd Brigade Combat Team, 1st Armored Division uses the Joint Tactical Radio System (JTRS) Ground Mobile Radio inside his vehicle to exchange information with higher headquarters during the NIE. (U.S. Army photo by Claire Heiningner Schwerin, PEO C3T.)

Common Operating Environment (COE), a set of computing standards designed to maximize interoperability among systems and create an environment where new applications can be built and integrated more easily, Army leaders explained.

As part of its approach, the Army is asking industry to present mature technical solutions that fill identified gaps in the network and fit within the parameters of the COE.

“As we deliver the Common Operating Environment implementation plan and we talk about the technology standards that we are going to put in there and articulate to industry, we’re now going to scope what our capability gaps are on the battlefield,” said LTG Susan S. Lawrence, Army Chief Information Officer/G-6.

### INTEGRATE, THEN ISSUE

The NIE and subsequent exercises are geared toward speeding up and improving the way new networking technologies are delivered to Soldiers, in part by ensuring that the integration of new capability is properly solidified before items are sent into combat.

“I think we’ll figure out how to use [DOD Instruction] 5000.2 maybe to get things through the system quicker than we used to get them through the system. And at the same time, I think it’s going to help us with the ONS/JUONS [Operational Needs Statement/Joint Urgent Operational Needs Statement] process in ensuring that we’re not sending something down to a commander that looks real good on paper, sounds real good when demonstrated as an individual product, but when

you try to integrate it with everything else you got down there, you realize you’ve got problems,” Chiarelli said.

“Right now any technical integration issue in theater must be fixed in theater. We owe it to our Soldiers to do better. And with the establishment of the Network Integration Center, we will bear that integration burden, not our Soldiers and commanders downrange. That’s the right answer,” he said.

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