



INFORMATION ON THE FLY

Smartphones combine with tactical radios to boost ground troops

by LTC Mark Daniels and LTC Mark Stiner

Paratroopers from the 82nd Airborne Division recently tested a cutting-edge combination of smartphones plugged into tactical radios during a field exercise as GEN Peter W. Chiarelli, Vice Chief of Staff of the Army, looked on. These Soldiers were able to communicate via voice, data, and images so they could swarm a mock village to capture a high-value target. Information traveled rapidly up and down the chain of command and horizontally between team and squad leaders.

The 82nd Airborne Division is an expeditionary force and prepares for full-spectrum operations around the globe. So Soldiers need a communications solution they can carry with them on the fly. Where they go without vehicles, they need something with voice capability. The smartphone test took that capability to the next level by adding data capability, making it more effective for the company and below. In the past,

squad leaders would yell instructions through the woods. This technology makes it possible for them to be faster, quieter, and, therefore, less detectable—all of which can save lives.

A JOINT ENDEAVOR

The Joint Program Executive Office Joint Tactical Radio System (JPEO JTRS) and Program Executive Office Command, Control, and Communications-Tactical (PEO C3T) joined

SMARTPHONES IN THE FIELD

Paratroopers from 3rd Brigade Combat Team, 82nd Airborne Division use radios and smartphones to communicate during a field exercise at Fort Bragg, NC, in March. (Photo by Ashley Blumenfeld, JPEO JTRS.)





forces to develop this solution. For the exercise, JTRS Handheld, Manpack, and Small Form Fit (HMS) Rifleman and Manpack radios were married with PEO C3T prototype handhelds, demonstrating interoperability between programs of record in the “transport layer” and the “application layer.” The ruggedized, Android-based smartphones ran two apps: Joint Battle Command-Platform, or JBC-P Handheld, and Tactical Ground Reporting, known as TIGR Mobile.

JBC-P is the follow-on program for Force XXI Battle Command Brigade and Below. JBC-P displayed blue icons indicating the real-time Global Positioning System locations of friendly forces across a map of the battlefield, where users could also plot enemies or landscape hazards to alert their teammates.

Soldiers can easily become split. Rather than communicating via radio back to the truck to see where another squad is and where it is moving to, this capability allows Soldiers to view these details using a phone.

TIGR enabled the users to exchange photos and to enter and retrieve historical information relevant to the operation. One example of the many benefits of this capability is that a Soldier can now take a picture of his or her wound and send it to a doctor so that medics can make sure that treatment is appropriate for that exact wound. Another major benefit of using a technology that Soldiers are already used to—a phone—is that they can achieve all of these capabilities with very little training.

INFORMATION EXCHANGE

During the exercise, paratroopers from 3rd Brigade Combat Team, 82nd Airborne Division were able to communicate via voice, data, and images. (Photo by Ashley Blumenfeld, JPEO JTRS.)



PROTOTYPE

GEN Peter W. Chiarelli, Vice Chief of Staff of the Army, holds a prototype handheld with applications to track friendly forces and exchange photos. (U.S. Army photo.)

At the dismounted Soldier level, the HMS Manpack and Rifleman radios conveyed information using the new wideband networking waveform, Soldier Radio Waveform (SRW). SRW supports lightweight radios with Internet protocol capabilities for voice, data, and video transport. During the exercise, it provided situational awareness for troops as they parachuted in. As they accomplished the mission, they were able to leverage the connectivity back to their support aircraft. For those Soldiers who had simulated casualties, troops were able to share the information and photos of the casualties with the medical evacuation units.

The radios were integrated with Warfighter Information Network-Tactical (WIN-T) Increment 1 to carry the information between the ground troops and the battalion tactical operations center. A WIN-T satellite terminal known as Secure Internet Protocol Router/Non-secure Internet Protocol Router Access Point extended the network's range beyond line of sight and back up to high headquarters.

All of these capabilities highlighted the cooperation across different organizations and the integration of system components to optimize performance. Instead of developing many individual systems that work their best, it is important to tie all of them together to provide truly optimal capabilities for the Soldier.

NEXT STEPS

This exercise provided valuable, honest feedback that would be used to reduce risk for upcoming tests of the equipment, such as the Network Integration Evaluation in June and July. It is vital to take a disciplined approach to developing the software, creating a common framework that will ensure that everyone is on the same page about what messages are sent, how the computing resources on the smartphone are used, and the security involved in protecting the data.

PEO C3T will continue to partner with providers of various transport methods, including Netted Iridium and several radio models selected by the U.S. Marine

Corps for the production of JBC-P handhelds. In each instance, the mobile applications will be interoperable with existing battle command systems because they are built from a government-owned framework known as the Battle Command Product Line Mobile.

On May 18, the JTRS HMS Program successfully achieved Milestone C, a critical acquisition milestone and an important benchmark in delivering advanced networking capabilities to the warfighter. This decision authorizes the Army to first procure a low-rate initial production lot of up to 6,250 Rifleman radios and up to 100 Manpack radios. The milestone also marks an important step for the core capability JTRS will provide to the individual warfighter. The increased situational awareness created by the HMS radios will give warfighters more information to outmatch enemies and ensure more successful operations.

While challenges remain, the Fort Bragg exercise was a step toward leveraging smartphones for tactical use. It is clear that providing communication capabilities to dismounted Soldiers increases their survivability, lethality, and effectiveness.

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Army Accelerates App Innovation and Delivery

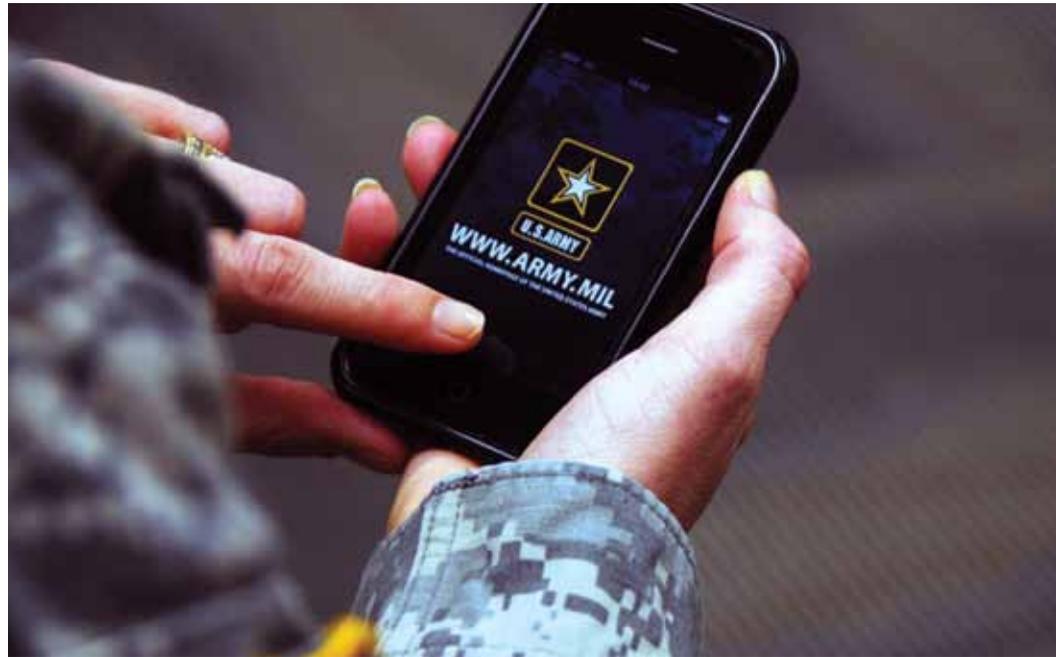
The Army is developing the next Apps for the Army (A4A) challenge, expanding participation to include public and industry developers. The next A4A is expected to launch in 2012.

“In 2010, the Apps for the Army challenge provided a venue for internal Army early adopters and innovators,” said Gary Blohm, the Army Chief Information Officer (CIO)/G-6’s lead for Army Software Transformation. “This time, the Army wants to tap into industry, and not just for its well-known app development capabilities, but to help them look at new ways to broaden third-party participation in the marketplace.”

For the next A4A, the CIO/G-6 is designing prototype monetization business models (how web traffic is converted into sales) and addressing intellectual property rights, Blohm said.

Army CIO/G-6 efforts to accelerate innovation and delivery of applications include a number of events to engage industry in changing the business models, practices, and processes currently used to respond to warfighter needs. The events will help refine the existing prototype Army Application Marketplace and its capabilities, and will provide the foundation for next year’s A4A challenge.

“Our ability to adopt more agile practices and processes is based on the ongoing collapse and standardization of computing environments,” said Blohm. “This means we are looking to establish an online



ARMY APP FOR SMARTPHONE

Soldiers and others can now read the latest Army news on their iPhones, thanks to a new application created by the team that developed the Army’s website, www.Army.mil. (U.S. Army photo)

capability that can support applications that are accessed by a variety of devices across diverse mission areas.”

While many think of apps and app marketplaces as being only for smartphones, the Army wants to use the marketplace for all types of apps.

The Army launched A4A in 2010 to unleash the creativity of Soldiers and Army civilians to develop solutions that would enhance operational effectiveness and increase business productivity. Parallel efforts were undertaken to establish a supporting proof-of-concept application

marketplace with streamlined processes and capabilities provided by DOD, such as the DOD Storefront; Forge.mil, a family of services led by the Defense Information Systems Agency that was created to support DOD’s technology development efforts; and Rapid Access Computing Environment, or RACE; a marketplace of capabilities supported the distribution of the A4A winning apps.

For more information on the A4A, visit <http://ciog6.army.mil/Apps4Army2010/tabid/67/Default.aspx>.

—From CIO/G-6 and staff reports

Army Migrates to Enterprise Email

The Army's network email is in the midst of migrating to Enterprise Email, an improved system enabling users to have military email access worldwide.

The new system also allows users to retain their email accounts if transferred to a different agency or organization within DOD. If users switched organizations under the previous system, their email addresses would change to reflect that.

"Right now the global address list is small for individual users, and for the Army there is no visibility on other services' addresses. Upon migration to Enterprise, 3.9 million addresses will appear in the [global address book] immediately," said Mike Krieger, Army Deputy Chief Information Officer (CIO)/G-6.

"This will also allow us to share calendars with outside entities, and this migration will allow us to have unlimited storage."

The new email is provided by the Defense Information Systems Agency (DISA). The migration to DISA is part of a larger DOD effort to consolidate information technology services, improve capabilities, and reduce overall costs.

A PHASED APPROACH

The migration covers 1.4 million unclassified network users and 200,000 secret network users.

The first phase in April migrated more than 14,000 Army users, including those at the Army CIO/G-6; U.S. Army Network

Enterprise Technology Command/9th Signal Command (Army); 7th Signal Command; U.S. Army Research, Development, and Engineering Command; 93rd Signal Brigade; Fort Riley, KS; Fort Monmouth, NJ; Rock Island, IL; and Aberdeen Proving Ground, MD.

The first major, multi-installation migrations began in June; as of July 18, 87,000 users had migrated.

By the end of December, Army user migration will be complete, in addition to migration of DOD personnel assigned to Army-hosted combatant commands.



DISA'S ENTERPRISE EMAIL

A Soldier at her workstation will be able to share calendars with users outside of the email program after migrating to DISA's Enterprise Email. (U.S. Army photo by CIO/G-6).

The Army also is looking to move its SharePoint collaboration systems, which currently operate on servers around the world, to the DISA cloud, Krieger said.

"We think it's the same business case," he said. "The software's paid for, but there are too many people standing up their own SharePoint portals. So what you're paying for is extra servers and extra people running them."

COST SAVINGS

While an undertaking of this magnitude does not come without challenges, the project's cost savings make it worthwhile, officials said. They believe the migration will generate annual savings exceeding \$100 million in years to come, with efficiencies produced as early as FY12.

This year's cost for the project is \$52 million, with the estimated annual cost per user at \$39.

"The bill to the Army will go down every year," said Krieger.

"We are hitting our budget targets. We are on budget for [migrating] NIPR [Non-Secure Internet Protocol Router], and we're on track to do the same for SIPR [Secure Internet Protocol Router]," said Air Force Maj Gen Ronnie Hawkins, Vice Director of DISA, referring to the military's non-classified and classified networks.

—From CIO/G-6 and staff reports