

# Network upgrades ready for test

By Amy Walker

The second generation of the Army's tactical communications network backbone --Warfighter Information Network-Tactical, is being prepared to provide on-the-move communications deeper into the maneuver formation and to the edge of the battlefield.

"Infantry and armor battalions and companies are maneuver units that require mobility, so their ability to communicate on-the-move is critical," said LTC Robert Collins, WIN-T Increments 2 and 3 product manager. "And not only does WIN-T Increment 2 provide that needed on-the-move capability, its increased bandwidth enables the company commander to take advantage of existing [mission command] collaboration tools previously only available at battalion and above. It's going to

bring a lot to the fight."

The three-week WIN-T Increment 2 Initial Operational Test and Evaluation is scheduled for May at White Sands Missile Range, N.M., in conjunction with the Network Integration Evaluation 12.2. The IOT&E is the Army's record test to fully assess the suitability, survivability and effectiveness of the WIN-T Increment 2 equipment with an operational unit. It will provide Army leaders valuable feedback to make any needed doctrinal, material or training improvements. The analysis and test results from the IOT&E will be used in the Full Rate Production Decision scheduled for the fourth quarter of fiscal year 2012, which will then allow for the fielding of WIN-T Increment 2 to maneuver units across the force.

"WIN-T Increment 2 will

bring about some revolutionary changes - the network will now be able to completely support the commander's intent and operations," said COL Edward Swanson, WIN-T project manager, who is assigned to the Program Executive Office for Command, Control and Communications-Tactical. "Commanders will no longer have to stop to establish [mission control] and to regain situational awareness. They can truly fight on-the-move and the network will be able to support that. In effect, the network becomes a weapon system."

The construct for the IOT&E will create a robust, full-scale division and brigade network for testing. The 2nd Brigade, 1st Armored Division at WSMR will serve as the maneuver element, while the 101st Airborne Division at Fort Campbell, Ky. will serve as the division headquarters element. Another component of the IOT&E, the 1st Sustainment Brigade in Fort Riley, Kan., will utilize Increment 1b (an upgraded version of Increment 1), and connect into the Increment 2 network to demonstrate and test the interoperability between the current and next-generation network. All three units will reach back to the Network Services Center - Training at Fort Gordon, Ga., which will simulate the Regional Hub Node function in the network. There are five RHNs globally that use baseband and satellite communications capabilities to enable reach-back to the Army's network.

WIN-T Increment 2 is a major upgrade to the tactical communications backbone and a critical piece of Capability Set 13 -- the first integrated group of network technologies out of the NIE process that will be fielded to up to eight brigade combat teams



(U.S. Army photo by Amy Walker)

In preparation for the Warfighter Information Network-Tactical Increment 2 Initial Operational Test and Evaluation scheduled for May 2012, Soldiers trained on-the-move during the WIN-T Increment 2 New Equipment Training at Fort Bliss, Texas on 13 March 2012. The convoys included WIN-T Increment 2 Soldier Network Extensions, or SNEs, as shown here.

starting in fiscal year 2013. WIN-T Increment 2 was integrated at NIE 12.1 which wrapped up in November 2011 for risk reduction and to provide user feedback six months ahead of its formal operational test.

“WIN-T Increment 2 will enhance the overall combat effectiveness of brigade combat teams and allow them to operate in highly geographically dispersed areas,” LTC Collins said. “It will also improve the speed of their decision-making cycles and improve their ability to receive, analyze and distribute information.”

From a baseline perspective, WIN-T Increment 1 has provided the network backbone for the past two NIEs, and both Increments 1 and 2 will support each NIE in the future. WIN-T Increment 1 provides Soldiers with high-speed, high-capacity voice, data and video communications to units at battalion level and above, with Soldiers having only to pull over to the side of the road to communicate. With the WIN-T Increment 1b upgrade, both increments are fully interoperable and can operate within the same mesh on the battlefield.

Aiding in the interoperability of the different increments and network components of WIN-T is the Communications Systems Design Center, at Aberdeen Proving Ground, Md. The facility contains both WIN-T Increment 1 and Increment 2 technology to test operational requirements and interoperability within the network. Currently, it is conducting integration and pre-testing for WIN-T Increment 1 and Increment 2 interoperability for the upcoming IOT&E.

As part of the development to increase interoperability between the increments, the WIN-T Increment 1b upgrade along with Increment 2 will possess the same Network Operations tools to facilitate the administrations,



(U.S. Army photo by Amy Walker)

**Soldiers train on-the-move in Point of Presence vehicles (*front*) in Fort Bliss, Texas, on 13 March 2012 as part of the 10-week Warfighter Information Network-Tactical Increment 2 New Equipment Training that began January. The training prepares Soldiers to take part in the WIN-T Increment 2 Initial Operational Test and Evaluation scheduled for May 2012. In the background, Soldiers train on a WIN-T Increment 2 Tactical Communications Node.**

management and response of the network. Increment 2 will add a set of planning and monitoring tools that will be incorporated into 1b in 2014. Both increments will also possess a “colorless core” security enclave, enabling commanders to conduct mission command warfighting functions throughout their units without fear of the enemy intercepting sensitive information.

WIN-T Increment 2 also introduces additional capabilities including the Soldier Network Extension, which extends the network from the brigade down to the company level for the first time. Using its on-the-move satellite communication systems, the SNE will be used to heal and extend lower echelon tactical radio networks for geographically separated elements blocked by terrain features.

“Traditionally at the lower echelon levels, you have line-of-sight communication with the tactical radios,” said CPT Jose Haro, a company commander within 2/1 AD, the unit testing tactical communications systems as part of the NIEs. “If you have to communicate with somebody in a mountainous terrain area like Afghanistan, then that limits you if you’re using just line-of-sight communication radios. So [with WIN-T Increment 2] at the lower echelon level, I’m able to effectively communicate by satellite.”

The SNE also allows the company level to connect into the WIN-T backbone and provides them with “bigger pipes” for more capacity to reliably send and receive messages. When

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WIN-T Increment 2 is fielded, each brigade combat team will receive 33 SNEs that will provide beyond-line-of-sight communications, which theoretically provides unlimited range, COL Swanson said.

WIN-T Increment 2 allows company commanders to utilize many of the mission command systems that they have in the Tactical Operations Center inside their vehicles while on-the-move. This increased capability will allow them to send and receive information much faster and get that critical information to platoon leaders and Soldiers on the ground via data and text, said CPT Luis Albino, another company commander with 2/1 AD. "WIN-T Increment 2 provides that Soldier on the edge needed situational awareness," CPT Albino said. "He now knows what is happening to the sister unit to his right, or to his left, and what is happening along the route."

The Point Of Presence is the primary WIN-T Increment 2 configuration item to be installed on the tactical combat platforms of select personnel at division, brigade and battalion echelons. It enables mobile mission command by providing secret level on-the-move network connectivity, both line-of-sight and beyond-line-of-sight, COL Swanson said.

"In the past you had limited connectivity, which certainly restricted a commander's ability to actually be at the location on the battlefield that he needed to

be to influence the battle," COL Swanson said. "With WIN-T Increment 2, the commander doesn't have to be tethered to his TOC, so he can be wherever he needs to be on the battlefield." Among the many steps required to reach the IOT&E, WIN-T Increment 2 completed its Limited User Test in 2009, which led to a successful Milestone C decision in early February 2010 and subsequent a Low Rate Initial Production contract award. This was followed by a contractor test, and the WIN-T Increment 2 Production Qualification Test-Government, which was the major developmental test leading to the IOT&E. The PQT-G, concluded on August 5, 2011, and was the largest instrumented test ever held at the Aberdeen Test Center, Aberdeen Proving Ground, Md. This test was completed utilizing WIN-T Increment 2 hardware and software installed in tactical vehicles spread out over four geographically dispersed sites - Aberdeen, Md.; Taunton, Mass.; Fort Gordon, Ga. and Fort Bliss, Texas. Shortly after, the program completed a Logistics Demo to review installation, troubleshooting and maintenance procedures.

A successful three-week Cold Weather Natural Environments Testing for WIN-T Increment 2 was also conducted in January at Fort Greely, Alaska. The testing included several on-the-move threads, at-the-halt deployments and storages of the communications equipment in extreme cold weather. The

program has also completed interoperability testing at the Central Test Facility and Joint Interoperability Test Command. Finally, as part of a series of pre-tests for the IOT&E, Soldiers conducted 10-weeks of new equipment training beginning in January. The training was the first step in readiness for the operational test and the first opportunity to thoroughly train the Soldiers and give them all the right field tests to be able to operate and deploy the network. Following the WIN-T Increment 2 IOT&E and a Full Rate Production decision, Increment 2 will be a primary part of the Army's Capability Set 13-14 fielding. Eventually it will be fielded to 10 division headquarters and 54 brigade combat teams where the on-the-move capability is critical. Proportionally, one third of the Army's units will be fielded with Increment 2, while the other two thirds with fewer mobile requirements will remain with the Increment 1b upgrade.

"The number one modernization priority for the Army is the network, and the heart and soul of the network is WIN-T Increment 2," COL Swanson said. "It is the foundation for the Army's tactical network in the future."

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## ACRONYM QuickScan

**2/1 AD** - 2nd Brigade, 1st Armored Division  
**IOT&E** - Initial Operational Test and Evaluation  
**NIE** - Network Integration Evaluation  
**PEO C3T** - Program Executive Office for Command, Control and Communications-Tactical  
**PdM** - Product Manager

**POP** - Point Of Presence  
**SNE** - Soldier Network Extension  
**TOC** - Tactical Operations Center  
**WIN-T** - Warfighter Information Network-Tactical  
**WSMR** - White Sands Missile Range