WIN-T Increment One Gains Valuable User Feedback

Jason Bock

To obtain concise feedback from its primary user base — the Soldier — Program Executive Office Command, Control, and Communications Tactical's (PEO C3T's) Project Manager Warfighter Information Network-Tactical (PM WIN-T) conducted an Initial Operational Test and Evaluation (IOT&E) of its Increment One system, formerly known as the Joint Network Node (JNN), at Fort Lewis, WA.

SGT Roy Mejares operates a WIN-T Increment One STT during the WIN-T IOT&E at Fort Lewis. (U.S. Army photo by Jason Bock.)

The 2-month exercise offered Soldiers an opportunity to train on maintenance, configuration, and setup of the system, which provides Soldiers with a high-capacity, reliable, secure communications network at the quick halt. Situations also present the opportunity to bring in field service representatives (FSRs); logistics, operations, and engineering support; as well as Army Test and Evaluation Command (ATEC) evaluators.

"The only way we can understand the issues is from the feedback we're getting from the Soldiers and commanders on the ground," said LTC Ray Compton, Product Manager, WIN-T Increment One. "As we see something from the field, we try to analyze it to see what the impact is and then quickly put in new configurations to go out."

Since the majority of WIN-T Increment One has been fielded to most of the combat force on operational needs statements, the IOT&E was an opportunity for MG Nickolas G. Justice, PEO C3T, to watch the Soldiers use the system.

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"It was amazing to just sit back and watch those units. They did an incredible job with jumping those command posts, getting equipment up and running, locking in on their satellites, and getting their communications set up," said Justice.

Justice stated that testing the remaining four increments of WIN-T will be a learning process for PEO C3T. "You want to work through, rehearse, and practice with the equipment," Justice said, "and getting the equipment in the field is the first place you really begin to understand its strengths and weaknesses."

The organization's experience in combat formations has served to mitigate the outcome of test events, which in an IOT&E are designed to measure if equipment is suitable and effective in a unit, instead of its ability to function.

"We don't develop systems to have Soldiers operate them," remarked Justice. "We develop systems to empower Soldiers and give them a greater capability than they have today."

Mike Hedley, WIN-T Increment One Dep-uty PM, had similar thoughts on the importance of gathering Soldier feedback, especially when considering the WIN-T Increment One fielding that is already underway to the current force. "This is essentially a new contract from how we were building JNN before it became Increment One," Hedley said. "It certainly will help us flush out any bugs and learn from the Soldiers themselves in a controlled environment, so we can ensure that we can make the product better in the future for the warfighter."

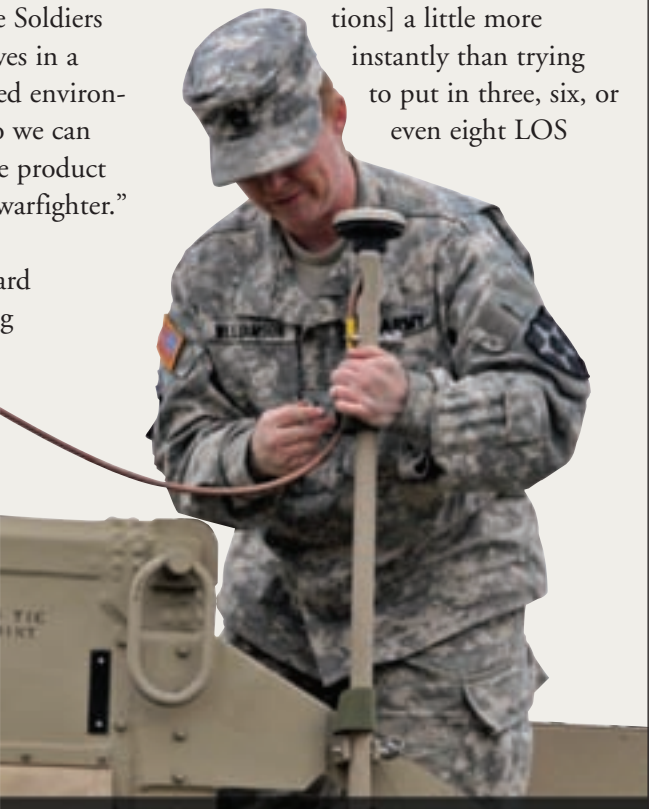
The Army's movement toward the WIN-T network fielding brings advancements in setup time, connection time, reliability, and easier use over its communication predecessors.

Increment One Improvements

Since the early 1990s the Army has employed a line-of-sight (LOS)-based communications system known as Mobile Subscriber Equipment (MSE). MSE, which is currently being replaced in the field by WIN-T Increment One, is a digital, secure, highly flexible system used to provide a means of communicating throughout the battlefield, regardless of location, in either a static or mobile situation.

The physical setup time for the WIN-T Increment One compared to MSE is somewhat comparable according to WO3 Kevin Gonzalez, the Brigade S6 Network Management Technician. In an interview during the IOT&E at Fort Lewis, Gonzalez explained that a good team with fair conditions could ready an Increment One setup in roughly 90 minutes, while MSE ran closer to 2 hours.

The significant improvement of WIN-T Increment One over MSE lies within the time needed to establish communications once the system is stood up. "Once they get the satellite shot in the air," Gonzalez said, "we have [communications] a little more instantly than trying to put in three, six, or even eight LOS



SSG Sheila Williamson, WIN-T Increment One supervisor, participates in the setup of an Increment One platform vehicle during the Fort Lewis WIN-T IOT&E. (U.S. Army photo by Jason Bock.)

shots in different places." And because the connection is made through satellite and not along an LOS path, the reliability is superior as well. "At Fort Lewis, with all of these trees and mountains, it becomes a challenge with LOS technology," Hedley said. "With the satellite's beyond-LOS capability, it's able to get around that and continue the command and control that's needed for our warfighters to keep the network up."

"Once you get that shot, you don't lose it," noted SPC Michael King, a Satellite Transportable Terminal (STT) Operator.

STT

The STT is a next-generation trailer that offers Ku- or Ka-band operation. The STT incorporates proprietary active compensation tracking techniques that positively track out the effects of wind, permitting significant weight reduction and eliminating the need for outriggers for faster setup and teardown.

King had high praise for the reliability of the satellite network and added that during tests, he was able to maintain his communications through a storm with winds up to 30 miles per hour. "This satellite capability," added Compton, "really expands not only the mobility but also the ability to be farther away or closer, and the natural or man-made terrain objects are not blocking their command and control."

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The STT also became a prime example of small factors that may be discovered during a user exercise that had gone previously unnoticed and would represent a major impact on operations upon being deployed.

"One of the key issues that we're looking at right now is the STT satellite terminal," Compton said. "We found out from the Soldiers that the power cable that's on here is too short. These are quick things that we can take a look at, adapt, fix, and ensure that the next unit has those capabilities for them."

While physical catches like the length of a power cord are often omissions from factory assemblage or structural design, Soldiers need to rely on the environmental impacts, terrain, and personnel actions when assessing a system's ability to perform in combat. "The network is as reliable as how we take care of the equipment," said CPT Frank Hwang, the 1st Battalion, 17th Infantry Regiment S6.

During the exercise, Hwang explained there were no negative issues with the network he observed that could be attributed to the system or conscious actions of the operator. "If it is maintained properly and given what it needs," Hwang said, "it stays on line."

As the Army designates more of its capabilities to be supported by the network WIN-T provides, the reliability of that network backbone becomes increasingly critical. Ease of use, ease of setup, and the ability for the Soldier to troubleshoot are as important as the strength of the satellite connection itself.

"As much as we try to advertise plug and play — and I know we try to make everything be that simple — what we are doing right now in the communications world is pretty complex and difficult," Gonzalez said.

From what Gonzalez has observed, the Increment One fielding has gone well due in large part to configuration and technical support. "This is a complicated business we are in," Gonzalez added, "and the biggest thing I could stress is training."

Training and System Support

In many ways, the training concept is a constant presence in the life of a Soldier. It's necessary before deployment, in theater, and during the reset process. System experts onsite can help a Soldier continue his or her training even after class.

The WIN-T Increment One STT can be configured to operate over Ku- or Ka-band satellite frequencies. (U.S. Army photo by Jason Bock.)

FSRs, logistics assistance representatives (LARs), and digital systems engineers (DSEs) provide onsite presence to assist Soldiers and, if not onsite, are a radio or cell phone call away. "Having experts with us after we got out of class has been invaluable," said SSG Sheila Williamson, WIN-T Increment One supervisor. "They taught us all types of things that we were not able to touch on in class."

Gonzalez cited getting familiar with equipment and how it is configured and understanding signal flow as key elements to a signal Soldier's development and learning. It is important for an officer who runs and maintains network communications to understand where that job fits into the Army's mission.

"A lack of understanding of the overall mission, as a signal Soldier, will make it a little more difficult for you to do your job," Gonzalez said. An important part of that communication and understanding occurs across units. The need to bring reliable communications to Soldiers on the ground and in combat cannot be overlooked, but within tactical operation centers, the communication between signal officers and operators in sister units can be a valuable tool in maintaining network reliability.

"It is very important to have all the operators on the same sheet of music," Williamson said. "We share a lot of information back and forth because they may have problems we don't. We learn from what they're learning and they learn from what we're learning."

"We have a good working relationship with all the S6s and G6s who are in the fight today," Hedley said. "We have several telephone conversations weekly with them to understand some of the issues they may be having. And we have a great team assembled that works through those issues pretty well."

A WIN-T Increment One STT is powered by one trailer-mounted Tactical Quiet Generator. (U.S. Army photo by Jason Bock.)

Learning and understanding are all a part of the Army's action to bring the technical advantages of its suite of battle command capabilities to the Soldier at every level. By empowering and handing responsibilities down the command chain, the Army is able to lean its processes and deliver capabilities at a more expedient rate than ever before.

"We're definitely moving in the right direction and we're delivering these capabilities down to levels that we never have reached before," Gonzalez said. "If the Soldiers on the ground cannot get all the information they need, then it will be difficult for them to make a decision."

In essence, directing communications down to the company level equals clear communication back to the top. "We can completely displace ourselves anywhere we want on the battlefield, communicate with each other, and then have our link to brigade since it's via satellite," Hwang said. "You can be all around the world as long as you have a way of reporting information to higher command."

The next stage for WIN-T will be Increment Two and a satellite-based on-the-move (OTM) network capability. "I think that probably the biggest challenge with OTM capabilities will be network management," Gonzalez said. "That will bring a whole new dynamic with trying to manage a network that will be forever changing as people are moving from one location to another."

"You are always going to be in a constant fight with the commercial world, and the commercial world is going to have the newest greatest thing there is. But, as warfighters, we need to ensure information assurance. … If we don't do all the proper steps, that impact could take down a whole commander's network and then we're into some even bigger issues in the warfight over there," Compton concluded.

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