# Warfighter Information Network – Tactical (WIN-T)

Executive Summary

- The Army Acquisition Executive (AAE) conducted a Warfighter Information Network – Tactical (WIN-T) Increment 3 decision review based upon the Network Integration Evaluation (NIE) 16.2 WIN-T Increment 3 Operational Assessment in September 2016. The DOT&E evaluation was:
  - Net Centric Waveform (NCW) satellite enhancements are operationally effective and provide improved support of mission command applications, increased bandwidth, and a stable network.
  - Network Operations (NetOps) enhancements were not operationally effective and, due to database failures, did not provide timely and accurate information to NetOps soldiers to conduct their WIN-T network mission. Some NetOps features – such as the NCW and Highband Networking Waveform (HNW) planning tools – enhanced the soldiers' ability to perform NetOps.
  - Due to complexity, the WIN-T Increment 3 tunnel-less architecture is not effective and adversely affected NetOps soldiers' planning, controlling, monitoring, and visualization functions.
  - The execution of NIE 16.2 WIN-T Increment 3 Operational Assessment was not adequate to assess operational suitability.
  - Although survivability has improved, WIN-T Increment 3 still has significant cybersecurity vulnerabilities.
- The WIN-T program took prompt action to resolve NetOps problems identified during operational test and demonstrated these fixes during a July 2016 contractor development test (CDT) conducted under benign conditions.
- In September 2016, the AAE approved the deployment of WIN-T Increment 3 NetOps and NCW enhancements.
- The Army is updating the WIN-T Increment 2 post-full-rate production Test and Evaluation Master Plan (TEMP) to include an FY17 FOT&E to test WIN-T Increment 2 configuration items designed to support light brigades with downsized, air-transportable WIN-T assemblages.

System

- The Army designed WIN-T as a three-tiered communications architecture (space, terrestrial, and airborne) to serve as the Army's high-speed and high-capacity tactical communications network.
- The Army intends WIN-T to provide reliable, secure, and seamless communications for units operating at theater level and below.
- The WIN-T program consists of three funded increments. In May 2014, the Defense Acquisition Executive approved the Army's request to stop development of the Increment 3 aerial tier of networked, airborne, communications relays and limit
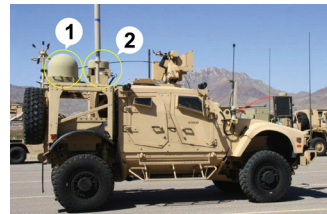
M-ATV Point of Presence

M-ATV Soldier Network Extension

Stryker Point of Presence

1 - Net-Centric Waveform Antenna
2 - High-Band Networking Waveform Antenna

M-ATV - Mine Resistant Ambush Protected (MRAP) All-Terrain Vehicle (M-ATV)

Tactical Comms Node

Increment 3 to network management and satellite waveform improvements. The Army intends to increase procurement of WIN-T Increment 2 configuration items to satisfy the number of capability sets previously planned for Increment 3.

- Increment 1: "Networking At-the-Halt" enables the exchange of voice, video, data, and imagery throughout the tactical battlefield using a Ku- and Ka-satellite-based network. The Army has fielded WIN-T Increment 1 to its operational forces.
- Increment 2: "Initial Networking On-the-Move" provides command and control on-the-move down to the company level for maneuver brigades and implements an improved network security architecture.
- WIN-T Increment 2 supports on-the-move communications for commanders with the addition of the Point of Presence and the Soldier Network Extension, and provides a mobile network infrastructure with the Tactical Communications Node.
- WIN-T Increment 2 provides a downsized, air transportable variant of High Mobility Multi-purpose Wheeled Vehicle (HMMWV) mounted configuration items to support the Army's Global Response Force and other light brigades.
- Increment 3: "Full Networking On-the-Move" was to provide full mobility mission command for all Army field commanders, from theater to company level using networked airborne communication relays. With program reductions, WIN-T Increment 3 now provides enhanced NetOps and an improved satellite waveform to WIN-T Increments 1 and 2.

Mission

Commanders at theater level and below will use WIN-T to:
- Integrate satellite-based communications capabilities into an everything-over-Internet Protocol network to provide connectivity, while stationary, across an extended, non-linear battlefield, and at remote locations (Increment 1)
- Provide division and below maneuver commanders with mobile communications capabilities to support initial command and control on-the-move (Increment 2)

Major Contractor

General Dynamics, C4 Systems – Taunton, Massachusetts

Activity

- In October 2015, the Army conducted a WIN-T Increment 3 Government Developmental Test (GDT) of the enhanced Net-Centric Waveform 10.1.2b (NCW 10.x) at Aberdeen Proving Ground, Maryland. The GDT demonstrated that NCW 10.x could support 12 megabits per second (Mbps) throughput at the larger-dish Satellite Transportable Terminals, which support the WIN-T Increment 2 Tactical Communications Node.
- The Army conducted the final of three WIN-T Increment 3 functional qualification tests at the contractor's facility in December 2015. In the January 2016 report, the Army did not report any significant problems.
- In January and February 2016, the Army Test and Evaluation Center (ATEC) conducted an instrumentation accreditation event on the proposed instrumented data collection, reduction, and assessment (DCRA) process intended for use during the WIN-T Increment 3 Operational Assessment. The instrumentation accreditation event did not accredit the DCRA process, and ATEC continued efforts to fix DCRA problems into the NIE 16.2 WIN-T Increment 3 Operational Assessment.
- The Army conducted a WIN-T Increment 3 Operational Assessment during the May 2016 NIE16.2. The operational test employed the 2nd Brigade, 1st Armored Division conducting operationally realistic missions at Fort Bliss, Texas, and White Sands Missile Range, New Mexico. The operational assessment focused on WIN-T Increment 3 enhancements, including NetOps software tools and an enhanced NCW 10.x. Prior to the operational assessment, the Army withdrew 7 of the planned 17 NetOps features because they were not ready for test. The test was conducted in accordance with a DOT&E-approved test plan with the exception of executing adequate manual and instrumented data collection.
- In July 2016, the Army conducted a WIN-T Increment 3 CDT at the contractor's facility. The CDT was designed to demonstrate fixes for NetOps problems discovered during the WIN-T Increment 3 Operational Assessment.
- In September 2016, DOT&E published a WIN-T Increment 3 Operational Assessment report to support a WIN-T Increment 3 AAE decision review.
- In September 2016, the AAE approved the deployment of WIN-T Increment 3 NetOps and NCW enhancements.

- The Army is updating the WIN-T Increment 2 post-full-rate production TEMP to include an FY17 FOT&E to test WIN-T Increment 2 configuration items designed to support light brigades with downsized, air-transportable WIN-T assemblages.

Assessment

- The overall execution of the NIE 16.2 WIN-T Increment 3 Operational Assessment was adequate to support the assessment of operational effectiveness and survivability. It was not adequate to support the assessment of operational suitability due to problems with reliability, availability, and maintainability data collection, documentation of field service representative maintenance activities, and data instrumentation. These problems must be resolved before the next WIN-T operational test event.
- DOT&E assessed the following in the September 2016 WIN-T Increment 3 Operational Assessment report:
  - NCW 10.x enhancements are operationally effective and provide improved support of mission command applications, increased bandwidth and a stable network.
  - Overall, NetOps enhancements were not operationally effective and, due to NetOps and Security Center (NOSC) database failures, did not provide timely and accurate information to NetOps soldiers to conduct their WIN-T network mission. Some NetOps software features – such as the NCW and HNW planning tools – enhanced the soldiers' ability to perform NetOps.
  - Due to complexity, the WIN-T Increment 3 tunnel-less architecture is not effective and adversely affected planning, controlling, monitoring, and visualization at the NOSC.
  - The execution of the NIE 16.2 WIN-T Increment 3 Operational Assessment was not adequate to assess operational suitability.
  - Although survivability has improved, WIN-T Increment 3 still has significant cybersecurity vulnerabilities.
- Following the NIE16.2 WIN-T Increment 3 Operational Assessment, the program took prompt action to resolve NetOps problems identified during operational test. While the July 2016 WIN-T Increment 3 CDT is a good start, none of the tests were of sufficient length and rigor to provide validation of corrective actions.

Recommendations

- Status of Previous Recommendations. The program addressed four of six previous recommendations. They still need to conduct an operational test on WIN-T configuration items designed to support light forces, and improve the integration of WIN-T onto Stryker vehicles.
- FY16 Recommendations. The Army should:
  1. Correct problems with data instrumentation and manual data collection prior to the next WIN-T operational test.
  2. Improve WIN-T cybersecurity and assess its survivability in a future operational test.
  3. Conduct further testing on WIN-T Increment 3 NetOps fixes and validate corrections in a future operational test.
  4. Conduct an operational test to assess WIN-T Increment 2 configuration items designed to support light forces.
  5. Improve Stryker WIN-T integration and demonstrate these improvements in a future operational test.