

## Joint Tactical Network (JTN)

### Executive Summary

- In January 2014, the Defense Acquisition Executive approved the Joint Tactical Networking Center (JTNC) charter that defines the responsibilities of the Program Manager-Joint Tactical Networks (PM-JTN) to develop and maintain the Joint Enterprise Network Manager (JENM); report on program acquisition and sustainment status to the JTNC Board of Directors; and develop a plan to transition waveform development to the Services by 4QFY15.
- In May 2014, DOT&E assessed the JENM as a part of the Manpack radio FOT&E during the Network Integration Evaluation (NIE) 14.2.
  - Soldiers using JENM were able to plan mission configuration files and load them onto Manpack radios.
  - The network planning process is cumbersome and loading radios is too slow for the unit's operational tempo.
  - Soldiers were able to monitor the network using JENM, but the monitoring function provides little operational utility to the unit.
- PM-JTN is currently developing a Test and Evaluation Master Plan (TEMP) that describes testing of the JENM and waveforms in coordination with the host radio programs.

### System

- The PM-JTN provides software applications that enable software-defined radio sets to provide communications to tactical forces. The software applications include software-defined waveforms and enterprise network management.
- Software-defined waveforms are loaded into and considered a part of a radio set. JTN is responsible for the following software-defined waveforms:
  - Soldier Radio Waveform (SRW)
  - Wideband Networking Waveform (WNW)
  - Single-Channel Ground and Airborne Radio System (SINCGARS)
  - Mobile User Objective System (MUOS)
  - Link 16
- The JENM is a set of software applications that allow the Services to plan, configure, and monitor software-defined radio networks. The JENM is separate from the radio sets and is deployed on a Joint Tactical Networking Environment Network Operations Toolkit computer. The current JENM, version 1.2.8.1, configures SRW radio networks using Manpack and Rifleman radios. Future releases will configure radios for WNW and MUOS networks.
  - The JENM functions include planning, loading, monitoring, controlling, and reporting.
    - The planning function develops network parameters and creates a Radio Mission Data Set (RMDS) file.
    - The loading function transfers the RMDS file into the radio sets to configure them for network operation.
    - The monitoring function provides a near real-time display of the WNW or SRW network status and condition of the network radios.
    - The controlling function allows the signal Soldier to make changes to the network, to include sending commands to radio operators, changing the configuration parameters of the radio sets, or conducting cryptographic functions (rekey, zeroize, and transfer).
    - The reporting function records all network management events and logs the data for analysis.



# FY14 ARMY PROGRAMS

## Mission

- Forward-deployed military forces use the software-defined radios to communicate and create networks to exchange voice, video, and data during all aspects of tactical military operations.
- Signal staffs intend to use the JENM to:
  - Plan, load, monitor, control, and report on network operations involving software-defined radio sets running SRW and WNW.
  - Load the RMDS file for the initial provisioning of a MUOS terminal to connect to a MUOS satellite network.

## Major Contractor

The Boeing Company, Phantom Works Division – Huntington Beach, California

## Activity

- In January 2014, the Defense Acquisition Executive approved the JTNC charter, which defines the responsibilities of both the JTNC and PM-JTN following the dissolution of the Joint Tactical Radio System Network Enterprise Domain. PM-JTN was given responsibility to:
    - Develop and maintain the JENM
    - Report on program acquisition and sustainment status to the JTNC Board of Directors
    - Transition waveform development and sustainment responsibilities to the designated Services (by waveform) by 4QFY15
  - From January through February 2014, the Army assessed JENM loading on the Manpack radio during the Manpack radio Government Development Test 4 at Fort Huachuca, Arizona.
  - During the May 2014 NIE 14.2, the Manpack radio FOT&E assessed Soldiers using the JENM to plan, configure, load, and monitor Manpack radio networks. The Army conducted this test according to a DOT&E-approved test plan.
  - The program is developing a TEMP to describe testing activities to fulfill the responsibilities described within the JTNC charter.
- Network planners encountered difficulty with network complexity due to the large number and multiple variants of networking radios within Army units.
- JENM was slow when loading radios. Soldiers using JENM and a Simple Key Loader to load a Manpack radio with mission configuration files and COMSEC keys experienced load times of 30 minutes and greater per radio. Loading all radios within a company can take as long as 24 hours. This time requirement is not practical for a reload that must occur once a month, per COMSEC guidelines.
  - JENM's network monitoring function provided little operational utility for the unit. Companies do not have a Soldier assigned to monitor the network and the distance from the headquarters to the radio network often exceeded radio transmission range.
  - One signal Soldier per company was not sufficient to accomplish network management, operation, and maintenance required for the unit's communications equipment. Units tasked Soldiers from other mission areas to assist.

## Assessment

- During Government Development Test 4, the JENM:
  - Allowed Soldiers to load and reconfigure radios with four of five threshold waveforms and network presets
  - Demonstrated partial capability to monitor a radio network
  - Enabled Soldiers to access and view the status of Manpack radio configurations and Communications Security (COMSEC) keys
- During the Manpack radio FOT&E at NIE 14.2:
  - Soldiers using JENM were able to plan mission configuration files and load them onto Manpack radios. JENM's planning of the mission configuration files was not easy and required several attempts before success.

## Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY14 Recommendations. The Army should:
  1. Complete a JTN TEMP that describes testing of the JENM and waveforms (until the waveforms transition to designated Services).
  2. Correct the deficiencies noted during the Manpack radio FOT&E and validate corrections during future testing.
  3. Evaluate the force structure requirements of adding software-defined, networking radios and network management responsibilities into company-level organizations.