From the Screen Line: 316th Cavalry Brigade Begins Teaching Tactical-Network Lethality

by CPT Derek Harris and Rick Hughes

The 316th Cavalry Brigade, located at Fort Benning, GA, teaches the students of Stryker Leader's Course and Stryker Master Gunner Course a block of instruction in tactical-network lethality (TNL). This coincides with the decision by the product manager (PdM) and Training and Doctrine Command Capability Manager-Stryker to implement this capability within selected Stryker units. (First Stryker Brigade Combat Team (SBCT) at Fort Carson, CO, was the first unit equipped with TNL functionality and successfully employed it during their last National Training Center rotation.) By providing training now, 316th Cav Brigade prepares Soldiers to employ this emergent capability upon their return to a TNL-equipped SBCT.

Figure 1. Stryker Leader's Course students learn TNL.

The SBCT sensor capable of supporting TNL is a network-capable version of the scout's Long-Range Advanced Scout Surveillance System (LRAS3). By "netting" LRAS3, an Ethernet connection from the sensor to the vehicle's Joint Capabilities Release (JCR) or Joint Battlefield Command Platform (JBCP) system enables robust bidirectional data exchanges, creating a powerful collaborative-engagement tool.

The sensor's netted software provides a varied tool chest of electronic functionality. These include routine task automation, battlefield sensor management, capture and forwarding of branded imagery and a basic anti-fratricide capability. However, the primary TNL enabler is centered on cue-to-target (CTT) functionality.

CTTs are very easy to perform. Each time the sensor operator performs a valid lase, with a single button press the system performs an operation that packages the self-location, bearing and elevation of the target, all into the CTT message format. The CTT is then forwarded to the local JCR or JBCP system.

Off-platform exportation of the CTT is no different than any command-and-control message routinely sent by the vehicle commander. One, or several, remote netted sensors can be tagged to receive the message.

Remote sensors, upon receipt of a CTT message, compare their current self-position to the CTT data. On-screen directional arrows generated on the sensor's display guide operators to the target's lased position. Images taken at the time of lase can be optionally attached to the CTT message and viewed as a picture-in-picture (P-n-P) image simultaneously with the directional arrows. P-n-P imagery helps increase Soldier confidence that the correct target is identified.

Currently within the SBCT formation, CTTs are shared only between scout vehicles mounting the netted LRAS3. However, the potential exists for other Stryker variants to become TNL capable in the future. This would more closely emulate the infantry brigade combat team (IBCT) TNL capability which has, in addition to LRAS3, the netted version of the Fire-Support Sensor System (FS3) found on the M1200 Armored Knight and the tube-launched, optically tracked, wire-guided (TOW) Improved Target Acquisition System.

CTTs can be employed for various purposes, but a standard IBCT scenario is “sensor-shooter” collaboration. For instance, although scouts have limited ability initiating basic call-for-fire requests with the netted sensor, the real force-multiplier resides in the ability to now team with a netted FS3-equipped fire support or netted TOW platform. Advantages include the fire-support crews employing a wider palate of munition choices while being electronically assisted by more detection devices to potential targets. On the other hand, scouts can remain undetected longer while simultaneously creating added lethality through collaboration.

The CTT capability can be effective on either the attack or in defense. A basic battlefield assumption is that the people firing at you are the same people that detected you. CTTs allow premeditated collaborative engagements by whom, when and with weapon which best entices the enemy to their least advantaged line of attack.

From a program-office standpoint, development of the TNL capability proved to be extremely economical. The effort consisted primarily of developing the TNL software that was loaded into the existing sensors. Tactical networks currently in use provide paths for battlefield data movement. The result is a modernized, cutting-edge, tactical capability that allows the Army to extend the network-lethality sensor’s service life as an option. One more benefit is that, as tactical-network bandwidth improvements are made, network lethality is also improved with no further effort; however, network-lethality software enhancements are always possible.

This is not to imply that other legacy or new systems cannot take advantage of the network-lethality functionality. PM-JBCP maintains – and can make available to other program offices – the network-lethality Interface Control Document (ICD) detailing current technical information.

Figure 2. SBCT Soldiers receive a netted LRAS3 familiarization brief.

TNL is the result of a collaborative effort by PdM-JBCP, PdM-Ground Sensors, PdM-Close-Combat Weapons Systems, PdM-Stryker’s M1200 Armored Knight Program Office and the Army’s Software Engineering Directorate, along with support from corporate partners.

Army offices interested in exploring how TNL may enhance a system or program or are interested in obtaining more netted LRAS3 information should contact Robert Youngblood, robert.e.youngblood2.ctr@mail.mil, (703) 704-4772. For more information concerning the netted FS3, contact Dave Edwards, david.j.edwards82.civ@mail.mil, (586) 282-7963. For information concerning the PM-JBCP ICD, contact Krupal Kapadia, krupal.s.kapadia.civ@mail.mil. For information about Stryker institutional training, contact Rich Eggers, richard.w.eggers.civ@mail.mil, (706) 545-8671.

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