Soldiers are evaluated on the Dismounted Soldier Training System during the 4th Sustainment Command (Expeditionary) Best Warrior Competition in San Antonio, Texas. (Photo by Robert Ramon)

Logistics Simulations for Battle Staff Training

The Battle Command Sustainment Support System allows sustainment Soldiers to gain experience in supporting the fight without going to the field to train.

■ By Kathryn Bailey and Calvin Pilgrim

A fires brigade commander in Afghanistan prepares to execute an offensive maneuver. He requests an update on the status of the rocket resupply for the Army Tactical Missile System and the maintenance status of the Multiple Launch Rocket System (MLRS).

His supply sergeant queries the Battle Command Sustainment Support System (BCS3) for the last known location of the convoy transporting the rockets and also opens a maintenance unit status report to see the progress of the MLRS repair.

Determining that the convoy left two hours ago and the MLRS is still in the shop but all parts are available for the repair, the sergeant then verifies that the estimated time of arrival of both the convoy and the MLRS is in six hours. Finally, a personnel query confirms that two new Soldiers are scheduled to arrive one day ahead of schedule.

While the above scenario was actually part of a simulated exercise, the up-to-date fire support and personnel data contributed to a successful attack, and the exercise underscored

the fact that logistics support training is just as critical to the mission as tactical training for combat operations.

BCS3 Simulations

Simulations, such as those provided by BCS3, are used to train commanders and staffs without them having to deploy.

BCS3 provides real-time, map-based, logistics operational capabilities to commanders at all echelons and includes the logistics reporting tool (LRT) for sustainment status reports, supply and equipment in-transit visibility, and personnel asset visibility. It is one of the logistics tools used for mission command and provides sustainment information in the command post computing environment (CP CE).

The CP CE is one of several computing environments nested inside the Army's common operating environment. It aims to simplify systems architecture for mission command capability development at tactical echelons.

When the BCS3 Simulations and Stimulations (Sim-Stim) Team began to support simulations in the 1990s, it had to travel to each site to set up a server suite. But in 2011, the National Simulation Center at Fort Lee, Va., began hosting the BCS3 simulation team and the national data portal. The simulation team conducts many of the 12 major annual exercises at Fort Lee, but the team also supports exercises worldwide through the portal, saving the Army money.

Exercises are tailored to unit requests, generally last 10 days, and include participation from the Active and Reserve components. The BCS3 architecture allows an organization to execute myriad sustainment operations. In more complex situations, the BCS3 architecture can be expanded to accommodate a greater number of systems that are sometimes called BCS3 clients.

To ensure the most realistic experience for sustainment Soldiers, the BCS3 Sim-Stim Team stimulates the scenarios by injecting data.

Injecting data is intended to test the responses of sustainment personnel. The types of simulations exercised are part of two logistics federations: the Multi-Resolution Federation (MRF) and the Entity Resolution Federation (ERF).

MRF uses Warfighter Simulation (WARSIM) for the combat model and Logistics Federation (LOGFED) for the logistics model. ERF interfaces with mission command systems through the Joint Conflict and Tactical Simulation as the combat model and Joint Deployment Logistics Model as the logistics model.

Tailoring Simulations

The actual scenarios vary depending on the training requirements, so the BCS3 Sim-Stim team closely coordinates each exercise to ensure the exercise meets the command's expectations. For example, a command may need to prepare for an upcoming deployment, requiring its Soldiers to learn how to track class I (subsistence) items. The simulation then pushes out a supply status to the user's BCS3 terminal but withholds class I updates.

The simulated environment begins when logistics data flows from the LOGFED server through a gateway to the LOGFED Sim-Stim client, which then feeds to the BCS3 main gateway. The gateway pushes that data down to the BCS3 clients.

In the Sim-Stim client, the unit task organization and tracked items list, a crucial listing of the commodities the commander deems necessary to complete the mission, are built and passed to the BCS3 national data portal and the BCS3 clients (the training audience) through the main gateway.

Practicing Resupply Procedures

The output is unit basic load (UBL) data from WARSIM, which is provided by the Program Executive Office for Simulation, Training, and Instrumentation, and supply point data from LOGFED, which is packaged and distributed to all the BCS3 gateways and client systems in the exercise architecture.

The UBL data provides several classes of supply, from class I through class IX (repair parts). This data is sent in the form of a logistics status

Spc. Noelle Foster and Sgt. 1st Class John Zapata work in the 35th Combat Aviation Brigade tactical operations center during a training exercise at the Army Aviation Warfighting Simulation Center at Fort Rucker, Ala. (Photo by Capt. Marvin J. Baker)

Soldiers from the 3rd Sustainment Command (Expeditionary) use simulations to train on forward operating base defense tactics at the Training Support Center at Fort Knox, Ky. (Photo by Sgt. 1st Class Gary Cooper)

report message and is posted in the running estimate reports, combat power, and LRT sections of BCS3.

Using the data from WARSIM, a unit can use BCS3 to monitor the degradation of stocks. For instance, users can set the UBL to send out an alert if fuel supplies reach 75 percent. Or users can track ammunition resupply by setting an alert to sound after 100 rounds are shot. On the LOGFED side, the simulation teaches users how to track the convoys carrying the supplies.

Convoys are visible in the common operational picture in BCS3, and the in-transit visibility information sent from LOGFED can be published to the Battle Command Server so other Army battle command systems, such as Command Post of the Future and Command Web, can subscribe to them and see the convoys in their common operational picture.

Another popular capability is the logistics factor file, which allows the user to set logistics factors that affect their status in the areas of planning consumption factors, days of supply, and status thresholds. This function allows unit leaders to weight the aforementioned factors to help determine their readiness status. Units also request BCS3's combat power capability for an all-inclusive analysis of their logistics readiness to perform their missions.

Training for Sim-Stim operations is available to units, and LRT is the most requested module. Users appreciate that they can use LRT to submit a report from the lowest level and then have the data automatically populate at each echelon based on the unit's task organization.

A new LRT enhancement includes equipment grouping, which allows a user to use a default grouping. An example of a default grouping is "combat, assault and tactical vehicles, and tracked," which contains major combat equipment, such as tanks, armored personnel carriers, and Bradley fighting vehicles.

The BCS3 simulations team continues to improve the system's interface, and as BCS3 is modernized and migrates into a web-enabled environment, the team is ensuring that the Sim-Stim environment will also transform to remain similar to the web-enabled environment.

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