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Form Approved
OMB No. 0704-0188

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1. REPORT DATE 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Joint Blue Force Situational Awareness: Helping Save Warfighter Lives & Improve Operations Through Information Integration				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Army Space & Missile Defense Command, Army Forces Strategic Command, Redstone Arsenal, AL, 35809				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Joint Blue Force Situational Awareness:

Helping Save Warfighter Lives & Improve Operations Through Information Integration

By John Brophy and Preston A. Cooper

Warfighters in Afghanistan and Iraq had many tools to help them prosecute the war more effectively than ever before possible. Technology development programs in recent years have greatly improved our forces' ability to understand their own situation through the use of Global Positioning System-based tracking systems. In short, they used newly developed Blue Force Tracking (BFT) systems to establish "Blue Force Situational Awareness" or BFSA. As our forces learned to use, and indeed depend upon the information provided by these systems, they realized that entirely new challenges had arisen.

While these systems provided a wealth of new data, they were all developed in a traditional stovepipe fashion. This meant that warfighters could see only some of the friendly forces on the battlefield. For example, in some cases they could not see either the logistics forces that were supporting them or coalition forces that they were fighting alongside. The inability to produce a single, accurate, common operational picture at any strategic, operational or tactical level limited the overall utility of BFSA. Additionally, when a warfighter did have access to limited BFSA he still experienced a challenge in using the data because he was unable to select and display data that was relevant to his mission. In short, warfighters were often drowning in the wrong type of incomplete data.

It was in this environment that the Joint Requirements Oversight Council chartered the Joint Blue Force Situational Awareness (JBFSA) Advanced Concept Technology Demonstration (ACTD) in 2002. Given the critical impact on the warfighter, the JBFSA ACTD was put on an accelerated schedule to develop and demonstrate technology to integrate and disseminate information from the large family of military and commercial BFT stovepipe systems used by the U.S. military. The goal was to provide an integrated

Blue Force picture to the warfighter, using equipment they already had, and were already trained to use. Thus the integrated information developed by the ACTD's hardware and software was designed to use the Global Command and Control System – Joint (GCCS-J), developed by the Defense Information Systems Agency (DISA), for dissemination to all levels of warfighter. The GCCS family of systems in use in theater by each service can then distribute the relevant common operational picture information down to various organizations and individual warfighters.

The operational manager and transition manager for this ACTD is U.S. Army Space and Missile Defense Battle Lab (SMDBL) in Colorado Springs, Colo. Leading the JBFSA team is U.S. Army LTC Gregory Palka. Working closely with DISA's technical manager, the JBFSA team successfully completed the ACTD's demonstration phase, including participation in Exercise Foal Eagle 2004 in South Korea. Palka and his team were so successful in overcoming the institutional, technical and schedule challenges, that he was honored with the ACTD Operational Manager of the Year for 2004 by the Under Secretary of Defense for Advanced Systems and Concepts, an accomplishment he credits more to the government/contractor team that supports him.

The JBFSA ACTD developed a concept of operations and supporting technology that uses the Internet to receive BFT information from a half-dozen unclassified military and commercial systems. After integrating this unclassified information together, the ACTD technology allows the Mission Management Center or MMC (operated by U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command at Peterson Air Force Base, Colo.) to disseminate a complete BFT operational picture to various users via a number of different communications paths.

Having completed the demonstration phase, the JBFSA

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team is now focusing on a variety of efforts designed to operationalize the technology that was demonstrated. The JBFSA ACTD is currently executing the ACTD's Extended User Evaluation (EUE) phase which runs throughout FY05 and FY06. Based on the experiences gained during Exercise Foal Eagle 2004, the ACTD Operational Manager Team is working closely with U.S. Pacific Command (PACOM) and the Eighth U.S. Army (EUSA) to conduct a large part of the EUE within PACOM and in the Korean theater of operations during exercises Foal Eagle 2005 and Talisman Saber 2005. While these won't be the only operational venues that the ACTD plans to use during the EUE period, most of the elements needed to conduct a successful EUE are readily available in PACOM and the Korean theater of operations. Supporting these EUE exercises is a dedicated team based in Colorado Springs that is striving to turn high-maintenance developmental hardware and software (installed at SMDBL's MMC Testbed lab) into low-maintenance operational hardware and software installed at the MMC.

In addition to the EUE effort, the JBFSA team is working closely with British allies to share JBFSA information with them. Under the Coalition Blue Force Situational Awareness project arrangement with United Kingdom Ministry of Defense, the U.S. JBFSA experts are working closely with Ministry of Defense staff and contractors to develop and demonstrate the operational and tactical level exchange of BFTA data between the U.S. systems and the United Kingdom's Bowman tactical communications and situational awareness system. This effort, in its second year, was recently successful in exchanging BFTA data in a U.S. laboratory setting. Technical trials will continue through this June and will culminate in operational demonstrations in June and September in the United Kingdom. A similar effort is also being undertaken with our NATO (North Atlantic Treaty Organization) coalition partners as part of the 2005 NATO Coalition Warrior Interoperability Demonstration in Norway. While the NATO demonstration will be key to demonstrating the ability to share information, a far more important outcome could be to establish a defacto international standard for formatting BFTA data (which could ultimately eliminate need for the

ACTD's message translation technology).

Finally, the JBFSA team is also working with a variety of combatant commanders to operationalize the ACTD capabilities in support of ongoing operations. In January the ACTD team supported U.S. Northern Command by providing BFTA support during the week of the President's inauguration. The team is also working hard with Joint Forces Command to test and deliver a JBFSA operational capability in support of U.S. Central Command's warfighters in Iraq and Afghanistan. Software upgrades and testing during Spring 2005 led to an operational system, and a vastly improved situational awareness of their forces, which in turn, will help reduce fratricide.

While a large number of systems have been developed to provide unit commanders with knowledge of their own forces, these systems were not developed with an eye toward interoperability. The JBFSA ACTD has pioneered new ground in establishing a path for the exchange of data between stovepiped systems. Providing the tools for interoperability will address many short-term needs, but the ACTD's long-term legacy will have been to both demonstrate the art of the possible and to establish standards for data exchange that will long outlive the actual technology developed to make the exchange happen today.

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