BALKAN DIGITIZATION INITIATIVE / BLUE FORCE TRACKING

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1. INTRODUCTION

The mission of the United States Army Europe (USAREUR) has been dominated in the post cold war era by Security and Stability Operations (SASO) in the Balkans. These missions are best characterized by non-linear operations of small, task-organized forces under the direction of junior leaders in charged and dangerous environments. The risks, economy of scale and remote operations place greater demands on command and control (C2) systems to provide the necessary information for sound decision making processes.

Late in 1998, the USAREUR Commander requested that the Program Executive Office Command, Control and Communications Systems (PEO C3S) evaluate the use of Force XXI systems and technologies to enhance the C4ISR capabilities of the stabilization forces in Bosnia and Kosovo. This effort became know as the Balkan Digitization Initiative (BDI). The resulting material solution, known as the Enhanced Information System (EIS), consisted of a variant of the Force XXI Battle Command Brigade and Below (FBCB2) software packaged on a commercial hardware suite. Limited assets and terrain restrictions precluded a viable Enhanced Position Location Radio Systems (EPLRS) capability in the Balkans. Therefore, portions of the QUALCOMM OmniTRACS system, a Commercial-Off-the-Shelf (COTS) satellite-based vehicle tracking system, was used as the communications path. Additionally, a QUALCOMM satellite hub and ground station was deployed within the USAREUR Theater to provide network management.

The merit of the BDI program has been twofold. First, it substituted a commercial hardware solution for the formal program developed FBCB2 system to lower costs and speed delivery. Secondly, it recognized that asymmetrical operations, declining force structure and difficult terrain required a satellite based communications solution for peace operations in the Balkans. The EIS system is viewed as an interim solution for legacy forces that would otherwise not be a fielded the standard army FBCB2 until 2008 or later. USAREUR initial fielding of 70 EIS systems in Bosnia has grown to over 700 systems across Bosnia, Kosovo, and the Southern European Task Force (SETAF) in Italy

2. FUNCTIONALITY

The EIS systems automatically provide patrol vehicles with their current position location, as well as the position location of adjacent patrols, all without operator action. The screen of a typical EIS system is depicted in Figure 1.

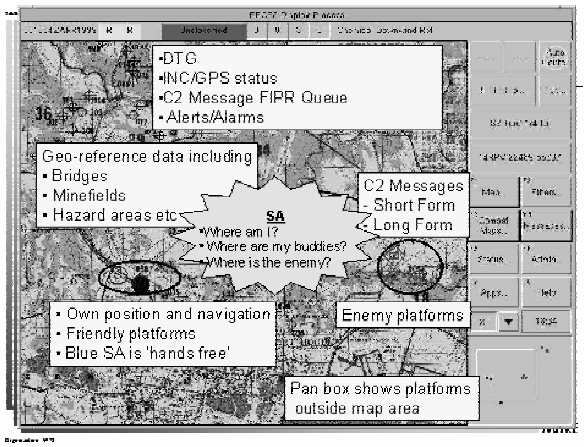

Fig. 1 Typical EIS display

These position locations are also being sent to a web-based data broker for worldwide dissemination, as well as being entered into the Global Command and Control System (Army) at USAREUR Headquarters in Heidelberg, Germany for inclusion into the Common Operational Picture (COP). A vehicle to vehicle messaging capability exists, and at times is the only communications available to the soldiers on patrol.

3. SYSTEM ENHANCEMENTS

Architectural enhancements are being made to the system to accommodate multiple communications

paths. Through the introduction of a routing device (mini-router) in the vehicle, the EIS application is separated from the communications medium. Interfaces to a variety of communications paths can be built into the mini-router, providing communications in depth. Currently, interfaces for Ku-band (OmniTRACS) and L-band satellites have been developed. L-band satellites cover almost the entire globe. It is envisioned that the L-band communications network provided by the Army's Movement Tracking System (MTS) will be used. When these enhancements are fielded in November of 2002, the EIS systems will be able to operate in virtually the entire USAREUR area of operations, which previously had been a major shortcoming. The system architecture for USAREUR is depicted in Figure 2.

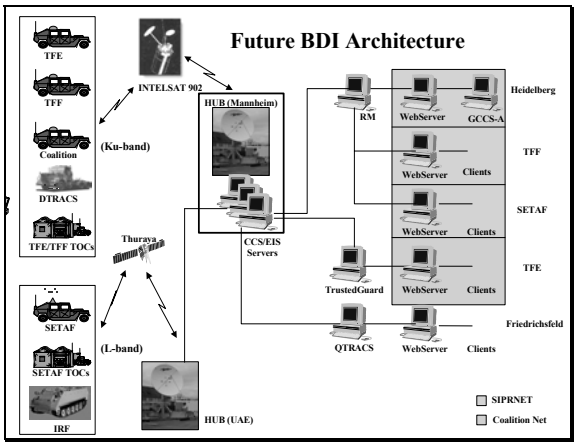

Fig. 2 BDI system architecture

4. AVIATION APPLICATIONS

The EIS system is versatile, in that it can operate virtually anywhere in the world, both in the air and on the ground, giving commanders a real time picture of his forces. In June 2002, a prototype EIS system was installed in AH-64 and UH-60 rotary wing aircraft. A flying demonstration was conducted at Fort Campbell, Kentucky with these aircraft and several ground systems. The helicopters were able to view the ground systems, and vice versa. This is the first time air and ground pictures have been exchanged in near real time.

5. OPERATION ENDURING FREEDOM

Although currently used in SASO in the Balkans, the EIS system is agile enough to be used throughout the full spectrum of military operations. The Army staff has initiated an effort to field some 450 EIS systems, on both ground and air platforms, as a Blue Force Tracking mechanism in support of Operation Enduring Freedom. Work has been ongoing since January 2002 in both Kuwait and Afghanistan to upgrade the existing infrastructure in support of this effort. Once completed, the C4ISR capabilities of our deployed forces will be greatly enhanced.