Expeditionary Signal Battalion Enhanced (ESB-E) Pilot




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WHY?

- PROBLEM: Signal force (current systems) not optimized to enable successful expeditionary and large scale combat operations against a near-peer adversary
- PROPOSAL: Three Tactical Signal Pilot COAs were evaluated to address the problem
- OUTCOME: CSA selected a one-year prototype COA that would convert one ESB to a Joint Communication Support Element (JCSE)-like model
- PURPOSE: Validate ESB-E effectiveness and determine scalability across the Army

PEO C3T/PM TN partnering with 35th SIG BDE/50th ESB-E (Fort Bragg) to evaluate various material solutions to determine best set of kit that supports identified mission requirements

ESB-E Prototype Material Solution

Mission Statement: The ESB-E Pilot Unit is a modular, expeditionary-capable formation that provides force commanders across all echelons with a full range of network services through a common, scalable, integrated, everything-over-Internet protocol network architecture. It provides DoD Information Network (DODIN) capabilities to enable mission command from a remotely located maneuver Company Command Post to a Joint Task Force Headquarters by augmenting the supported unit with a scalable signal support team.

Characteristics / Description:

- The smaller, lighter, faster ESB-E tactical network equipment prototype package is comprised of modular antenna and baseband kits. Small, medium and large satellite terminals provide tailorable expeditionary network connectivity that support all phases of operations. The ESB-E is also equipped with line-of-sight capability to increase multipath diversity and operational flexibility.

Capabilities:

- Extends the Tactical Network to the company command post / team sized early entry units, the tactical edge, and late phases of operations
- Provides robust scalable voice and data communication capabilities
- Integrates users into the higher capacity Tactical Network and extends that network to the tactical edge
- Interoperable systems are less complex to enable Soldiers to be proficient in multiple system operation.

Special Features:

- The small/medium network modules and antenna are housed in airline checkable cases which provide the ability to add or subtract components to scale, size up or down, as dictated by mission requirements.
- The network is based upon the current colorless core architecture and provides SIPR, NIPR and Coalition network connectivity. The system includes a Radio over Internet Protocol (RoIP) module to facilitate the integration of RF networks into the IP network.
- The system includes a capability to securely tunnel traffic over an LTE or available Wi-Fi network.

ESB-E Prototype Materiel Solution

SMALL (10x users)

Transmission

- 65cm/95cm w/case
  - **Tri Band (Ku, Ka, X)**
  - **TDMA**

MEDIUM (48x users)

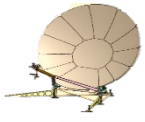
Transmission

- 1.3M w/case
  - **Tri Band (Ku, Ka, X)**
  - **TDMA**
  - **FDMA**
- Portable Generators
- Transit Case Baseband

LARGE (350 users)

Transmission

- 2.2M w/case
  - **Tri Band (Ku, Ka, X)**
  - **FDMA**
  - **1 MF-TDMA**
- BnCPNs + Coalition Stack
- 2x HMMWV per kit



SCALABLE AND TAILORABLE

CURRENT

Secure Wireless

Line Of Sight (LOS)

Alternative to SATCOM

Coalition Enclave

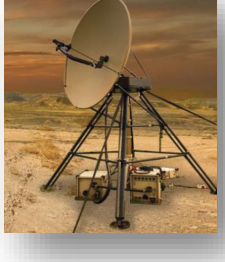
Facilitates Mission Partner Environment

FSRs

FUTURE

Beyond Line Of Sight (BLOS)

Alternative to SATCOM



VALIDATES

- **Foundational Training**
- **MOS Convergence**
- **Organizational Design**
- **NetOps Concept**

Lessons Learned

White Sands, NM

Roving Sands 2019

Holland DZ, FBNC

27th EN FTX

Yeoncheon, SK

Warrior Strike 19

FCKY

1st TSC EECP

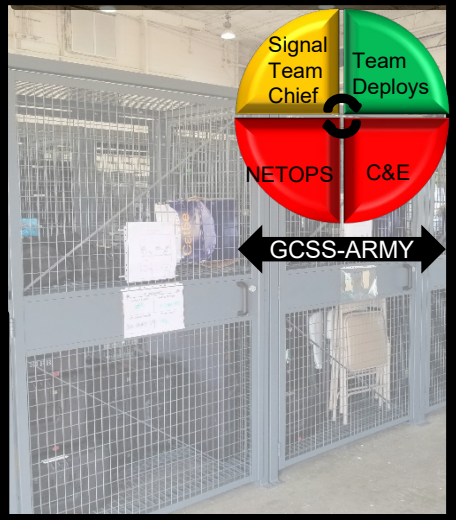
Kuopio, Finland

Bold Quest 2019

A Co JRTC

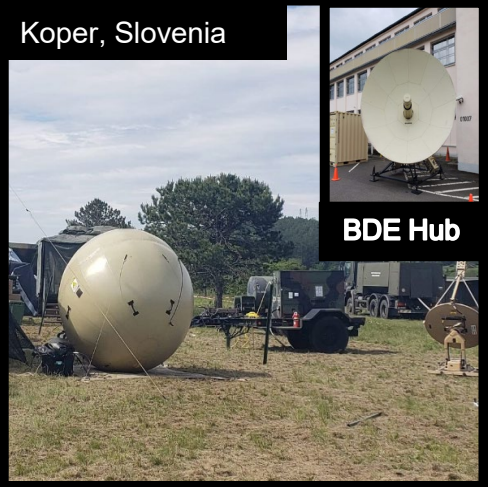
B Co NTC

A Co & B Co CTCs



Centralized Signal Maintenance Program

Koper, Slovenia



BDE Hub

Sabre Guardian

U.S.ARMY

20 August 2019

Unclassified | For Public Release

Next Steps

- **Currently in Phase II (Execution)**
  - Field Experimentation / Use Cases
- **Phase III**
  - Consolidate data
  - Generate Recommendations
  - ASL Decision Briefs
- **FY2020 – Begin ESB Conversions**