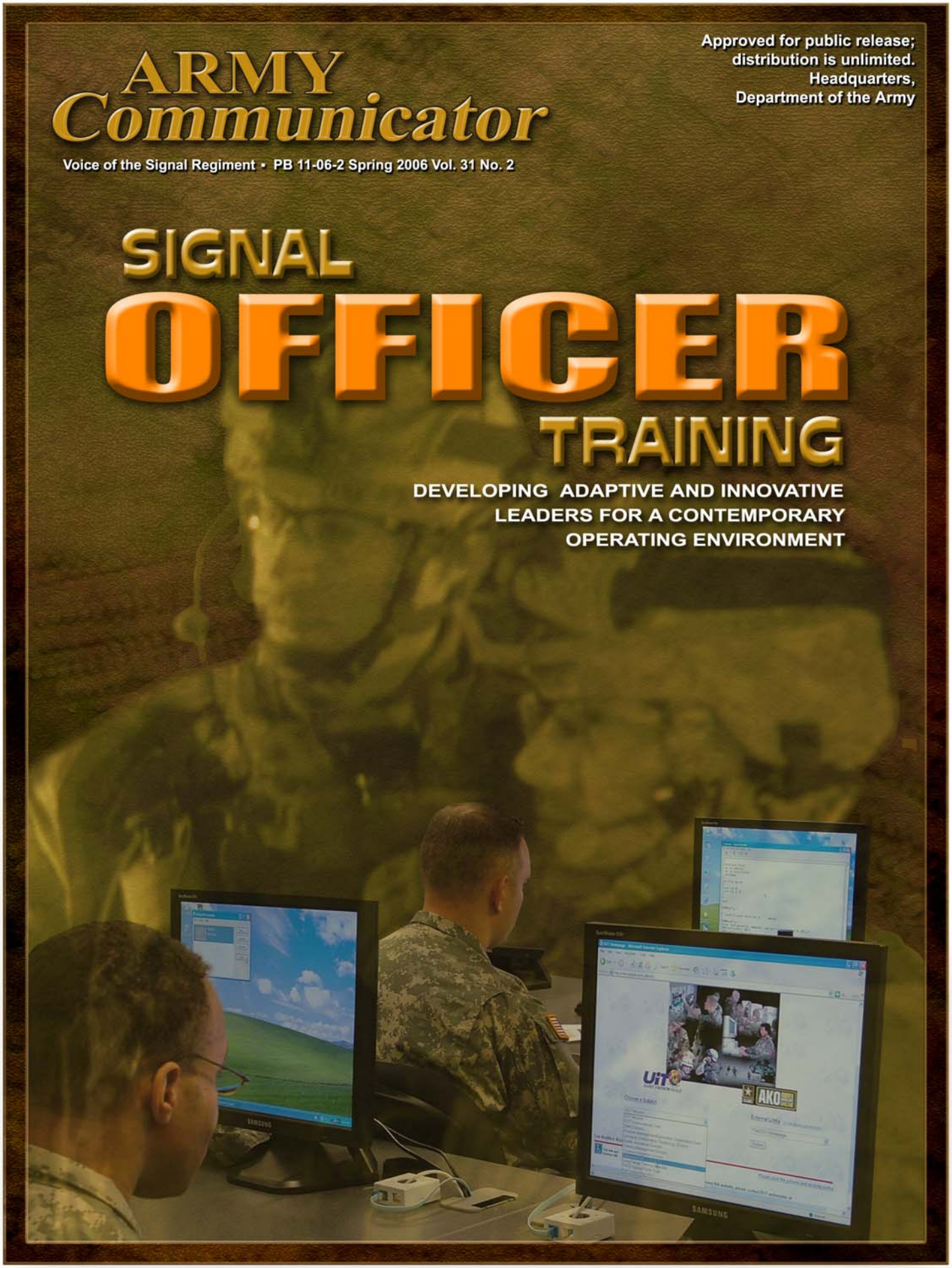
Approved for public release;
distribution is unlimited.
Headquarters,
Department of the Army

ARMY Communicator

Voice of the Signal Regiment • PB 11-06-2 Spring 2006 Vol. 31 No. 2

SIGNAL OFFICER TRAINING

DEVELOPING ADAPTIVE AND INNOVATIVE LEADERS FOR A CONTEMPORARY OPERATING ENVIRONMENT



Chief of Signal's Comments

Training Signal leaders for effective battle command

Fellow members of the Signal Regiment:

The Signal Regiment needs agile, adaptive officers who can lead units enabling effective battle command within the contemporary operating environment. These Signal leaders make leader-centric operations possible by providing maneuver commanders with a superior ability to acquire and use information, to see and understand the battlefield, and to command and control their forces. They must understand the capabilities of their units and systems. It is imperative they be thorough planners who anticipate potential complications, yet remain flexible to overcome the unforeseen. These Signal leaders must be culturally aware, technically competent, innovative thinkers who can operate in the joint environment. Finally, these leaders must be imbued with the drive and determination to deliver the utmost towards mission accomplishment.

Officer training for the Regiment is changing to ensure we meet these requirements. Development and education of officers – Signal branched officers, officers in our two functional areas, and warrant officers in our three warrant specialties – are keeping pace with changes in technology, changes in our systems, changes in our force structure, and changes in the way we fight. We are taking steps to ensure our officers

BG Randolph P. Strong
Chief of Signal

and warrants understand and harness the complexities of LandWarNet so they are able to maneuver, or fight, the network as an integral part of operations rather than "manage" the network. We will provide training to non-Signal leaders on their roles in fighting and maneuvering the network.

The Army will train LandWarNet through LandWarNet University. LWN-U is an initiative to train and educate all Army Soldiers and leaders from the classroom to the battlefield by integrating training between multiple enabling organizations, in order to provide network-enabled battle command, in support of leader-centric operations.

LWN-U leverages enabling communities to provide training to Soldiers and leaders at the right time and place. Coordinating and synchronizing training in the institutional, unit, and self-development domains. These efforts must be synchronized, integrated, and focused to provide education over a lifetime. LWN-U is a Community of Excellence that encompasses network training at other Training and Doctrine Command centers, in units, at Battle Command Training Centers, and at Signal unit training organizations. At the Signal Center, LandWarNet University breaks down internal educational stovepipes and integrates Soldier, non-commissioned officer, warrant, and officer training.

In the past, everyone in a given course took the same training from the first day of the course to the last, and there was little or no interaction with other ranks or specialties. LandWarNet University will provide shared training events between NCOs, warrants, and officers. LandWarNet University will provide each student with that student's needs and avoid training in areas already mastered, and avoid training in areas already mastered. In particular, we more closely align officer and warrant training.

See Chief of Signal Comments continued on Inside Back Cover

These Signal leaders must be culturally aware, technically competent, innovative thinkers who can operate in the joint environment.

U.S. ARMY SIGNAL CENTER AND FORT GORDON

Worldwide web homepage address http://www.gordon.army.mil/AC/
E-mail ACeditor@gordon.army.mil

PB 11-06-2
Spring 2006
Vol. 31 No. 2

Army Communicator

Voice of the Signal Regiment

COMMAND

Commander/Commandant
BG Randolph P. Strong
Command Sergeant Major
CSM Michael Terry

EDITORIAL STAFF

Editor-in-Chief/Graphic Designer
Janet A. McElmurray
Senior Adviser
Susan Wood
Illustrator
Billy Cheney
Photography
Stephen Larsen, Anthony Ricchiazzi, Kristy Davies, Tony Medici, 22nd Signal Brigade

Table of Contents

Features
Focus: Training Signal leaders

2 **Basic Officer Leader Course**
John R. Turns

4 **Signal Captains Career Course**
CPT Brian North

7 **Battalion & Brigade S6 Course**
MAJ James W. Bryant Jr.

10 **Change is one constant for FA53 officer training**
LTC Bruce Caulkins and MAJ Allen Berry

12 **Telecommunications Systems Engineering Course**
CPT Frank Ranero

15 **Joint Staff J6 planners course**
CWO4 Joe Anderson

16 **551st CAPSTONE Exercise**
CPT Dave Richards

18 **Network management training for warrant officers**
CWO3(P) Kevin Hanner and CW3 Adrian King

20 **Critical Task Site Selection Boards: Vital to the Army**
Myrtle C. Alexander and Patrick S. Baker

22 **Lifelong Learning: future for training and education**
Members of University of Information Technology

26 **'Load Balancing' RC modular force signal training requirement**
MAJ Jan C. Norris

29 **'DITSCAP Me! The neccessary role of security engineering**
Jaqueline B. Tegre and Theodore Hendy

33 **Close combat teaches discipline, self confidence**
1LT Kalin M. Reardon

35 **After AIT: Advanced Immersion**
CPT Shannon Sanford

Cover: The cover shows officers in training for network management and ultimately preparing for battlefield command. They must understand the capabilities of their units and systems. Cover by Billy Cheney

Departments

46 Circuit check
37 TSM update

Army Communicator (ISSN 0362-5745) (USPS 305-470) is an authorized, official quarterly professional bulletin of the U.S. Army Signal Center, Fort Gordon, Ga. 30905-5301. Second-class official mail postage paid by Department of the Army (DOD 314) at Augusta, Ga. 30901 and additional mailing offices.

POSTMASTER: Send address changes to ***Army Communicator***, U.S. Army Signal Center, Fort Gordon, Ga. 30905-5301.

OFFICIAL DISTRIBUTION: ***Army Communicator*** is available to all Signal and Signal-related units, including staff agencies and service schools. Written requests for the magazine should be submitted to Editor, ***Army Communicator,*** U.S. Army Signal Center, Fort Gordon, Ga. 30905-5301.

This publication presents professional information, but the views expressed herein are those of the authors, not the Department of Defense or its elements. The content does not necessarily reflect the official U.S. Army position and does not change or supersede any information in other official U.S. Army publications. Use of news items constitutes neither affirmation of their accuracy nor product endorsement.

Army Communicator reserves the right to edit material.

CORRESPONDENCE: Address all correspondence to ***Army Communicator,*** U.S. Army Signal Center and Fort Gordon, Signal Towers (Building 29808), Room 713, Fort Gordon, Ga. 30905-5301. Telephone DSN 780-7204 or commercial (706) 791-7204. Fax number (706) 791-3917.

Unless otherwise stated, material does not represent official policy, thinking, or endorsement by an agency of the U.S. Army. This publication contains no advertising.

U.S. Government Printing Office: 1984-746-045/1429-S.

Army Communicator is not a copyrighted publication. Individual author's copyrights can be protected by special arrangement. Acceptance by ***Army Communicator*** conveys the right for subsequent reproduction and use of published material. Credit should be given to ***Army Communicator.***

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:
JOYCE E. MORROW
Administrative Assistant to the Secretary of the Army

0603003

Basic Officer Leader Course

Signal Officer Basic Course will convert into the Signal Basic Officer Leader Course

By John R. Turns

By the end of this fiscal year, 2006, the Army will fully implement the Basic Officer Leader Course. This is one of the most significant changes in officer training and development in recent history. As part of the implementation of BOLC, the Signal Center will convert the Signal Officer Basic Course into the Signal Basic Officer Leader Course.

BOLC is a three-phased training program designed to produce officers who are tactically proficient, technically competent, physically fit, and ready to lead Soldiers. BOLC focuses on leader development and prepares new officers for the complexities of our current battlefields. Training and Doctrine Command designed BOLC to produce agile, adaptable leaders who embody the Warriors Ethos. The Army Accessions Command is the proponent for BOLC and has been focusing on BOLC as well as Initial Entry Training for enlisted Soldiers.

BOLC model: BOLC is designed to ensure a tough, standardized, small-unit leadership experience flowing progressively through three phases. BOLC's Phase I is the pre-commissioning phase and includes training conducted at the U.S. Military Academy, in the Reserve Officer Training Corps, and at Officer Candidate Schools). In Phase I officers are trained in basic Soldier and leader tasks performed by all lieutenants.

After commissioning, all lieutenants, with the exception of some in some of the special branches, attend BOLC Phase II. BOLC II is a rigorous six-week, branch-immaterial course in small-unit leadership and tactics designed to challenge officers both physically and mentally. The mission of the BOLC II is to develop competent and confident small unit combat leaders. Phase II training is conducted at Fort Benning, Ga., and Fort Sill, Okla. Upon graduation, these officers will possess tactical competence, be able to lead platoon dismounted battle drills, execute selected collective tasks, and apply troop-leading procedures.

Graduates of BOLC II will:

❖ be capable of operating, maintaining, and employing all current dismounted U.S. platoon weapons and equipment

❖ be prepared to train squads and platoons in accordance with current doctrine

❖ be prepared to execute light-infantry field craft and first aid

❖ be capable of bringing all combined arms fires on target using current platoon level communications systems

❖ embody Army values, Army leader attributes, be adaptable and self-aware

❖ be physically rugged and have an ingrained physical fitness ethic

❖ possess the confidence and fortitude necessary to successfully complete BOLC Phase III at their respective branch school

BOLC focuses on leader development and prepares new officers for the complexities of our current battlefields.

In August 2005, the 442nd Signal Battalion received 15 signal officers from a BOLC, Phase II pilot course conducted at Fort Benning. This was the last BOLC II pilot course conducted only at Fort Benning and some cadre members from Fort Sill also conducted the course. Currently, 56 destined-to-be signal officers are attending BOLC, Phase II. About half are attending at Fort Benning, Ga., and the other half at Fort Sill, Okla. Immediately following their successful completion of BOLC Phase II, these officers will head to Fort Gordon for our initial implementation of SBOLC (the Signal Regiment's version of BOLC Phase III). SBOLC is 13 weeks long and consists largely of the technical training the lieutenants need to be effective signal platoon leaders and Signal staff officers.

During SBOLC, the officers learn specialized skills, doctrine, the most current tactics and techniques of the Signal Regiment. We are reducing block training and making greater use of experiential training to enhance the relevance, quality, and effectiveness of the SBOLC course. SBOLC will conclude with a demanding and realistic field training exercise requiring students to display their knowledge and skills in a tactical environment.

These specific topics are included in SBOLC:

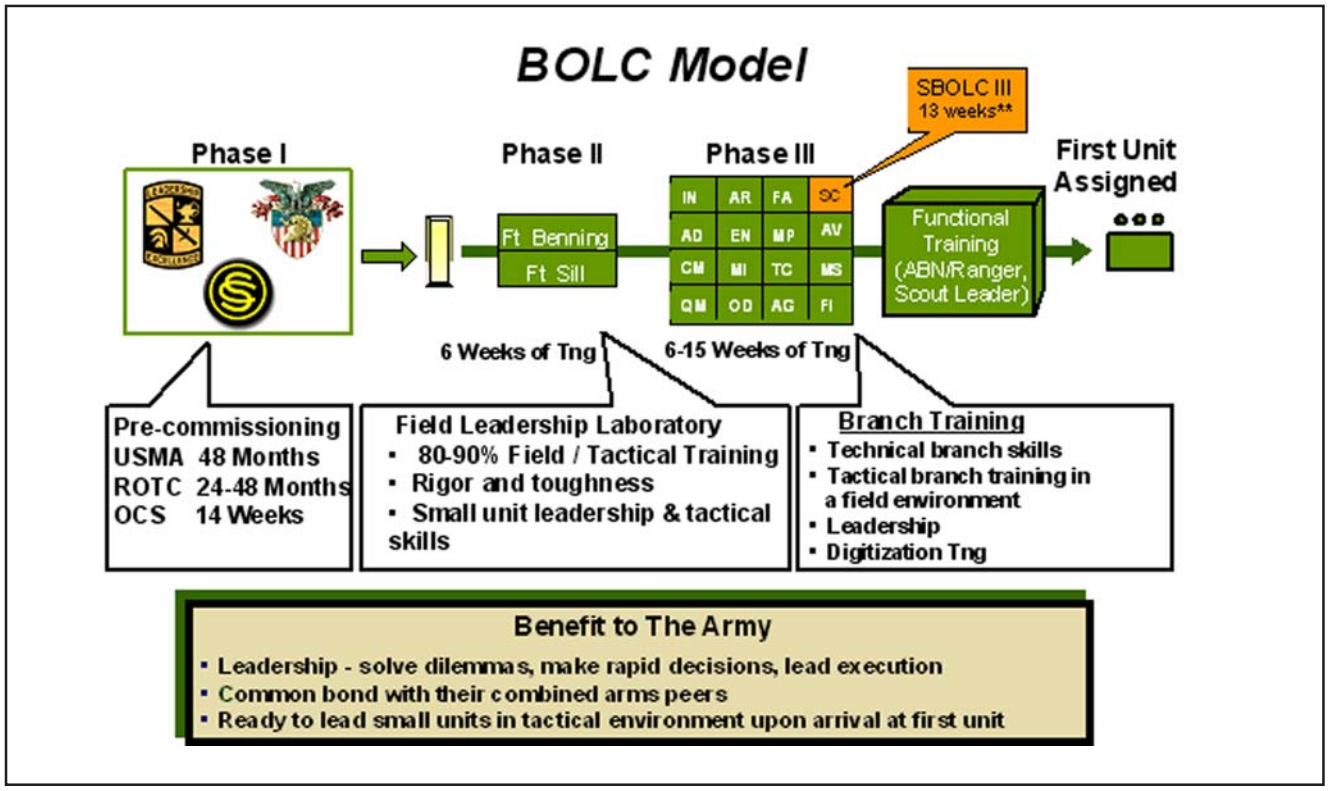
General Knowledge – provide health, welfare, & morale to Soldiers/Soldiers' families; supervise PMCS; direct small unit supply activities; supervise unit maintenance operations; and conduct individual & collective training.

Information Technology – PC hardware & software; networking fundamentals; web design; and advanced email client administration.

Network Management – CISCO Call Manager; Warfighter-Machine Interface.

Communications Fundamentals – basic electronics; telecommunications; data communications; and switching.

DoD Tactical Networks – Mobile Subscriber Equipment; Signal Flow; Digital Group Multiplexing;



Class #	Report Date	Start Date	End Date	Remarks
SBOLC 001-06	02 Mar 06	03 Mar 06	02 Jun 06	Initial SBOLC class
SOBC 003-06	05 Apr 06	06 Apr 06	18 Aug 06	
SOBC 004-06	09 May 06	10 May 06	22 Sep 06	Final SOBC class
SBOLC 002-06	31 Jul 06	01 Aug 06	01 Nov 06	
SBOLC 003-06	24 Aug 06	25 Aug 06	29 Nov 06	
SBOLC 004-06	28 Sep 06	29 Sep 06	17 Jan 07	

Tactical Satellite; Joint Network Node; and Combat Net Radio

Capstone Exercise – MSE Map Exercise; MSE Switch Exercise; Field Training Exercise; and Recovery & Reconstitution

Upon graduating from BOLC III, officers will proceed to their first unit or attend additional assignment-oriented training.

The 442nd Signal Battalion will conduct a test run of SBOLC and then run two more iterations of SOBC. This will allow the 442nd to make adjustments to the program of instruction prior to full BOLC implementation. The SOBC/SBOLC schedule for the remainder of FY06 follows:

If you have comments, questions, or suggestions about BOLC, please contact the Chief, Professional Development Division, Mr. Turns at john.turns@us.army.mil, or (706) 791-3342, DSN 780-3342.

Mr. Turns is chief of the Professional Development Division, 442nd Signal Battalion. His experience in training signal officers and Soldiers dates back to his first school assignment at Lenggries, Germany in 1966. Turns retired from the Army in 1975 with more than 21 years of service, and has been a civilian instructor and training specialist since 1982. In 1989, he began his association with training new signal officers that continues to this day. Turns served two tours in Vietnam, the last one with the 53rd Signal Battalion as a platoon sergeant. Other overseas assignments were in Germany, France, Italy, and Korea. He developed the schedule and strategy for Mobile Subscriber Equipment Doctrine & Tactics Training, and participated in the instruction to the first four Signal Battalions fielded.

Acronym QuickScan

AAC – Army Accessions Command
BOLC – Basic Officer Leader Course
CNR – Combat Net Radio
DGM – Digital Group Multiplexing
FTX – Field Training Exercise
IAW – in accordance with
IET – Initial Entry Training
JNN – Joint Network Node
MSE – Mobile Subscriber Equipment
OCS – Officer Candidate Schools
ROTC – Reserve Officer Training Corps
SBOLC – Signal Basic Officer Leader Course

Signal Captains Career Course

SCCC training focus shifts from preparing junior officers for company command to preparing them to serve as a battalion S6 and signal company commanders

By CPT Brian North

In response to the challenges of the Global War on Terrorism and the Army's transformation to a modular force, the Signal Captains Career Course has undergone significant changes. Starting with a Critical Task and Site Selection Board in September 2004, the 442nd Signal Battalion reevaluated the tasks, skills, and knowledge required of a signal captain.

The training focus shifted from preparing junior officers for company command in mobile subscriber equipment or digital group multiplex units to preparing them to serve as a battalion S6 and signal company commanders in Joint Network Node equipped units. As more combat veterans attended the course, the 442nd increased the time spent in practical exercises and peer learning to take advantage of their experience.

As part of Training and Doctrine Command's guidance for SCCC, the battalion added training on cultural awareness, agile leader skills, and counter-insurgent/urban operations. These additional courses contribute to a course length increase to 20 weeks from 19 weeks and four days. (See Figure 1)

The revised program of instruction now includes seven resident and one distributed learning modules.

Module A, General Knowledge, is 24 days long and focuses on developing the captains' general leader skills and knowledge in the areas of decision making, company command operations, personnel management, training management, logistics, communication, and specific commander tasks.

Module B, Signal Theory, is a refresher of basic electronics and switching skills. It builds upon general concepts to ensure the captains have a solid understanding of power distribution and grounding. This module also provides the first steps toward understanding complex Department of Defense tactical communications systems. It provides the foundation for detailed switching concept discussions.

Module C, the longest, module is Information Technology. This 25-day module, taught by the School of Information Technology, concentrates on teaching the skills needed to plan and manage data networks. Skills include basic router fundamentals, router interfaces, routing protocols, virtual private networks, and an introduction to Voice over Internet Protocol. The server classes develop the student's understanding of active directory, domain services, and exchange server management. There are two days of training on Information Dissemination Management – Tactical on an Army developed Microsoft SharePoint tool fielded to units undergoing transformation. The final portion of the IT module provides an overview of Information Assurance tools like the Netscreen Firewall and RealSecure Intrusion Detection System.

Module D, Information Management, outlines the signal officer's roles and responsibilities in supporting the commander's information management requirements. We provide some training of the many command and control systems available, but the majority of this module is dedicated to instruction of the Maneuver Control System, Force XXI Battle Command Brigade and

SCCC 20 Week POI

MODULE A	MODULE B	MODULE C	MODULE D	MODULE E	MODULE F	MODULE G	MODULE H
General Knowledge	Signal Theory	Information Technology	Information Management	Department of Defense Tactical Communications	Network Management	CAX, Planning and Managing Exercise	Distance Learning
(22 Days)	(3 Days)	(25 Days)	(7 Days)	(16 Days)	(5 Days)	(17 Days)	Outside Class
C2 Philosophy	Review of Electronic Theory	Data Network Architecture	Maneuver Control System	TSS	SNMP	Planning Process	TRADOC Common Core
Agile Leader	Power Distrobution	Windows 2003 Server	CPOF	JNTC-S	Cisco Works	Combined Arms Exercise	IA Manager Level II
Evolution of Combined Arms	Grounding	Exchange Server	Introduction to Information Management	Combat Net Radio	Cisco Call Manager	Signal Planning Exercise	
Battle Analysis	Signal Flow and Switching Concepts	IDM-T		Joint Communications	SNMPc	Signal Management Exercise	
Training Management		Firewall and IDS			Solarwinds		
Tactics (MDMP and Cultural Awareness)					WMI		
Info / Experience Briefs					What's Up Gold		
Sexual Assault Prevention					Troubleshooting JNN Network		
Command Focus:							
- Command Philosophy							
- UCMJ							
- Inventories and Command Supply Discpline							
- Leadership							
- OERs & NCOERs							
- Awards							

Administrative Days:
In processing
Mid/End Of Course Counseling
Graduation
Out processing

Figure 1. SCCC 20 week POI

Below, and Command Post of the Future using our equipment labs.

Module E, DoD Communications, contains the bulk of tactical communications systems training. Students rotate through one-week blocks covering combat net radio, joint network transport capability – spiral, theater signal support, and finish with a one-day overview of joint communications. Each block is focused on the planning and management of these systems and includes multiple labs and practical exercises to reinforce learning.

Module F, Network Management, includes an overview of the current network management tools. The module culminates with an 8-hour JNN troubleshooting practical exercise.

The final resident module, **Module G, Combined Arms Exercise Planning and Managing Exercises**, allows the student to apply the skills and knowledge gained throughout the course. The first exercise is the Combined Arms Exercises developed by TRADOC Combined Arms Center. Students conduct the military decision making process for a Stryker Brigade Combat Team conducting support and stability Operations. The second is a signal planning exercise where the students plan signal support for a Brigade Combat Team exercise and, later, a Joint Task Force exercise. The final Signal Management Exercise requires students placed in a simulated digital Tactical Operations Center to configure and manage diverse and complex communications systems.

Module H, Distance Learning, while at SCCC, students must also complete two portions of computer-based training for Module H.

Lessons are taken during non-academic time and require an estimated 80 hours to complete. Instructors provide assignments during the first weeks of the course. Assignments include the Training and Doctrine Command prescribed common core tasks including equal opportunity; Nuclear, Biological, and Chemical; law of war; etc. The second portion of the distributed learning module is the Information Assurance Level II Managers Course. Captains who successfully complete this course earn Level II certification. Many units require S6s to attain this certification.

The 442nd Signal Battalion is constantly evaluating comments from the field, incorporating emerging doctrine, and applying lessons learned from units who have completed the modular transformation. Our goal is to keep the course relevant with the challenges of the Army at war. We are rapid, ready, and reliable!

If you have comments, questions, or suggestions about SCCC, please contact the Senior Small Group Leader, CPT Brian North at brian.north@us.army.mil or (706) 791-1067.

Signal Captains Career Course-Reserve Component

Dramatic changes to the training strategy of the reserve component Signal Captains Career Course are underway. Department of the Army and TRADOC directed that all Reserve Component officers receive training to the same standard as the active component officers.

To achieve that goal, the SCCC – Reserve Component will transition to the newly redesigned SCCC – Reserve Component in fiscal year 2007. SCCC-RC is designed to be completed in five phases, including two active duty for training periods, totaling 516 hours of programmed training plus 290 hours of self-development training. The last four phases (II through V) are designed to be completed within a 13 month period. With only six months between ADT phases, this may require reserve component officers attend two ADT periods within a

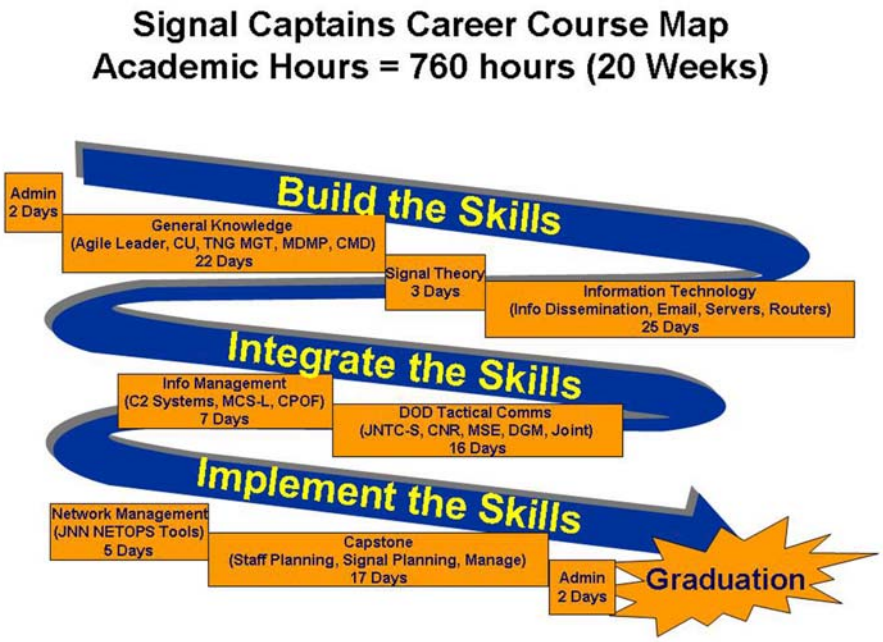


Figure 2. SCC Course Map

single fiscal year.

In conjunction with the Army's Distance Learning XXI project, the Signal Center contracted the development of Interactive Media Instruction products for mobile subscriber equipment, DGM, Signal Theory, and Information Management topics. Non-individual duty training time is required for the officer to complete all training between ADT phases. Reserve component units are encouraged to allow some IDT time for this purpose.

The resident phases focus on practical exercises, hands-on experiences, and group exercises that reinforce the distance learning topics. Phase III provides instruction on rapidly changing technology like the Joint Network Node, Combat Net Radio systems, and network monitoring tools. This phase heavily emphasizes development of the skills required to plan and manage communications systems. Phase V replaces the RC Combined Arms and Services Staff School (CAX) with an intensive two-week CAPSTONE exercise. In order to accommodate the amount of training, each resident phase runs twelve 10-hour consecutive days.

If you have comments, questions, or suggestions about SCCC, please contact the Senior Small Group Leader, CPT Brian North at brian.north@us.army.mil or (706) 791-1067.

CPT (P) North is currently serving as the Senior Small Group Leader for the Signal Captains Career Course, 442nd Signal Battalion. CPT North previously served as TACAT and FM Retrans platoon leader, C/122nd Signal Battalion; platoon leader, D/327th Signal Battalion and assistant S3, 327th Signal Battalion, Fort Bragg; assistant S3, 501st Signal Battalion; brigade signal officer, 2nd Infantry Brigade, 101st Airborne Division; and commander, B Company, 501st Signal Battalion, Mosul, Iraq (Operation Iraqi Freedom I), and Fort Campbell, Ky.

Acronym QuickScan

ADT – active duty for training
CAS3 – Combined Arms and Services Staff School
CAX – Combined Arms Exercise
CPOF – Command Post of the Future
DA – Department of the Army
DGM – digital group multiplex
DoD – Department of Defense
FBCB2 – Force XXI Battle Command Brigade and Below
IA – Information Assurance
IDT – Individual Duty Training
IMI – Interactive Media Instruction
MCS – Maneuver Control System
MDMP – Military Decision Making Process
MSE – mobile subscriber equipment
POI – program of instruction
SOAC-RC – Signal Officer Advanced Course – Reserve Component
SCCC-RC – Signal Captains Career Course – Reserve Component
TRADOC – Training and Doctrine Command

Battalion & Brigade S6 Course

This five-week, two-day course is designed for active and reserve component signal officers, major and below, who are on orders for assignment as a signal staff officer

By MAJ James W. Bryant Jr.

The Battalion & Brigade S6 Course is a five-week, two-day course designed for active and reserve component signal officers in the grade of major and below who are on orders for assignment as a signal staff officer (S6) at the battalion or brigade level in a non-signal unit.

This course, conducted by the 442nd Signal Battalion with support from the School of Information Technology, provides signal officers standardized instruction in tactical communications and information systems.

The course emphasizes doctrine, planning, execution, management, and resource allocation; and communications and computer interfaces unique to a non-signal battalions and brigades.

The course includes instruction on telecommunications; the installation, operation, and maintenance of data communications, user-owned systems, network encryption devices, teleprocessing, and distributed database systems; and tactical network management and systems administration at the S-6 level.

The most used method of teaching is the hands-on method. The 442nd Signal Battalion has incorporated the latest communication equipment and software being fielded in the Army. The Battalion & Brigade S6 Course was designed to compliment the Signal Captains Career Course. SCCC graduates make up 75 percent of the S6 class and 25 percent of the students attend via temporary duty orders from Reserve and National Guard units.

Influenced by the lessons learned from the Global War on Terrorism, the 442nd significantly modified both the instruction and the equipment. The revised program of instruction now includes five resident modules.

Module A, Information Technology, is six days of more advanced Information Technology training including training on hardware, operating systems, networking, Microsoft Windows NT Core technologies, messaging (MS Exchange), local area network troubleshooting, website design, and information system security.

The primary focus is on two key topics: web design and advanced email client administration. The web design class provides design concepts and web site publication using hypertext markup language programming, FrontPage, Hypertext Transfer Protocol based upon client-server interaction, and web site publishing via file transfer protocol and FrontPage.

Module B, Digital Common Tasks, trains the latest advancements in software and equipment used to support battle planning, preparation, and execution. Instruction centers around command and control using the Army Battle Command System software packages and supporting systems used within a command post.

We present Force XXI Battle Command Brigade and Below in three phases using the crawl, walk, run method.

The first phase is an FBCB2 overview and includes computer based training; the second phase allows the officer to work with FBCB2 software using a standard workstation; and finally, the hands-on phase offers training and validation on the actual equipment.

Module C, Modularity Technology, provides training on the tactical communications systems such as the Joint Network Transport Capability– Spiral, Battalion Command Post Node Operations, and Joint Communications. This module includes a demonstration of the latest Joint Node Network equipment.

Module D, S6, is a 14-day module training every facet of the combat net radio. Instruction includes an overview, familiarization, and configuration of the tactical internet management system. We have incorporated lessons learned into the instruction on the latest communication equipment fielded today.

The Signal School contracted to have a representative from the Harris Corporation serving as the instructor and subject matter expert on the AN/PRC-150 high frequency and the AN/PRC-117F Single Channel Tactical Satellite radios.

Officers learn the basic operation as well as the critical tasks of developing communication plans to integrate HF in an ever-changing battlespace. Instruction stresses the importance of basic antenna design and frequency selection to provide the critical components for successful communications.

The radios provide secure voice and data communications using military automatic link establishment and the new robust third generation ALE waveform. Students learn how to integrate this system into an existing architecture to provide the commander with reliable connectivity using either a man-packed or vehicular-based radio system.

Instruction includes advanced techniques in the Single Channel Ground Airborne Radio System, Enhanced Position Location Reporting System, and the Single Channel

Tactical Satellite, AN/PSC-5.

The final activity requires the student signal staff officer to develop a Signal Estimate and an Annex K.

Module E, Administration, provides a short period to conduct course administration including the end of course critique and a graduation ceremony.

Tracking the numerous changes in the operational Army and assessing the impact on leader training, the 442nd Signal Battalion continues to improve the curriculum to ensure training remains relevant and realistic as possible.

One of the training gaps identified is the lack of training available to signal staffs. Currently the S6 course trains only the signal staff officer. The Signal Center is addressing this training gap by hiring RTI International to develop an interactive, scenario-based simulation called the Integrated Digital Systems Trainer/S6**.** The Signal Center plans to complete this $3.6 million project in fiscal year 2007.

The final product will be a realistic simulation capable of training the brigade and battalion S6 staff section on key tasks such as planning, engineering, integrating, establishing, and maintaining a complex digital network. This training experience must also allow the S6 staff to restructure the digital network due to connectivity loss and learn from the impact of their decisions during the fight.

The IDST/S6 is a brigade simulation training tool that possesses the capability to do future network planning, identify and mitigate communications shortfalls and provides feedback of the efficiency of the network architecture with a full against all risks capability. This simulation will support institutional training, Signal Center field exercises, and unit sustainment training.

If you have comments, questions, or suggestions about the Battalion and Brigade S6 Course, please contact the S6 Branch Chief, MAJ James W. Bryant Jr., at james.w.bryant@us.army.mil or (706) 791-1579.

Signal Officer Branch Qualification Course

This course is eleven-weeks and is designed for Active and Reserve Component Branch detailed lieutenants and captains previously assigned to combat arms, combat support, and combat service support positions.

The Signal Officer Branch Qualification Course is an eleven-week course designed for Active and Reserve Component Branch detailed lieutenants and captains previously assigned to combat arms, combat support, and combat service support positions.

Officers must complete a non-signal basic branch course and complete approximately two years service before attending.

On average, the 442nd Signal Battalion conducts five SOBQ classes a year. During FY05, more than 128 branch detailed officers attended. The SOBQ Course prepares the officer to plan, supervise and manage the installation, operation, and maintenance of tactical automated communications equipment and networks at all levels.

Instruction includes communications equipment, requirements, planning, execution and management; automation/communications interface; telecommunications; information systems and technology; communcations security management; Signal Systems tactics and doctrine; and S-6 functions. The program of instruction is divided into six academic modules.

Module A, Information Technology, offers 19 days of computer fundamentals, web design, and network fundamentals. The module starts out with PC hardware and software to include in-depth exposure to computer hardware and operating systems. Hands-on instruction includes how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems.

The web design is an introduction to hypertext markup language for web pages, Notepad for multi-page web sites, and FrontPage, a graphical user interface. In networking fundamentals officers gain a working knowledge of network media and topologies, protocols and standards, network implementation, and network support

Module B, Digital Common Tasks, is an introduction to the latest advancements in software and equipment used to support battle planning, preparation and execution. Instruction centers around command and control using the Army Battle Command System software packages and supporting systems to be used within a command post.

Force XXI Battle Command Brigade and Below is presented using the crawl, walk, run method - in three phases.

The first phase is a FBCB2 overview and includes computer based training; the second phase allows the officer to work with FBCB2 software using a standardized computer; and finally, the hands-on phase offers experience on the actual equipment.

Module C, Basic Electronics, is an introduction to the basic theory of electricity and how it relates to signal communications methods and media. Instruction includes an overview of the following subjects: signal safety, grounding, alternating current, direct current, define power distribution, and impedance. This module ends with telecommunication terminology and basic telecommunications networks.

Module D, DOD Tactical Networks, is a 10-day module that provides an overview of the network planning and management of Mobile Subscriber Equipment/Digital Multiplex/Joint Network Transport Capability-Spiral communication systems.

This is an innovative combination of tactical network design and management laced with application exercises that highlight the roles of the signal platoon leader and network operations/S3. Officers study basic Army & Department of Defense communications networks and apply instruction to scenario based practical exercises.

Instruction also includes an overview of the different Army & DoD tactical and commercial telephone systems and COMSEC employment within a tactical network.

Module E, S6, is a 10-day module focusing on the combat net radio. It begins with an overview of the duties and responsibilities of a signal staff officer (S6) and S6 military decision making process. The technical aspect begins with an introduction to wire systems and operations then progresses to basic operations of the AN/PRC-150 high frequency and the AN/PRC-117F single channel tactical satellite radios. We train communication plans development throughout this class. Additionally, we provide officers with instruction on the Single Channel Ground Airborne Radio System, Enhanced Position Location Reporting System, Single Channel Tactical Satellite, AN/PSC-5. Finally, officers install a Mobile Subscriber Radio Terminal and load frequency plans.

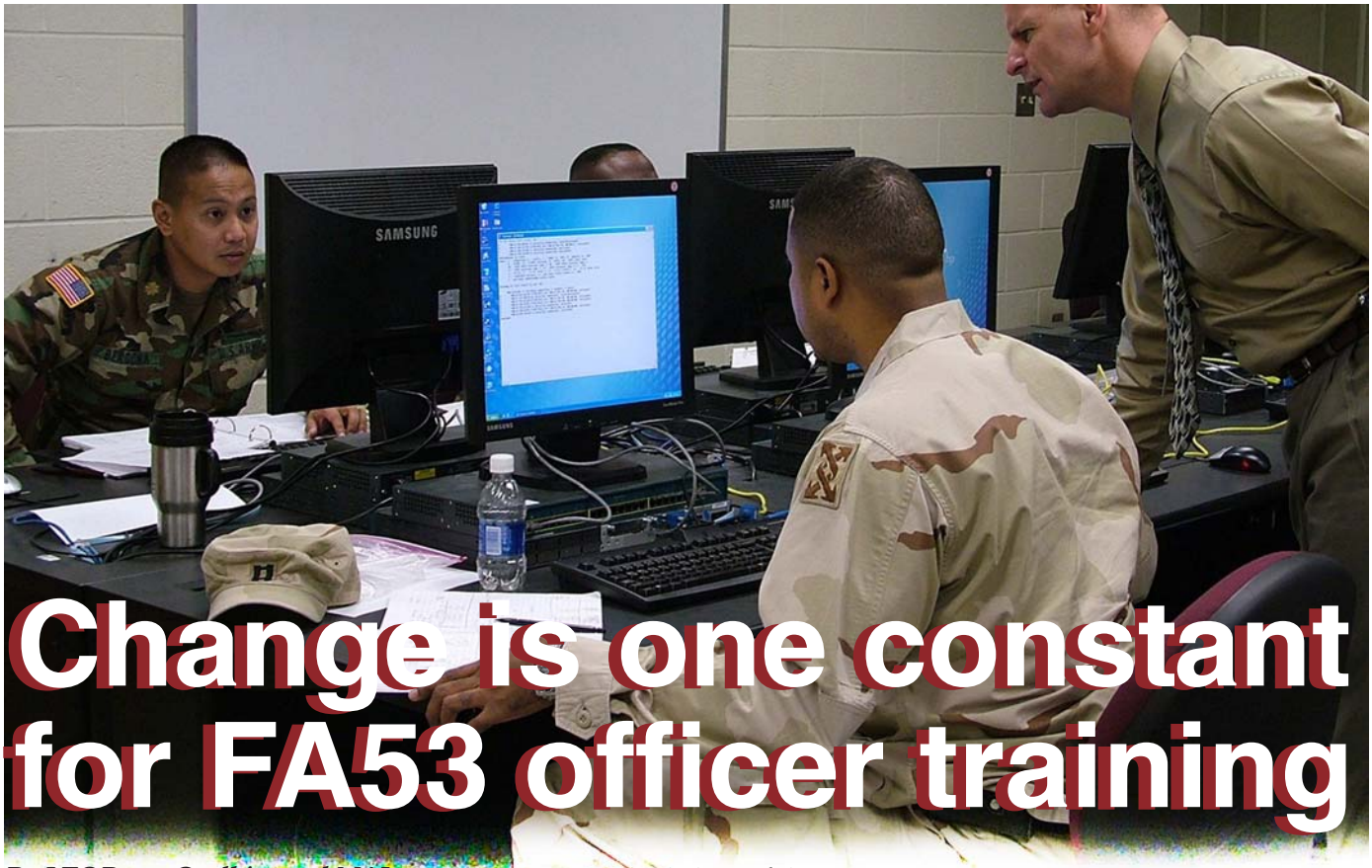
Module F, Administration, is a short period used for course administration including two Army physical fitness tests, the Officer Professional Development program, and an interview from the signal branch manager. The Signal Officer Branch Qualification Course concludes with the 442nd Signal Battalion officially inducting each student into the Signal Regiment.

If you have comments, questions, or suggestions about the Signal Officer Branch Qualification Course, please contact the Branch Chief, S6, MAJ James W. Bryant Jr., at james.w.bryant@us.army.mil or (706) 791-1579.

MAJ Bryant, is currently serving as the branch chief, S6 for the Battalion & Brigade S6 and Signal Officer Branch Qualification Course, 442nd Signal Battalion. He has served as a mechanized infantry platoon leader, 1/5 CAV, Fort Hood, assistant operations officer, G6, 13th Signal Battalion, Fort Hood, assistant S3, S4, 307th Signal Battalion, Korea, company commander, 596th Signal Company, Fort Riley, BCT S6, 1st Armor Division, and small group leader, SCCC, Fort Gordon, Ga. Bryant has participated in Operations Desert Shield and Storm, Operation Intrinsic Action, Operation Joint Forge, and Operation Enduring Freedom.

Acronym QuickScan

AAR – After Action Review
ABCS – Army Battle Command System
AC – Alternating Current
ALE – Automatic Link Establishment
APFT – Army Physical Fitness Tests
C2 – Command and Control
CBT – Computer Based Training
CNR – Combat Net Radio
COMM PLAN – Communication Plans
CP – Command Post
DC – Direct Current
DGM – Digital Group Multiplex
EPLRS – Enhanced Position Location Reporting System
FBCB2 – Force XXI Battle Command Brigade and Below
FTP – file transfer protocol
FY – fiscal year
HF – High Frequency
HTTP – Hypertext Transfer Protocol
HTML – Hypertext Markup Language
IDST – Integrated Digital Systems Trainer
IOM – installation, operation, and maintenance
IT – information technology
JNTC-S – Joint Network Transport Capability-Spiral
LAN – Local Area Network
MDMP – Military Decision Making Process
MSE – Mobile Subscriber Equipment
MSRT – Mobile Subscriber Radio Terminal
NETOPS – network operations
POI – program of instruction
SINCGARS – Single Channel Ground Airborne Radio System
SOBQ – Signal Officer Branch Qualification
TDY – temporary duty
TIMS – Tactical Internet Management System



Change is one constant for FA53 officer training

By LTC Bruce Caulkins and MAJ Allen Berry

Information Technology training – whether it's in the commercial world or in the Army schoolhouse – is an ever-changing endeavor. Moore's Law – first stated in 1965 – simply notes we can generally expect the number of transistors on an integrated circuit to approximately double every two years. Over time, this law became an 18-month benchmark to show the rapid advancement of computing and networking power. Moore's Law also underscored the challenges facing Army IT training, particularly for the information systems management officers in Functional Area 53.

For years, most of the FA 53 officers received initial IT training during the Systems Automation Course at the U.S. Army's Computer Science School at Fort Gordon, Ga. The training they received during the SAC course consisted of modules generally supporting critical tasks for officers assigned to Table of Distribution and Allowances units. This reflected the Army's needs and the relatively limited penetration of IT into tactical echelons of the Army. As such, the Army assigned approximately 80 percent of FA 53 officers to TDA units at corps and higher. With the rapid evolution of commercial IT, the Army's growing need for information, transformation, and the restructuring of the Army into modular forces, IT became pervasive throughout all echelons of the force.

The SIT is now the Army's IT center of excellence responsible for training IT subjects to all Signal Regiment leaders.

In response to these developments, the SAC course was discontinued and two more comprehensive courses took its place – the 10-week Information Systems Operations Leveler and Information Systems Manager Courses are now the requisite resident training for FA 53 officers.

Around this same time, the CSS became the School of Information Technology and assumed a greater role in training Army leaders. The SIT is now the Army's IT center of excellence responsible for training IT subjects to all Signal Regiment leaders.

(Above) School of Information Technology students get valuable hands-on training on network management tools.

As the Army's premier IT training school, the SIT prides itself on adapting to the Army's needs and to changes in IT.

Systems approach to training within the SIT

The Army's Training and Doctrine Command uses a methodical and deliberate Systems Approach to Training process as described in TRADOC Regulation 350-70. As its name states, SAT is a systematic, spiral approach to making collective, individual, and self-development training decisions for the Army. SAT determines the need for training, who gets the training; what wartime tasks are critical; when, where, and how the training takes

Figure 2. Network Management Training at SIT.

place; and determines the training resources required. It is a dynamic process that includes five phases of SAT – analysis, design, development, implementation, and evaluation. Unlike our rapidly changing IT world, these phases require a significant amount of time to implement properly. Sometimes all five phases can take up to five years to complete.

Fortunately, SAT is a fluid process and not a one-time event. A dynamic process, it helps us define and refine our training. One of the most-important aspects of the SAT process is the Critical Task Site Selection Board. The SIT conducts CTSSBs approximately once every two years for the Soldiers it trains. The SIT recently conducted a CTSSB for FA 53 officers and has scheduled the implementation of the new course redesign for June 2006. Many of the training tasks in the new ISOL and ISM courses will center on Joint Network Node and Information Dissemination Management tasks. Given the changes in unit structures, equipment, and software, these tasks will better prepare FA 53 officers for assignments at different echelons within the Army. The SIT is also de-emphasizing traditional FA 53 topics such as Visual Basic programming to make room for newer more relevant tasks.

Modular Army affects FA 53 training

The modularity concept caused major changes in the Signal Regiment. Understanding those changes enabled the SIT to adjust the IT training focus to brigade- and division-level operations from Echelons Above Corps operations. As the Army requires more captain and major FA 53s in the Brigade Combat Teams and divisions, the focus for the institutional training base will accommodate this new reality.

Due to the Army's need for more FA 53 captains and majors in the brigades and divisions, the Army is accessing more officers into the FA 53 career field. In December 2005, there were only 23 FA 53 captains assigned in the Army. That represented an 11 percent fill rate since there are 203 FA 53 captain positions authorized. In addition, that authorization number for captains is likely to increase under modularity. Like our civilian peers, the demand for IT professionals is a growth business in the Army.

Unfortunately, supply has not kept up with demand. The currently low number of FA 53 captains is primarily due to the Career Field Designation process and the timelines for accessing into FA 53 and other functional areas. Before FY06, the Army generally accessed officers into their functional areas around the 10th year of service.

Recently, the DA G1 approved a plan to conduct a limited CFD for officers in their fourth YOS, starting with Year Group 2002. To support this plan, the HRC conducted a board in December 2005 and selected 40 new FA 53 captains from YG 2002 to add to the Army's bench. A full CFD for officers in their YOS will begin in September 2006 with YG 1999. Thereafter, these seventh YOS CFD boards will be conducted annually for subsequent YGs.

Revised ISOL/ISM Courses

Today, Information Systems Management Officer training consists of two courses. The Information Systems Operator Leveler Course is a 10-week course designed to bring officers from various career fields to a common skills and knowledge base that better prepares them for attendance to the 20-week Information Systems Management Course. In general, this training includes hardware, software, networking, server management, security, and various database and web topics. Currently, the SIT instructs these areas sequentially and provides a solid technical foundation for FA 53 officers.

These areas have been the core FA 53 training for several years, but the SIT is revising its training modules to meet the emerging challenges brought about through modularity, the introduction of JNN, and OIF lessons learned. The SIT will reduce some training modules such as software programming and add others to adapt to the Army's needs.

One of the Army's needs is to have signal leaders trained on the Army Battle Command Systems. To meet that critical need, a February 2005 FA 53 CTSSB added numerous

tasks related to Army Battle Command Systems as well as tasks related to knowledge management and configuration management. The CTSSB board members added these tasks based on their OEF/OIF deployment experiences and the challenges they faced in their units.

The FA 53 courses, both ISOL and ISM, are currently under redesign. We plan to implement the new program of instruction beginning in June 2006. Importantly, the SIT will replace block instruction training with tailored training that builds upon skills and knowledge previously trained. By integrating previously trained skills and knowledge into sequenced training, the school staff is confident that the FA 53 will report to the operational Army with a solid foundation in the skills needed to face the numerous IT challenges in the operational Army.

Conclusion

As the operational Army changes, so must Army training. The introduction of new technologies into Army systems and networks impel us to update and improve training constantly. The historic changes in our force structure, Army transformation, and being an Army at war are daily motivators of the need to adapt training to support all these Army needs. The School of Information Technology is up the task and leading the way.

LTC Caulkins is a Functional Area 53 officer currently assigned as the director of the School of Information Technology, Fort Gordon, Ga. He holds an undergraduate degree and a master's degree in computer science as well as a Ph.D. in modeling and simulation.

MAJ Berry is currently assigned as the chief, Officer Training Division, the School of Information Technology, Fort Gordon, Ga. He previously served as the chief, C4I Integration, Fort McPherson, Ga. Berry graduated the FA53 course in May 2001.

ACRONYM QUICKSCAN

AIT – Advanced Individual Training
BCT – Brigade Combat Teams
CFD – Career Field Designation
CSS – Computer Science School
CTSSB – Critical Task Site Selection Board
EAC – Echelons Above Corps
FA – Functional Area
FY – Fiscal Year
HRC – Human Resources Command
IDM – Information Dissemination Management
ISM – Information Systems Management/Manager
ISOL – Information Systems Operations Leveler
IT – Information Technology
JNN – Joint Network Node
MTO&E – Modified Table of Organization and Equipment
SAC – Systems Automation Course
SAT – Systems Approach to Training
SIT – School of Information Technology
TDA – Table of Distribution and Allowances
TRADOC – Training and Doctrine Command
YG – Year Group
YOS – Year of Service

Telecommunications Systems Engineering Course

Designed for the FA 24, Telecommunications Systems Engineering Officer, TSEC is a rigorous curriculum

By CPT Frank Ranero

With the support from Headquarters Department of the Army and as part of the Officer Professional Management System XXI program, the U.S. Army Signal Center established a separate, specialized officer functional area. This FA provides the Army with a core of professional network engineers to support the nation's full spectrum dominance strategy.

The Signal Center created FA 24, Telecommunications Systems Engineering Officer, and executed a comprehensive process of analysis and design effort to determine the most effective methods available to educate and train these officers. The result of that process is a rigorous curriculum that provides lecture sessions, research projects, and practical applications of math and science in engineering and designing telecommunications network solutions.

FA 24 provides the Army with a core of professional network engineers to support the nation's full spectrum dominance strategy.

The FA 24 Telecommunications Systems Engineering Course is a functional area qualification program that awards Area of Concentration 24A and along with the CGSOC satisfies the Army's Intermediate Level Education requirement for field grade FA 24 officers.

Originally, the course targeted all Career Field 24 officers (at eight-to-10 years of service) with a hard science or technical undergraduate

degree. The curriculum is taught at Fort Gordon, Ga., and consists of a 10-week Information Systems Operations Leveler course followed by a 20-week TSEC that is delivered at the graduate education level.

The TSEC was constructed with assistance from faculty members of the Accreditation Board for Engineering and Technology accredited masters degree programs in Telecommunications, Electrical Engineering and Computer Science (University of Pittsburgh, Georgia Institute of Technology, and the University of Colorado). The Defense Information Systems Agency, the Information Systems Engineering Command, and the Fort Gordon Battle Command, Battle Laboratory all contributed to the development of the joint portions of our instruction.

The skills and knowledge required of this functional area came from merging two former Signal Area of Concentration 25 specialties - 25D, CE Engineering, and 25E, Telecommunications and Networking. The 442nd Signal Battalion, in partnership with Information Systems Engineering Command, Battle Command Battle Lab - Gordon, and Defense Information Systems Agency, recruited professors from Georgia Institute of Technology, Georgia Military College, and the University of Pittsburgh, funded and developed the course curriculum and instruction.

Lab equipment and lab facilities (routers, Channel Service Unit/ Data Service Units, Asynchronous Transfer Mode switches, Private Branch Exchange, and communications security equipment) were provided by the BCBL (G) and through a contract with the General Dynamics Corporation. Simulations software and hardware were provided by ISEC, in cooperation with OPNET Technologies, Inc. for the first course iterations (2000-2001). DISA provided the Network Warfare Simulations tool which we incorporated into the curriculum in 2004.

Army officers assigned to the 442nd Signal Battalion with contractors augmented by contracted associate professors (PhDs) from various universities provide course instruction Lectures are conducted in the morning, with afternoons reserved for research, lab work, and hands-on practical exercises. Figure 1 depicts the course map for the TSEC.

The TSEC includes the following modules:

Module A, Math for Networking, provides a detailed review of mathematic fundamentals relevant to the study of telecommunications, electronics, and data communications.

Module B, C Programming, is an overview of the C Programming language, while focusing on object oriented design and structured layout of programs.

Module C, Telecommunication Systems, provides an overview of public and private telecommunications systems, fundamentals of traffic engineering, switching, transmission, and signaling.

Module D, Data Communications, is a study of the knowledge and skills required for engineering and managing high-speed data communications networks. Students gain an in depth knowledge of layers 1-3 of the OSI model and a working and familiarity with layers 4-7.

Module E, Switching, is an analysis of switching concepts relevant to the study of telecommunications, electronics, and data communications. The focus is on commercial switching technologies but includes information on Army and Joint standards for implementation and application.

Module F, Information Assurance, provides an in-depth look at the tenants of network security, focusing on confidentiality, integrity, authentication, and availability of data.

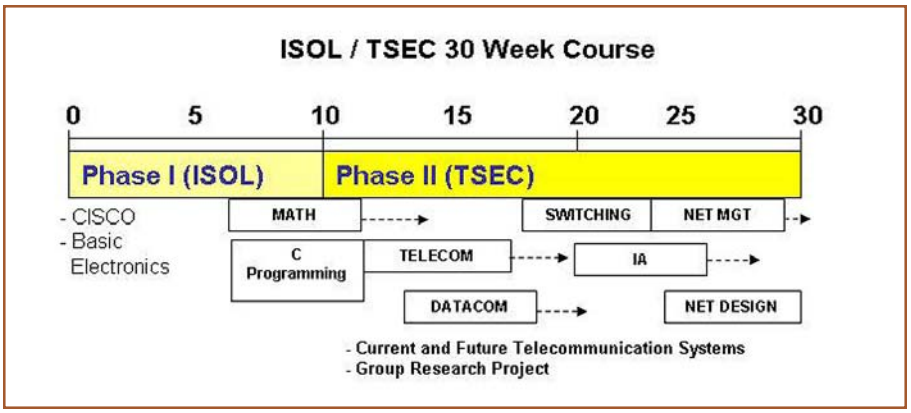


Figure 1. (Course Map)

Module G, Network Operations and Management, is an introduction to the principles, practices, and technologies for managing networks, systems, applications, and services. Spectrum management software is also introduced to students in a lab environment.

Module H, Network Design, provides a structured approach to network design concepts and a systematic, top-down process to design telecommunications networks in the commercial, DISN, and DII realms.

Module I, Current and Future Telecommunications Systems, introduces students to the systems that make up the existing and transitional Army tactical wide area

networks.

Module J, CAPSTONE Research Project, challenges students to identify a topic for research that addresses a current Army or Joint networking issue. Students will conduct research and use knowledge obtained in the course and formally present a proposed solution.

In September 2005, the second FA 24 CTSSB met to review the 16 existing 24A critical tasks to determine their relevancy to the current operational environment and recommend new tasks as appropriate. The board agreed on 10 new critical tasks that were derivations of the original 16, but de-emphasized the engineering of networks using specific tactical communications systems.

All tasks were placed into one of the following categories: engineer, monitor, validate, or restore a network. Emphasis was placed on keeping all tasks generic (no vendor specific equipment) and using open systems and communications standards to engineer networks.

In an effort to keep the TSEC curriculum current, we brought critical skills experts to Fort Gordon from organizations like DISA, U.S. Army Information Systems Engineering Command and Research Development Engineering Command to brief DoD/Army implementation of new and emerging technologies. We contracted faculty from IT graduate programs to augment the government staff and assist in maintaining the curriculum with the latest IT trends and industry standards.

In addition, the staff incorporates comments given by FA24 Officers in the operational environment along with lessons learned from DoD and Army IT publications. As a result, students are taught to assess and exploit new technologies in the engineering and design of a network solution.

The TSEC underwent a third-party evaluation by the American Council on Education in August 2002 and was recognized as having the equivalent of 30 graduate credit hours of study (a maximum of nine may be transferred) in the field of Telecommunications Systems Engineering. The recommended accreditation: Lower Division Baccalaureate/Associate Degree: (See Figure 1.)

Feedback from TSEC graduates and their supervisors has been very positive and indicates that the course is on target in equipping FA 24 officers to make an immediate and positive impact in their new organizations.

For more information about TSEC, please visit our website (www.qordon.armv.mil/fa24) or contact the Course Manager, CPT Frank Ranero, at frank.raneroguzman@us.army.mil or (706) 791-1702.

CPT Ranero is currently assigned to the 442nd Signal Battalion, Fort Gordon, where he works as the FA24 Course chief. His previous assignments include company commander, Headquaters and Headquarters Compnay/10th Signal Battalion, Fort Drum, NY;. S6 1-87th Infantry Regiment during Operation Enduring Freedom; S6 1-26th Infantry Regiment, Schweinfurt, Germany; and platoon leader A/121st Signal Battalion, Kitzingen, Germany. Ranero holds an undergraduate degree in computer science from the University of Puerto Rico and is pursuing a Master of Science in telecommunications management.

Acronym QuickScan

ABET - Accreditation Board for Engineering and Technology
ACE - American Council on Education
AOC - Area of Concentration
ATM - Asynchronous Transfer Mode
BCBL (G) - Battle Command Battle Lab, Fort Gordon
CDP - Cooperative Degree Program
CFD - Career Field Designate
CISSP - Certified Information Systems Security Professional CSU/DSU - Channel Service Unit/Data Service Unit
CTSSB - Critical Task Site Selection Board
DII - Defense Information Infrastructure
DISA - Defense Information Systems Agency
DISN - Defense Information System Network
DoD - Department of Defense
FA - functional area
G - Gordon
HRC - Human Resources Command
ILE - Intermediate Level of Education
IT - Information Technology
ISEC - Information Systems Engineering Command
ISOL - Information Systems Operations Leveler
NETWARS - Network Warfare Simulation
OSI - Open System Interconnection
PBX - Private Branch Exchange
POI - Program of Instruction
RDECOM - Research Development and Engineering Command
TNOSC - Theater Network Operations and Security Center
TSEC - Telecommunications Systems Engineer Course
USAISEC - U.S. Army Information Systems Engineering Command

Joint Staff J6 planners course

The Joint Requirements Oversight Council approved the creation and sustainment of this new course

By CWO4 Joe Anderson

The Joint Staff J6 Campaign Plan identifies joint interoperability as a critical enabler for achieving seamless, reliable, network-centric operations in support of the warfighters.

As professional communicators, we know this requires not only improving the interoperability of our data, applications, and systems, but requires training for those who do the integrating. As the Joint Staff J6 stated, "Joint interoperability doesn't happen by chance, but rather has to be planned, and paid for, up front."

Though training is only a small part of the total bill, we are seeing a significant down payment with the establishment of a new joint course at Fort Gordon – the Joint C4 Planners Course.

Based on the lessons learned from many of our recent combat and civil support operations, U.S. Joint Forces Command, on behalf of the Combatant Commands, developed and submitted a Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities Change Request to the Joint Chiefs of Staff requesting the establishment of a Joint C4 planners course.

In November 2005, with the endorsement of the Joint Staff J6, the Joint Requirements Oversight Council approved the creation and sustainment of this new course directing the services and United States Joint Forces Command to provide staffing, funding, or material. It also designated the U.S. Army Signal Center as the course developer and provider.

Unlike the Joint Forces Staff College's Joint C2 and Information Operations Course which focuses on staff roles and operations, the Joint C4 Planners Course focuses on training the technical integration of Service and Joint C4 systems used in a Joint Task Force. The specific tasks are in development, but we expect course subjects to include:

- JTF C4 Overview
- Joint Transport (Including limited Counter Improvised Explosive Device and Spectrum Management tasks)
- Joint Voice
- Joint Data
- Multiplexing/Technical Control
- Network Operations
- CAPSTONE Scenario

...With the endorsement of the Joint Staff J6, the Joint Requirements Oversight Council approved the creation and sustainment of this new course...

Given the high operational tempo of our units and service members, the U.S. Army Signal Center is developing the course in two phases to reduce the amount of time students are away from their units and families. The first phase leverages distributed learning to provide knowledge-based training from the service member's duty station or residence. The other phase will be a demanding resident phase at Fort Gordon lasting approximately four weeks.

Staffing for the course consist of experienced communicators from each of the services. The Army provides one chief warrant officer, one E-7/E-8, and one GS-13. The U.S. Air Force contributes one 0-4 and one E-7. The Marine Corps assigns one chief warrant officer and one E-7 or E-8. The Navy's contribution is one 0-3 or 0-4 limited duty officer and one information technician chief petty officer or electrical technician chief petty officer. We anticipate these instructors to arrive in the summer of 2007.

The JROC tasks the Signal Center to begin instruction in April 2008, but we anticipate earning the resources to begin in April 2007. The course is set to be offered four or five times per year based on demand.

Initially, the course will be open to all uniformed communications professionals of all services in the grades of E6 to E9, WO3 to WO5, 03 to 05 and assigned to a functional or service component command headquarters. As we mature the course, it will be open to U.S. government civilians and officers or NCOs from friendly and allied nations whose duties may require them to work with a U.S. JTF.

For more information, contact CWO4 Joe Anderson (U.S. Marine Corps) at DSN 780-3743 or via email at: andersonj@gordon.army.mil

CWO4 Anderson, USMC, is currently as the course manager for the Joint Task Force Systems Course. He was previously assigned to Marine Forces Pacific where he served as the system, planning, and engineering officer for MARFORPAC G6 and Marine Forces Central Command G6 during Operation Iraqi Freedom from 2000 - 2003.

ACRONYM QUICKSCAN

DOTMLPF – Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities
JROC – Joint Requirements Oversight Council
JTF – Joint Task Force
USJFCOM – United States Joint Forces Command
USMC – U.S. Marine Course

551st CAPSTONE Exercise

Communications exercise, CAPSTONE, is designed to bring realism to Soldiers of the 15th Signal Brigade, who prepare to graduate and move on to first operational assignments

By CPT Dave Richards

The Soldier keyed his handset and quietly spoke into the handset, "Flight lead this is Victory Base, execute, execute, execute, over…" At that moment, the C-130 cargo plane over the drop zone began its aerial re-supply mission, and chutes began opening, floating down with the food and water the Soldiers of the Forward Operating Base needed to maintain operations.

This scene actually takes place as part of communications exercise, designed to bring realism to Soldiers of the 15th Signal Brigade as they prepare to graduate and move on to their first operational assignment.

The 551st Signal Battalion is now the primary training vehicle for the brigade's Soldiers as they transition from student to Soldier graduate. The culminating event called CAPSTONE, is designed to validate Soldiers as they execute military occupational specialty training in a realistic environment. The CAPSTONE brings together Warrior Ethos training, MOS technical training and a real world scenario where Soldiers perform their MOS efficiently before they graduate and move to their first duty assignment.

As Soldiers finish MOS schoolhouse training, they gather at a pre-deployment site and are screened for deployability. From this point, Soldiers are transported to a forward operating base and integrated into platoon and assigned communications missions depending on their MOS.

For a period of five days, the Soldiers are expected to perform their critical MOS skills (installing radio systems, video teleconference equipment, wire, local area networks, etc.) and then sent to conduct these operations at potentially

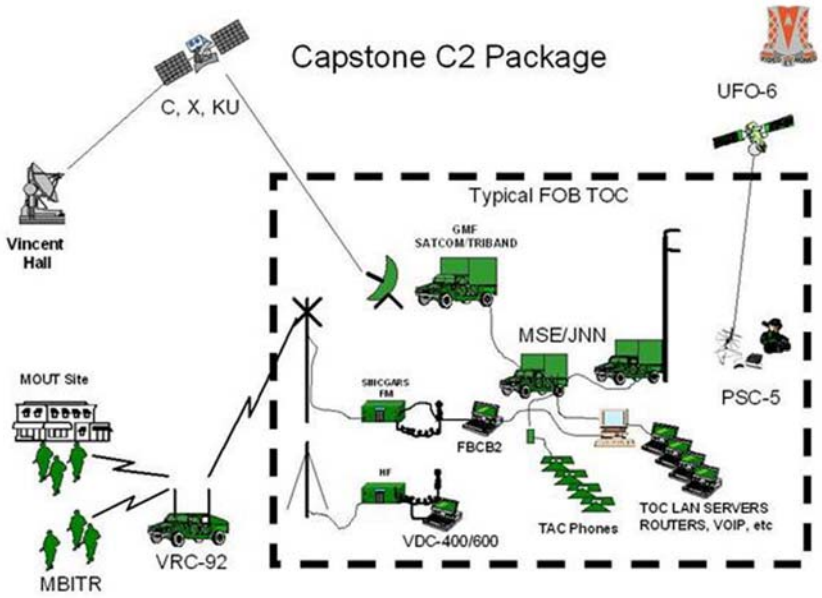
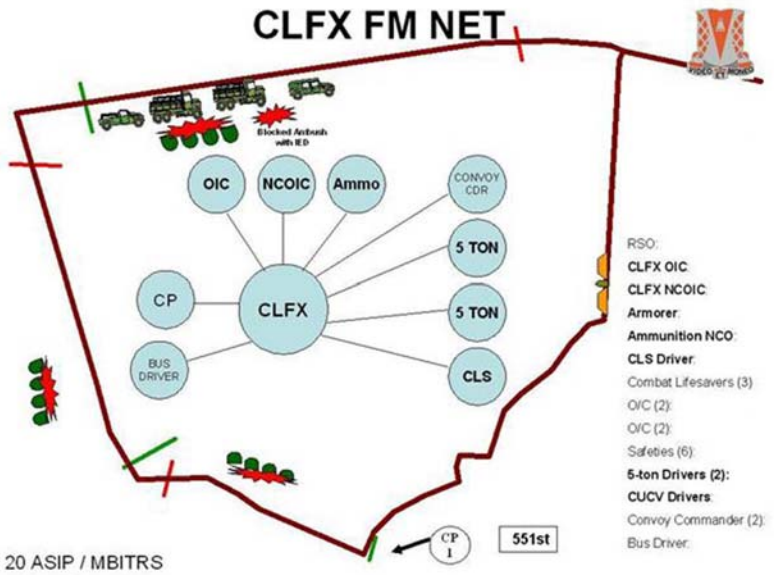


Figure 1. The initial C2 package deployed for the brigade's first CAPSTONE Exercise.

Figure 2. CLFX FM NET



differing sites each day. The FOBs constructed on Fort Gordon have the look and feel of actual FOBs now in use in both Afghanistan and Iraq. The students install Single-Channeled Ground-to-Air Radio System radios, TACSAT, LANs, and power generation as part of establishing their FOB and then must sustain operation in the FOB (chow, hygiene, perimeter security, etc.) as part of their daily routine.

In all scenarios, drill sergeants serve as squad leaders and schoolhouse instructors fill in on communications systems as evaluators and coaches, ensuring the graduating Soldiers demonstrate proficiency. Additionally, scenarios are constructed that force the students to conduct presence patrols in areas surrounding their FOBs which enhance their security posture.

Neglecting these areas can result in increased insurgency in the area. Recent additions to the network include the Multi-band Inter/Intra Team Radio squad radio, FBCB2, and Blue Force Tracker -- all critical systems Soldiers must know before arrival at their first unit.

Warrior Ethos tasks and drills are reinforced, one final time before graduation.

Another critical set of skills the CAPSTONE exercise puts to test are Soldiers' shooting skills. While each Soldier is validated on their M16A2 rifle in the standard, Zero, qualification courses, additional training is given on advanced rifle marksmanship including reflexive fire.

Soldiers are then put to the test with company leadership as they conduct a convoy live fire on new constructed ranges at Fort Gordon. Clearly, this kind of training provides the force with a better trained Soldier, more capable of walking and running upon arrival at their first duty station.

"I want Soldiers to have to put their money where their mouth is", said LTC Mike Shillinger, commander of the 551st. "I don't want them to simulate it, I want them to actually do it."

The battalion intends to incrementally make the network and tasks more sophisticated over time, building complete command posts and systems the students must install.

CPT Richards is currently serving at the 551st Signal Battalion CAPSTONE officer-in-charge. He was recently promoted to captain, formerly serving as a company executive officer in the 15th Signal Brigade. Richards has several years experience in signal operations including a one-year tour deployed to Central Command for Operation Iraqi Freedom.

Acronym QuickScan

ARM – Advanced Rifle Marksmanship
FBCB2 – Force XXI Battle Command, Brigade-and-Below
FOB – Forward Operating Base
LAN – Local Area Network
MBITR – Multi-band Inter/Intra Team Radio
MOS – Military Occupational Specialty
SINCGARS – Single Channel Ground-to-Air Radio System
TACSAT – Tactical Satellite

Network management training for warrant officers

By CW3(P) Kevin Hanner and CW3 Adrian King

Introduction

The lessons learned from operations in Iraq prove we need to transform the capabilities of the Signal leader/technician. The Signal warrant officers provided critically needed expertise enabling the success of the Joint Network Transport Capability.

Embedded with the brigade combat team, division, and multinational corps, warrant officers are relied upon as the Signal Master Gunner. Warrant officers must plan, establish, integrate, maintain, and troubleshoot the network.

The Warrant Officer Training Division within the School of Information Technology develops advanced network management training to educate and prepare basic and advanced warrant officers students to manage the network. This training is provided in several labs.

Lab focus

The doors opened in new training facilities in Moran Hall January 2006 on Fort Gordon. These network management labs (which rival any technical college labs) consist of more than three million dollars worth of state-of-the-art information technology equipment used to teach Signal technicians. The labs' capabilities include:

Voice Switching
Joint Multiplexing
Voice-and-Video over IP
Network Security
Network Management

The primary goal is to provide high-quality hands-on training to Signal warrant officers, enhancing their skills to provide better service to the warfighter.

Lab staff

Senior 250N warrant officers and 25 series senior non-commissioned officers from all Signal disciplines and backgrounds staff these labs. Students include 250N, 251A, and 254A.

Implementation

The training blueprint incorporates five specialized labs. Each lab grooms the student for technical expertise in the different focus areas:

- The Voice Switching Lab includes 48-hours of detailed training on REDCOM IGX, AVAYA Private Branch Exchange Vantage Switch, and Switch Multiplexer Unit.

- The Joint Multiplexing Lab consists of 40-hours of in-depth training on PROMINA, CTM-100,

and Global Positioning System

- The Voice-over-Internet Protocol lab involves Cisco Call Manager, Voice Gateways and IP telephony. This class is 40 hours of

training in preparation for implementing a pure IP based network

- The Video-over-IP (VTC) lab includes 24 hours of training and includes Multipoint Control Unit, Gatekeeper, Collaboration Server,

studio suites, and desktop client

- The Network Security lab adds 64 hours of Cisco security training comprised of Cisco Private Internet Exchange firewalls, VPN tunneling and security procedures, and Juniper Netscreen

- The Network Management (mobile) lab consists of 32 hours that relates to management practices and software such as Simple Network Management Protocol and Solarwinds

Summary

As result of the increased training requirements for warrant officers, the Leader College for Information Technology and School of Information Technology has introduced advanced network management training within its Warrant Officer Training Division. These labs include the major equipment strings found in Joint Network Node equipped units as well as corps and echelons above corps units. With more dedicated hands-on training, these labs will enhance the Signal warrant's ability to master the network.

For more information contact:

CW3(P) Hanner at DSN 780-6306 or via email at hannerjk@gordon.army.mil

CW3 King at DSN 780-4510 or via email at kinga@gordon.army.mil

CW3(P) Kevin Hanner is currently assigned as an instructor/writer for the Warrant Officer Training Division, School of Information Technology, Fort Gordon, Ga. He was previously assigned as a systems engineer with Lockheed Martin as part of the Army's Training with Industry Program. While stationed in Gaithersburg, Md., he worked on the WIN-T program from '04 to '05. He has held positions from platoon leader to theater network technician in over 10 years of warrant officer experience. CW3 Hanner graduated from the Warrant Officer Advanced Course, Class 01-01, in April 2001.

CW3 King is currently an instructor/writer with the School of Information Technology and provides instruction to Warrant Officer Basic, Signal Officer Basic, and Warrant Officer Advanced Courses.

King has served as a Signal Center subject-matter-expert for numerous programs include JNN, SECTERA, JNMS, ISYSCON, ATM, and HCLOS. Most recently he deployed to Iraq with the Signal Center Network Optimization Team lead by COL Jeffrey Smith. CW3 King served as the network management technician for DISA Europe, U.S. Embassy/NSA, and III Corps Fort Hood, Texas. Prior to warrant service CW3 King served at Joint Communications Support Element, MacDill AirForce Base, and the United States Military Training Mission, Saudi Arabia.

Acronym QuickScan

DISA – Defense Information Systems Agency
IP – Internet Protocol
JCSE – Joint Communications Support Element
JNN – Joint Network Node
JNTC-S – Joint Network Transport Capability-Spiral
LCIT – Leader College for Information Technology
MCU – Multipoint Control Unit
PBX – Private Branch Exchange
PIX – Private Internet Exchange
SIT – School of Information Technology
SNMP – Simple Network Management Protocol
SMU – Switch Multiplexer Unit
USMTM – United States Military Training Mission
VoIP – Voice over Internet Protocol
VPN – Virtual Private Network
WOTD – Warrant Officer Training Division

Critical Task Site Selection Boards: Vital to the Army

By Myrtle C. Alexander and Patrick S. Baker

The battlefield of the future will be increasingly complex. The Army may find itself involved in operations in a variety of sophisticated environments, requiring new systems with advanced information technology. Soldiers will conduct activities ranging from battles against major regional powers to stability operations within failed states dominated by competing paramilitary factions. Conflict, wherever it may occur, will share several characteristics: expanded areas of operations, urban and other complex terrain, and multidimensional operations.

The Army's peacetime mission is to prepare for war to meet the ever-changing challenges on the future battlefield. The 15th Regimental Signal Brigade's mission is to train Soldiers to fight, win, and achieve full spectrum dominance on the future battlefield. To accomplish our goal, the 15th Regimental Signal Brigade must ensure that training is task-based, performance-oriented, horizontally and vertically aligned, and realistic to achieve combat–ready capabilities. One way that we strive to achieve our goal is through the conduct of an effective tool called the Critical Task Site Selection Board.

So, just what is a CT/SSB? Why is it vital to the Army and how does it impact the Army? In what way can the war fighting units help the 15th RSB effectively use the CT/SSB to meet the future needs of an advanced technology enhanced Army XXI?

A critical task site selection board is a management device which serves as a quality control function when determining what are critical tasks and where these tasks will be trained (site selection), either in the resident schoolhouse or in the unit. Board members are composed mainly of subject matter experts who include Active and Reserve personnel, as well as, adequate civilian representation. The board reviews the total task inventory and job performance data and recommends tasks for approval to the appropriate authority as critical tasks. CT/SSBs are conducted to provide a systematic selection and prioritization of tasks for job requirements. Results provide data on appropriate skill level of tasks, training during mobilization and peacetime, training site selection, distance training consideration, modeling and simulation decisions, and accurate audit trail.

The CT/SSB members determine the critical tasks for their military occupational specialties. Individual training is training of individuals to prepare them to perform critical tasks to standard, accomplish their mission and duties, and to survive on the battlefield. Critical tasks must be trained, and they may be trained either in the resident schoolhouse or in the unit.

The critical task site selection board is a part to the Systems Approach to Training process. The CT/SSB process begins with job analysis. Job analysis starts when a need analysis identifies a training development requirement to create a new job, restructure an existing job, merge or consolidate jobs, or divide a job into two or more jobs. The job analysis data is collected from surveys (sent through email, Internet, or regular mail), interviews, or site visits.

Job analysis is used to identify individual critical tasks (including leader tasks) a job incumbent must perform to successfully accomplish his/her mission and duties as well as survive in the full range of military operations. The individual tasks are the critical tasks for that job.

They may be one of four types:
- ⌘ Common Soldier Tasks,
- ⌘ Common Skill Level Tasks,
- ⌘ Branch Specific Tasks, and
- ⌘ Shared Tasks.

The following flow diagram depicts the relationship between job analysis and the training development process.

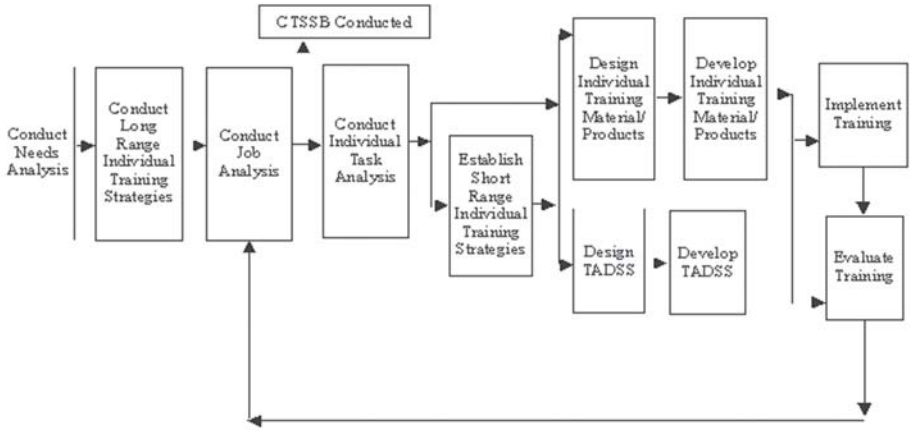


Chart 1.
Relationship between job anaylisis and training development process

The global environment during the twenty-first century will be one of instability. Even though no single power has the means to destroy the United States, some powers are certainly able to use advanced military technologies relatively inexpensively. Army training must counter this threat by matching the right Soldiers with the right tasks and technologies. The ultimate test of whether or not we have trained a Soldier to fight the way we intend to fight in war is his/her survivability on the battlefield. The greatest output of the individual training development process is a Soldier trained to perform individual tasks to standard.

How can you help the 15th Regimental Signal Brigade ensure that our Soldiers are trained to job performance standards? In 2006, we will conduct CT/SSBs for the following military occupational specialties:

- ❖25B, Information Systems Operator-Analyst;
- ❖25F, Network Switching Systems Operator-Maintainer;
- ❖25Q, Multi-Channel Transmission Systems Operator-Maintainer;
- ❖25U, Signal Support Systems Specialist; and
- ❖25N, Nodal Network Operator-Maintainer.

You may be called upon to conduct or provide job analysis data for your MOS. The expertise you can provide as a subject matter expert is invaluable and unmatched. You possess an enormous amount of experience, knowledge and skills. As an SME and non-commissioned officer, you must ensure that you pick up the "banner" as well as carry the "torch" and participate as a collaborative stakeholder and partner in the CT/SSB process.

All voting members of the CT/SSB will come from operational units of each of the following components as applicable: Forces Command, U.S. Army Reserve, and Army National Guard. One ARNG and USAR member must currently hold the specific MOS or capper MOS. Also, they must have formerly held the MOS under review prior to promotion. It is vital that the members of a CTSSB be highly skilled and experienced NCOs. This will ensure that we train the Soldier with the right critical task to perform his/her job to standard.

The 15th RSB is currently coordinating with the Office Chief of Signal, Directorate of Training, and FORSCOM to ensure that the best qualified personnel are selected to serve as board members. Also, the Training Development Division, Office of the Dean, 15th RSB is currently performing task analysis and preparing read-ahead packets, including current and notional task list for board members.

The 15th RSB looks forward to working with you as a collaborative partner in the CT/SSB process. Working together, we will ensure we produce expeditionary warriors capable of fighting across the full spectrum battlefield.

Ms. Alexander is currently chief of the Operations Division, Office of the Dean, 15th Signal Brigade. She holds a master's degree in education from the University of Louisville, Ky.

Mr. Baker is chief of the Area Communications Training Development Branch, Training Development Division, Office of the Dean. He holds a bachelor's degree in education from Paine College, Augusta, Ga.

Acronym QuickScan

ACTD – Area Communications Training Development Branch
ARNG – Army National Guard
CT/SSB – critical task site selection board
DOT – Directorate of Training
FORSCOM – Forces Command
OCOS – Office Chief of Signal
MOS – military occupational specialty
NCOs – non-commissioned officers
RSB – Regimental Signal Brigade
SAT – Systems Approach to Training
SME – subject matter expert
USAR – U.S. Army Reserve

Lifelong Learning:
future for training and education

By contributing members of University of Information Technology

Lifelong Learning is the future for training and education to the force. It will take traditional schoolhouse instruction and the latest methodologies in distance learning to create a blended environment that supports the Soldier regardless of location, whenever and wherever training is needed.

The most recent development in the LLL strategy is the LandWarNet eUniversity initiative. In support of the Signal Center's Army-wide plan to provide trained and ready Soldiers and leaders, the University of Information Technology is revamping the LLL portal, renaming it LandWarNet eUniversity, and expanding its look and feel to encompass all five goals of the LWN initiative: train and educate Soldiers on LWN; develop and educate leaders on LWN; provide LWN education for Lifelong Learning; provide LWN training support to the warfighter; and integrate combat development and research in training and education.

The Signal Center continues to forge ahead with the LLL concept meeting the commanding general, Training and Doctrine Command's challenge to export training to a Soldier anywhere, anytime using the most cost effective mix of locations, materials, and method, delivered just in time and on demand through the tenets of LLL.

The execution of LLL has been accomplished through four primary tenets:

1. **Assignment Oriented Training** - designed to reduce lengthy resident training and get Soldiers to the field faster by focusing them on the equipment sets or mission skills they will find at their first unit of assignment.

2. **Simulations** – to get away from the heavy dependency on equipment for training.

3. **Virtual Campuses** - that place where the teachable moment occurs. The virtual campus for the Regiment is the Lifelong Learning Center.

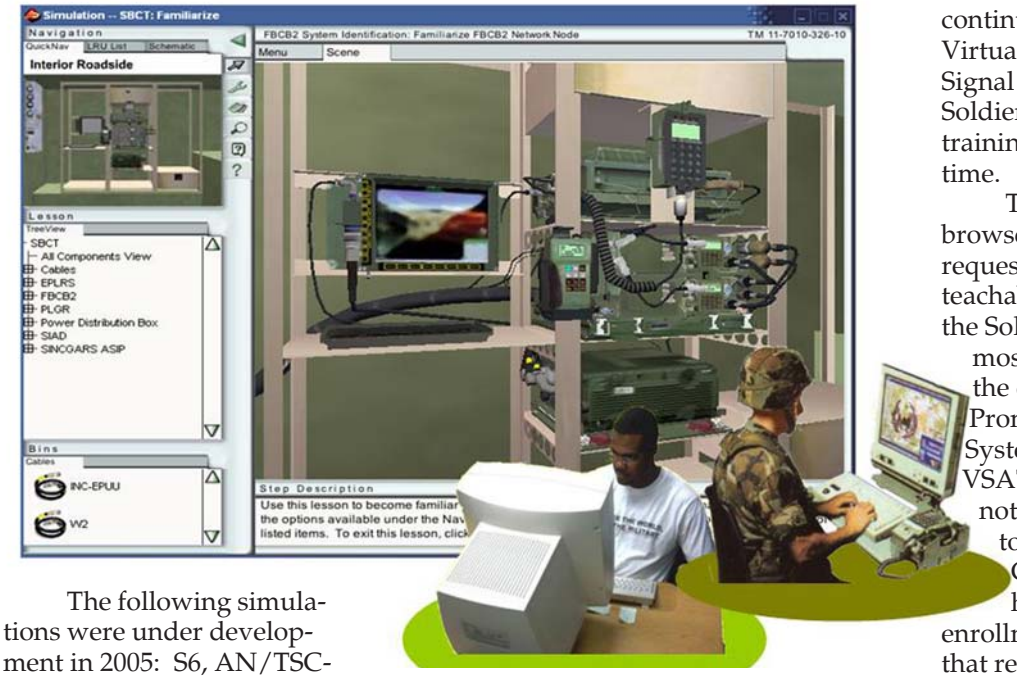
4. **Lifelong Learning Center** - the technical hub for the LLL process where proponent content is created, stored, and delivered to the Regiment.

Assignment Oriented Training

We continue to load content on the portal for both MOSQ and sustainment training to make it available to Soldiers and leaders worldwide. In addition to the four AOT MOS 25Q, 25P, 25F, and 25S currently being loaded, we have completed two pilots for MOS 25B and one for 25Q for Soldiers who earned these MOSs by training using the LLL Technologies. Our goal is to continue populating the portal with training and education content for all of our MOS and Officer Areas of Concentration.

Simulations

The primary goal of the Simulations Branch is to develop and implement policies that improve the way the Signal Center analyzes designs, develops, monitors, and delivers its simulation products. Policies developed by the branch address Simulation Technical Requirements, Simulation Design Characteristics, Simulation Testing Requirements, Legal Requirements, and Simulation Development Timelines.



The following simulations were under development in 2005: S6, AN/TSC-85D, AN/TSC-93D, Phoenix, Tactical Hub Node, Local Area Network/ Wide Area Network, and Time Division Multiple Access/ Frequency Division Multiple Access, Master Reference Terminal Hub, Digital Tactical Operations Center/ Tactical Internet Management Systems, High Capacity Line-of-Site, Joint Network Node, Battalion Command Post Node and KU Trailer.

The final version of the DTOC/TIMS, HCLOS, JNN, BN CPN and KU Trailer Simulations were fielded in October of 2005 and made available via download through the UIT's web site. Access to simulations was available to anyone with an AKO account.

The University of Information Technology Virtual Campus

Before talking about The University of Information Technology's Virtual Campus operations and successes, most people need to know just what a Virtual Campus is.

Virtual Campuses are learning facilities equipped with the necessary hardware, software, and communications infrastructure supporting Distributed Learning. Included under DL facilities are The Army Distributed Learning Program Digital Training Facilities, Army National Guard DL classrooms, and U.S. Army Reserve high-tech classrooms. Students' homes and offices are also considered DL facilities when they are engaged in DL activities. The types of courses available from the Virtual Campus range from sustainment training all the way up to military occupational specialty qualification courses.

Training for everyone

Training for deployed Soldiers: The Virtual Campus is currently providing training to the 22nd Signal Brigade in Baghdad. This is a continuation of the successes of the Virtual Campus efforts with the 35th Signal Brigade in Iraq last year. The Soldiers are training during unit training periods and on their own time.

These Soldiers are able to easily browse UIT servers to download the requested training and train at the teachable moment (the best time for the Soldier to focus on training). The most popular training courses for the deployed Soldier are: Routers, Promina, A+, N+, Windows 2003 System Administrator and USC-60 VSAT. However, the Soldiers are not limited to just those training topics; through the Virtual Campus and LLC Portal they have access to all the open enrollment training and simulations that reside on the UIT server which include: six high end simulations, 65 CBTs and ~12 open enrollment technological courses. Being able to provide training to the deployed Soldier is a large part of Lifelong Learning and distributive training.

MOSQ Pilot Courses: One of the main tenets of the Virtual Campus is to provide the Soldier with the tools to train in their MOS (i.e. reclass or continuing MOS training) away from the schoolhouse. Several initiatives are underway to demonstrate to Soldiers and leaders the benefits of virtual training. Two excellent examples of Virtual Campus MOSQ training successes come from the Reserve Component. The 3/108th 25B10 Virtual Campus pilot course is now complete with seven students completing the requirements necessary to become qualified in the 25B MOS. The ARNG Professional Education Center 25B10 Pilot is an ongoing pilot course; three students have graduated (MOSQ), and fourteen students are still taking the course. Planning and actions are underway to create a new ARNG PEC 25B10 virtual campus course for 75 students and also a 25B10 virtual campus course for Tobyhanna Army

Depot for 25 students. These will be re-occurring courses where reserve component Soldiers can MOSQ in the 25B MOS taking the majority of the course on-line.

Refresher Training: Several active and reserve component units and individual Soldiers access the virtual campus to conduct refresher training. Whether it is an organized unit training course or a Soldier just wanting to refresh skills in their MOS, the Virtual Campus provides an excellent vehicle to meet their needs.

Life Long Learning Center

The Lifelong Learning Center was officially established in March 2002. In 2005 the LLC continued to expand its support for lifelong learning across the Signal Regiment. The LLC is the model that TRADOC has directed all training centers to follow.

The mission of the LLC is to integrate, manage, and distribute simulation software and provide limited production and adaptation of commercial off-the-shelf software; manage a portal from the University of Information Technology to students for lifelong learning; implement and manage a digital library that supports storage of simulation and web-based training software/databases; provide comprehensive search capability and technical support desk functions that help individuals at other locations by directing their calls to technical experts who can assist if necessary; and implement and maintain a student management database that enables U.S. Army Signal Center and Fort Gordon to manage each student's training needs individually throughout their career.

The LLC staff hosted the UIT website, collaborative tools, and a learning management system (Blackboard™) used by the schoolhouse and directorates to host MOS producing courseware. The digitized content within the LLC is all web based and accessible to Soldiers (Active, Reserve, and National Gguard) 24 hours, seven days per week.

During the year, the LLC maintained staff capable of 24/5, 8x2 support (currently providing 0600-2200 M-F online support desk), a FAQ page, a knowledge-base, voice and video-over-web support capability. The FAQ page and knowledge-base were built from an online forum database. The forums were constantly monitored for unanswered requests. Unanswered requests were forwarded to Subject Matter Experts provided by the LCIT and the 15th Regimental Signal Brigade.

The UIT website was the central repository for community of interest (simulation, computer based, training, etc.) and community of practice (forums) items for the Signal Regiment. The total number of users registered by the end of calendar year 2005 was 41,500. The average number of monthly users visiting the website was 3,500 people with approximately one terabyte of information downloaded from the site over the course of the year.

This year the LLC moved to a new collaboration tool called Macromedia Breeze. Macromedia Breeze does not require a client tool to run since it uses Macromedia Flash Player, which comes on the gold disk and is loaded on all government computers. The LLC also purchased author ware clients which allowed us to create training products in Macromedia Flash that are Sharable Content Object Reference Model compliant and will play without a Learning Management System player.

The LLC continued to work with the schoolhouses at Fort Gordon to assist them with the use of Blackboard classes. Due to turnover of new personnel coming into the schools, we hosted several training sessions to familiarize instructors and training developers on the use of the software. An internal goal of the LLC is to get all courseware digitized by summer 2006.

TRADOC Executive Agent

The TRADOC Deputy Chief of Staff for Operations and Training designated the Commander of the USA Signal Center and Fort Gordon as the Executive Agent to implement the initial stage of the Lifelong Learning process, the Lifelong Learning Center, at selected TRADOC schools with the intent to create LLCs at all TRADOC schools.

The EA developed an execut-

able plan to establish standardized LLCs at selected TRADOC schools as an LLC Pilot Program beginning in fiscal year 06 under the supervision of the DCSOPS&T Training Development and Delivery Directorate. The plan was delivered to TRADOC in March 2005. The EA is establishing Lifelong Learning Centers at selected TRADOC schools. This initiative will develop LLCs in context with the Lifelong Learning process as an integrated approach of interrelated tenets to support the Future Force training and education strategy, and Commander, U.S. Army TRADOC's Command Training Guidance.

Activities/Accomplishments

The EA wrote the Lifelong Learning Center POM Pilot Project Masterplan, dated March 15, 2005, approved by Training and Doctrine Command headquarters, which serves as the blueprint for the establishment of the Fort Leavenworth, Kan., and the Maneuver Support Center, Mo., LLC's in FY 06-07. This included writing the requirements/objectives/metrics/milestones for the Pilot Program. We wrote the Technical Operation View 1 architecture document that serves as the technical blueprint for the LLC Pilot Program.

This article was written by members of the University of Information Technology Division, Directorate of Training: Barbara H. Walton, chief, University of Information Technology Division; MAJ Chuck Dugle, chief, Simulations Branch, contributed information on simulations; Mike Sizemore, RTI contractor, contributed information on the virtual campus; and Mike Bowie, RTI contractor, contributed information on the Lifelong Learning Center.

Acronym QuickScan

AKO – Army Knowledge Online
AOC – Area of Concentration
AOT – Assignment Oriented Training
ARNG – Army National Guard
BNCPN – Battalion Command Post Node
COTS – commercial-off-the-shelf
DCSOPS&T – Deputy Chief of Staff for Operations and Training
DL – Distributed Learning
DTFs – Digital Training Facilities
DTOC – Digital Tactical Operations Center
EA – Executive Agent
FAQ – frequently asked questions
FDMA – Frequency Division Multiple Access
FY – fiscal year
HCLOS – High Capacity Line-of-Site
JNN – Joint Network Node
LAN – Local Area Network
LLC – Lifelong Learning Center
LLL – Lifelong Learning
LMS – learning management system
LWN – LandWarNet
MANSCEN – Maneuver Support Center
MOSQ – Military Occupational Specialty Qualified
MRT – Master Reference Terminal
OV1 – Operation View 1
PEC – Professional Education Center
SCORM – Sharable Content Object Reference Model
SME – Subject Matter Experts
TADLP – The Army Distributed Learning Program
TDADD – Training Development and Delivery Directorate
TDMA – Time Division Multiple Access
TIMS – Tactical Internet Management Systems
UIT – University of Information Technology
USAR – U.S. Army Reserve
VC – Virtual Campus
VSAT – Very Small Aperture Terminal
WAN – Wide Area Network

'Load balancing' RC modular force signal training requirements

By MAJ Jan C. Norris

Introduction

Just mention 'load balancing' to a group of Signaleers or network technicians and thoughts of 'circuit overload and redundancy' come to mind. Load balancing is the technique used to spread work between many processes, computer systems, circuits, disks, or other resources. In the context of Signal military occupational specialty training to Reserve Component units amid Army modular transformation, 'load balancing' current and future training requirements will be vital to generating a trained and ready 'network enabled' force to support the global war on terror. Outside Fort Gordon, there exist several accredited locations to provide training to RC units such as the two High Tech Regional Training Sites (Tobyhanna, Pa., and Sacramento, Calif.) and six regionally based Signal Total Army School System or TASS battalions. Balancing the load of unique and numerous National Guard and Reserve training requirements among these locations is essential to keeping pace with current operational tempo and meeting the TASS cycle timeline. And while these RC training locations face similar and perhaps more challenging equipment resourcing issues than Fort Gordon, all must adapt and innovate to ensure Soldiers are provided relevant instruction and equipment, and are taught current tactics, techniques, and procedures.

RC Signal MOS training and locations

For the Army Reserve, under the guidelines of AR 380-15 (TASS), MOS producing or reclassification courses may be taught in a variety of ways and are condensed in length as compared with active component courses. The inactive duty training mode typically provides instruction during the monthly unit battle assembly only, and continues monthly until the course phase is complete. In many cases, IDT mode classes are combined with the self-paced distance learning mode (on-line) in between battle assemblies. The active duty training mode provides continuous instruction for consecutive days until a phase is complete.

The six accredited Signal TASS battalions in each of the Army Reserve Institutional Training Divisions teach primarily in IDT mode, and also in ADT mode during annual training or when mission, mobilization or optempo dictate. The two High Tech Regional Training Sites at Tobyhanna, Pa., and Sacramento, Calif., are accredited full-time resident schools staffed with full-time AGR and civilian personnel, and conduct all of their classes in ADT mode during weekdays and weekends if required.

RC/NG modular Signal transformation

With current modular transformation underway, National Guard and Reserve Network Support Signal Companies are being stood up or converted in support of brigade combat teams, support brigades, and modular division headquarters. Existing theater level Reserve and National Guard Signal units are also transforming from existing MTOE structure to the new Integrated Theater Signal Battalion

HIGH TECH REGIONAL TRAINING SITES COURSE LISTING

Signal MOS Courses	Tobyhanna, PA	Sacramento, CA
25C	X	X
25F EAC	X	X
25F ECB	X	FY07
25L	-	X
25Q EAC	X	X
25Q ECB	X	-
25Q EAC w/ Tropo	X	X
25U	X	X
25B	4th Qtr FY06	FY07
25S ASI 7D	FY07	FY07
Non-Signal MOS and Functional Courses		
94F	X	X
94E	Phase 3 & 4	Phase 1 & 2
94N	-	X
SINCGARS	X	-
SINCGARS 80	X	-
TC-AIMS II (88N Ph 2)	-	X
SAMS-1	-	X
SAMS-2	-	X
ULLS-G	-	X
ULLS-S4	-	X

Figure 1-1. High Tech Regional Training Sites Courses (Listing derived from ATRRS screen for school codes 923- High Tech Tobyhanna, Pa., and 924- High Tech Sacramento, Calif.)

and/or Theater Tactical Signal Brigade. In many cases at the brigade combat team level, a Signal company has to be formed from what was once a Signal support platoon or less. And many non-Signal Soldiers require MOS reclassification training. The highest density MOS at the brigade-and-below level is the 25U (Signal Support Systems Specialist) and the High Tech training sites continue to consistently train a large number of 25U Soldiers. At the modular division, corps, and theater level, the MOSs getting the most attention are the 25S (Satellite Systems Operator/Maintainer) and 25B (Information Systems Operator/Analyst). These critical MOSs traditionally have been taught at Fort Gordon only, and are now in high demand for training by all transforming Reserve Signal units. This can be problematic for selecting potential fills as they require high general technical scores and security clearances. Currently, both high tech training sites are preparing to stand up these courses prior to Oct. 1, 2006.

As of this writing, the only Reserve Component school teaching 25S is the 3rd Battalion (Signal Corps) – 108th Division (Information Technology) located at Fort Gordon, Ga., and they do so using Signal Center equipment. High demand satellite terminal/equipment availability is an obvious challenge for the 25S RC course, but once established at the two High Tech Sites and when the newly formed ITSBs get fielded their complement of tactical satellite terminals, the proliferation of this training will be realized. For the 25B course, most if not all, the required equipment is commercial-off-the-shelf and will be procured and resourced internally through an un-financed requirement or similar process.

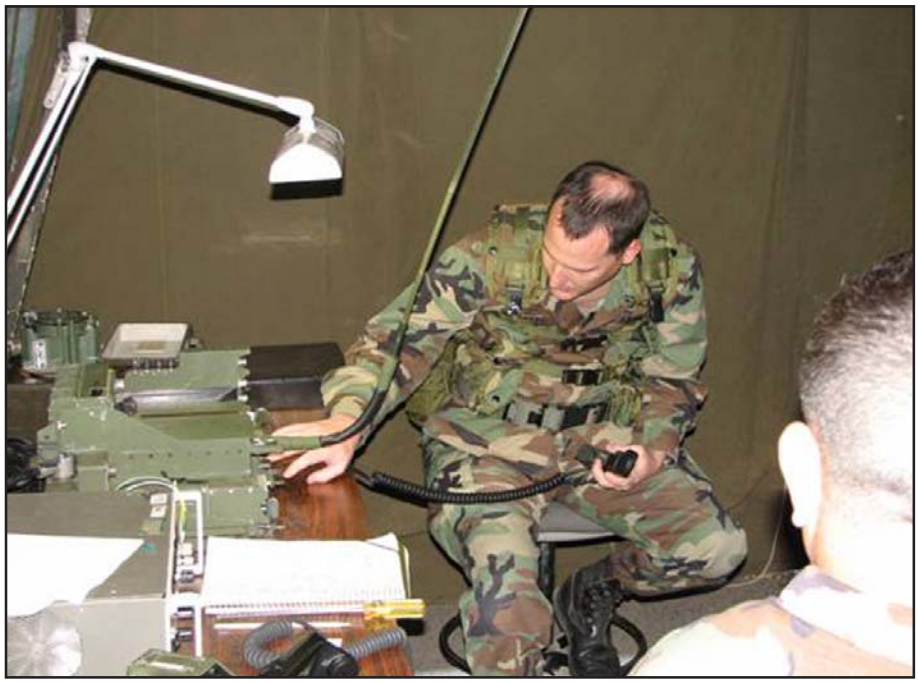


Figure 1-2. A 25U student troubleshoots a SINCGARS radio system inside a command post during the tactical scenario collective training event at High Tech Regional Training Site, Sacramento, Calif.

Training resources

The challenge of providing the latest in technology and equipment for training Signal Soldiers in the classroom is certainly nothing new to the Reserve or even Active Component. The high tech training sites provide valuable equipment resource pools, though not perfectly resourced, to local regionally based TASS battalions for conducting classes in IDT mode. High Tech Training Site-Tobyhanna is co-located with the Army Depot and often has close access to equipment and facilities not normally available elsewhere. In the case of Western training Region G, 2nd Battalion (SC)-104th Division (IT) is co-located with the High Tech Training Site in Sacramento and frequently uses its facilities and equipment for training. In other cases where a High Tech Site may lack the equipment type or density needed, Signal TASS battalions will train on site at a unit's home station using the hosting unit's MTOE Signal equipment. A good example of this is at the BT Collins Army Reserve Center in Sacramento, Calif. Here the 319th Signal Battalion is co-located with the High Tech regional school and 2-104th (SC) TASS battalion. Together these three Signal organizations form a Reserve Signal Corps Consortium that benefits from equipment sharing, an on-site senior instructor knowledge base, and experienced Signal Soldiers with lessons learned from a recently re-deployed Signal Battalion (319th from Operation Iraqi Freedom) to optimize the training experience. And from an equipment resourcing perspective as previously mentioned, 3rd Battalion (SC)-108th Division (IT) is notable for being located at Fort Gordon and having access to Signal Center equipment and assets as they are available. Per AR 380-15, major end items of equipment for TASS training battalions will, generally, continue to be borrowed from MTOE units. The United States Army Reserve Command will resolve shortages of equipment required for training when those shortages cannot be resolved at the division (IT) level. While these guidelines (commonly resulting in the what is known as 156R 'equipment support request' process) are feasible for TASS battalions, schools like the High Tech Training Sites require equipment on a full-time basis and can't normally borrow temporarily for the short-term, unless allowed to do so for an extended period of time to meet class requirements.

Figure 1-3. 25L Instructor, Paul Gross, repairs fiber-optic cable during a 'Train the Trainer' class given by Basic Installer Course instructors from Fort Huachuca, Ariz., in December 2005. Gross plans to integrate the latest in fiber-optic cable technology into the 25L course at High Tech Regional Training Site, Sacramento, Calif.

Conclusion: adapt and innovate

Above and beyond merely training to existing programs of instruction, meeting accreditation standards, and being content with equipment on hand, all Reserve Signal institutional training organizations must ensure that relevant tactics, techniques, and procedures and equipment are being provided to all who are trained. Equipment constraints on Army training institutions are a given and force everyone to adapt and innovate. In a recent Training and Doctrine Command produced video titled *"Adapt or Die, the Imperative for Creating a Culture of Innovation in the Army"*, Chief of Staff of the Army, GEN Peter J. Schoomaker compared the institutional army to a professional football organization, "The institutional army is like a football franchise, it's the coaching staff, the front office, the schedulers, and all of the things that enable a game to take place….our operational army is what plays on the field…our doctrine is what you do in the huddle, you have a game plan that the head coaches and assistant coaches put together and you move to the field with a doctrinal concept that you share in the huddle. You get to the line of scrimmage and you see the opposing team adjusting the defense, and you then go to audibles, and you innovate and adapt…then the ball is snapped and everything changes and now you rely on the skill and innovation of the individual athletes to act as a team and take advantage of opportunities that now arise that you never thought of before." Like our operational Army team in the field adapting, so must the institutional Army. Recent examples of Signal Corps institutional innovation range from the development of simulation based instruction at Fort Gordon's University of Information Technology, to use of Force XXI Battle Command, Brigade-and-Below white box computers in lieu of green boxes, to the temporary borrowing of AN/PRC-117s (Harris multi-band radio) from a sister service (Air Force) in the local community to conduct current and realistic training. Another area of recent Signal training innovation includes a refocus on applying knowledge and theory versus rote system memorization. Signal Soldiers have long been skilled, for example, on the ability to cold start a high frequency radio, program frequencies and load communications security, but have recently lacked the expertise and understanding on how to implement these same radios in varying terrain (urban and open desert) and climates and while on the move. They have lacked basic understanding on principles of radio wave propagation, antenna and frequency usage. Operation Iraqi Freedom has proven this Signal Corps training deficiency. (For more details, see *Army Communicator* article titled *HF Combat Net Radio Lesson Learned Again*, by David M. Fiedler, Spring 2004). Integrating more communications theory into the classroom and then applying knowledge to react and think through collective training exercises and tactical scenarios are needed at the institutional level.

As today's Reserve Signal Soldier is unique and often enters the classroom equipped with knowledge and experience using the latest in commercial information technology, we have to keep working at ways to be equally equipped and knowledgeable as a training institution. As Schoomaker says, "We can never rest...we need to continually strive to improve our position to find better ways to do things. We have to constantly seek and challenge the status quo and move into areas of innovation which create areas of discomfort and as we become comfortable in those areas and do it, we have to strike out again."

Effectively training the Reserve Component force has never more pressing than now in light of current operational requirements around the world. The Army Reserve Institutional Training Divisions are a key component in supporting this effort to generate a ready force. And more specifically for the Signal Corps, the High Tech Regional Training Sites

and Signal TASS battalions play a critical role in providing a trained 'network enabled' force in the age of network centric warfare. Together, we must 'balance the load' of Signal training requirements that currently exist and are to come.

MAJ Norris is currently the commander of the High Tech Regional Training Site, Sacramento, Calif. His recent assignments include I Corps G33 information management officer and signal officer in the Stryker Brigade Coordination Cell, Fort Lewis, Wash., Norris is a 1990 graduate of Virginia Commonwealth University with a degree in journalism and 1997 graduate of Old Dominion University with a master's degree in applied linguistics.

Acronym QuickScan

ADT – active duty for training
AGR – active Guard/Reserve
AR – Army Regulation
ARFORGEN – Army Force Generation
AT- Annual Training
ATRRS – Army Training Requirements and Resources System
BIC – Basic Installer Course
COMSEC – communications security
COTS – commercial-off-the-shelf
DIV (IT) – Division (Institutional Training)
FBCB2 – Force XXI Battle Command, Brigade-and-Below
GT – General Technical
IDT – inactive duty training
IT – Information Technology
ITSB – integrated theater signal battalion
MOS – military occupational specialty
MTOE – Modified Table of Organization and Equipment
OIF – Operation Iraqi Freedom
POI – program of instruction
RC – Reserve Component
TASS – Total Army School System
TRADOC – Training and Doctrine Command
TTSB – Theater Tactical Signal Brigade
UFR – Un-financed Request
USARC – United States Army Reserve Command

'DITSCAP Me!' The necessary role of security engineering

By Jacqueline R. Tregre and Theodore A. Hendy

Introduction

The telephone rings, and a common conversation begins: "Hi, I'm John Doe from the program manager's office, and our system is going live the end of next month. We need to be DITSCAP[1]'d. Can you help us?" The recipient gives a sigh of resignation. The conversation continues with an education for the customer, who realizes with chagrin that his or her system probably will not make the fielding schedule. This presentation draws from long experience with the Defense Information Technology Certification and Accreditation Process and security engineering to explain the role of Security Engineering.

In today's environment within the Army, organizations and developers have an odd perspective in which information assurance equals documentation. This translates to a failure to incorporate security up-front and early-on in the system design process. When you apply an engineering change at the end of development – security or otherwise – it costs a great deal more than if it were incorporated from the beginning. "DITSCAP me" invariably indicates that security was not designed into the system.

I will discuss the background of how security engineering fell out of systems engineering, and then describe the proper role of the Security Engineer in the systems engineering process so that the DITSCAP process will not affect cost, performance, and schedule just before the desired operational date.

Background

The United States Army Information Systems Engineering Command has a long and honored role in information systems engineering, and in information security in particular. In the early 1990s, the Army Regulation for Information Systems Security called out the USAISEC by name as the go-to organization for information systems security assistance.[2] However, in line with acquisition systems reform, in which the Army no longer mandates that developers go where for what services, the name dropped out of AR 380-19 in 1998.[3] Furthermore, the current AR 25-2 mentions security engineering only one time.[4] Word-of-mouth still maintains the reputation of the USAISEC, which is why we get those interesting "DITSCAP me!" phone calls.

The Department of DITSCAP calls out for several roles: the Designated Approving Authority, the Certification Authority, and a Certification Agent (or certifier). [The Army has designated a single Certification Authority, and she/he designates agents of the Certification Authority.] The DAA grants approval

to operate, interim approval to operate, which gives the developer time to fix vulnerabilities), or denies approval to operate (the system is too insecure to trust on the Global Information Grid). The CA[5] appoints certifiers to inspect the system's configurations, processes, procedures, operational environment, and threats. The results of this effort culminate in a risk assessment and recommendation to the DAA.

Herein lays the issue: the current DITSCAP does not mention security engineering, even once, or address the role of the Security Engineer. It does however, devote a great deal of time to the System Security Authorization Agreement which is the documentation associated with assurance. Therefore, given that the focus is on assurance, and not Security, the field is left confused about what to do. Most developers, system owners, and system operators have come up with an odd transitive equation perspective:

IA = DITSCAP
DITSCAP = SSAA
SSAA = Documentation
∴ IA = Documentation

Information assurance does *not* equal documentation, and the tendency to 'check the block and forget it' has allowed many an information system to become insecure. SANS Institute director Alan "Paller criticized an IT (Information Technology) security movement that is focused narrowly on compliance drills".[6] Furthermore, by not engineering security into the system throughout its development, or maintaining it once fielded, many developers or system owners receive a rude surprise when they go to a competent Certification Authority on their path to accreditation. The fact that so many so-called 'accredited' systems are the subject of intrusions may be testimony that there are too few CAs willing to recommend against accreditation of systems so far along the misguided path.

Role of the security engineer

While the certifier inspects the system's security configurations, processes, procedures, and environment, the security engineer helps the developer design, implement, and document the system's security configurations, processes, procedures, and environment. In a fielded system, the information assurance manager maintains the system's security configurations, processes, procedures, and environment. Failures in any of these roles result in a vulnerability to the network.

Phase 1

The security engineer is a valued member of the systems engineering team, often called an Integrated Process Team or IPT[7]. In the very beginning, she/he is deeply involved with the concept of the system. In coordination with the developer, the user representative, the CA or designated agent of the CA, the Designated Approving Authority, and the security engineer define the system by describing its intended environment, users, environment, and recommends a Mission Assurance Category (MAC 1, 2, or 3) and data sensitivity level (classified, sensitive, or public). Once the security engineer identifies the baseline security controls, she/he develops an initial Security Concept of Operations wherein she/he will describe initial thoughts on how to address security in the total system, to include personnel and physical environment. After the four individuals agree on all the baseline conditions, the security engineer assembles and processes for signature the System Security Authorization Agreement Phase 1. As the name says, the document is an agreement and an authorization for the roles and responsibilities, as well as initial concepts, for the security of the system.

Phase 2

As a member of the systems engineering team, the security engineer stays involved in all aspects of the design, making recommendations to the other members of the team and the Lead Systems Engineer on how to incorporate security into the particular parts of the program. For example, by understanding the intended final use of the system, whether deployed on the battlefield, used only in garrison, or as a permanent part of the Global information Grid, the security engineer may advise on

- Small expenditures up-front that will save many dollars in up-grades in the out-years. For example, putting in a larger 'blade box' with many slots that costs a little extra now, but minimizes expansion costs for many years because Virtual Private Network or firewall blades may be added later.
- Selection of particular software or hardware because she/he knows that Department of Defense is planning on implementing a certain security configuration in the future
- Not implementing bleeding edge technology because of perceived security implications that may make the system un-deployable if security vulnerabilities surface. Wireless is a good example. Insecure wireless Local Area Networks sprang up all around the Army because implementers did not assess wireless for threats, vulnerabilities, and risks to the Army networks.
- Operating system secure configurations so that software developers design on secure systems. Often, security configurations applied after-the-fact cause applications not to work, and therefore result in expensive software change proposals.
- Risk mitigation for vulnerabilities in the system. The security engineer stays in contact with the certifier to coordinate acceptable mitigation techniques.

Ultimately, it is the program manager or system owner's responsibility to allocate resources and responsibility for meeting the IA controls and security objectives. The Security Engineer recommends who should do what, but the PM is the owner of the requirements. By now, the security engineer will have a much better understanding of the 'to be built' Security Concept of Operations and will document it. As the

developer implements the security features, the security engineer will also document the proper use of the features in terms the future system operators and administrators can understand so that they may maintain the system's security during its lifespan. The security engineer collects all of the system design artifacts and the system security artifacts into the System Security Authorization Agreement Phase 2. This, too, receives signatures of the DAA, the (A)CA, the certifier, and the developer as they agree to this phase of security. By this time, it should be apparent that the intention is for the SSAA to be the single repository for describing how the system will achieve and sustain security. It follows security; it does not replace security.

Phase 3

The "as-built" system defines the end of development for this phase. The system design plan, system drawings, corrected hardware, software, and firmware lists become final. The security engineer continues coordination with the certifiers to address any outstanding vulnerabilities or risks. The security engineer performs security assessments on all parts of the system in this phase, ensuring the system is fully in line with Department of Defense and Department of the Army requirements. The security engineer will know what the certifiers will find during their certification efforts. She/he coordinates with the PM/System Owner and the DAA to ensure that they agree the risks are acceptable. The security engineer gathers finalized artifacts for the system and produces the Phase 3 SSAA. Being fully knowledgeable of the system and its security configurations, the Security Engineer assists the developer in writing a Plan of Actions and Milestones, a document that addresses information assurance controls not currently met, mitigations and timelines for meeting them, or recom-mends acceptance because of low risk.

At this point, normally just prior to system acceptance testing, the certifier performs the certification testing. In this fully integrated, security engineered system, the certifier's testing efforts verify that the IA controls have been met or not, but as mentioned earlier, the final self assessments as part of the security engineering should have identified most if not all of the certifiers findings already. The certifiers will analyze the findings in terms of operating environment, potential mitigations, and threat and form the basis of the risk assessment report.

The Certifier, with assistance from the security engineer, assembles their reports with the Phase 3 SSAA, makes a recommendation for accreditation, and forwards to the ACA. The ACA writes a recommendation letter for accreditation, signs the SSAA-3, and forwards to the CA. The CA approves the SSAA-3, and forwards with recommendation to the DAA. The Designated Approving Authority grants or denies authority to operate based on his or her knowledge of the needs of the Army, and the recommendations of the certification agent.

Phase 4

During the systems operating lifecycle, the security engineer may be engaged to assist the PM, if in a spiral development, or the operating activity to assess potential changes to the system for IA impacts. It is imperative that the security engineer has designed into the system means to sustain security, e.g., IAVA patch management processes, and secure configuration management.

Summary

I have shown that security engineering, like any of the roles in the Integrated Process Team, is most efficient and effective when incorporated throughout the systems engineering process. Failure to address security engineering up-front and early-on in the design process may result in engineering cost proposals or software engineering proposals at the end of the developmental life cycle when most expensive. Failure to address security may also result in schedule slippage due to incorporating required security, which then delays fielding. Late integration of security may cause performance degradation as developers incorporate less-than-optimal solutions to check the DITSCAP block.

Assign the security engineer role up-front and early-on. You will be glad you did.

For more information:

Norwich University MSIA: http://www.msia.norwich.edu/overview.htm.

USAISEC's Information Assurance & Security Engineering Directorate iased@hqisec.army.mil

MAJ (Ret) Tregre, BSEE, CISSP, ISSEP, is the Security Engineering Group supervisor in the USAISEC in its Information Assurance and Security Engineering Directorate. She has been with ISEC since 1996, and in the information assurance field since 1999. She is currently pursuing her Master of Science in information assurance with Norwich University, a National Security Agency designated National Center of Academic Excellence in IA education. She has previously published "Restructuring and Force Projection in USAREUR"; Army Communicator *V.18:2.*

Mr. Hendy is the director of the Information Assurance and Security Engineering Directorate in the USAISEC. A 1981 graduate of the USMA, he brings experience from a counterintelligence background to his present role as Agent of the Certification Authority. Hendy stood up the IASED in 2001 and maintains its high standards today.

(A special note of gratitude is sent to LTC Douglas Van Gorden for his readability suggestions.)

Footnotes

[1] Defense Information Technology Certification and Accreditation Process. Department of Defense Instruction 5200.40. 30 Dec 1997.

[2] Army Regulation 380-19, "Information Systems Security", 01

Aug 1990, paragraph 1-7.a, superseded by AR 380-19, 27 Feb 1998, now obsolete and superseded by AR 25-2.

[3] Army Regulation 380-19, "Information Systems Security", 27 Feb 1998, now obsolete and superseded by AR 25-2.

[4] Army Regulation 25-2, "Information Assurance", 14 Nov 2003. Paragraph 4-1. P 15.

[5] The Army recently designated a single CA, and designates Agents of the CA for standardizing certification testing.

[5] In the Army, the ACA.

[6] Green, Robert, Sr Ed., "Defining IT Security Upward". Effective Government. Online. 19 Nov 2005. http://www.publicsectorinstitute.net/ELetters/EGovernment/v3n12/Upward.lsp.

[7] Defense Acquisition University classes for Acquisition, Program Management, Systems Engineering, Information Resource Management, and Software Acquisition Management.

Acronym QuickScan

ACA – Agents of the Certification Authority
AR – Army Regulation
ATO – Approval to Operate
CA – Certification Authority
DAA – Designated Approving Authority
DITSCAP – Defense Information Technology Certification and Accreditation Process
DoD – Department of Defense
ECP – engineering cost proposals
GIG – Global Information Grid
IASED – Information Assurance and Security Engineering Directorate
IA – Information Assurance
IATO – Interim Approval to Operate
IPT – integrated process team
MAC – mission assurance category
SEP – software engineering proposals
SSAA – System Security Authorization Agreement
USAISEC – United States Army Information Systems Engineering Command

Close combat teaches self-dicipline, confidence

By 1LT Kalin M. Reardon

Because of today's ever evolving operational environment, the Army has changed its focus from a linear battlefield to one without a front line. In modern warfare every Soldier must be ready to perform any task including those that were reserved in the past for combat arms military occupational specialties. These tasks include building clearing, Enemy Prisoner of War search and seizure, and mounted patrols.

In order to prepare Soldiers for combat on today's battlefield, we must first instill them with Warrior Ethos. This is done by first changing the Army's mentality of "in the rear with the gear." The gateway to change this thought process is through the Army's newest members. During initial entry training Soldiers go through training such as weapons immersion, convoy live fire, urban operation, and combatives training.

The Modern Army Combatives program teaches Soldiers discipline, builds self confidence, and gives them the courage to continue to fight. These are critical elements in training young Warriors for combat operations.

Combatives is so integrated into training that during basic combat training Soldiers are given a mouth guard as part of their initial issue. Soldiers are also given a minimum of ten hours of combatives training, broken down into five, two-hour blocks of instruction. This training covers a portion of basic ground grappling.

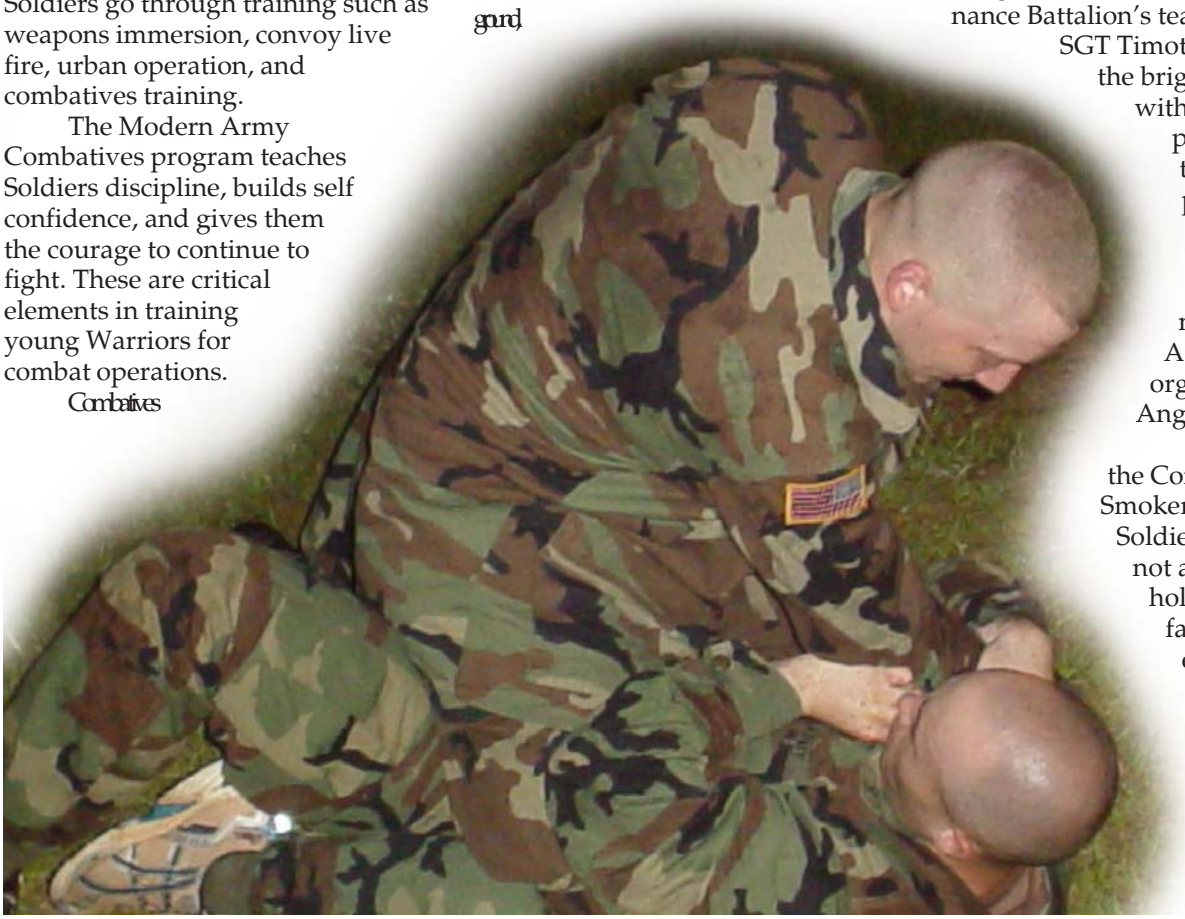
Once IET Soldiers complete BCT they are familiarized with the combatives program, and are prepared for the natural progression of training, basic ground grappling, advanced ground grappling, takedowns, strikes and kicks, fight strategy, and situational training.

Within the 15th Regimental Signal Brigade, Soldiers continue to go through basic ground grappling training. This is accomplished safely because grappling is done primarily on the ground, reducing impacts from a throw or strike. The Soldiers are given a minimum of a three-hour block of instruction monthly. During this training the instructor trains the Soldiers in dominate body positions, escapes, and submissions in accordance with *FM 3-25.150*.

Recently the 73rd Ordnance Battalion hosted the brigade's first Combatives Smoker on Fort Gordon. The turnout was amazing and the competition was strong. Sixteen Soldiers from the 15th RSB, four from each battalion, competed for the championship trophy and the coveted brigade combatives streamer.

After almost being choked out in the final seconds of the first round PVT Eric Cataline regained his composer to win first place in the inaugural smoker. The 73rd Ordnance Battalion's team coached by SGT Timothy Grega took the brigade streamer with team members placing second, third, and fourth place.

The smoker accomplished two missions at once. According to the organizer, CPT Angel M. Graulau, "The purpose of the Combatives Smoker was to provide Soldiers who were not able to spend the holiday with their families, some entertainment while building esprit de corps." The second aspect of the smoker is the



attention that the combatives program received by performing a high visibility event on post.

The 15th RSB now has one Level III Combatives instructor and seven Level II instructors. The instructors held monthly Level I training courses, as well as, participating in sustainment training. The 15th RSB is in the process of securing more combatives slots with the end state being a minimum of one Level IV for the brigade, one Level III per battalion, one Level II per company, and one Level I per platoon. This allows the brigade to perform a Level I as well as a Level II course at Fort Gordon, which allows them to groom their combatives leadership, as well as integrating combatives into other training scenarios.

Combatives training can be conducted with a fully resistant partner, making combatives a great training multiplier, as well as, giving the Soldier immediate feedback when they execute proper moves or make a mistake. Because of this aspect of combatives is a it a great tool to use during other training operations, resulting in training that is fluid.

One way to integrate combatives training into daily operations is once Soldiers finish their task at hand, cadre members can instruct them in a combatives match. Imagine just completing a 10K road march, dog tired, you barely opened a meals-ready-to-eat, and a cadre member approaches with an order for a combatives match. This same philosophy can be used when doing urban operations or convoy operations training.

Typical training takes place in a round-robin type scenario, with everyone knowing what task they are going to encounter. With combatives, cadre members have more realistic training; a Soldier has no idea of what situation they face. That way the cadre only have to give the Rules of Engagement, ROE, and have the scenarios ready.

This allows for a standard check-point operation to become much more. For example, in an uncomplying driver or passenger situation, the Soldier is faced with a search and seizure or possible apprehension of the individual. This type of scenario tests the Soldiers on tactical proficiency and their ability to think on their feet.

Combative training is the way of the future and the 15th RSB is transitioning to meet the training requirements of today's operational environment. The mentality of "in the rear with the gear" is gone, and the Warrior Ethos philosophy is integral where every combat arms, combat support, and combat service support MOS Soldier is first and foremost a warrior.

1LT Reardon is assigned to C Company 73rd Ordnance Battalion, Fort Gordon Ga. He is currently the company executive officer as well as the 15th Regimental Signal Brigade Combatives Level III instructor. Reardon received his commission in 2003 from Troy State University, with a follow-on assignment to D Company, 702nd Main Support Battalion, Camp Casey, Korea.

Acronym QuickScan

BCT – Basic Combat Training
EPW – Enemy Prisoner of War
IET – initial entry training
MOS – military occupational specialty
MRE – meals ready to eat
ROE -- Rules of Engagement
RSB – Regimental Signal Brigade

After AIT: Advanced Immersion

By CPT Shannon Sanford

After graduating Advanced Individual Training, many of our Soldiers are deploying to combat within a few weeks. The 15th Signal Brigade re-tooled its training program to include Advanced Immersion as part of every signal military occupational specialty curriculum.

The concept of Advanced Immersion is to immerse the Soldier's relevant, scenario-based training environment while receiving training on skills required of every Signal Soldier (Signal 101). Single-Channel Ground-to-Air Radio Systems, Force XXI Battle Command, Brigade-and-Below, Information Assurance, Defense Advanced GPS (Global Positioning System) Receiver / Precision Lightweight GPS Receiver training are all taught and practical exercises conducted in an atmosphere that simulates the current operating environment found when Soldiers deploy.

The Training and Doctrine Command regulation requires Soldiers in AIT to be weapons immersed for two weeks in the school environment with a weapon. The brigade titles its immersion advanced because Soldiers are placed with their assigned weapon in a realistic Forward Operating Base for their first two weeks in AIT. This allows the sequential and progressive build from what the Soldiers learned in basic training. Drill Sergeants serve as squad leaders.

Day one, the Soldiers receive a situational update and mission brief by the cadre. They live and train in and around the FOB. These Signal Soldiers not only learn their role in maintaining a signal network, but also how to protect it and the FOB.

Instructors training in common, operator level communication skills needed to meet mission requirements. Practical exercises are hands-on conducted in a contemporary operating environment at both the squad and platoon levels.

Soldiers are required to maintain situation awareness and conduct the tactical operation. Upon completion of the mission, Soldiers are then required to conduct after action reviews and prepare and rehearse for the next operation.

Feedback from the Military Occupational Specialty – Initial Entry Soldiers has been positive. PFC Antwain McClain says of his time in the FOB, "The FOB was a very great training course. I really enjoyed working with other sergeants during the navigation course. I look forward to working with many others as my career moves forward."

The Soldiers are led in

Acronym QuickScan

AARs – After Action Review
AI – Advanced Immersion
AIT – Advanced Individual Training
CALL – Center of Army Lessons Learned
COE – Contemporary Operating Environment
DAGR - Defense Advanced GPS (Global Positioning System) Receiver
FBCB2 – Force XXI Battle Command, Brigade-and-Below
FOB – Forward Operating Base
IET – Initial Entry Soldiers
MOS – Military Occupational Specialty
MOS-I – Military Occupational Specialty-Initial Entry Soldier
PLGR - Precision Lightweight GPS Receiver
SINCGARS – Single-Channel Ground-to-Air Radio System
TSP – training support packages

Advanced Immersion as a cohort unit. The company commander and his team are responsible for the health, welfare, and safety of all Soldiers (cadre and IET). The company is responsible for the development of the COE and scenarios to evaluate understanding of training.

As such, the command teams rely heavily upon Center of Army Lessons Learned database, Soldiers who have returned from theater, and training support packages from Fort Benning to keep the training relevant.

For example, one of the main issues in the current theatre of operation is accidental discharges. Each Soldier is provided blank ammunition which is inventoried periodically. If a round is accidentally discharged, Advanced Immersion trains the Soldier on the tragic results of accidental discharges (funeral, letters of condolences, etc). Soldiers are constantly reminded of muzzle awareness and accountability.

CPT Robert Loyd of the 369th Signal Battalion, S-3 Operations Officer, sums up Advanced Immersion well. "The Advanced Immersion concept is a step in the right direction. Prior to AI, Soldiers have been trained in a task oriented method (one task at a time) from the day they get sworn into the Army. I'd like to see us continue to move towards training in a total mission format, requiring Soldiers to know, recognize, and accomplish tasks as the mission requires with multiple actions taking place around them," said Loyd.

CPT Sanford currently serves as the battalion S-2 for the 369th Signal Battalion. She has served as the executive officer for Headquarters & A Company and as an interim-aide for the deputy commanding general, U.S. Army Signal Center & Fort Gordon.

TSM update

Updates from Training and Doctrine Command systems managers for satellite communications, tactical radio and Warfighter Information Network-Tactical

TSM-Tactical Radio

JTRS Program Restructuring

By COL Carole N. Best

In July 2005 the Joint Tactical Radio System program underwent a Defense Acquisition Board review. In August 2005 the JTRS Joint Program Executive Office submitted a proposal to the Department of Defense which detailed the management of all JTRS Cluster efforts with the intent of achieving near-term success by delivering usable capabilities to the field now while pursuing the long-term goal of fielding a complete, interoperable, software-defined radio over time. On Nov. 22, 2005, the JTRS JPEO presented three restructuring options to the members of the DAB.

The DAB "Group of 12" examined implementation expediency, cost, and technical risks with the goal of discovering an affordable option to get capability to the field earlier. Option 3 was selected and funded for restructuring the JTRS program. The focus of Option 3 is to support Future Combat Systems Spin Out 1 and Modularity. It will ensure joint interoperability. Option 3 will be resourced by converting Operational Procurement (A, N, etc.,) funds to research, development, testing, and evaluation dollars. The services will split the cost of developing Option 3 equally.

Option 3: Transformational Plus Legacy Capabilities

The following are the capabilities delivered by each program under Option 3:

❖ JTRS delivers all of the prioritized capability called out by JCS per the Sept. 30, 2005, baseline.

❖ Ground vehicle delivers production (Low Rate Initial Production) units with Wideband Networking Waveform-increment 1, Soldier Radio Waveform, SINCGARS with INC, EPLRS, HF, and SATCOM in the first Quarter 2011. Though this is much later than the FCS need date for LRIPs, it does have all the capabilities required for FCS integrated into the JTRS.

❖ The two-channel ManPack and HandHeld delivers with SRW, SINCGARS with INC, EPLRS, and SATCOM. Small Form Factors will be delivered with SRW, Land Warrior Form Factor with SRW, SINCGARS with INC, and EPLRS. The SFF unit's deliveries are within one year of the FCS scheduled need dates. This capability includes the ability to carry both secure and unclassified data (Type 1 and 2 SRW).

❖ The MIDS-J delivers the Link 16 variant in 2008 and the Link 16, JAN-TE and the Havequick variant by 2009.

❖ The ARC 210 FF for rotary wing *(WNW, SRW, SINCGARS with INC, and Link 16)*. Fixed wing includes Mobile User Objective System. LRIP units will be available in late 2011.

JTRS Support to Future Combat System

The FCS Program received the first delivery of Joint Tactical Radio System Cluster 1 pre-engineering, development, model radios on Jan. 24, 2006. The initial waveform set included the SINCGARS waveform and the Wideband Networking Waveform-increment 1. Updates to operational software and waveform upgrades will be provided with FCS radio deliveries scheduled to take place in August 2006.

The WNW gives the radios Internet-like capabilities on the move, uses common Internet Protocol-based networking concepts, and new mobile ad-hoc networking technology to integrate voice, video, and data communications. The WNW enables JTRS radios to provide secure, self-forming, and self-healing connections to other nodes on the network. It will ultimately enable connectivity with the global information grid thereby extending advanced networking services and information access to warfighters anywhere in the world.

The basic JTRS radio configuration being delivered to the FCS program has been successfully operated in multiple demonstrations over the past six months. These demonstrations have shown multi-channel operation, simultaneous waveform operation, and interoperability with currently fielded radios.

Enhanced Position Location Reporting System

The Enhanced Position Location Reporting System fielding continues. Initial fielding of assets, with an improved version of the EPLRS Network Control Station now called the EPLRS Network Manager to the 4th Stryker Brigade Combat Team in Fort Lewis, Wash., has been completed. Initial fielding efforts are underway in support of fielding to SBCT-5 (2/25) and SBCT-6 (56/28ID).

New Equipment Training contractors are providing on-site training of the operation of the EPLRS radio sets and the ENM planning suite. The ENM supports the Army's transformation initiatives and the warfighter by providing a network control system that requires fewer operators and has a smaller footprint than the current NCS-E.

Retrofits of existing EPLRS-equipped units such as the 4th

Infantry Division and SBCT-1 are completed. Ongoing actions to retrofit the 1CAV and SBCT-2 continue. This will complete retrofits of previously fielded units. EPLRS is one of the key data communications backbones supporting the Army's tactical Internet and Air Defense Artillery sensors, as well as unit weapons systems. All future fieldings will include the ENM instead of the NCS-E.

Present status of the Army deliveries is approximately 11,000 radio sets. The JTRS waiverable ceiling remains at 12,896 radios sets. DA redistribution of assets has resulted in fielding support for the 4ID, 1st Cavalry, the Stryker BCTs, and National Guard units which support Operation CLEAR SKIES. Additional quantities to support fielding of SBCT-7 and the remaining divisions will require further redistribution and/or additional quantity buys.

COL Best is a native of Beaufort, S.C. She earned a Bachelor of Science degree in social studies in 1975 from Fayetteville State University, a Master of Science degree in systems management from the University of Southern California in 1989 and a Master of Science Degree in national security and strategy from the Army War College in 2001. She completed Command and General Staff College in 1993 and the Armed Forces Staff College in 1995. She entered the Army in 1980 and was commissioned upon graduation from Officer Candidate School, Fort Benning, Ga., in March 1981.

After completing the basic communications-electronics course at Fort Gordon, Ga., Best was assigned as the executive officer, Officer Student Company, Second Signal Training Brigade, Fort Gordon. In September 1982 she was reassigned as platoon leader, Company B, 67th Signal Battalion and later served as signal operations platoon leader and executive officer, headquarters company, in the same battalion. Best was assigned to the 93rd Signal Brigade, Ludwigsburg, Germany, in June 1985. While there, she served successively as assistant operations officer and commander, Company C, 34th Signal Battalion. Other assignments in her career include: assistant brigade operations officer, 1101st Signal Brigade, Fort McNair, Washington, D.C.; commander, Satellite Communications Station, Camp Roberts, Calif.; project officer and deputy program manager, Defense Information Systems Agency, Washington, D.C., and commander, 1st Satellite Control Battalion, Army Space Command, Colorado Springs, Colo. Best is currently assigned as the chief, Strategy and Technology Applications Branch, U.S. Strategic Command, Colorado Springs.

Acronym QuickScan

1st CAV – 1st Cavalry
DA – Department of the Army
DAB – Defense Acquisition Board
DoD – Department of Defense
ENM – EPLRS Network Manager
EPLRS – Enhanced Position Location Reporting System
FCS – Future Combat System
HF – High Frequency
HH – Hand Held
ID – Infantry Division
INC – InterNet Controller
JAN-TE – Joint Airborne Network – Tactical Edge
JCS – Joint Chiefs of Staff
JPEO – Joint Program Executive Office
JTRS – Joint Tactical Radio System
JTRS C1 – Joint Tactical Radio System Cluster 1
LRIP – Low Rate Initial Production
MIDS-J – Multi-functional Information Distribution System-JTRS
MP – ManPack
MUOS – Mobil User Objective System
NCS-E – EPLRS Network Control Station
OP – Operational Procurement
RDT&E – Research, Development, Testing, and Evaluation
SATCOM – Satellite Communications
SBCT-4 – 4th Stryker Brigade Combat Team
SFF – Small Form Factors
SINCGARS – Single Channel Air to Ground Radio Systems
SO1 – Spin Out 1
SRW – Soldier Radio Waveform
WNW – Wideband Networking Waveform

TSM-WIN -T

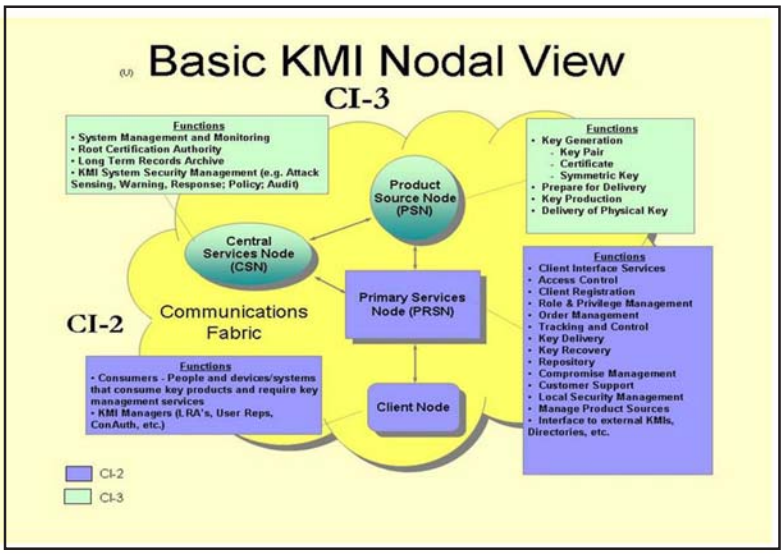
Army Key Management System – update

By Al Walton

The Army Key Management System is a fielded system composed of three sub-systems, Local Communications Security Management Software, Automated Communications Engineering Software, and the Data Transfer Device with Common Tier 3 software. Product Manager Network Operations-Current Force has developed a DTD replacement, the Simple Key Loader which will be fielded over a five year plan FY05-FY10. AKMS was fielded to the Army under the umbrella of the objective National Security Agency Electronic Key Management System, the AKMS fielding has involved several LCMS software upgrades beginning with Release Three fielded in 1999, Phase Four 2004, and Phase five scheduled for implementation in 2006.

LCMS and ACES courses are two weeks in length and are available via the Army Training Requirements and Resources System. SKL training is via interactive multimedia Instruction, which is provided as part of the fielding package. PdM NETOPS-CF and the Signal Center Directorate of Training are scheduled to coordinate the development of an SKL POI to be integrated into the courses where DTD's are taught as a peripheral device.

Change 4 of the AKMS Operational Requirements Document dated Jan. 25, 2005, was submitted for AROC approval in January 2006. Change 4 documented the requirement to support future Programs for creation, distribution, and use of black (i.e. encrypted) key for end to



end encryption.

Department of Defense Key Management Infrastructure is a supporting infrastructure to generate, distribute and manage key products for the crypto inventory used to protect national security information. EKMS/AKMS (Local Management Device/Key Processor) will begin a transition to KMI beginning in fiscal year 2008 timeframe. KMI will be implemented by the steady rollout of Capability Increments, to deliver time-phased CIs toward end-state IA objectives consistent with the overarching Global Information Grid and Cryptographic Modernization capability requirements.

KMI CI-2 will be the first increment in creating a single framework for modernizing and unifying the management of keys used to encode and decode information for use by the DoD in war and peacetime. This framework will not introduce single points of mission failures. KMI is a critical foundation element for ensuring an adequate security posture for national security systems by providing transparent cryptographic capabilities consistent with operational imperatives and mission environments.

The starting point for KMI CI-2 will be to leverage EKMS Phase V capabilities as a baseline. New capabilities have been identified and will aid in a transformation from the current key management infrastructure to a new paradigm for key management via net-centric operations (e.g. Over The Net Keying). As the developer of KMI, NSA is responsible for developing a KMI transition plan in partnership with the Services. The transition plan will delineate how each component in EKMS will be replaced, modified or sustained as the new capabilities of CI-2 are introduced.

In the CI-2 timeframe, EKMS Tier 2 will be replaced by the KMI Client Node. KMI Client Node will provide all of the functional capabilities that the current (LMD/KP) provides (via new transport connecting to the PRSN) while adding new capability to support the net-centric operations. The new KMI Client Node and associated PRSN functionality is scheduled to be delivered early in CI-2 to facilitate the transition. By delivering this capability early, the services can migrate to KMI, removing the need to operate two workstations to sustain operations. An end of life (targeted for Full Operational Capability [FOC] of CI-2) for the LMD/KP node of EKMS is dependent on replacing the 1,400+ operational Tier 2 accounts. In CI-2, Tier 1 will continue to operate; however, as CI-2 moves from Spiral 1 to IOC, functionality of Tier 1 will be migrated to the new KMI components. Likewise, Tier 0 will continue to operate during CI-2, providing key generation support to the new KMI.

CI-2 is targeted to provide key provisioning services for Networked ECU's to include:

- Provides initial Ordering, Delivery, Accounting, etc. over the Net
- Symmetric/Asymmetric Key to IP based ECUs like HAIPE
- Converges EKMS and KMI from the ECU and End User viewpoint
- Provides Suite A & B symmetric key via KMI Client
- Builds a foundation for CI-3 to enhance networked provisioning services

In the CI-3 timeframe, the intention of the DoD Key Management Infrastructure Program Office is to discontinue the use of EKMS Tier 0 and Tier 1 operations once FOC for CI-3 is achieved (beyond FY2015).

TSM WIN-T's POC for AKMS and KMI transition questions is Al Walton. He can be reached by telephone at (706) 791-2316/DSN 780-2316 or by email at waltona@gordon.army.mil.

Mr. Walton is with TSM-Win-T at Fort Gordon, Ga.

Acronym QuickScan

ACES – Automated Communications Engineering Software
AKMS – Army Key Management System
CI – capability increments
COMSEC – communications security
CT3 – Common Tier 3
DTD – Data Transfer Device
EKMS – Electronic Key Management System
FOC – Full Operational Capability
FY – fiscal year
KMI – Key Management Infrastructure
KP – Key Processor
LCMS – Local COMSEC Management Software
LMD – Local Management Device
NSA – National Security Agency
ORD – Operational Requirements Document
OTNK – over the net keying
PdM NETOPS-CF – Product Manager Network Operations-Current Force
SKL – simple key loader

AN/TSC-156A, SHF Tri-Band SATCOM Terminal – 'Phoenix'

By Bill Campbell

The AN/TSC-156 terminal, also known as the Phoenix, is a transportable multi-channel tactical satellite communications terminal operating in the super-high frequency band. Its mission is to provide flexible, mobile, high-capacity, extended-range communications connectivity using military and commercial satellite space segments. The Phoenix may interface with other strategic networks via standardized tactical entry points or strategic assets.

The August 2004 issue of the *Army Communicator* provided an update of the SHF Phoenix Block 1 terminal and its intended development path. Since that time there have been a number of developments and the testing and approval of the Quad-Band Phoenix Block 2 version.

AN/TSC-156A terminal – the Phoenix

Phoenix Block 1 Fielding

To date, 22 Phoenix Block 1 terminals have been manufactured with 20 being fielded to operational units in all major theaters (the other two terminals were used to develop the Block 2 terminal). As with most new systems, a few problems arose with the Block 1 terminals, all of which have been addressed and appear to be resolved.

The most critical problem was terminal overheating encountered by units serving in Operations Iraqi Freedom and Enduring Freedom. The Phoenix has a liquid exchange cooling system that was extensively tested in environmental chambers. The heat symptom units experience did not match the environmental data collected during the testing. After much research into the problem by the Army Product Manager for Multi-channel Satellite Terminals and the contractor L3 Communications Systems (West), the problem was discovered. The enclosure roof of the Phoenix has insulation to reduce the heat induced via sun loading. Extended time in high heat conditions caused the glue that holds the insulation to

the roof to fail. The insulation then dropped into the duct that provides the cooling air for the equipment blocking the duct and the enclosure overheated. To fix the problem, PdM MST and L3 West used a different type of insulation and glue. They also devised a physical restraint so the insulation cannot drop into the cooling ducts if the new glue fails. This fix will be applied to all fielded terminals and all follow-on production units. A second cooling issue with the High-Power Amplifiers has been corrected with new mounting hardware for air diverters.

Modifications required for the Phoenix Block 1 terminals because of the overheating issues are being done in the field. These corrections have been extensively tested in the environmental chamber and appear to fix the problems. Additionally PdM MST will increase the terminals high-end heat operations above the current specification by implementing changes in the Environmental Control Unit.

There have also been some higher than expected failures with some components and these are being corrected in the Block 1 version. The on-board spares and Authorized Stockage List has also been enhanced to compensate for the higher failure rate of some components. Some items experiencing reliability problems in the Block 1 will be replaced by different components in the Block 2 version. Training and Doctrine Systems Manager Satellite Communications and PdM MST will continue to closely monitor these issues to insure that the Phoenix terminals meet unit requirements.

Phoenix Block 2 progress update

To reduce program risk, the Phoenix terminal was developed and procured in two blocks. The Block 2 Phoenix builds on the basic Block 1 Phoenix configuration. The Block 2 is a quad-band capable terminal consisting of one wired enclosure with redundant radio frequency, baseband, and antenna equipment and a second pallet with power generation and ancillary equipment. It is capable of C-5/17/130/141 roll-on/off without special preparation, and it is transportable by land, sea, and rail. The terminal/vehicle combination is single-point sling-loaded by CH-47 rotary wing aircraft.

The Block 2 Phoenix is transported by two M-1113 or M-1152 Enhanced Capacity Vehicles. The first vehicle carries the integrated terminal enclosure and two operators with their personal and mission gear (to include A&B bags, rucks, spares, water cans, etc.). The second support vehicle [mobile power unit] carries a pallet-mounted, 10 kW Tactical Quiet Generator. The support vehicle also carries two operators with their personal and mission gear. Additionally, the MPU carries Basic Issue Item Diagnostic Spares, feed assemblies, and other terminal equipment. Both vehicles have 400 amp kits to provide short-term (24 hours) back-up power. External commercial alternating current power can also be used.

The Block 2 Phoenix will be designated the AN/TSC-156A and adds the capability of using a fourth band known as Ka-band, which will be available on the Wideband Gapfiller Satellite. Ka-band will allow higher throughput so the Phoenix Block 2 terminal has added components to provide more throughput. The addition of the fourth band adds redundant Ka-band HPAs, quad band converters and the use of a sub-reflector and new feed assembly. The two additional Ka-band HPAs will be permanently mounted on the sides of the antenna backbone. The sub-reflector and feed assembly will be mounted when using Ka-band and will be stored on the terminal when not in use.

The Phoenix will still be capable of multi-node operations with up to four full duplex links in hub-spoke, hybrid mesh, or point-to-point modes. To increase throughput a new AMT-73L modem and D4 Enhanced Tactical Satellite System Processor will be added capable of higher port rates and aggregate data rates up to 20024 Kbps including orderwire and overhead. A quad multiplexer with fiber-optic connection will be added as well as an MD-1272 format fiber optic port and a DNE CV-8448F format fiber-optic port. The Phoenix can transmit/receive up to four commercial T1/E1 transmission groups at 1.544/2.048 Mbps per group. It can interface with six Digital Transmission Groups at data rates up to 1152 Kbps per DTG or Conditioned Di-Phase rates up to 4608 Kbps using CX-11230 cable or 8192 Kbps using fiber optic cable for a total throughput of up to 20024 Kbps.

The Phoenix Block 2 will also interface with up to eight balanced Non-Return-to-Zero groups at rates up to twelve Mbps per port. D4 ETSSP bypass capability will be retained with a connection from one of the input ports to provide a point-to-point link at rates up to 20 Mbps. An L-band IF port is also provided for access to the modem in a point-to-point mode. Patching will allow the various types and combinations of military and commercial data rates, formats, and transmission groups/DTGs, to be combined to the maximum extent possible to use the total aggregate throughput of 20 Mbps.

Phoenix Block 2 terminals retain their backward compatibility with legacy AN/TSC-93B/C/D, AN/TSC-85B/C/D and AN/TSC-143 terminals to the second level multiplexer (TD-1337 and ETSSP) and STEP/Teleport terminals. Set-up and tear down time for the Phoenix is 30 minutes with a three-person (MOS 25S) operator/maintainer crew. Normal crew size is four operators/ maintainers and the terminal uses a two level maintenance concept. The Phoenix is capable of using the Lightweight High Gain X-Band Antenna AS-4429/TSC as an external antenna to provide additional transmit and receive gain, as mission needs dictate.

A computer-based control, monitor, and alarm system provides operator interface for ease of setup, operation, and maintenance via

laptop computer. The laptop will be modified to allow it to be remoted up to 300 meters using a fiber-optic connection. A spare laptop is provided for each terminal. KIV-19 Trunk Encryption Devices provides Transmission Security for up to four circuits that require them. A KY-99 is used to secure the D4 ETSSP orderwire between terminals.

Phoenix Block 2 Testing

Two Phoenix Block 1 terminals were retained to use in the development of the Phoenix Block 2. These two terminals were tested in a network demonstration using C, X and Ku-band satellites and, because WGS is not currently in orbit, a satellite emulator for Ka-band. Once the WGS satellite is launched, Phoenix Block 2 terminals will be a part of its operational tests.

The Quad Band Satellite Emulator used for the Ka-band portion of the test is part of the Phoenix Block 2 development. A QBSE will be issued to every unit getting Phoenix Block 2 terminals. The QBSE will operate in all four bands and can be remotely controlled from up to 1,200 feet. The QBSE provides a beacon frequency for acquisition and bands can be switched remotely and provide some attenuation adjustment for transmit and receive to more closely simulate the satellite.

The Phoenix Block 2 development also included the Phoenix Network Planning Tool. The PNPT will automate the building of the crew assignment sheets (cut sheets) and will also provide planners the ability to give the operator a CD or memory stick to automate loading the configuration onto the laptop. Each unit will also get a copy of the PNPT and a laptop to run it on. The PNPT will be part of the Phoenix Block 2 Tactics Techniques and Procedures training.

Modification of Block 1

Modification of fielded Block 1 terminals is expected to start in April 2006 with all 20 Block 1 terminals being upgraded to Block 2 by the end of this calendar year. The modification will be done on site. The modification will take 13 days including the Delivery Acceptance Test. After DAT, a three week New Equipment Training class will be given along with a one week TTP Planners and Managers Course.

For newly built (production version) Block 2 terminals, the process will be three weeks of NET followed by a one week DAT and the TTP. The MOS 25S course will receive two terminals this year as well as a Phoenix Training Simulator. Another two terminals will follow sometime in the future.

For further information on the Phoenix SATCOM terminal, contact Bill Campbell, TSM-SATCOM, (706) 791-7886, DSN 780-7886, email: William.campbelljr@us.army.mil

Mr. Campbell is a retired Army master sergeant with an extensive background in military satellite communications, both in tactical and strategic units. He provides his expertise and experience as a contractor supporting the TSM SATCOM.

ACRONYM QUICKSCAN

AC – alternating current
ASL – Authorized Stockage List
BIIDS – Basic Issue Item Diagnostic Spares
CDI – Conditioned Di-Phase
CMA – control, monitor, and alarm
DAT – Delivery Acceptance Test
DTG – Digital Transmission Groups
ECU – Environmental Control Unit
ECV – Enhanced Capacity Vehicles
ETSSP – Enhanced Tactical Satellite System Processor
HPA – High Power Amplifiers
LHGXA – Lightweight High Gain X-Band Antenna
MOS – military occupational specialty
MPU – Mobile Power Unit
MST – Multi-channel Satellite Terminals
NET – New Equipment Training
NRZ – Non-Return-to-Zero
OEF – Operation Enduring Freedom
OIF – Operation Iraqi Freedom
PdM – Product Manager
PNPT – Phoenix Network Planning Tool
QBSE – Quad Band Satellite Emulator
RF – Radio Frequency
SHF – super-high frequency
STEP – standardized tactical entry points
TED – Trunk Encryption Devices
TQG – Tactical Quiet Generator
TRANSEC – Transmission Security
TSM – Training and Doctrine Systems Manager
TSM SATCOM – TRADOC System Manager Satellite Communications
TTP – Tactics Techniques and Procedures
WGS – Wideband Gapfiller Satellite

ISYSCON (V)4 UPDATE

By Ed Duffy

TSM WIN-T continues combat developer oversight and implementation of the Integrated System Control – Version 4, as the Army's communication planning and engineering system for future, and contingency operations, brigade and below. The ISYSCON (V)4 performs critical Local Area Network management functions and network management functions critical for Army Battle Command Systems and the Force XX1 Battle Command Brigade & Below operations.

In conformance with the Army's Software Blocking Policy, TSM WIN-T personnel coordinate and develop network management threads related to interoperability for ISYSCON (V)4 and all WIN-T systems. The goal is to ensure software interoperability is achieved among developing systems and in accordance with implementing the field commander's prioritized top warfighter needs for the ABCS and future LandWarNet Network Management initiatives. The focus of the ISYSCON (V)4 entails integrating the Initialization, Monitoring and Unit task reorganization functionality of ISYSCON (V)4 as operational mission threads. The threads are then tested as block improvements for interoperability with the

other ABCS systems being fielded to the Army. Deploying Operation Enduring Freedom and Operation Iraqi Freedom forces set the timetable for Software Blocking Block testing and fielding. The Army's software blocking effort is divided into defined blocks for development and implementation.

- Software Blocking Block 1 - Assessment of this Block was performed to determine the status of ISYSCON (V)4 as a system under test in the Mar/Apr 2005 ABCS 6.4 Initial Operational Test, subsequent field exercises and Intra-Army Interoperability Certification testing. The Army Test & Evaluation Command Operational Assessment and IAIC test reports have resulted in the ISYSCON (V)4 being approved for fielding to OIF-7.

- Software Blocking Block 2 - In support of the Army's Modular Force Initiative, TSM WIN-T converted the ISYSCON (V)4 SWB B1 network management mission threads to support SWB Block 2 Modularity integration and interoperability testing. SWB B2 will be tested and released to support OIF-8.

- Software Blocking Block 3 - Emphasis for SWB B3 is on developing capabilities based set of threads vice the system centric process used for SWB B1 & B2. The TRADOC Architecture Integration Management Division was given the mission to develop the WIN-T mission threads for SWB Block 3. Draft threads from this process are due in mid-2006 with the final product tentatively scheduled for Dec 2006. SWB B3 will be tested and released to support OIF-9.

For more information about ISYSCON (V)4, contact Ed Duffy at DSN 780-8475, COMM (706) 791-8475, email ed.duffy@us.army.mil.

Mr. Duffy is a retired Army Signal Corps major and provides technical support for Madison Research Corporation contracts at Fort Gordon, Ga. His focus is on systems requirements and testing of automated communications network management for the Modular Force's battlefield information transport architecture. He is currently in direct support of the TRADOC Systems Manager Warfighter Information Network –Tactical in the area of Network Operations.

Acronym QuickScan

ABCS – Army Battle Command Systems
AMID – Architecture Integration Management Division
ATEC – Army Test & Evaluation Command
FBCB2 – Force XX1 Battle Command Brigade & Below
IAIC – Intra-Army Interoperability Certification testing
IOT – Initial Operational Test
ISYSCON – V4 – Integrated System Control – Version 4
LAN – Local Area Network
OEF – Operation Enduring Freedom
OIF – Operation Iraqi Freedom
SWB – Software Blocking Block
SWB B1 – Software Blocking Block 1
SWB B2 – Software Blocking Block 2
SWB B3 – Software Blocking Block 3
UTR – Unit task reorganization

Fielding Underway
An Update on the Joint Network Management System (AN/USQ-176A (V) 1 and (V) 2)

By Billy Rogers and Russell Benoit

The JNMS is an Acquisition Category level III Joint program that provides an automated joint communications network planning and management capability to joint tactical communication network planners/managers at Combatant Commands, COCOM Service components, Joint Task Force, and JTF Service components. It is an integration of the capabilities of commercial off-the-shelf, government off-the-shelf applications coupled by developmental software

to meet deficiencies identified by the COCOMs. It will replace the interim system, the Joint Defense Information Infrastructure Control System – Deployed, fielded to the warfighting COCOMs in the late 1990s. JNMS provides the means for timely decisions and synchronization of communication assets to support joint mission requirements, adds flexibility to better support the commander's intent, improves situational awareness by providing a common view of the network, and provides a capability to better use scarce resources to optimize the capacity of the network and support the fight. There are two versions of the JNMS being developed (see Figures 1 and 2). These versions are distinguished by the level of functionality provided. The JNMS (AN/USQ-176A(V) 1) has only a network monitoring capability. The JNMS (AN/USQ-176A(V) 2) has the full operational capability which includes planning, monitoring and reconfiguration, fault management, and security functionality. The (V)1 comes with a one-way fiber modem that provides a capability to display the network Common Operating Picture of both the unclassified and classified networks on the (V)2's management screen. The implementation of this cross-domain solution is dependant upon accreditation approval by each site's Designated

Approving Authority, as well as final approval by the Defense Information Systems Agency. The current build of JNMS (Build 1.3) received its generic type accreditation and full authority to operate by the program's DAA, PEO-C3T, in May 2005.

New Equipment Training and fielding of the JNMS is underway. Currently, 9 (V)1s and 16 (V)2s have been fielded to the Services. Army commands fielded so far include the Detachment 1 of the 311th Theater Signal Command and the 3rd, 11th, and 93rd Signal Brigades. The NET consists of three separate courses – Planner (three weeks), Network Manager (two weeks) and System Administrator (one week) and is being provided by the JNMS development contractor, Science Applications International Corporation. The Army product manager responsible for the development of the JNMS, Product Manager Network Operations-Current Force, has requested a conditional materiel release and developed a get-well plan describing the conditions that preclude a full release, with anticipated operational impacts, interim means of support and scheduled get-well dates. Gaining commands must submit an urgency of need and user acceptance statement signed by a general officer before the PM can officially declare the systems as fielded. The systems are initially hand receipted from the PM to the gaining commands until they have provided the required materiel release documentation. System fielding is following a Joint Staff and Services' coordinated plan.

The next major JNMS software build effort is going to be now developed with two incremental builds (Builds 1.4 and 1.5) in an effort to deliver additional enhancements/capabilities to the field earlier. Both incremental builds are targeted for development and release in 2006. The Army's Test and Evaluation Command is planning on using independent government assessments to meet testing requirements for these incremental builds prior to their release to the field.

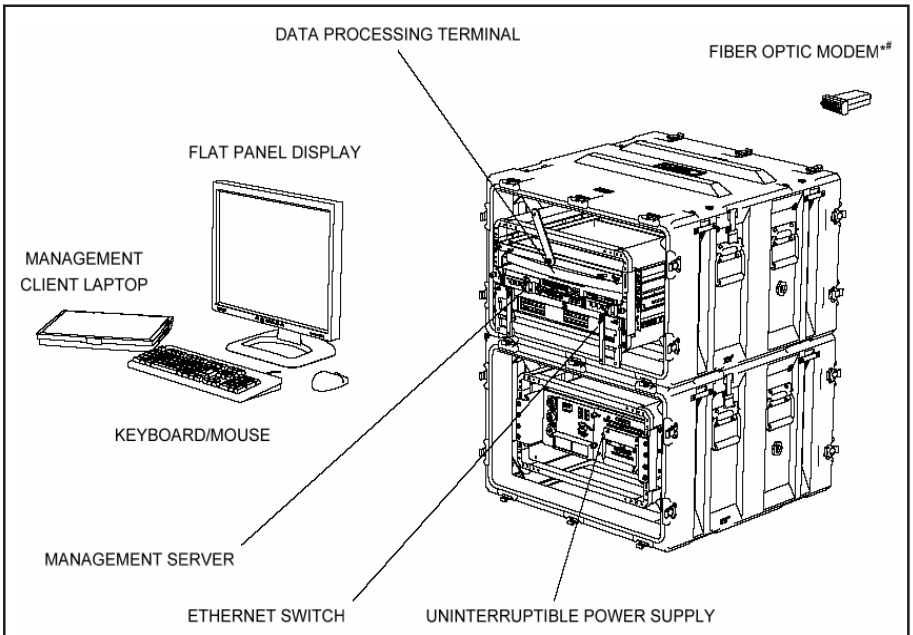


Figure 1. AN/USQ-176A(V)1

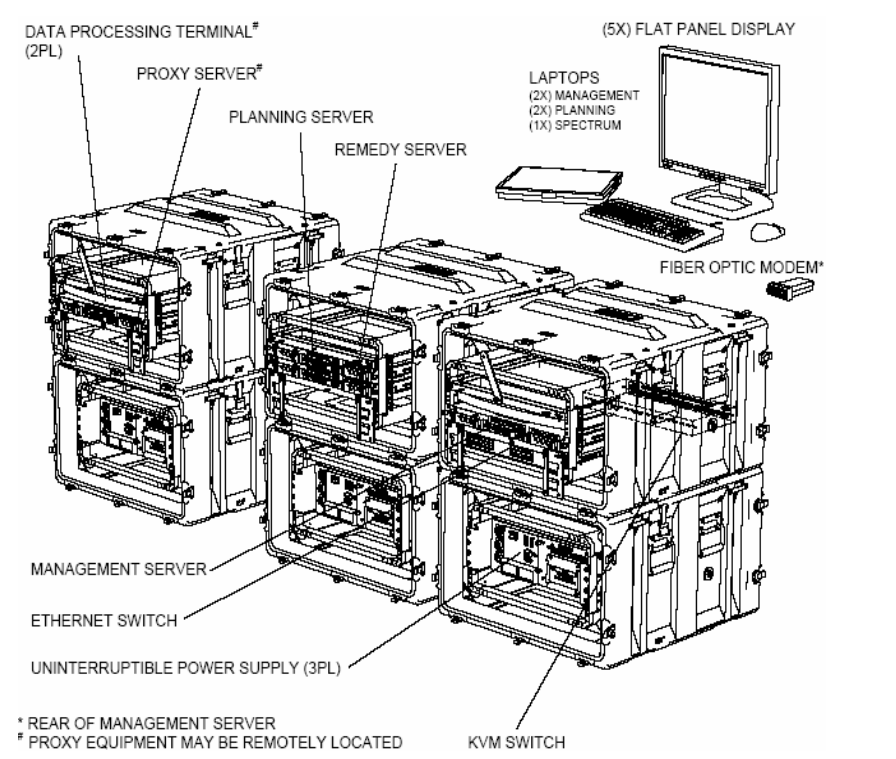


Figure 2. AN/USQ-176A(V)2

The Army, as the Executive Agent for the development of the JNMS, requested that an Inter-Service Training Review Organization study be conducted to determine the feasibility of consolidating all Service JNMS resident training at one location (Fort Gordon, Ga.). The study was conducted in three phases during late 2004 and late 2005. The study recommended consolidating the JNMS training at Fort Gordon. Final approval of the study's recommendation is expected within 60

days. Once approved, actions necessary to establish the joint school and resident training program by 2nd QTR FY07 will begin.

The May 2000 approved JNMS Operational Requirements Document has revised to include the mandated Net Ready KPP and approved by the Army. The Net Ready KPP annex to the ORD received Joint Interoperability Certification on Oct. 27, 2005. Based on these approvals, the Basis of Issue Plan was submitted for approval and is currently undergoing the staffing process.

For further information on JNMS, contact Russell Benoit or Billy Rogers, TSM WIN-T, (706) 791-7501/2334, respectively. Fort Gordon DSN prefix is 780. Email addresses are benoitr@gordon.army.mil or rogersb@gordon.army.mil.

Mr. Benoit is currently an Assistant TSM and Senior Telecommunications specialist for TSM WIN-T. Benoit has been working Network Operations and JNMS since 1997.

Mr. Rogers is a currently a Senior Systems Analyst with Femme Comp, Incorporated and provides TSM WIN-T with contract support services for the JNMS program. Rogers has been the primary TRADOC POC for the JNMS and has worked program issues with representatives of the Joint Staff, other Services and Agencies since the contract was awarded to Science Applications International Corporation in 2001. Rogers managed network management programs for the Defense Information Systems Agency prior to his retirement and also provided contract support services to TSM Network Management before its merger with TSM WIN-T in 2001.

Acronym QuickScan

ACAT – Acquisition Category
ATEC – Army's Test and Evaluation Command
BOIP – Basis of Issue Plan
COCOMS – Combatant Commands
COP – Common Operating Picture
COTS – commercial-off-the-shelf
DAA – Designated Approving Authority
DISA – Defense Information Systems Agency
FY – fiscal year
GOTS – government-off-the-shelf
INTRO – Inter-Service Training and Review Organization
JDIICS-D – Joint Defense Information Infrastructure Control System
JNMS – Joint Network Management System
JTF – Joint Task Force
NET – New Equipment Training
ORD – Operational Requirements Document
PM – Product Manager
SAIC – Science Applications International Corporations

Joint Network Node-Network update

By Barbara Carter

Joint Network Node-Network is an element of the Army's Joint Network Transport Capability, a federation of networks that enables the Army's transformation to modular, flexible units by providing networking resources at the unit of execution level. The JNTC is an interim system that will eventually evolve into part of the Army's future tactical network (War-fighter Information Network-Tactical or WIN-T). The JNN-N is a suite of communications equipment that enables the exchange of voice, video, and data throughout the tactical battlefield. It leverages commercial satellite technology to provide beyond line of site capabilities. As defined by the respective General Dynamics and Datapath Products contracts, the JNN-N Network Service Center-Tactical, Joint Network Node, Battalion Command Post Node and the Satellite Terminal Tactical. JNN-N has been fielded to the following units, 3rd Infantry Division, 101st Airborne Division, and 10th Mountain Division. The current units that are being fielded are 1st Calvary Division, 25th Infantry Division, 82nd Airborne Division, and 9th Army Reserve National Guard. The JNN-N is schedule for an Initial Operational Test and Evaluation in June of 2006. This test will take place at the National Training Center, Fort Irwin California and Battle Simulation Center, Fort Hood Texas.

For more information about the JNN way-ahead, contact Barbara Carter, DSN 780-2661, COMM (706) 791-2661, email Barbara.d.carter@us.army.mil.

Ms. Carter works in TSM Warfighter Information Network - Tactical, Fort Gordon, Ga.

Acronym QuickScan

BnCPN – Battalion Command Post Node
IOT&E – Initial Operational Test and Evaluation
JNN-N – Joint Network Node-Network
JNTC – Joint Network Transport Capability
NCS-T – Network Service Center-Tactical
STT – Satellite Terminal Tactical
WIN-T – War-fighter Information Network-Tactical

Circuit check

News and trends of interest to the Signal Regiment

NEWS

101st fields new JNN communication system

Airborne division using system division-wide during Iraqi deployment

1 LT Jacqui Prusczinski

As the Global War on Terrorism continues to change, so too, have the methods of battlefield communication in Iraq.

Currently the 101st Airborne Division and Signal units around the Army are employing new equipment developed by General Dynamics, to communicate in Iraq. The newly-integrated system, known as Joint Network Node, was first used by the 3rd Infantry Division during their deployment in Iraq. The 101st is now using it division-wide throughout Iraq. The new system is Internet-inspired, and uses commercial satellites to allow units to communicate well beyond the line of sight capabilities.

JNN allows for an increase in bandwidth which in turn increases the reliability of communications. JNN also supports the use of Voice-over Internet Protocol or VoIP, an IP based phone. This again is believed to be a more efficient use of bandwidth. Video conferencing is also supported by the JNN and has become a popular means of communicating between leaders when at different camps.

The JNN system is replacing the long-standing mobile subscriber equipment, which used line-of-sight capabilities along with government owned satellites. It was a self-contained military network using strictly military assets. The use of commercial satellites comes with the benefit of using outside resources for greater communication advantages and also further improvement in the system.

SGT Layton Flynn, Company C, 96th Aviation Support Battalion, is one of the Soldiers who works with the new system on a daily basis in Iraq. He pointed out some of JNN's benefits.

"The (communications) are better, steadier and more reliable than the comms we offered in my last deployment working with MSE in the Node Center," Flynn said. "JNN as a whole seems to have a much stronger backbone."

The JNN works using a KU Band trailer to communicate to the satellite to pass data and voice. The transmission from the satellite then goes into the main shelter of the JNN and through the stacks, which are the main brains of the JNN system. Currently Co. C, 96th Aviation Support Battalion, 101st Aviation Combat Brigade, is using their High Capability Line-of-Sight as a backup connection to the satellite to ensure there is always a link to communicate.

"We have had no outages since we have incorporated the HCLOS as a redundant line," SPC Joseph Chellin, Co. C, 96th Aviation Support Battalion, said.

SPC David Carpenter, a KU Band operator also in Co. C, commented on the shortcomings of the JNN system.

"JNN is commercial equipment not designed for the tactical environment," he said after replacing the High Power Amplifier, a key component of the KU Band trailer during its first week of operation while in Kuwait. The KU band is the dish that is used to track the commercial satellite that allows the JNN to pass information.

"The KU band opens up a lot of possibilities and serves as a great proof of concept, just hopefully not the final answer," Carpenter added.

JNN is in its first phase. The operators have had limited class time with it and are learning many of the capabilities and limitations first hand as they go along this deployment. The 101st will be the first division to use the JNN system for the entire duration of its deployment. Like all new equipment it has its benefits and its shortcomings that will hopefully be worked out in the phase II equipment. The phase II equipment should be fielded by the 82nd Airborne Division.

1LT Prusczinski is deployed with the 101st Combat Aviation Brigade in Iraq.

PM DWTS provides critical power for Joint communicators in Japan

By Stephen Larsen

OKINAWA, Japan – Power outages are virtually a thing of the past for users of the satellite communications facility at Fort Buckner and for Army communicators at Camp Zama, Japan, thanks to the state-of-the-art powerhouse plants provided at both locations by a team of the Project Manager, Defense Communications and Army Transmission Systems and the U. S. Army Network Enterprise Technology Command/9th Army Signal Command.

"This is a key facility, in that it allows multiple services to accomplish their missions," said COL Edric Kirkman, commander of the 516th Signal Brigade, during the ribbon cutting ceremony at the new Fort Buckner powerhouse on Feb. 7. "This very important site allows multiple services to accomplish their missions. Many will never know the distance traveled by the electrons that travel through this facility."

Kirkman was referring to the fact that Fort Buckner SATCOM facility is the Standardized Tactical Entry Point for satellite communications for U.S. forces deployed over two-thirds of the globe, such as in

Afghanistan, Germany, Bahrain, Hawaii, Guam, Japan, and Korea. Through Defense Satellite Communications System satellites and the Fort Buckner STEP site, these deployed warfighters can access pre-positioned Defense Information Systems Network services, including the Defense Switch Network, the Defense Red Switch Network, Non-secure Internet Protocol Router Network, Secret Internet Protocol Router Network, the Joint Worldwide Intelligence Communications System and video teleconferencing.

LTC Maria Drew, commander of the 58th Signal Battalion at Fort Buckner, said that their new powerhouse also provides communications connectivity to each of the U.S. service components on Okinawa – some 35,000 service members – in units including, among others, the Army's 10th Area Support Group, the Air Force's 18th Wing, the Navy's Commander, Fleet Activities, Okinawa and the Marine Corps' III Marine Expeditionary Force.

Drew noted that the original Fort Buckner powerhouse, which had been built in 1962 and modified over the years in a piecemeal fashion as limited funds became available, had become less than reliable, expensive to run and increasingly difficult to maintain, as replacement parts were difficult to find and expensive.

"From an operational perspective, we grew extremely concerned that at any given time the power it takes to run this communications facility could fail," said Drew.

Jay Villanueva, power coordinator/project manager for the 58th Signal Battalion, said that the old powerhouse equipment had a single standby bus distribution, which meant multiple single points of failure that could bring down the whole system.

"The old system was inefficient, everything with the old system was manual," said Villanueva. "We had to manually start and synch the generators, and the way we had to do sequencing was damaging the circuit breakers."

COL Edric Kirkman (left), commander of the 516th Signal Brigade, LTC Maria Drew (center), commander of the 58th Signal Battalion and Alex Meno, project manager with the 58th Signal Battalion cut the ribbon at the new powerhouse at Fort Buckner, Okinawa Japan, on Feb 7. "Many will never know the distance traveled by the electrons that travel through this facility," said Kirkman.

"We knew it was time for a new system," said Randy White, the lead engineer for the project with NETCOM/9th ASC, "when we had to ship a 500-pound circuit breaker, the size of a refrigerator, back to California twice within a few months, for repairs."

'One of the most technologically-advanced power plants in the U.S. Army'

Today, Drew said, the new Fort Buckner power plant stands as one of the most technologically advanced power plants in the U.S. Army inventory, boasting quiet, fuel-efficient, generators; microprocessor-based engine controls, touchscreen monitors, embedded diagnostics, and multiple layers of redundancy. It is capable of producing four megawatts of electricity.

"That's enough to power 2,600 homes in the United States year-round," said Drew.

According to Fred Porzio, project leader for this effort with PM DCATS' Product Manager, Defense Wide Transmission Systems, the team began implementation of the new Fort Buckner powerhouse during the second week of February 2005 and completed the project on Dec. 4, 2005.

"We installed all critical power plant equipment inside buildings," said Porzio. "That's an important consideration on Okinawa, given that on average, seven typhoons hit the island per year."

During phase one of the project, the team replaced the existing 120/208 volts alternating current electrical distribution system with a Hz 480 VAC electrical distribution system. They installed two new identical electrical power grids, A and B, providing redundant power for the Fort Buckner SATCOM facility, and four new 1 megawatt generators to provide emergency back up power for either the A or B grid.

The A and B grids both include main load distribution switchgear, multiple secondary 208 VAC step-down transformers, service distribution panels and automatic transfer

Jay Villanueva, power coordinator/ project manager for the 58th Signal Battalion gives high marks to the system's touchscreen monitors, which allow operators to "drill down" and virtually view the status of any power plant component. "The touchscreen monitors graphically mimic the functions that a power plant operator could encounter with a traditional system," said Villanueva. "An engine control switch on the monitor looks, feels, and acts like the engine control switches on a traditional system."

The new Fort Buckner power plant stands as "one of the most technologically advanced power plants in the U.S. Army inventory," boasting quiet, fuel-efficient, generators; microprocessor-based engine controls, touch-screen monitors, embedded diagnostics and multiple layers of redundancy. It is capable of producing four megawatts of electricity - enough to power 2,600 homes in the United States year-round.

switches that provide transparent switching from commercial power to backup power and from the A grid to the B grid as necessary. The system is equipped with a control monitoring system that provides complete access control of all circuit breakers, ATS, distribution switchgear and generators.

"The system provides 100 percent redundancy for all power with 99.99 percent reliability," said Porzio. "Both the A and B grids are fully computerized, automated and can sense and seamlessly transfer power with no interruption to the facility mission. If there's a commercial utility failure or power outage, the power plant would instantly switch to power from the UPS (uninterrupted power supply) and then the new back-up generator sets will automatically spool and provide back-up power to the SATCOM facility."

"If the A grid were to go down, the system switches automatically to the B grid in a matter of milliseconds, transparent to the user," said Villanueva.

Linda Bartosik, who was PM DWTS' Team Leader for Global Communications during the project, put into perspective why this redundancy is important.

"Without redundancy, we would fail to meet the DISN 99.9 percent availability requirement and we would put at risk the ability to provide mission support to commanders," said Bartosik. "We would risk the on-demand, seamless connectivity that is essential to satisfy warfighting requirements at fixed and deployed locations."

In addition, as part of phase one, the team installed more than 18,000 feet of electrical distribution feeders – both overhead and underground in duct banks – and a new 500 kVA UPS parallel redundant system to support the critical mission loads of other parts of Fort Buckner.

Villanueva gives high marks to the system's touchscreen monitors, which allow operators to drill down and virtually view the status of any power plant component.

"The touchscreen monitors graphically mimic the functions that a power plant operator could encounter with a traditional system," said Villanueva. "An engine control switch on the monitor looks, feels, and acts like the engine control switches on a traditional system."

"This will eliminate confusion that might contribute to operator error and will also reduce training time," added White.

"Our operators are a lot more comfortable with the new power plant," said Villanueva. "With this new power plant, you push a button and it happens – there's no uncertainty."

In phase two of the project, the team upgraded Fort Buckner's DSCS Space Command Satellite Control Station with new switchgears, two 300 kVA UPS and electrical feeder cables.

At the ribbon-cutting ceremony, Drew thanked the organizations that participated in the project,

Fred Porzio (center), project leader for PM DCATS' Product Manager, Defense Wide Transmission Systems, discusses controls for the NIPRNET/SIPRNET environmental support systems at Camp Zama, Japan with Greg Parks (left) of Eaton/ Powerware and Masaki Shigehisa of Caterpillar Power Systems.

Fred Porzio (left) and James Stamford, the deputy plans and operations officer (S3) for the 78th Signal Battalion check the uninterrupted power supply that backs up NIPRNET/SIPRNET functionality and its environmental support systems at Camp Zama, Japan.

singling out Fred Porzio, the project lead for PM DWTS; Greg Parks, who designed the system for prime contractor Eaton/Powerware, Raleigh, N.C.; and Alex Meno, project manager with the 58th Signal Battalion, who worked for years to identify funding and bring together players to get the project started, implemented and completed. Drew called Meno up from the audience to participate in cutting the ribbon – "Alex Meno – this individual made it easy for us," she said.

Villanueva added to the list of contributors Bob Vavrina of subcontractor Hansen Electric, who he said did a "tremendous job" in leading the electrical team during the installation.

Critical power for NIPRNET/ SIPRNET at Camp Zama

PM DWTS also teamed with NETCOM/9th ASC to provide a turn-key upgrade to provide critical backup power for NIPRNET/ SIPRNET functionality and its environmental support systems for the 78th Signal Battalion at Camp Zama, Japan. The team replaced the existing 50/60 Hz 120/208 VAC electrical distribution system with a 50 Hz 480 VAC electrical distribution system. The installation, which started in November 2005 and was completed in December 2005, included a 500 kVA generator, a 160 kVA parallel redundant UPS System and a new heating, ventilating, and air conditioning system for both the power room and the NIPRNET/ SIPRNET server rooms. Eaton/ Powerware of Raleigh, N.C was the prime contractor.

Porzio said that important features of this project are that the new system allows automated operations via the ATS/standby control system and that server rooms will never crash because of the equipment getting too hot or cold since the new HVAC system is supported by the new backup power system – the old HVAC system had no backup power.

"We essentially provided the same capabilities here as we did at the Fort Buckner powerhouse," said Porzio, who managed the project for PM DWTS, "except on a somewhat smaller scale."

Still, according to LTC Mitchell Kilgo, commander of the 78th Signal Battalion and James Stamford, the deputy plans and operations officer (S3) for the battalion – which has the missions to provide C4 operations for the U.S. Army Japan's LandWarNet and to serve as the Directorate of Information Management for the U.S. Army Garrison, Honshu, Japan – the product of that smaller scale is a design that provides capabilities up to 40 percent to percent greater than current requirements, allowing for future missions and expansion. Stamford added that MG Elbert Perkins, the commanding general of the U.S. Army Japan and the 9th Theater Support Command, was very impressed with the capabilities the communications center now has and its ability to stand on its own in a time of crisis.

"We now have an environment with the ability to meet the requirements of a transforming headquarters, to expand and to provide robust capability to our users," said Stamford."

Stamford said the project's main focus was to allow the relocation of the battalion's local control center, which he called "the focal point for communications for all Army bases on Honshu" (the largest of island of Japan, also called the mainland), and that it will help the battalion stay in step with transformation under the Integrated Global Presence and Basing Study process.

"Now, we're never in danger of power failure and can run for as long as the generators have fuel," added Stamford. "Everything else at Camp Zama could have a power crash and we could still run as a stand-alone facility – that's what this project has brought to us, the capability to be a stand-alone facility."

Mr. Larsen serves as the PEO EIS

public affairs officer, Fort Monmouth, N.J.

Depot gives TSC-86A new lease on life

By Jacqueline Boucher

TOBYHANNA ARMY DEPOT, Pa. — Three AN/TSC-86A Satellite Communications Terminals will continue supporting warfighters following a change of mission and a makeover from Tobyhanna technicians.

Originally designed and built in the 1980s by United States Satellite Communications Agency and Tobyhanna, these AN/TSC-86 Contingency Satellite Communication Terminals were upgraded in 1998 and renamed AN/TSC-86A.

Depot employees supported the re-design of these systems, which provided communication connectivity to the global warfighter and supported national security requirements as directed by the Joint Chiefs of Staff. When this mission ended, the terminals were ordered out of the field.

Twelve Tobyhanna employees were tasked with dismantling the antennas and preparing the system's six components for shipment back to Tobyhanna.

"Initially, each team was supposed to go to the sites to perform assessments on the terminals before tearing them down," said Robert Petrone, electronics mechanic leader, Satellite Communications Division, Communications Systems Directorate, who headed the Torii Station, Okinawa, Japan, effort.

His team discovered the antenna system was not fully operational. On-site repairs to the antenna control system were needed prior to the terminal's evaluation.

The terminals, retrieved from strategic locations around the world, are being refurbished, overhauled and upgraded at the depot to meet the increasing needs of today's user. When the work is completed, one system will be shipped to Korea, one to an undisclosed location and the third will remain at the depot for future deployment. The assets were formerly operated and maintained by the Army at Landstuhl, Germany; Fort Bragg, N.C.; and Torii Station.

The AN/TSC-86As are managed by Project Manager Defense Communications and Army Transmission Systems, Assistant Program Manager Satellite Communications Systems Special Project Office at Fort Monmouth, N.J.

The terminals consist of a modified AS-3199 antenna, two 60 kilowatt generators, switch gear, power distribution equipment, two environmental control units, and an additional ECU which is used when the terminal is in the bed down location.

On-site technical assistance visits were part of the continuous maintenance and training programs available to operators assigned to the communications system.

"Military units are assigned to each terminal and Tobyhanna is the repair depot," explained Tom Terpak, project lead for installations and technical systems, Satellite Communications Systems Engineering Division, Production Engineering Directorate. "We train the operators and help them test the equipment."

Mobility is what sets these systems apart from the rest. The terminals can receive, transmit and process medium and high capacity multiplexed voice and data. If necessary, operators can add encryp-

(Right) AN/TSC-86A terminals can receive, transmit and process medium and high capacity multiplexed voice and data.

(Below) Mariusz Szlagiewicz gets a modified AN/TSC-86A shelter ready for deployment following upgrades to the systems. He is an electronics worker in the Satellite Communications Division, Communications Systems Directorate.

tion equipment to process secure and non-secure traffic.

As lead technicians on the original project, Charles Cortese and Jack Pallien are proud the system continues to have a role in national defense. Both men said the early systems were developed, tested and certified in "our own backyard." The systems were fully operational when they left the depot.

"These systems can be set up within hours and are self sustained," said Cortese, mechanical engineering technician, Tactical Satellite Design and Support Division, Production Engineering Directorate. "They carry their own power and air conditioning. You can take them anywhere and they're capable of assuming the essential, critical and priority traffic for one of the 40-, 60-foot terminals."

Pallien, an electrical engineering technician, explained that if a site was to undergo a major overhaul or upgrade, one of the AN/TSC-86As could be dropped into place to provide uninterrupted communications.

The system is capable of restoring five communication links providing deployable support during peace time and contingencies.

"The systems were forward deployed and available for use by units in the theater of operation," said Frank Noone, contractor representative at Tobyhanna for Defense Communications and Army Transmission Systems Terminals. "They [the terminals] could be anywhere in a matter of hours."

Records show the terminals were also used to support Homeland Security. The terminal in Fort Bragg was being sent to New Orleans when Katrina hit. Tobyhanna was placed on standby to set up and operate the terminal if and when it was needed, to provide communication, according to Terpak.

The changes to the satellite terminals may be subtle, but the upgrades performed here will allow the system to continue serving the military's communication needs. The new improved TSC-86As are scheduled to deploy to their new locations later this year.

"The Tobyhanna teams are professionals in every respect," said Ronald Hyers, former contractor supporting, PM DCATS, Fort Monmouth, N.J. "We worked 12-hour days and on weekends to accomplish our goal. It was not an easy task, and I would like to thank and commend the team members."

The following depot employees assisted in removing the AN/TSC-86A terminals:

Fort Bragg – Team was leader: Ronald Rusnak. Team members: David Ganeo, Christopher Howe, and Andrew Martino.

Japan – Team leader: Petrone. Team members: David Godumski, John Kotchik, and Martino.

Germany – Team leader: Robert Bohonko. Team members: Carl Bianchi, Thomas Narcavage, and Richard Pesotski.

Tobyhanna Army Depot is the Defense Department's largest center for the repair, overhaul and fabrication of a wide variety of electronics systems and components, from tactical field radios to the ground terminals for the defense satellite communications network. Tobyhanna's missions support all branches of the Armed Forces.

About 4,400 personnel are employed at Tobyhanna, which is located in the Pocono Mountains of northeastern Pennsylvania.

Tobyhanna Army Depot is part of the C-E LCMC. Headquartered at Fort Monmouth, N.J., C-E LCMC's mission is to research, develop, acquire, field and sustain communications, command, control computer, intelligence, electronic warfare and sensors capabilities for the Armed Forces.

Ms. Boucher is a public affairs specialist for Tobyhanna Army Depot, Tobyhanna, Pa.

Tobyhanna improves military digital satellite terminals

By Anthony Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa. — Technicians and engineers at Tobyhanna are adding upgrades to improve Soldiers' ability to communicate worldwide.

Tobyhanna recently completed fabrication and testing of MIDAS equipment for Camp Zama, Japan, ahead of schedule. MIDAS is Multiplexer Integration and Digital Communications Satellite Subsystem Automation Systems.

"The mission is basically replacing multiplexers at all sites," said Marc Renna, an electronics technician in the Satellite Communications Systems Engineering Division. "Over the last three years we've upgraded all the larger sites with new equipment, now we're upgrading the smaller ones."

Multiplexers are devices that simultaneously transmit two or more signals over a common transmission medium. They are being replaced by MIDAS systems.

The job is part of an upgrade of the Digital Communications Satellite Subsystem that Tobyhanna and the U.S. Army Information Systems Engineering Command, Fort Huachuca, Ariz., began three years ago.

Tobyhanna and USAISEC are upgrading terminals in the U.S., Europe and Asia to increase available satellite frequency bands and allow Soldiers and personnel from all services to communicate with each other more easily with improved equipment reliability.

"Tobyhanna is the system designer for the mission," explained Mike Fortuna, electronics engineer, SCS Engineering Division. "We design, fabricate and test all the racks, equipment and cables. USAIEC installs the equipment at each site." USAISEC technicians will install the equipment at Camp Zama in February.

"Larger sites, such as Fort Buckner (Okinawa, Japan) serve as hubs for smaller sites such as Camp Zama," Fortuna said. Although the mission has been ongoing, Fortuna said each site presents something new and each requires a custom-built system.

"We don't know what specific equipment will be at the site because each site has a unique mission," he said. "Ninety-nine percent of the requirements are defined to us, and if there is anything unique, we have no problem designing and fabricating a system for that site on time to support the Soldiers."

Production Engineering and Communications Systems directorate personnel work as a team to perform design and testing. Systems Integration and Support Directorate personnel play a key role fabricating and testing thousands of feet of power and data cables designed to have improved signal quality and less signal noise over the cables they are replacing.

"The equipment we fabricated for the Fort Buckner site has more than 2,500 cables," Fortuna said. "Camp Zama has more than 200 cables."

Tobyhanna also provides new equipment training and on-site technical assistance as required in support of the warfighters, said Ken Stackhouse, a lead electronics technician in the SCS Engineering Division.

Renna and Fortuna pointed out that Tobyhanna has never failed to produce MIDAS equipment on time and working properly, although they have received calls from installation teams because something was broken in transit, or a rack was dropped or knocked over.

"We have quick turnaround on that," Renna said. "Tobyhanna responds immediately and DDTP (Defense Distribution Depot Tobyhanna) sends the equipment on its way quickly."

Tobyhanna Army Depot is the Defense Department's largest center for the repair, overhaul and fabrication of a wide variety of electronics systems and components, from tactical field radios to the ground terminals for the defense satellite communications network. Tobyhanna's missions support all branches of the Armed Forces.

About 4,400 personnel are employed at Tobyhanna, which is located in the Pocono Mountains of northeastern Pennsylvania.

Ken Stackhouse inspects a circuit card in a Multiplexer Integration and Digital Communications Satellite Subsystem Automation Systems, or MIDAS, rack at Tobyhanna Army Depot. Depot personnel design, fabricate and test the racks as part of a worldwide satellite communications system upgrade program. Stackhouse is a lead electronics technician in Tobyhanna Army Depot's Satellite Communications Systems Engineering Division.

Tobyhanna Army Depot is part of the U.S. Army Communications-Electronics Life Cycle Management Command. Headquartered at Fort Monmouth, N.J., C-E LCMC's mission is to research, develop, acquire, field and sustain communications, command, control computer, intelligence, electronic warfare and sensors capabilities for the Armed Forces.

Mr. Ricchaizzi is a public affairs officer with the Tobyhanna Army Depot, Tobyhanna, Pa.

V Corps Signal Company working to put itself out of business in Iraq

By CPT Herbert Brychta

LOGISTICAL SUPPORT AREA ANACONDA, Balad, Iraq — Make the tactical signal battalion unemployed!

Crazy talk? Hardly.

When Soldiers in V Corps' Company D, 32nd Signal Battalion finish their current deployment to Iraq, there will be a greatly diminished need for a tactical battalion at Logistical Support Area Anaconda. The "Delta Devils" are going to rid the base of its traditional tactical mobile subscriber equipment.

Delta Company, part of the 22nd Signal Brigade, is charged with continuing efforts to install a commercial fiber optic network here. Once complete, the LSA's communication network will be similar to communications in garrisons at home station, freeing up tactical signal Soldiers for other assignments.

Tactical communications provide the bare minimum amount of services that the warfighter needs. They are designed to be set up and taken down in a hurry and are temporary by nature. Yet LSA Anaconda has survived on tactical signal systems since the 32nd first installed communications in 2003. Two and a half years later, the XVIII Airborne Corps' 50th Signal Battalion began installing a transitional fiber optic network with the intent of replacing the MSE tactical equipment. By the time the 50th transferred its authority for the mission here to the 32nd in November 2005, the need for the tactical equipment still in use had already been reduced, and Delta Company will continue this process of turning the transitional network into a permanent network, eliminating the need for MSE tactical equipment.

This mission translates into valuable skills for the 32nd's Soldiers, who are splicing fiber, drawing computer-aided design plans, and running cable to industry standards. Training in these areas is expensive, and practical experience in these fields is very desirable. However, Delta Company Soldiers will not learn these valuable skills without a price.

The work is hard and the challenges can be frustrating. SPC Edward Eastman, chief of commercialization actions, summed up the nature of the job.

"It's like building a ship in a bottle and, eventually, we will all go blind staring at it," Eastman said. "But it is much more entertaining than sitting in a shelter for 12 hours."

The mission is much bigger than the initial assessment, which called for about 15 Soldiers to do the work. But much of the fiber that the Soldiers of the 50th ran simply supplied a connection. Resource shortages prevented a robust design. A permanent network requires redundancy and cables buried deeply to protect against future construction projects. A significant portion of the existing fiber will have to be re-run. As a result, all of Delta Company is dedicated to the task.

Additionally, Delta Company Soldiers are also called upon to wire the inside of buildings for units that do not have the skill to do it.

SFC Everett Gardner, Delta's commercialization platoon sergeant, summed up the mission best.

"Commercialization is taking the 32nd from MSE to the cutting edge of data-driven communications in the 21st century."

CPT Brychta is assigned to Company D, 32nd Signal Battalion.

V Corps Signal Soldiers in Iraq learn fine art of fiber optics

By CPT Dan Burns

BAGHDAD, Iraq — A faint smell from orange-scented alcohol cleaning pads hung in the air. Soldiers from V Corps' 440th Signal Battalion, 22nd Signal Brigade were using the pads to wipe the sticky gel from fiber optic strands. The instructor, Joe Reese, was showing students how to separate individual rainbow colored fibers for splicing.

There were a few indicators that the class was taking place in a combat zone — the occasional interruption from noisy helicopters taking off just outside; the Army Combat Uniforms each student was wearing, and the collection of individual weapons. Despite the peculiar proximity to an active helicopter landing pad, the class contained the necessary ingredients for success: a seasoned professional instructor and a group of students eager to learn new skills.

Just over a month ago, Soldiers from the 22nd left their homes in Darmstadt, Germany. Now at their new home at Camp Victory here, Soldiers are eager to improve their battlefield abilities.

For Signal Soldiers, the battlefield includes communication technologies like fiber optics. Joe Reese has worked with fiber optics and other signal equipment for more than 31 years. He works for Hyperion, which contracts with the military.

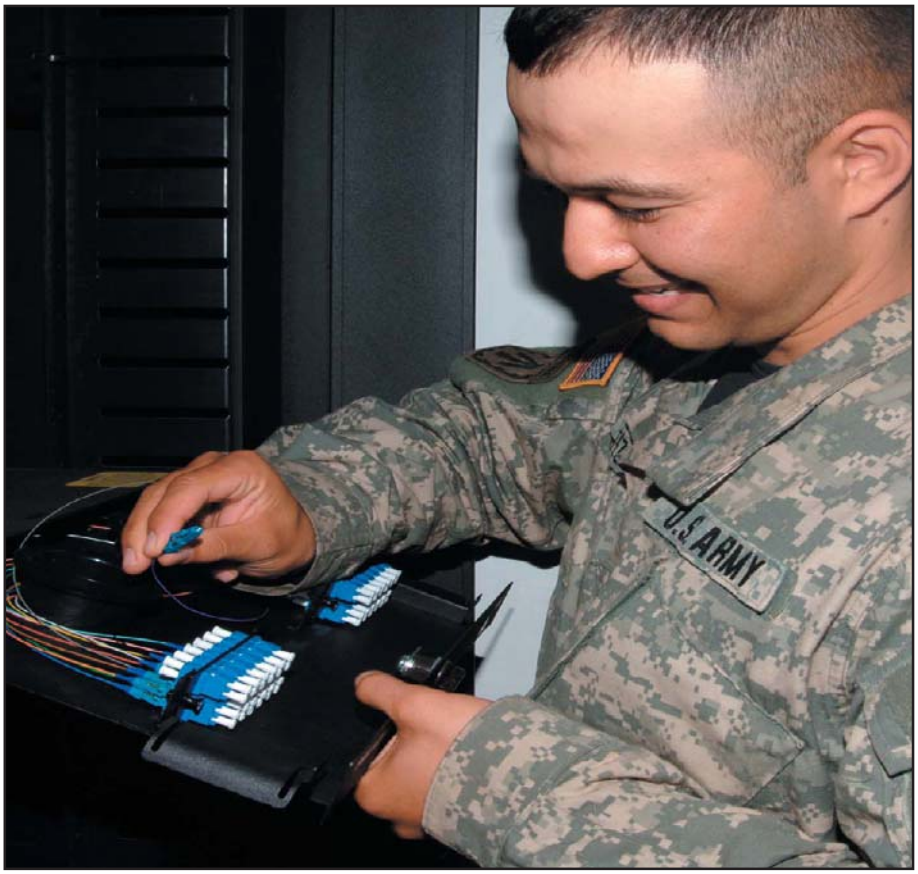
Reese was asked to design a course to teach Soldiers at Camp Victory how to splice fiber optic cables. If the course proved to be beneficial to the Army, additional classes could be implemented.

Sixteen Soldiers from 22nd were chosen for the first class. The class started out in a shipping container that had been converted into a conference room. It was a bit crowded, but proved adequate for the lecture portion of the class. For the hands-on portion of the class, Reese decided to move to a larger room next to the helicopter passenger terminal.

The Soldiers seemed pleased to be presented with this unique learning opportunity, and enthralled by Reese's energetic teaching style.

"I've been learning a lot," said SGT Marcos Cortez of Headquarters and Headquarters Company, 22nd Signal Brigade.

"There are lots of new connectors that I haven't seen before. It's a great class. This class is giving me opportunities in both the military



SGT Marcos Cortez from the Headquarters and Headquarters Company of V Corps' 22nd Signal Brigade checks fiber optic connections during a class at Camp Victory, Iraq.

and civilian worlds that I wouldn't have gotten any other way."

Learning about fiber optics is very relevant for today's Signal Corps Soldiers. Many of the Army's telecommunication networks use fiber optic cable. Fiber optic cable has more bandwidth and has a faster data transmission rate than copper wire. In many applications where copper wire had historically been used, fiber optic cable is now being installed to increase performance. Battlefield commanders need the ability to transmit large amounts of data.

Fiber optic cable can help provide the increased bandwidth that is needed for modern warfare. Fiber optics was first demonstrated in 1920. A practical application, a medical endoscope, was not developed until 1957. By the 1980s, the ability to use higher quality glass for the fibers made it practical for the technology to be used in communication.

Soldiers in the class also learned about fiber optics safety. The lasers used to transmit signals through the fibers can damage unprotected eyes, especially if a technician is inspecting the fiber ends through a microscope. Almost all fiber optic systems use infrared light which is invisible but can still damage the eyes. Infrared detectors and filters can reduce risk Soldiers' eyes. Broken fibers can also be hazardous. Broken fibers result in tiny shards of glass that can get imbedded in the skin or eyes. Using proper precautions can help avoid annoying infections or even serious injuries.

"Cut through the shield and not the fiber," instructs Reese as he expertly demonstrates the use of the lineman's tools.

"Now clean off the icky-pick with the cleaning pads."

He enthusiastically explains that "icky-pick" is the term experienced cable dogs use to describe the protective gel that coats some fiber optic filaments. He showed the Soldiers how to use a small amount of baby powder to allow the fibers to slide easily into a fan-out kit.

"That's something I learned on the job," says Reese. "You won't learn this stuff in any textbook."

Red lights flashed as students used fiber optic testers to check the ends they had just crimped onto the fibers. They terminated the fibers into patch panels and then measured the signal strength passing through the fibers. Soldiers seemed excited to be learning practical skills that they would likely be using in the near future.

The conclusion of the class was marked with the arrival of Air Force BG Daniel Dinkins, the Multi-National Force-Iraq deputy chief of staff for communications and information systems. The general congratulated the Soldiers on completing the course and explained that the introduction of new technology was helping the Army meet its transformation objectives. The success of the course convinced Dinkins to schedule future classes expected to train more than 300 Soldiers.

CPT Burns is assigned to 22nd Signal Brigade.

V Corps Signal Team keeps Coalition Forces at remote Iraq camp talking

By SSG Engels Tejeda

CAMP CHARLIE, Al Hillah, Iraq — For coalition forces in Iraq, communication between camps is indispensable. The coalition is spread across dozens of posts and small forward operating bases that rely on technical teams to provide the expertise and initiative necessary to keep them all networked.

Such teams include the four-man crew of V Corps' 440th Signal Battalion stationed at Camp Charlie. In their first three weeks here, the

team improved the communication system between this camp and others.

"Our mission is to basically maintain contact with our battalion and brigade headquarters, which are stationed at Camp Victory," said SGT Paul Travis, the team's chief.

"We also have local networks that provide [intranet] and voice connectivity for coalition forces here at Camp Charlie," added PFC Kelly Gillespie, a network switching system operator with the 440th.

The camp, operated by Polish military forces, lies approximately 100 miles south of Baghdad, and is home to about 1,400 service members from eight coalition countries. Polish and Salvadoran forces have the largest contingents on the camp, with Mongolian forces a close third. The Americans have the smallest group here.

"We are providing lines that they can use to connect to the rest of the world," Gillespie said, referring to more than a dozen phone lines his team operates.

The Soldiers said working for such a diverse group of customers gives them quite a bit to look forward to during their one-year deployment. And so does the equipment.

"It's a learning experience," said SPC Jared Burley, a multichannel transmission systems operator.

"I've only used one piece of this equipment before," he added, noting that the systems available at the camp differ from the commercial communications systems the Army is adopting.

"The challenges are going to be getting everything connected," Gillespie said. "The equipment still needs work and we have limited support out here. so we'll have to rely on our discipline."

Still, the Soldiers quickly proved their value here. For example, just a week after they arrived at the camp, a truck took down a phone line. The team was able to restore the network within three hours after they got the call that the line was down.

SGT Paul Travis, team chief for the V Corps' 440th Signal Battalion team at Camp Charlie, Iraq sorts through wires in his office at the camp.

On another occasion, a network went down in the middle of the night. The Soldiers found the cause of the problem within minutes.

"I think all of us lost some sleep over that one," Gillespie said.

CPT Robert Zizolfo, the commander of the 145th Maintenance Company, has a small team of American troops here and a headquarters at Camp Adder, roughly 200 miles awau.

He said when the truck took down the communication lines, he was surprised that the 440th's team was able to restore communication so quickly. Similar problems had lasted days and even weeks before the battalion's troops arrived.

"The signal mission is critical because we need the communication," Zizolfo said. When the secure phone and e-mail sytems his unit uses to track maintenance parts and to prioritize maintenance missions are down, he said, "we can't function."

Zizolfo's team is vital, too, because it's the only maintenance component at the camp. So the captain appreciates what the 440th team can do for his unit.

"The new guys have had us up just about every day," Zizolfo said.

The 440th has teams in about 15 other Iraq locations, including Camps Victory, Al Asad, and Duke.

SSG Tejeda is assigned to 207th Mobile Public Affairs Detachment.

Texas Citizen Soldiers keeping the comms

By SSG Mark Wojciechowski

TIKRIT, Iraq – Communications are a major part of forward operating base infrastructure. Operating and maintaining these systems are instrumental to the success of theater operations and Soldier morale.

Whether it is internet or voice communications, the Soldiers of Alpha Company 136th Signal Battalion, from the Texas Army National Guard keep communications going at FOB Speicher, to the United States and to other regions throughout the world.

They handle all Voice over Internet Protocol and data communications for this region of Iraq, explains 2LT Michael Estrada, 1st platoon leader of Alpha Company, 136th Signal Battalion.

"We are basically the Southwestern Bell of the theater," said Estrada, an Austin, Texas, native. "We monitor the switches that all the data goes through."

The unit is composed of Citizen Soldiers from a variety of backgrounds. In civilian life, Estrada is a certified public accountant at Delottie and Touche accounting firm.

SPC Leon Elad, a switch maintainer operator, is responsible for manning the shelters and operating the work stations. In civilian life, the Houston native is a student and has worked in computer network engineering.

"It is tough being out here, but it is a good experience for me," said Elad.

SPC William James, a nurse in

Soldiers of Alpha Company 136th Signal Battalion, from the Texas Army National Guard keep communications going at FOB Speicher

civilian life, is working as a wire systems installer, also known as a Cable Dog.

The Huntsville, Texas, native is responsible for running network cables and various phone lines throughout the FOB. James's most recent mission was morale oriented, running cable line so that the Soldiers could watch the Super Bowl on a big screen.

SPC Israel Guzman, a native of Puerto Rico, is also a Cable Dog. He is responsible for assigning phone numbers to different digital nonsecure voice terminals.

As a civilian Guzman works as a computer network engineer. "Being in the Guard, we don't get as much hands-on time with our equipment as the active duty does, but the guys have really picked up on their jobs and are performing very well here," said Estrada.

SSG Wojciechowski is attached to 133rd MPAD, Tikrit, Iraq.

ARMY TAKES FIRST STEP TOWARD IMPLEMENTING AREA PROCESSING CENTERS

By Gordon Van Vleet

FORT HUACHUCA, Ariz. (Network Enterprise Technology Command/9th Army Signal Command) – The first implementation of area server consolidation (the precursor to Area Processing Centers) is operational following a successful implementation of the Radio Frequency In-Transit Visibility system at a facility in Oklahoma City, Okla.

"The RF-ITV system is a web-based solution that provides last-known location for military shipments (cargo, supplies, and unit movement) that have active radio frequency tags attached to pallets, containers, or equipment," said Amy Harding, director, Integration & Plans Directorate, NETCOM Enterprise Systems Technology Agency. The process to migrate RF-ITV began Oct. 15, 2004, and the system became fully operational Sept. 7, 2005.

This first implementation is part of an overall program to implement up to 14 APCs at various locations around the world with the Defense Information Security Agency as the facility operator for each APC. "The Army is building APCs to centralize IT services and respond more quickly to the changing global mission," said Bob Ringdahl, director, Office of Strategic Concepts and Integration, NETCOM ESTA. "APCs will also allow the Army to better manage the cost of implementing IT technology and rate of technical refresh, to improve the quality of operator training, and to reduce the total cost of ownership."

Once complete, APCs will provide improved ability to support deployment operations throughout all phases of Warfighter operations – from mobilization through fight on entry to stabilization operations and return home, Ringdahl said. APCs will provide better performance through streamlining of network access, optimization of the cost of providing secure, reliable, and available IT services as well as maximum use of the existing communications infrastructure within the Department of Defense environment.

"APCs are not geographically based, and as a result APC services can be delivered to the end-user independent of the end-user's location or proximity to the APC," said Harding.

The initial focus of the Army APCs will be on the Windows-based environment, both in terms of application-hosting and supporting enhanced security of the end-user computing platforms. The Army plans to use existing DoD facilities that have the necessary state-of-the-practice physical infrastructure for the APCs. "Some of the key elements of the physical infrastructure are highly available power, communications, heating and cooling, and raised floor space," said Ringdahl. There is sufficient physical infrastructure within the DoD environ-

ment to meet these needs.

The most significant challenge for APCs is changing the way IT services are delivered and resourced, Ringdahl said. "Most resources are still locally focused, mirroring the local processing environment. As APCs are built, the resource strategy for delivery of IT services from a consolidated environment will be developed."

The RF-ITV system is managed by the Army's Product Manager, Joint-Automatic Identification Technology which is part of the Army's Program Executive Office for Enterprise Information Systems. PEO-EIS oversees developing, acquiring, integrating, deploying and sustaining network-centric, knowledge-based, information technology, and business management systems and infrastructure solutions.

Mr. Van Vleet is a public affairs officer with NETCOM/9th ASC Public Affairs Office, Fort Huachuca, Ariz.

Warrant-Officer Notes

Advance your career as an Army warrant officer

By CW3 A.J. Williams

The landscape of the Army has changed over the years. Today's Soldier has also evolved. Most join the Army already fully aware of the plethora of opportunities and benefits available. Local Army recruiters initially present many of the opportunities and benefits. Once in-service, career counselors may advise, recommend, and present career advancement opportunities. One such program is an officer producing program unlike any other aimed at advancing the career of Soldiers, Sailors, Airmen, and Marines.

The Army's Warrant Officer Recruiting Branch, part of U.S. Army Recruiting Command's Special Mission Division present servicemen and women an opportunity to advance in their career field by serving as an active duty warrant officer. The branch is charged with recruiting globally for highly qualified applicants to serve as Army warrant officers. No other Army officer-producing program has a dedicated recruiting branch.

Applicants must meet seven basic administrative requirements in order to apply:

1. U.S. citizen
2. High school graduate or General Equivalency Diploma
3. General Technical score of 110 or higher (non-waiverable)
4. Eligible for secret security clearance (may apply with interim secret clearance, some MOSs require a completed Secret or higher)
5. Pass standard 3-event Army Physical Fitness Test. An APFT waiver may be submitted for applicants with permanent profiles who take three events with an alternate for the run.
6. Pass appropriate physical exam (class 1A flight physical for aviation applicants)
7. Have no less than 12 months remaining on current service contract

The Warrant Officer Recruiting Branch has achieved success with an overall mission rate of 109 percent fiscal year 2005. The branch recruited close to 1,200 Soldiers, Sailors, Airmen, and Marines in FY05 and expects approximately 1,400 more to fill the warrant officer ranks in FY06; FY07 is expected to top 1,700 new selections. Some specialties are challenging as the numbers of applications received have progressively dwindled. Special Forces, Military Intelligence, and Ordinance specialties are most challenging to name a few.

Potential applicants will appreciate the ease of application for the program. CW4 Jack Bailey, special mission director, and CW3 Stephen Beckham, special mission branch officer-in-charge, are at the tip of the spear in automating processes. Over the last three months, USAREC's warrant officer application processing and board selection process has been automated, reducing time, labor, and costs for everyone involved.

Applicants now may fax, mail, or e-mail the applications to USAREC for review. Additionally, applicants may check the status of an application by logging onto USAREC's web-site at www.usarec.army.mil/warrant.

Planned USAREC initiatives for FY06 include briefings for deployed personnel and electronic submission of applications. A shortened Warrant Officer Candidate course (four weeks, four days prep) for applicants who complete Warrior Leader Course or higher is a definite plus according to SSG Timothy McWilliams, Fort Polk, La. Yes, it's a great time to become a warrant officer.

For more information on how to become an active duty U.S. Army Warrant Officer, logon to www.USAREC.army.mil/warrant.

CW3 Williams is with Headquarters US Army Recruiting Command. He joined the Warrant Officer Recruiting team in July 2005. Williams served as chief, PSB Schweinfurt Germany and spent a year in Iraq before PCSing to USAREC.

AWARDS

Army Deployment Excellence Award open for competition

By Henry Johnson

The Army's 2007 Deployment Excellence Award competition is open for Active, Reserve, or National Guard units and installations. To participate in the DEA program, a unit is required to have executed or supported a training or contingency deployment during the competition year.

The competition year began Dec. 1, 2005, and runs through Nov. 30, 2006. All units and installations are encouraged to plan now to complete in this elite competition. What's the prize? Two representatives in each winning and runner up units in each category will receive an all expense paid four-day trip to the Washington, D.C., area to accept the unit's award (trip includes travel, per diem, lodging, ground transportation, time for shopping, tours of Washington area, and a photo with the Army's Chief of Staff).

Significant dates for 2007 competition are:

■ Competition year - Dec. 1 – 30 Nov. 30, 2007 – Submit packets through Command Channels

■ Jan. 31, 2007 – Major Commands' nomination packets are due to the DEA evaluation board

■ Feb. 5-16, 2007 - DEA board screens Major Commands' unit packets to select semifinalists

■ March 1-25, 2007 - DEA teams visits selected semifinalists and conducts on-site observation of deployment practices

■ April 9, 2007 - Army G-4 selects and announces winners via HQDA message

■ May 17, 2007

DEA guidance and evaluation criteria can be found on the Deployment Process Modernization Office web page http://www.deploy.eustis.army.mil

Mr. Johnson is the Deployment Excellence Award Program Manager and is a retired command sergeant major. The program is operated out of Fort Eustis, Va.

Leader Transitions

Bouchard receives first star

By Charmain Z. Brackett

What began as a way to achieve the dream of a college degree has developed into a successful yet humbling career for BG Ronald Bouchard.

"It's an honor to serve as an American Soldier, and it's a great opportunity to be here at Fort Gordon" said Bouchard, U.S. Army Signal Center and Fort Gordon deputy commander, who was recently promoted to the rank of brigadier general.

Bouchard attended the University of New Hampshire on a four-year ROTC scholarship. After he obtained his degree, he was commissioned as a second lieutenant in May 1977.

Initially, he planned to stay in the Army long enough to repay his college debt; however, he found that his experience during those early years was rewarding.

"I received a lot of satisfaction," he said.

His career has led him to many duty stations including several tours in Korea.

"I've never had a bad assignment," he said. "Each assignment has been educational and has been a fulfilling part in my life."

At Fort Gordon, he has been tasked with two major assignments.

As Fort Gordon's deputy commander, he serves in BG Randy Strong's stead when Strong is not here. His other major role is that of assistant commandant of the Signal school.

BG Ronald Bouchard *(center)*, U.S. Army Signal Center and Fort Gordon deputy commander, received his first star Feb. 21, in Alexander Hall. Pinning his star were his wife, Marcia, son, Michael, and LTG Steven Boutelle, U.S. Army Chief Information Officer/G-6.

"BG Strong wants to ensure the training the installation provides is world class," he said.

The school has an important mission in utilizing the best technology to provide the best communications during the Army's transformation.

"These are exciting times," he said.

Endeavors such as LandWarNet University are among the many exciting things he sees on the horizon. Helping the warfighter to have battle command is an important goal to be accomplished.

Not only is the work rewarding, but the relationships that have developed through his career are also important to Bouchard.

"I'm very fortunate to have a close family and very good friends," he said.

Although it's a large entity, the Army is a close-knit family, he said.

"Even though we are very large, you develop friendships. Many become almost like family," he said. "I'm truly, truly blessed."

Many of those friends came from all parts of the country to Fort Gordon last month for his promotion ceremony.

His wife, Marcia, and son, Michael, have also invaluably contributed to Bouchard's successful career.

"Michael and Marcia are full supporters," he said. "They truly enjoy being an Army family."

Bouchard doesn't know what

the future holds, but he looks forward to continuing to serve his country in whatever capacity the Army needs.

Ms. Brackett is a contributing writer for The Signal, *Public Affairs Office, Fort Gordon.*

Acronym QuickScan

III MEF – III Marine Expeditionary Force
APC – area processing center
APFT – Army Physical Fitness Test
AMC – Army Materiel Command
APM SCS – Assistant Program Manager Satellite Communications Systems
ASC – Army Signal Command
ATS – automatic transfer switches
C-E LCMC – Communications-Electronics Life Cycle Management Command
CPP – Command Post Platforms
DEA – Deployment Excellence Award
DDTP – Defense Distribution Depot Tobyhanna
DISN – Defense Information Systems Network
DoD – Department of Defense
DOIM – Directorate of Information Management
DSCS – Defense Satellite Communications System
DRSN – Defense Red Switch Network
DSN – Defense Switch Network
ECU – environmental control units
FOB – Forward Operating Base
FSR – field services representatives
FY – fiscal year
GT – General Technical
HVAC – heating, ventilating, and air conditioning
IGPBS – Integrated Global Presence and Basing Study
JWICS – Joint Worldwide Intelligence Communications System
kVA – kilovolt-amps
LAR – Logistics assistance representative
LCC – local control center
LSA – land support area
MIDAS – Multiplexer Integration and Digital Communications Satellite Subsystem Automation Systems
MSE – mobile subscriber equipment
MW – megawatts
NETCOM – Network Enterprise Technology Command
NIPRNET – Non-secure Internet Protocol Router Network
PEO EIS – Program Executive Office for Enterprise Information Systems
PM DCATS – Project Manager, Defense Communications and Army Transmission Systems
PM DWTS – Product Manager, Defense Wide Transmission Systems
PM J-AIT – Product Manager, Joint-Automatic Identification Technology
RF-ITV – Radio Frequency In-Transit Visibility
SATCOM – satellite communications
SBCT – Stryker Brigade Combat Teams
SCS – Satellite Communications Systems
SIPERNET – Secret Internet Protocol Router Network
STEP – Standardized Tactical Entry Point
UPS – uninterrupted power supply
USA ISEC – Information Systems Engineering Command
USAREC – U.S. Army Recruiting Command
USSATCOMA – United States Satellite Communications Agency
VAC – volts alternating current
VTC – video teleconferencing

ARMY Communicator

Send information for subscription

AC readers: Your help is needed!

Keep us informed when you move. Let us know your current mailing address. Simply fill in the form provided and mail or fax the information to the editor. You may also e-mail the information to AC. When e-mailing please provide the same information requested on the form. Thanks for your help!

Please update mailing address with each move:

Name:_____

Mailing Address:_____

(Old Address)_____

Number of copies requested: _____

Fax number:706-791-7088/ DSN 780-7088
Email address: ACeditor@gordon.army.mil

Thanks for taking time to help us get each issue delivered to you and keep our records current.

Chief of Signal Comments continued Inside Front Cover

Over the last two years the Center for Army Leadership at Fort Leavenworth coordinated a major overhaul of the Army's NCO, Warrant, and Officer Education Systems. The focus of all these efforts was to support the Army Force Generation model, ensuring relevant training, and effective leaders. These redesign efforts balanced the length of resident training, demands for leaders within deploying units, and time away from home station and families. At the same time, Army Accessions Command guided the development of the three-phase Basic Officer Leader Course and tested the concept in a series of pilot courses.

This summer, BOLC will be fully implemented for every new Army second lieutenant. I know BOLC will yield tremendous benefits for the Army. All newly commissioned officers will experience a six-week common core of tough, challenging combat leader-focused training. We will build on that experience with a redesigned Officer Basic Course, to be called Signal BOLC, that will further develop these new Army officers into Signal Officers. Signal BOLC focuses on giving officers fundamentals they need to be successful in their first assignments and sets them up for continued development throughout their careers.

We have transformed the Signal Captains Career Course by focusing on the Contemporary Operating Environment. We now use a common scenario, developed by the Combined Arms Center, based on the terrain of the Caspian Sea region in a series of planning exercises leading to a Capstone exercise. For the Reserve Component captains we have produced a course that includes two, two-week phases of resident training separated by a phase in which National Guard and Reserve officers complete extensive distributed learning and self-development training. The RC course is much more demanding and robust and is on par with our resident course. SCCC is now more synchronized with our S6 Course and selected captains attend the S6 Course as follow-on to SCCC. Our goal is to make captains successful in two demanding positions they will likely hold – company commander and maneuver unit S6. A major effort will be the design and implementation of a G6 course. With the complexities of the network, the G6 is required to have a skill set that enables the commander to maneuver the network just as the G3 enables the commander to maneuver his forces.

We are also taking advantage of the tremendous experience our captains are bringing with them back to the schoolhouse. We are capturing their knowledge in personal experience papers that give us a great body of information that can influence training, leader development, and doctrine, not to mention give us a repository of the recent history of the Regiment. Selected SCCC captains also serve as pathfinders for the Officer Basic Course. These captains serve as mentors for second lieutenants and pass on current, relevant, real-world experience, tactics, techniques, and procedures.

Functional Areas 24 (Telecommunications Systems Engineering) and 53 (Information Systems Management) are vital components of the Regiment's Officer Corps. Officers coming from branches other than Signal are bringing some great operational experience. We are reinvigorating our efforts to bring these courses to a level comparable to graduate school. This fiscal year Fort Gordon became a permanent site for Intermediate Level Education and permanent party instructors, assigned to Command & General Staff College, are now resident at the Signal Center. This enables some officers to complete both ILE and the 24 or 53 course during one permanent change-of-station assignment to Gordon.

At the end of fiscal year 2005 we made significant investments in equipment targeted towards giving our Signal warrants more hands-on training. We updated router labs and added more Voice over Internet Protocol, video teleconferencing, and multiplexer equipment. This coupled with new JNN training enables warrants to accomplish high-level technical planning, to understand interdependencies within the network, and to become the technical experts we need to in order to be successful.

I welcome your feedback on our efforts. Education and development of leaders are keys to our success. These programs must be world class.

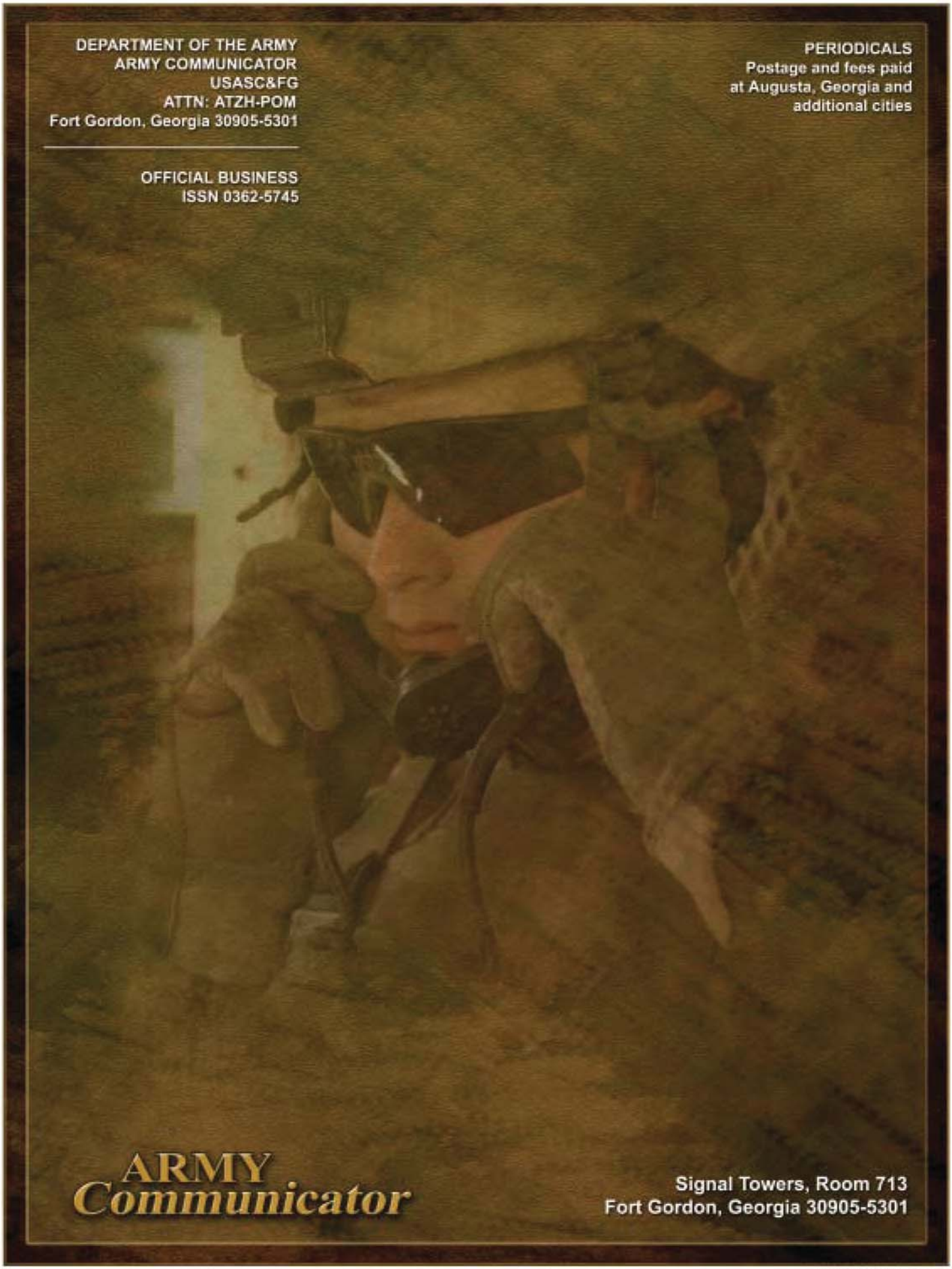
Acronym QuickScan

ARFOGEN – Army Force Generation
BCTC – Battle Command Training Center
BOLC – Basic Officer Leader Course
CAC – Combined Arms Center
CAL – Center for Army Leadership
FY – fiscal year
ILE – Intermediate Level Education
JNN – Joint Node Network
LWN-U – LandWarNet University
PCS – permanent change-of-station
SCCC – Signal Captains Career Course
VOIP – Voice over Internet Protocol
VTC – video teleconferencing

DEPARTMENT OF THE ARMY
ARMY COMMUNICATOR
USASC&FG
ATTN: ATZH-POM
Fort Gordon, Georgia 30905-5301

OFFICIAL BUSINESS
ISSN 0362-5745

PERIODICALS
Postage and fees paid
at Augusta, Georgia and
additional cities



ARMY Communicator

Signal Towers, Room 713
Fort Gordon, Georgia 30905-5301

PIN: 083022-000