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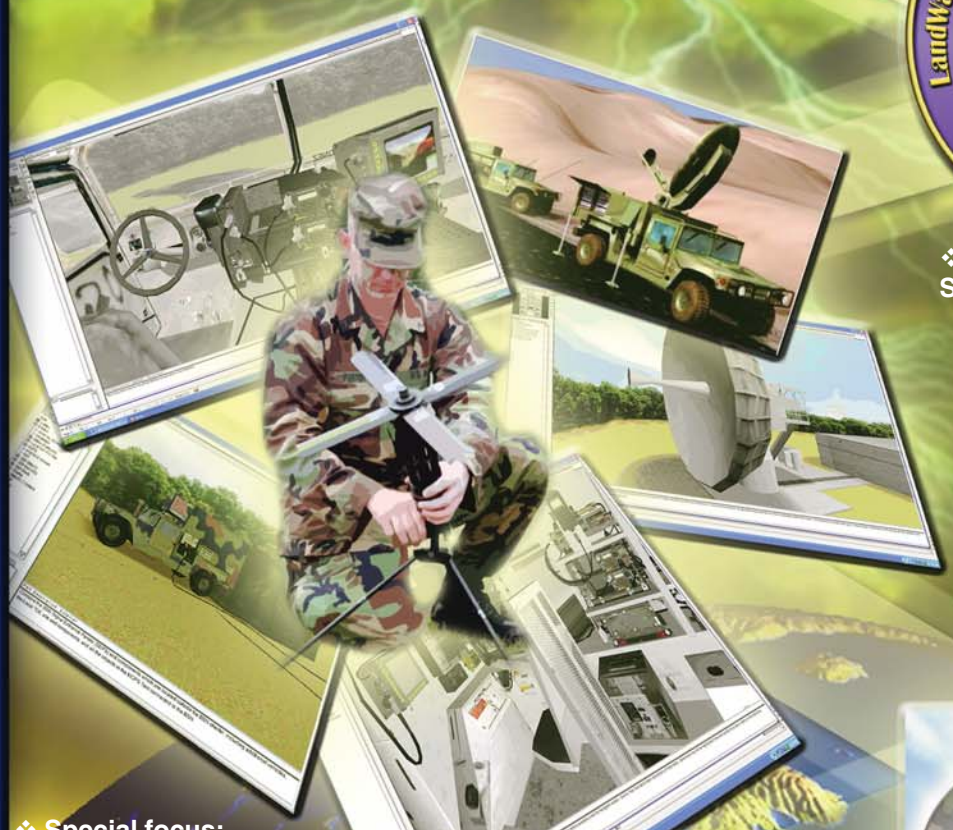
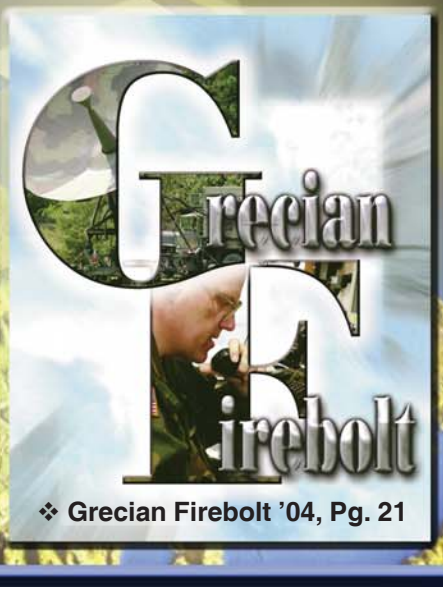


Training in Transformation



Chief of Signal's Comments

Times of change – also times of opportunity

To the members of the Signal Regiment:

Thanks to all the Signal Soldiers, noncommissioned officers, warrants, officers and civilians who are deployed, or have recently returned, for your efforts and performance as part of our Army in the Global War on Terrorism and Operations Enduring Freedom and Iraqi Freedom. The feedback and comments I've received from commanders, senior leaders and others are that the Regiment is getting the job done with diligence, initiative, dedication and professionalism. For those of you preparing to deploy, build on those successes and stay focused on moving forward. Thanks for the work you are doing every day to accomplish your missions in support of our nation.

I want to take some time with this edition to talk to the changes we are making in our training to match the requirements of transformation. My comments in the last edition focused on the changes within the Signal Regiment as we move to the Unit of Action/ Unit of Employment structure. First, I need to update some terms - as of this writing, the maneuver UAs will be known as Brigade Combat Teams and the Support UAs will be called Support Brigades – no change yet on the terms "UEx" or "UEy." With the inactivation of the divisional Signal battalions, the UEx G6s will have network operations responsibility for units task organized under the UEx at any given time. This puts a tremendous responsibility on the UEx G6. These changes are well under way. The 123rd Signal Battalion of the 3rd Infantry Division cased its colors at the end of June and by the time you read this, the 501st of the 101st will have done so as part of this transition. The structure at the next higher level, the UEy, is under development. The Signal Center is engaged with Training and Doctrine Command and the Army on the UEy structure and how the Signal Regiment will support command and control and other functions at that level.

MG Janet A. Hicks
Chief of Signal

We are changing training to support these changes in organization and the Army's Operations Tempo. At all levels we are taking lessons learned from OEF and OIF and using these to better prepare our Soldiers and leaders. Our NCO Academy, Captains Career and Warrant Advanced Courses are benefiting from students who are returning to the schoolhouse with tremendous amounts of experience from recent operations. We are seeing new second lieutenants and warrant officer ones with significant recent experience as NCOs. What a great asset these experienced leaders are to our Army and the Regiment!

Our focus on Lifelong Learning continues and we will work to provide more exportable training materials from the schoolhouse. We continue to refine our Assignment Oriented Training approach in Advanced Individual Training with the intent of providing Soldiers that are better trained for their assigned missions and accomplishing this on a shorter timeline. We are increasing the level of router training for 31Fs and we are upgrading our 31P labs to increase training on Promina multiplexers, Internet Protocol switches, and other new equipment. We have added training on the Demand Assigned Multiple Access mode of operations for our

(Continued on inside back cover)

Times of change are also times of opportunity, with plenty of challenges. Decisions Army leadership make in the next couple of years will have a tremendous and lasting impact. The right systems, the right structure and the right training will enable the Signal Regiment to accomplish in battle what commanders have counted on us to do for centuries – *get the message through.*

U.S. ARMY SIGNAL CENTER AND FORT GORDON

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Voice of the Signal Regiment

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Spiraling
towards new network capabilities

by CPT (P) Paul Howard

The Army is pursuing a bold, comprehensive transformation that would have been unimaginable just 10 years ago. The need to change is spurred by new operational demands, while the scope of the transformation is enabled in large part by the emergence of new information technologies.

During the Cold War, the United States faced a monolithic threat in the Soviet Union. This threat shaped the way the services derived their organizational structures and modernization programs. But the threat-based approach does not work well in a "post-9/11" world. Today's principal conflicts are with terrorist organizations that do not necessarily identify themselves with any specific nation, nor do they adopt any standard template of doctrine, organizations or tactics. In response to this changed strategic environment, the Army has adopted a capabilities-based approach to developing the force. This approach shifts the focus from waging war against a set of threats to developing capabilities needed for a variety of missions including counter-terrorism, supporting unstable governments, as well as fighting larger wars.

Even prior to 9/11, the Quadrennial Defense Review outlined many needed improvements within the Department of Defense. The services were directed to reduce headquarters personnel strength by 15 percent to free up soldiers for the fighting force, improve information technology to more effectively fight with fewer personnel and weapon systems, flatten the hierarchy to facilitate rapid flow of information, trim down the acquisition process to quicken the purchase of new science and technology systems and improve the ability to share information for joint warfighting.

Former Army Chief of Staff GEN Eric Shinseki embraced this mandate for change in his "Army Vision" in 2000. The new Chief of Staff, GEN Peter Schoomaker has accelerated this change by establishing seventeen "Focus Area" task forces chartered to provide quick turnaround recommendations for change in specific areas. At the U.S. Army Signal Center, Task Force Network was established to develop recommendations for rapidly improving our network processes and systems. This has been an incredibly challenging time, as an Army at war has envisioned and then implemented rapid change without any operational pause.

The Bridge to the Future Network is not a replacement of the Warfighter Information Network-Tactical. It represents a large-scale rapid insertion of some of the technologies that are mature enough now to bridge the technological gap until WIN-T can be fielded.

This fast-paced change is good news for the Signal Regiment. Lessons learned during the first Persian Gulf War already had us moving in the right direction. Improvements to our mainstay, Mobile Subscriber Equipment, yielded incremental increases in bandwidth, and Signal commanders at all levels worked hard to incorporate commercial satellite access and data-networking capabilities to satisfy our forces' increasing reliance on data-hungry applications. While innovative and locally effective, many of these non-enterprise solutions placed the burden of transformation on local commanders rather than the corporate Army, sacrificing command resources and enterprise-wide interoperability. Today's transformation, propelled by lessons learned in Operations Iraqi Freedom and Enduring Freedom, takes a top-down approach, aimed towards comprehensive change that recognizes the fundamental importance of improving the network.

In order to move forward on transformation, the Army has had to find better ways to negotiate the sometimes cumbersome acquisition process. Our inflexible approach has resulted in situations where the Army has been unable to complete the acquisition of systems before the technology has become outdated. But during the last year, the Army has not been conducting business as usual.

One of the first success stories from this revised acquisition process is the Bridge to the Future Network Capabilities Production Document. This document lays out the Signal Regiment's strategy to transform Signal capabilities quickly and is the foundational document needed to acquire the equipment that will enable the Army to become more

modular. The BFN CPD applies to signal support at all echelons. The Bridge to the Future Network is not a replacement of the Warfighter Information Network-Tactical. It represents a large-scale rapid insertion of some of the technologies that are mature enough now to bridge the technological gap until WIN-T can be fielded. The idea is to modularize the Signal Regiment with capabilities that can be plugged into any formation to provide a standard set of services such as secure and non-secure Internet protocol networks, voice and video teleconference which are absolute requirements for today's operations.

The key network enabler to come out of this intense year-long process is the Joint Network Node, which is part of the Joint-Network Transport Capability-Spiral. The JNN packs in current commercial information capabilities while retaining the ability to interoperate with MSE and other current systems. The JNN will leverage commercial KU satellite capabilities with Time Division Multiple Access technology to provide an operationally flexible capability to the Unit of Action (Brigade Combat Team) echelon. It will include a Small Command Post Node which gives similar scaled-down capabilities to battalion CPs. All of this technology went from the drawing-room table, to the factory, to 3rd Infantry Division in less than one year – an impressive feat that some had thought would be impossible.

The scope of change in terms of organizational architecture, equipment design and functional systems that we have seen over the past year is rare for an organization as large as our Army. But we are a nation at war and the Army requires change now. These improvements will begin in 3ID and 101st Air Assault Division this year. The overarching concept is to embed organic signal companies in both the new UA echelon and UEx. The traditional Division Signal Battalion will no longer exist. With this change comes several obvious challenges, including impacts on officer and enlisted career paths such as elimination of battalion-command, command-sergeant-major and branch-qualifying major positions. The regiment is hard at work to develop policies and identify mitigating strategies for these challenges.

The Signal Regiment's Transformation is a deliberate effort to morph the Cold War Signal Regiment into an organization characterized by embedded communication and standardized capabilities which will enable forces to deploy quickly without huge external dependencies. The Army will be able to leverage knowledge and collaboration with organic assets at lower echelons than ever before. This will decrease logistical requirements to speed deployment, and eliminate the middle man to enable quicker decisions, key factors that will help us remain the best Army in the world.

CPT Howard is assigned to the Directorate of Combat Developments, at the U.S. Army Signal Center, Fort Gordon, Ga. He has worked on the Future Combat System development and Task Force Network / Task Force Modularity transformation issues for the last two years. He served in various other units including 24th Mechanized Infantry Division, 3rd Infantry Division and 1st Armored Division. Howard is a 1993 graduate of North Georgia College.

Acronym QuickScan

BCT – Brigade Combat Team
BFN – Bridge to Future Network
CP – Command Post
CPD – Capabilities Production Document
JNN – Joint Network Node
NIPRNET – non-secure Internet protocol network
QDR – Quadrennial Defense Review
SIPRNET – secure Internet protocol network
TDMA – Time Division Multiple Access
UA – Unit of Action
UEx – Unit of Employment X
VTC – video teleconference
WIN-T – Warfighter Information Network-Tactical

Signal support
in the new Heavy/Infantry Brigade Combat Team

by CPT Jason Winterle

Task Force Modularity, one of the Army Chief of Staff's transformation-focused task forces, was given the mission of compressing the Army's legacy force structure from four command and control echelons (Army Service Component Command [theater], corps, division and brigade) to three echelons (ASCC, division and brigade).

The construct that TF Modularity created changes the Army from a "division centric" force to a "brigade centric" force. Brigades of every type – heavy, light or support – that were at division level (and some at corps) will transform into a separate brigade.

A foreshadowing of this more modular structure was seen in the fielding of Stryker Brigades. The 1st Brigade, 25th Infantry Division Stryker Brigade Combat Team, for example, while historically associated with the 25th Infantry Division is not operationally organic to the division. The SBCT is designed to be a separate unit that is able to work for any kind of higher headquarters as needed. It is organized with organic reconnaissance, maneuver, mobility/counter mobility, signal, intelligence, artillery and logistics/maintenance capabilities. The SBCT does not require augmentation from anyone to deploy, fight and establish intra-brigade communications.

TF Modularity built on the lessons learned from the SBCT and Operations Iraqi Freedom/ Enduring Freedom in the design of the heavy and infantry brigade combat teams. Both heavy and infantry BCTs have organic reconnaissance, maneuver, intelligence, signal, mobility/counter mobility, artillery and logistics/maintenance capabilities.

The key difference in the signal support provided to the new modular heavy and Infantry BCTs is that there is an organic signal company in every separate brigade instead of a division signal battalion providing a signal "slice" to each brigade.

The organic, separate, signal company that supports the heavy and light BCT is designed after the SBCT signal company, but was revised to be more modular. It consists of two network extension platoons and a headquarters and network-support platoon. The network extension platoons provide command post support to the brigade main command post and the brigade support area command post and have retransmission and Enhanced Position Location Reporting System Network Manager and gateway teams (in EPLRS-equipped units) that provide area coverage for combat net radio. The headquarters and network-support platoon contains the company-headquarters section, a network-operations cell, a RETRANS team and a small command post support team that provides voice/data support capability to the brigade forward com-

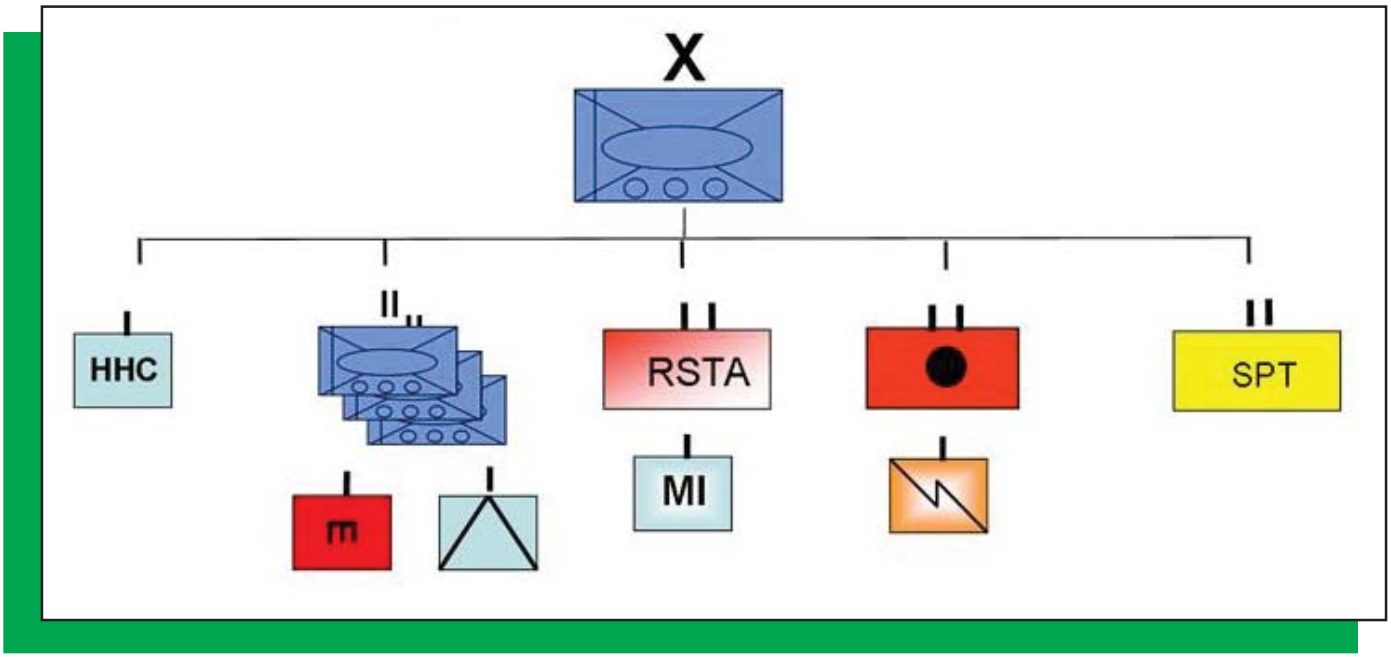


Figure 1. Stryker Brigade Combat Team

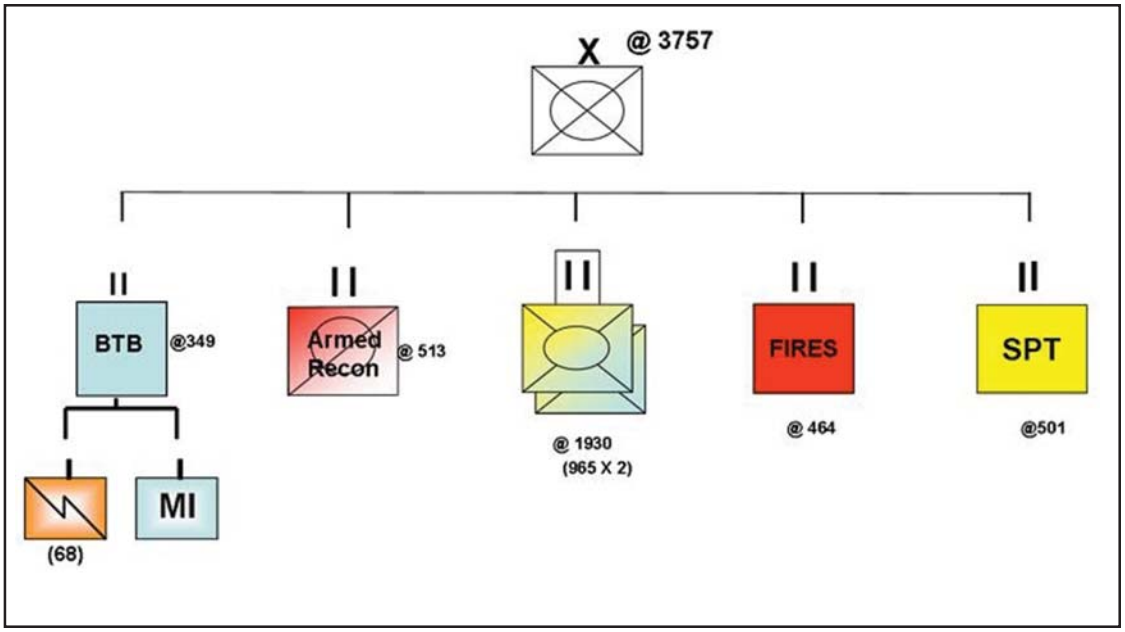


Figure 2. Heavy Brigade Combat Team

mand post.

The Joint Network Node is the central communications switching shelter for division and below support. It will replace mobile subscriber equipment currently in the force. It contains a Promina 400 to provide joint standard tactical entry point/Defense Information System Network connectivity (Nonsecure Internet Protocol Router, Secret Internet Protocol Router, Defense Switched Network, Defense Red Switch Network and Joint Worldwide Intelligence Communications System) and uses an Ethernet backbone for internal/external connectivity.

For terrestrial connectivity, the JNN has transit case, high-capacity line-of-sight radios and is teamed with a line-of-sight V3 vehicle that can be used as a relay or to terminate a more robust line-of-sight network.

For satellite connectivity, the JNN will be equipped with Time Division Multiple Access and Frequency Division Multiple Access commercial Ku-band satellite equipment, and a Secure, Mobile, Anti-jam, Reliable, Tactical Terminal using extreme high-frequency military strategic, tactical and relay satellite communications. The TDMA and FDMA satellite connectivity will use the same 2.4 meter satellite dish using both TDMA and FDMA modems. The TDMA network will be used to establish communications between the Brigade Main command post, Brigade Support Area command post and battalion command posts. FDMA satellite links will be used to establish STEP/DISN connectivity. SMART-T will be used as an alternate, protected, satellite link between the main and the BSA command posts or as a link to higher or adjacent units including U.S. Marine Corps, Navy or Air Force who may be equipped with SMART-Ts.

The 3rd Infantry Division is the first division to convert to a modular "brigade-centric" design. They received the first JNNs in the Army

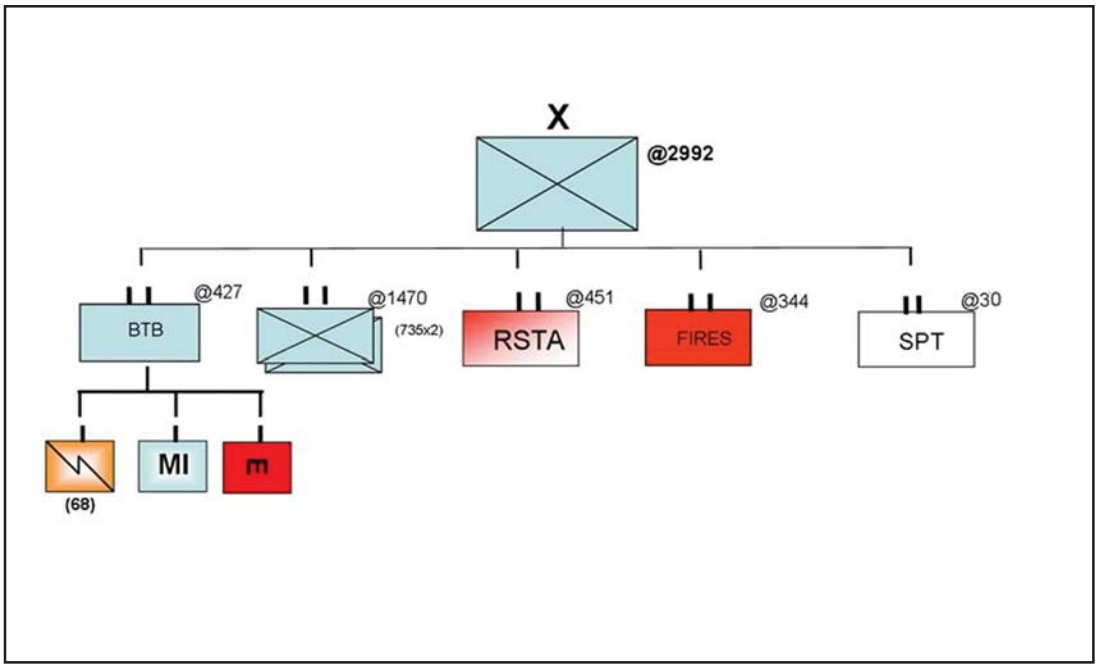


Figure 3. Infantry Brigade Combat Team

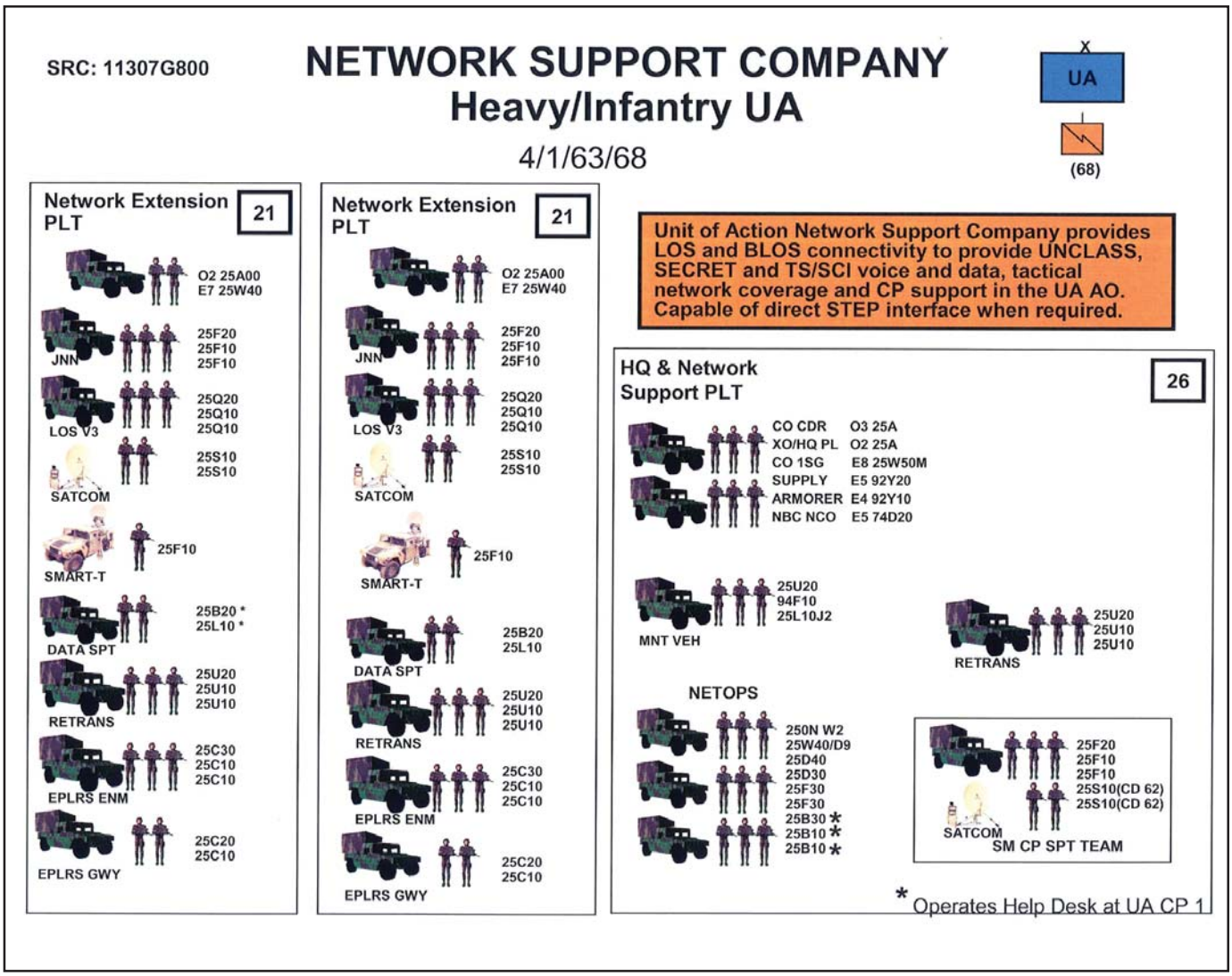


Figure 3. Infantry Brigade Combat Team

on Aug. 9, 2004. The Signal Center will continue to monitor lessons learned, after-action reviews, and tactics, techniques, and procedures to refine the division and below signal-support design and modify the design as necessary.

CPT Winterle is currently serving in the Directorate of Combat Developments, U.S. Army Signal Center. He served on both TF Modularity and TF Network in support of U.S. Army Transformation. Winterle has experience serving as both a platoon leader and Company executive officer in the 331st Separate Signal Company, Fort Riley, Kan., and was the first company commander for the 176th Signal Company, 1st Brigade, 25th Infantry Division.

Acronym QuickScan

1-25 IN – 1st Brigade, 25th Infantry Division
ASCC – Army Service Component Command
BCT – brigade combat team
BSA – brigade support area
DISN – Defense Information System Network
EPLRS – Enhanced Position Location Reporting System
FDMA – Frequency Division Multiple Access
JNN – Joint Network Node
RETRANS – retransmission
SBCT – Stryker Brigade Combat Team
SMART-T – Secure, Mobile, Anti-jam, Reliable, Tactical Terminal
STEP – standard tactical entry point
TDMA – Time Division Multiple Access
TF – Task Force

Korea: US, ROK forces improve interoperability

by CW2 Tearence D. Stewart

In order to enhance tactical communications between United States Forces Korea and Republic of Korea Army, the 304th Signal Battalion invited the 63rd Signal Battalion to participate in the unit's Technical Exercise at Camp Colbern May 10-14, 2004. The intent of the exercise was to improve relations between the two signal battalions and create a seamless interface between the U.S. and ROK Army Networks.

The MSC-500K Spider Switch is an analog tactical deterministic switching system that provides tactical command, control, communications, computers and intelligence for ROKA.

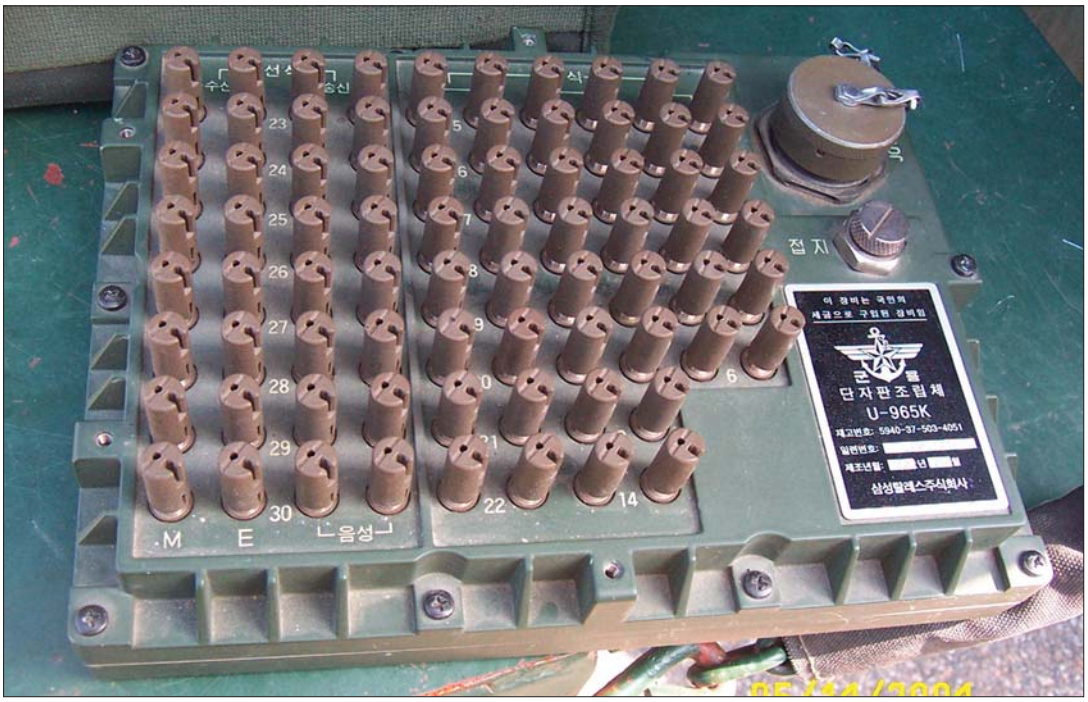
System components consist of the AN/TTC-95K Node Management Terminal and cable assemblies. Compared to the United States Single Shelter Switch which operates on a local database and supports multiple wire line interfaces, the Spider does not operate on a local database; each trunk must be manually programmed and is limited to two-wire devices. The Spider terminates subscribers and internodal links with the same Junction Box. Internodal links are also installed via the signal entry panel using coxial cable.

AN/TTC 95K Node Manangement Terminal

In January 2000, the 8th U.S. Army conducted initial tests using the Spider Adapter Interfaces and the NATO Analog Interfaces to connect U.S. and ROKA Communications Networks. The SAI was fabricated as an interim connection device for the Spider. The interface was phased out due to equipment shortages. It required a one to one ratio of NAI to SAI; there were only two NAIs on the peninsula. Additional tests demonstrated the Spider to EAC/Mobile Subscriber Equipment switching systems interoperable, but dialing between the Spider and EAC/MSE networks required a 13-digit dialing sequence (3-digit NATO code, 3-digit area code and the seven-digit number). Further tests conducted in December 2002 and June 2003, improved the SPIDER to U.S. dialing sequence from 13 to 10-digits. The U.S. to Spider dialing sequence was changed to Commercial Office (5C) effectively reducing the dialing sequence. However, the commercial office access poses several problems -

- When a subscriber dials 5C, the call is routed to the first available 5C programmed switch, not the necessarily intended switch.
- Once a call exits the tactical network, it is impossible to re-enter the same network.
- When a call is terminated, the switch does not always release the trunk, reducing access to the Spider.

The objectives of the training conducted between the 304th and 63rd Signal Battalions were to reduce the dialing sequence, conduct direct dialing from Spider to Spider via the U.S. tactical network without operator intervention, conduct secure call and facsimile operations eliminating 5C. In order to conduct



Spider Junction Box

the tests, two AN/TTC-56 Single Shelter Switches, two MSC-500K Spiders and two Line Termination Units were setup. The Spiders were connected to the LTUs via 12 pairs of WD-1. Six lines were for receiving and six lines for placing phone calls. Each pair is equivalent to a trunk. The LTU was connected to the SSS and a link was established between the SSS's. (See Diagram 1.)

At endstate, all objectives were accomplished, both systems were able to place calls by dialing seven-digits without the 5C prefix and the switch released all trunks. Direct dialing was performed from Spider to Spider via the U.S. tactical network without operator intervention from the SSS operator. While there was no intercept from the U.S. operator, all calls placed to the Spider required intervention from the ROKA operator to complete the call. This was due to the internal configuration of the Spider Switch and J-boxes.

Members of the 304th Signal Battalion invited the 63rd Signal Battalion to participate in the unit exercise at Camp Colbern in May of 2004. The purpose of the exercise was to create a seamless interface between the U.S. and ROK Army Networks. Pictured above are members of the 304th and the 63rd including two ROK soldiers who worked with the 63rd.

This was a highly visible training event with visits from multiple VIP's including the 3rd ROKA ACoS C6, 1st Signal Brigade commander and members of the U.S. Forces Korea Joint Staff. Units have started planning to conduct training focusing on the ROKA operator intercept issue prior to Ulchi Focus Lens '04.

Following is a detailed chart on

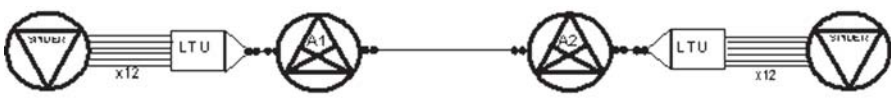


Diagram 1.

AN/TTC-56(V) 1 Single Shelter Switch Configuration and Programming

Programming:

DTG

DTG Number	12
Starting Address	BS-LA
Number of Channels	32
TED Number	No
Synchronization Delay	Yes
Channel Rate16	Kbps
Group Rate	576 Kbpps
Multiplex Signal Format	1
Subgroup 1 Rate	0
Subgroup 2 Rate	0
Subgroup 3 Rate	0
Service State	In
Modulator Cable Length	3
Demodulator Cable Length	¼
Modulation	Diphase
Repeater Mode	No
Red Group Clock	No
Recover Time	No
DTG Release Timer	0
Output Type	Normal

Subscriber Services:

Preaffiliation

Action	2
List Number	(Blank)
Directory Number	LNXXXXX

(620-1211/12/14/15/16/17-use spares to avoid affiliating duplicate numbers) for slots A1 and A2 of the LTU (Allows Spider to call U.S.) (730-0001/2/3/4/5/6-provided by the Spider operator) for A4 and A6 of the LTU (Allows US to Spider)

Profile Index	239

(for all12 subscriber numbers)

Target Device	1=Load Disk

Affliation

Action	1
Directory Number	LNXXXXX

(620-1211/12/13/14/15/16/17) for slots A1 and A2 of the LTU (Allows Spider to call US) 730-001/2/3/4/5/6) for slots A4 and A6 of the LTU (Allows US to Spider)

TGC

TGC #	16
TGC Type	Other
Spill Forward	No
Destination NYX	806
Zone Restriction Number	0
Access Trunk Group	Yes
Traffic Limitations	No

Terminal Services

Terminal Address	XX-XX

(Use the BS-Las for the 2WLTU CCA located in slots A1 and A2 in the LTU)

Terminal Type	44
TGC Number	16
Path Delay	0
Satellite Trunk	No
Service State	In
Dedicated Echo	0
Suppressor Number	(Blank)
Transmission Type	Analog

Non-Secure

Carrier Mode	No

Adapter Number 1(sequential)

DTLU	Yes
T digit	No
Bar in dailing	No

Loop Strapping

Terminal Address	XX-XX

(Use the BS-LA's for the 2WLTU CCA's located in the LTU)

Terminal Type	8

(Enter for all 12 subscriber numbers)

Phantom Loop Power	Yes
ADOCU Home Code	(Blank)

building the DTG and populating the LTU (see chart on Page 9).

CW2 Stewart is with the 304th Signal Battalion, 1st Signal Brigade, Camp Colbern, Korea.

Acronym QuickScan

C4I – command, control, communications, computers and intelligence
DTG – Digital Transmission Group
J-Box – Junction Box
LTU – Line Termination Units
NAI – NATO Analog Interfaces
ROK – Republic of Korea
ROKA – Republic of Korea Army
SAI – Spider Adapter Interfaces
SSS – Single Shelter Switch
US – United States
USFK – United States Forces Korea

Resistance is futile … you WILL be simulated!

Transforming training in an equipment-dependent branch

by LTC Keith M. Perkins

When it comes to training, Signal is a very equipment-dependent branch. Typically, the equipment needed for training is fielded at the school house after several units have already received the equipment. And sometimes, this equipment is diverted due to real world requirements. However, this does not release the school house from the responsibility to train Soldiers to use the new equipment. Unfortunately, in the world of communications and automation, technology changes at a rapid pace. Add in the fact that a large portion of this type of equipment in the military is now being provided as commercial-off-the-shelf products and you have the school houses scrambling to keep up. The solution the Signal Center has adopted is Lifelong Learning and relies heavily on simulations. This article describes our current efforts and products.

Completed UIT simulations:

The Force XXI Battle Command and Below /31U Tactical Operations Center simulation was demonstrated in the University of Information Technology section of the Training and Doctrine Command display during the 2003 winter Association of the United States Army Conference in Washington, D.C. The FBCB2 simulation is posted and available for download at the UIT Website: https://uit.gordon.army.mil. This simulation was taken (30 percent complete) to Kuwait by Program Manager FBCB2 and used as new equipment training before hostilities began in Operation Iraqi Freedom. This simulation is setting the standard across TRADOC and is scheduled to be implemented at all TRADOC Schools in fiscal year 2005.

The re-release of the AN/TRC-173 Simulation occurred Nov. 3, 2003. Input was received from users, instructors and training developers and minor modifications were made to enhance the simulation. This was the first UIT simulation and the building block for the development of the FBCB2 simulation. This simulation is designed for 31R and 31P.

The AN/GSC-52 simulation was demonstrated at the 2003 Signal Symposium and was posted on the UIT Website January 2004. This simulation is designed to train the Army's critical 31S military occupational specialty on Information Operations Management of the GSC-52 earth terminal.

Simulations under development:

July 2004, we took the pre-release version of our newest simulation, the Brigade Subscriber Node, and used it as part of the training for SBCT 4 out of Fort Polk, La. The BSN simulations allowed us to train soldiers on equipment before they ever received their actual equipment. We have found in training the Stryker Brigades, that using the simulation before soldiers actually use the real equipment greatly reduces the time required for NET and hands-on training. We still require soldiers to qualify on actual equipment but, it takes less time because the simulation already familiarizes them with the equipment and procedures. Stryker Brigade Combat Team 4 will receive their equipment and be stationed at Fort Lewis, Wash., after their training is complete. The window for release of the finalized BSN simulation closed September 2004. This simulation is designed for the 31C, 31F and 31P MOS.

We are currently working on a couple of other simulations, Tactical Internet Management System/ISYSCON V4 and Digital Tactical Operations Center for military occupational skill 74B. These simulations will be released in fiscal year 2005. Although the target audience for these simulations is the 74B10 level, there will be portions targeted for noncommissioned officers as well as officers and warrant officers.

Proposed simulations:

What's Next? Depending on funding, the following systems are candidates for fiscal year 2005 simulations: AN/TSC-85D, AN/TSC-93D, Integrated Digital Skills Trainer IDST/S6, EPLRS Network Manager, Joint Network Node, Baseban Node, Joint Network Management System and others.

The way ahead:

Simulations Branch is currently working with several agencies (Program Manager Warfighter

Information Network-Tactical, Program Executive Office for Simulation, Training and Instrumentation, Army Training Support Center, etc.) and industry partners in developing simulations training products that embody the UIT simulations standards and are complementary to the Lifelong Learning concept. Fort Gordon was designated as the Executive Agent for Lifelong Learning Centers throughout TRADOC.

A team was sent to every TRADOC Installation to help tailor the Lifelong Learning Concept to each school houses unique needs. The end goal is to have a network of Lifelong Learning Centers each located with the appropriate school houses who are responsible for the accuracy and maintenance of their information. These Centers of Excellence will have the ability to exchange information among each other to fill the users' needs. For example, a Signal Soldier will always log onto the Fort Gordon Lifelong Learning Center to get information and training.

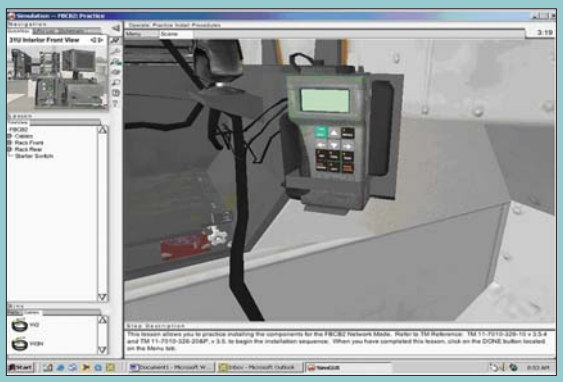
Even if the Soldier's question is pertaining to an area that falls into the Infantry Schools area of responsibility, the Soldier would still log into the Signal Center and the Signal Center Lifelong Learning Center will find the answer/training where ever it is housed.

This standardization is even more critical when it comes to our simulations. Once a Soldier learns how to operate one of our simulations, the Soldier knows how to operate them all. For example, in order to turn a knob in the FBCB2 simulation, the Soldier clicks on (and holds down) the knob, and moves the mouse left or right.

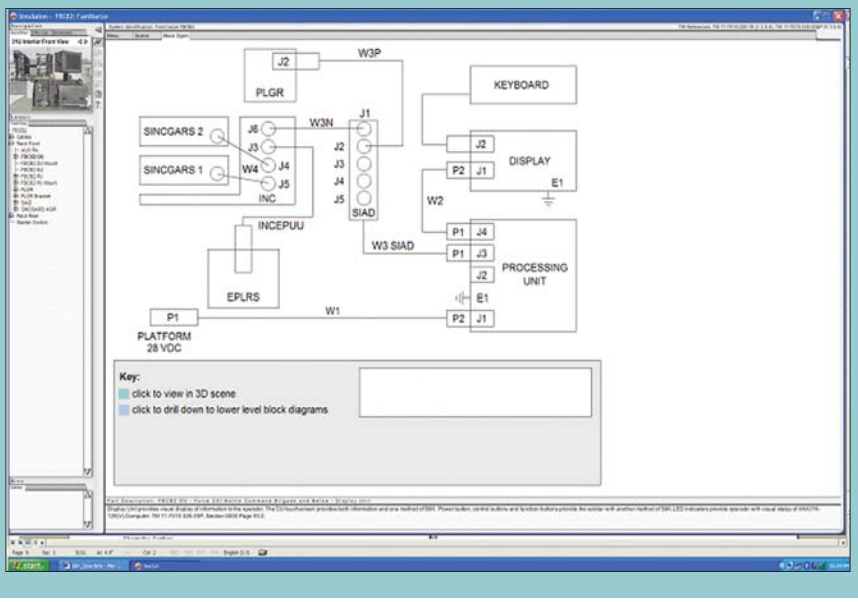
Once this is learned, the S oldier now knows how to turn a knob in any of our UIT simulations. Since TRADOC has designated the FBCB2 simulation as a standard, this should apply to future TRADOC simulations across the boards, and thus soldiers don't have to learn different methods to perform similar tasks in numerous simulations.

More information about the Lifelong Learning Concept, Lifelong Learning Centers, and UIT Simulations can be found at our website: https://uit.gordon.army.mil.

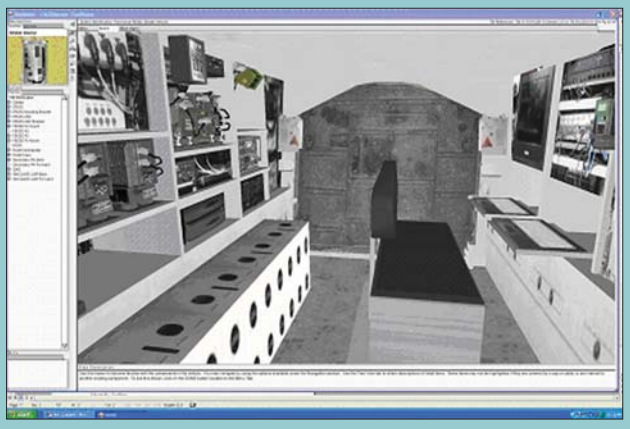
FBCB2 Simulation Screen Shots:



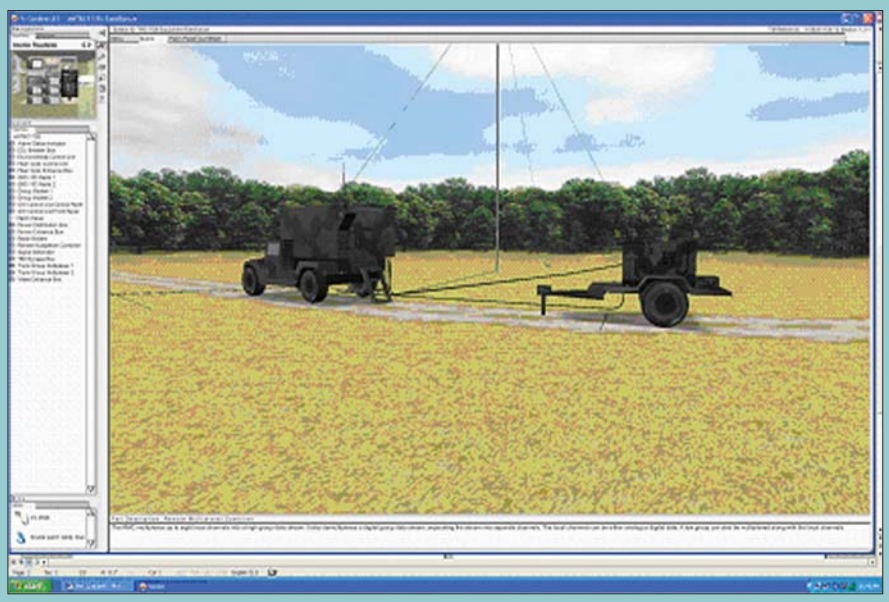
FBCB2 Simulation Block Diagram Screen Shot:



FBCB2 Simulation Stryker Vehicle Configuration Screen Shots:



AN/TRC-173B Simulation Screen Shots:



AN/TRC-173B Simulation Screen Shots:

AN/GSC-52 Satellite Simulation Screen Shots:

LTC Perkins is the chief of the Simulations and Lifelong Learning Materials Branch of the Directorate of Training at Fort Gordon, Ga. He is a FA-57, simulations operations officer. He received his masters of science in modeling, virtual environments and simulations from the Naval Postgraduate School, where he worked on the America's Army Video Game as a programmer (helicopter physics) and actor (sniper instructor).

Acronym QuickScan

ATSC – Army Training Support Center
AUSA – Association of the United States Army
BBN – Baseban Node
BSN – Brigade Subscriber Node
COTS – commercial-off-the-shelf
DTOC – Digital Tactical Operations Center
FBCB2 – Force XXI Battle Command and Below
FY – fiscal year
ENM – EPLRS Network Manager
EPLRS – Enhanced Position Locator System
IDST/S6 – Integrated Digital Skills Trainer/S6 Trainer
IOM – Information Operations Management
ISYSCON V4 – Integrated System Controller Version 4
JNMS – Joint Network Management System
JNN – Joint Network Node
MOS – military occupational specialty
NET – new equipment training
OIF – Operation Iraqi Freedom
PEO-STRL – Program Executive Office for Simulations, Training and Instrumentation
PM WIN-T – Program Manager Warfighter Information Network – Tactical
SBCT 4 – Stryker Brigade Combat Team 4
TIMS – Tactical Internet Management System
TRADOC – Training and Doctrine Command
TOC – tactical operations center
UIT – University of Information Technology

TSM update

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

TSM-Tactical Radio

Connecting the Army's Lower Tactical Internet with the Enhanced Position Location Reporting System Network Manager

by Garry L. Vittorini

Introduction: The Enhanced Position Location Reporting System is a radio frequency network of wireless, jam-resistant tactical radios designed to provide communications services for the United States Army's Tactical Internet and Army Battle Command System. The EPLRS network distributes digital data from many mobile users to many other mobile users. The network itself consists of many EPLRS Radio Sets and one or more EPLRS Network Managers. EPLRS has automatic relay capabilities to support Beyond Line-of-Sight coverage of the battle space. These capabilities are automatically and continually adapted to the changing environment faced by a mobile communications system. EPLRS also provides position location information of all network radio sets. EPLRS radios operate in the UHF band (420-450 MHz) and use wide band direct sequence spread spectrum waveform, Time Division Multiple Access, frequency hopping and embedded error detection and correction along with encryption to provide for secure communications. EPLRS and Single Channel Ground Airborne Radio System provide the communication infrastructure for the Army's Lower Tactical Internet comprised of units at Brigade and below. Specifically, EPLRS provides communications services for the Force XXI Battle Command Brigade and Below. FBCB2 is a digital battle command information system that provides Command and Control and Situational Awareness to Army commanders and soldiers and is a key component of the ABCS.

The EPLRS Manager vehicle is a humvee modified to support the EPLRS ENM mission.

Background: Project Manager Tactical Radio Communication Systems was given approval by PEO Command Control and Communications Tactical to proceed with the development and production of ENM in May 2000. The ENM will be replacing the EPLRS downsized Net Control Station which is currently fielded to the 4th Infantry Division, and 1st Cavalry at Fort Hood, the 3rd ID at Fort Stewart and the First and Second Stryker Brigade Combat Teams in Fort Lewis. Upgrade to ENM for fielded units will occur from fiscal year 2004 through FY 06. All new EPLRS fieldings will be ENM based. The ENM offers numerous advantages over its

ENM Vs. NCS

	ENM	NCS
Cost	$350,000	$509,000
Personnel per SBCT	6 MOS 31C	9 MOS 31C
Personnel per Heavy Division	15 MOS 31C	28 MOS 31C
Reduced Footprint/Weight	Fiberglass Hardtop/ 7,544 lbs	SICPS*/9,400 lbs
Speed	242.9 Kbps	57.6 Kbps
Vehicles per SBCT	2 ENM Vehicles	3 NCS Vehicles
Vehicles per Heavy Division	5 ENM Vehicles	7 NCS Vehicles

* = Standard Integrated Command Post Shelter (SICPS)

Table 1

ENM vehicle installation of a CF-28/29 Panasonic Toughbook.

Top shelf left to right: printer and EPLRS RT. Lower shelf right side: KOK13.

Figure 1. ENM vehicle components

predecessor such as lower cost, reduced footprint, personnel, vehicle requirements, and increased network capacity and reliability (see Table 1). The ENM can provide communication networks based on the Army Data Distribution System Interface or Internet Protocol structures. The Army uses the ADDSI protocol for network communications. An ENM based EPLRS network can provide user data rates as high as 242.9 Kbps. Since project inception, the ENM has been through a successful limited-user test, a cold-weather test in Alaska and environmental/EMI testing. Improvements have been implemented to the equipment resulting from these tests. ENM has been fielded to the Mississippi Army National Guard (1-204 Air Defense Artillery) and the Florida Army National Guard (3-265 ADA) and the third SBCT in Fort Wainwright, Alaska. ENM fieldings are anticipated at the 4th ID and 4th SBCT by the first quarter of FY05.

What is an ENM vehicle:

The ENM vehicle is a replacement for the EPLRS downsized NCS, which used antiquated militarized computer systems and was installed in a SICPS mounted on a High Mobility Multipurpose Wheeled Vehicle. The ENM vehicle is a HMMWV that has been modified to support the EPLRS ENM mission. The major electronics components comprising the ENM system are an EPLRS Receiver Transmitter, a Panasonic CF-28/29 toughbook, cryptographic key generator (KOK-13), color printer, and the ENM power distribution system (see Figure 1). The ENM electronics are run off two 12VDC deep cycle marine batteries. All this equipment is enclosed by fiberglass hardtop. A Quick Erect Antenna Mast is attached to the fiberglass hardtop. The ENM vehicle also has the capability to tow a High Mobility Trailer to house a generator, tent and other support equipment.

How does it work?

The ENM is a set of custom software utilities ported on a commercial toughbook used to plan, initialize and manage an EPLRS network. ENM provides key management, fault resolution and the capability for network updates. The ENM provides these different capabilities in four distinct functions or missions: ENM-Operations, ENM-Planner, ENM-Monitor, and Tactical Internet Manager/ENM-Monitor. The ENM software encompasses all four-mission areas as a single-software application, thus any ENM can be initialized to perform any ENM mission. Access to the separate mission areas is controlled through software passwords. To perform ENM-Operations the ENM operator will log on with privileges for the Network ENM capability.

To perform the ENM-Monitor and TIM/ENM-Monitor functions, the ENM operator will log on with privileges for the Monitor ENM capability. The ENM Planner capability can be performed online/offline as an operator or offline as a monitor. The ENM, in the monitoring mode, may be co-hosted with the Tactical Internet Manager on the FBCB2 terminal. The TIM is the primary network-planning tool for generating the TI database. The ENM can directly input the TIM output file and generate a deployment plan. The ENM software utilities function on a Windows 2000 Operating System. The ENM meets all the security requirements per the Department of Defense Information Technology Security Certification and Accreditation Process.

The ENM operator is located in the ENM vehicle and is responsible for management of the EPLRS

network. The network operators are Military Occupational Specialty 31C, Radio Operator - Maintainer, and are responsible for initializing and maintaining the health of the EPLRS network. They are responsible for crypto key advances, system parameter updates, and radio configuration control. The ENM planning mode enables designated senior operators to develop database or deployment plans to meet specific network communication requirements.

The planner is responsible for assigning EPLRS time and frequency assets to satisfy specific communication services for host system(s). The ENM Monitor mission is the ENM function associated with monitoring the network and providing configuration file updates to its connected radio. It will reside on its own hardware platform (laptop) in a Network Operational Center-Vehicle or S-6 Tactical Operation Center Vehicle and will be the responsibility of MOS 74B, Information Systems Operator – Maintainer. The ENM-Monitors are located in the NOC-Vs in the SBCTs and the Battalion S-6 TOC vehicles in the Heavy Divisions. Two ENM operator vehicles are to be fielded with each SBCT and five ENM operator vehicles are to be deployed with the heavy divisions. ENM laptops will be installed in seven NOC-V vehicles for each SBCT to perform the monitor functions. ENM laptops will be installed in approximately fifteen S-6 TOC Vehicles to perform the ENM monitor functions in a heavy division.

Other services:

All other services have implemented, or are in the process of implementing ENM into their EPLRS units. The USMC has replaced the Downsized Net Control Stations with ENM in all three Marine Expeditionary Forces. EPLRS is used for digital communications in the Tactical Data Network, which is the Marine Corps version of the Army TI. Similarly, the Marines use EPLRS in the lower TDN or at regiment and below. The host system used by the Marines is the Command Control Personnel Computer (equivalent to the Army's FBCB2). The Marines use ENM in an IP based network to process C2 and SA. The Navy is in the process of implementing ENM for their EPLRS units for ship to shore communications and navigation. The Air Force Situation Awareness Data Link will also be compatible with EPLRS ENM. Enhancements are currently being implemented into the final version of ENM. These enhancements will make it simpler for a planner to develop a deployment plan.

In summary, the ENM based EPLRS is the result of an evolutionary process to make the EPLRS more deployable, reliable and to provide secure robust communication services to the Army TI and other services. The ENM uses the latest technologies available and government-off-the-shelf/commercial-off-the-shelf hardware and software to accomplish this mission.

Mr. Vittorini is an Electronic Engineer working at Program Executive Office Command Control Communication Systems at Fort Monmouth, N.J. His present position is with Project Manager Tactical Radio Communication Systems, as project lead for ENM. Vittorini has twenty-three years engineering experience with DOD and has worked on the Position Location Reporting System and the EPLRS product lines since 1989. His previous work with PLRS and EPLRS also includes production engineering.

Acronym QuickScan

ABCS – Army Battle Command System
ADA – Air Defense Artillery
ADDSI – Army Data Distribution System Interface
BLOS – Beyond Line-of-Sight
C2 – Command and Control
C2PC – Command Control Personnel Computer
COTS – Commercial-off-the-Shelf
CT3 – Command Control and Communications Tactical
DISTCAP – Defense Information Technology Security Certification and Accreditation Process
EPLRS – Enhanced Position Location Reporting System
ENMs – EPLRS Network Managers
FBCB2 – Force XXI Battle Command Brigade and Below
FY – fiscal year
GOTS – Government-off-the-Shelf
HMMWV – High Mobility Multipurpose Wheeled Vehicle
HMT – High Mobility Trailer
IP – Internet Protocol
ID – Infantry Division
MEFs – Marine Expeditionary Forces
MOS – NOC-V – Network Operational Center-Vehicle
NCS – Net Control Station
PEO C3T – Program Executive Office Command Control Communication Systems
PLS – Position Location Reporting System
PM TRCS – Project Manager Tactical Radio Communication Systems
QEAM – Quick Erect Antenna Mast
RF – Radio Frequency
RSs – EPLRS Radio Sets
RT – Receiver Transmitter
SADL – Situation Awareness Data Link
SBCTs – Stryker Brigade Combat Teams
SA – Situational Awareness
SICPS – Standard Integrated Command Post Shelter
SINCGARS – Single Channel Ground Airborne Radio System
TDMA – Time Division Multiple Access
TDN – Tactical Data Network
TIM – Tactical Internet Manager
TOC Tactical Internet Manager
U.S. – United States

TSM-SATCOM

Global Broadcast Service

by Lynn Epperson

Global Broadcast Service is a high-speed, one-way information flow of high-volume data to units deployed, or in garrison, and is a component of the military-satellite communications architecture. The GBS system is not intended to replace existing MILSATCOM systems. Instead, it supports existing requirements by providing the capability to distribute large-information products to user platforms thereby relieving that burden from critical two-way SATCOM systems.

Information products are developed and distributed using a "Smart Push" and/or "User Pull" philosophy to avoid saturating deployed forces with "information overload." This capability allows existing and planned satellite-communications systems to support the two-way communications needs of force elements while providing a means for GBS users to request information. Information products such as imagery, weather, mapping, logistics, national intelligence and theater intelligence are assembled and broadcast to the user. The information may be in the form of video (classified or unclassified) or data (classified or unclassified). The information sources are identified and contacted as part of the overall GBS responsibilities.

GBS operations are currently supported using Limited Rate Initial Production components operating within an Asynchronous Transfer Mode-based architecture, which has become obsolete and difficult to maintain. A product improvement effort is being implemented to upgrade GBS LRIPs to an Internet Protocol-based architecture. The critical aspects of the GBS IP upgrade are the fixed Satellite Broadcast Managers, Receive Broadcast Managers, Theater Injection Points and improved software. A baseline-hardware design was selected for the Army IP Transportable Ground Receive Suites consisting of three transit cases - two for the antenna assemblage, called the Next Generation Receive Terminal, and one for the RBM components (88XR). The 88XR case weighs less than 88 pounds while each of the NGRT cases weigh less than 74 pounds. This transition to IP will provide modularity, expandability, enhanced capability, dynamic-bandwidth allocation and the application of industry standards, all significant improvements over the current capabilities. New Equipment Training teams will replace the ATM components with the IP TGRS and provide associated training beginning in mid fiscal year 2005.

Ongoing efforts related to the development and implementation of the IP version upgrade are being conducted by Raytheon Corpora-

(Top and above) Next Generation Receive Terminal Antenna Assembly is pictured as two-of-three part transit cases part of the Army IP Transportable Ground Receive Suite.
(Left) The Prototype 88XR Receive Broadcast Manager completes the three-part AIPTGRS.

tion, Reston, Va. These include:

- Upgrade of the fixed Satellite Broadcast Managers at Norfolk, Va.; and Wahiawa, Hawaii, during FY04/05.

- Development and production of the IP 88XR RBMs.

- Development and production of the antenna assembly, known as the Next Generation Receive Terminal, in cooperation with Atlantic Microwave Corporation, Bolton, Mass.

- Development of software required at the SBMs and RBM suites. Spiral 2 software is the baseline for this effort and it builds on Spiral 1 capabilities. Spiral 1 includes the following SBM functions: manual beam planning, dynamic beam allocation within enclaves, independent broadcast streams (scalable), and mission satisfaction reports; it also includes the following RBM functions: auto-FTP push, electronic program guide, and disk space management. Spiral 2 functions add the following: queued/meta-queued-file transfer service, mirrored-file transfer and Web services, IP-based video service and streaming-packet service.

- Development and upgrade of the two currently fielded Army TIPs to an IP configuration, and the production of a third IP TIP (FY04-FY06).

- Initial Developmental Testing and Operational Testing sessions were conducted in December 2003, March and July 2004 and have all demonstrated significant successes with IP broadcast and the new IP TGRS components. Follow on DT/OT and Multiservice Operational Test & Evaluation are scheduled for FY05.

For more information on the GBS program contact Lynn Epperson, DSN 780-2352, commercial (706) 791-2352 or email: eppersol@gordon.army.mil.

Acronym QuickScan

AMC – Atlantic Microwave Corporation
ATM – Asynchronous Transfer Mode
FTP –
FY – fiscal year
GBS – Global Broadcast Service
DT – Developmental Testing
EPG – electronic program guide
IP – Internet Protocol
LRIP – Limited Rate Initial Production
MILSATCOM – military satellite communications
MOT&E – Multi-service Operational Test & Evaluation
NET – New Equipment Training
NGRT – Next Generation Receive Terminal
OT — Operational Testing
RBM – Receive Broadcast Managers
SBM – Satellite Broadcast Managers
TGRS – Transportable Ground Receive Suites
TIP – Theater Injection Points

Update: AN/TSC-156, SHF Tri-Band SATCOM Terminal "Phoenix"

by Bill Campbell

The Summer 2003 issue of the *Army Communicator* first introduced the Phoenix, an SHF Tri-Band SATCOM terminal to the Signal community. With the termination of the SHF Tri-Band Range Extension Terminal in 2002, the Phoenix was intended to be an interim solution for SHF Tri-Band requirements until the Multiband Integrated Satellite Terminal is fielded in the 2012 timeframe. Since the last Phoenix report, much has happened with the program and it's time for an update.

The Phoenix, an SHF Tri-Band SATCOM terminal, was introduced in the Summer 2003 *Army Communicator* TSM Update.

Quick review:
The Phoenix mission

The Phoenix, AN/TSC-156 terminal, is a transportable multi-channel-tactical-satellite-communications terminal operating in the SHF 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.

A two-block acquisition strategy

To reduce program risk, the Phoenix terminal is being developed and procured in two blocks. The **Block 1 Phoenix** is a tri-band capable terminal consisting of an integrated pallet-mounted assemblage of non-developmental items, commercial off-the-shelf, government-furnished equipment and those items adapted for Army use which are needed to meet the requirements.

The Block 1 Phoenix consists 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 1 Phoenix is transported by two M-1113 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 Phoenix is capable of multi-node operations with up to four full duplex links in hub-spoke, hybrid mesh, or point-to-point modes. It can transmit/receive up to four commercial T1/E1 transmission groups at 1.544/2.048 Mbps per group for a total aggregate data rate of over 8 Mbps, plus data and voice orderwire(s). It can interface with 6 Digital Transmission Groups at data rates up to 1152 Kbps per DTG or Conditioned Di-Phase rates up to 2048 Kbps. It will also interface with up to 8 balanced Non-Return-to-Zero groups at rates up to 2048 Kbps. Two of these ports can bypass the Enhanced Tactical Satellite Signal Processor to provide a point-to-point link at rates up to 10 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 10 Mbps.

Phoenix terminals are backward compatible with legacy AN/TSC-93B/C/D and 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 31S) operator/maintainer crew. Normal crew size is four operators/maintainers. The Phoenix is capable of using the LHGXA 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 can be remoted up to 50 meters and a spare laptop is provided for each terminal. KIV-19 Trunk-Encryption Devices provides TRANSEC for up to four

(Top and bottom right) Phoenix, Block 1 Demonstration Terminal is pictured.

Phoenix, Block 1 Mobile Power Unit carries a 10 kW Tactical Quiet Generator. above.

commercial circuits that require them. A KY-99 is used to secure the ETSSP orderwire between terminals. The GFE Integrated Monitoring Power and Control-Subsystem Transportable-Network Terminal is used as the control orderwire.

Successful limited user tests

The Block 1 Phoenix terminal operational Limited User Test was completed on June 26, 2004, at Fort Bragg, N.C. The test unit was the 112th Signal Battalion. Five terminals were used in the LUT operating in hub-spoke and mesh modes of operation. Also included in the network was an AN/TSC-93C terminal, an LHGXA on the Phoenix hub terminal and a STEP site. Various switches and data packages were used; voice and data traffic was passed during the test. The test also included terminal displacements to simulate typical tactical movements. The test was successful with only minor changes to the terminals being recommended. These minor modifications will be incorporated prior to the final material release to the 112th Signal Battalion. The 112th Signal Battalion will retain the five terminals used in the Block 1 LUT and will receive three more terminals in second quarter, fiscal year 2005 to complete their fielding.

Note: On July 27, 2004, the Milestone Decision Authority authorized the continued procurement of the Block 1 Phoenix terminal. This will allow the Program Manager to procure additional terminals.

Block 2 Phoenix – upgrade to Quad-Band

Growth to military Ka-band is a pre-planned product improvement for the Phoenix. The **Block 2 Phoenix** will see the integration of a Ka-band capability with an associated increased throughput. (All Block 1 terminals will be retrofitted with Ka-band equipment and brought up to Block 2 standards.) The Block 2 Phoenix terminal effort is currently underway. The first two Block 2 Phoenix terminals will go through an operational Limited User test in the 2nd/3rd quarter, FY 05.

Block 1 training will consist of a two-week New Equipment Training class at the fielded unit and a three-day Tactics Techniques & Procedures planners and managers training. The MOS 31S course will receive two terminals as well as a training simulator for sustainment training.

The Phoenix terminal contractor is L3 Communications Systems (West). For more information on the Phoenix SATCOM terminal, contact Bill Campbell, TSM-SATCOM, (706) 791-7886, DSN 780-7886, email: campbelw@gordon.army.mil.

Acronym QuickScan

AC – Alternating Current
BIIDS – Basic Issue Item Diagnostic Spares
COTS – Commercial Off-the-Shelf
CDI – Conditioned Di-Phase
DTG – Digital Transmission Groups
ECV – Enhanced Capacity Vehicles
ETSSP – Enhanced Tactical Satellite Signal Processor
FY – fiscal year
GFE – Government Furnished Equipment
IMPCS – Integrated Monitoring Power and Control Subsystem
LUT – Limited User test
MDA – Milestone Decision Authority
MIST – Multi-band Integrated Satellite Terminal
MPU – Mobile Power Unit
MOS – Military Occupational Specialty
NET – New Equipment Training
NDI – Non-Developmental Items
NRZ – Non-Return-to-Zero
PM – Program Manager
QTR – quarter
RF – Radio Frequency
STAR-T – SHF Tri-Band Range Extension Terminal
STEP – standardized tactical entry points
TED – Trunk Encryption Devices
TNT – Transportable Network Terminal
TQG – Tactical Quiet Generator
TTP – Tactics Techniques & Procedures

Bridging the Gap with Technology

Grecian Firebolt 2004

Grecian Firebolt, U.S. Army Reserve's annual exercise, challenges Soldiers in signal units accross the country to find the way to get critical information to the warfighter in the battlefield.

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BG George J. Smith, deputy commanding general
COL Joseph P. DeJohn, chief of staff
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SFC Jo Hoots, Public Affairs NCOIC
SFC Neal Snyder, Public Affairs NCO

Photo credits: SPC Bill Addison, SFC Jo Hoots, SPC Isabel Lira, SPC Marimer Navarrete, SGT Wes J. Nowitzki, SPC Neal Snyder and SPC Nicholas Turner

311th Theater Signal Command

http://www.usarc.army.mil/311thTSC/

Unit Home Stations/States

NETCOM	Fort Huachuca, Arizona
311th Theater Signal Command (USAR)	Fort Meade, Maryland
311th Detachment 1 (USAR)	Fort Shafter, Hawaii
311th Detachment 2 (USAR)	Yongsan Army Garrison, Korea
392nd Signal Battalion (USAR)	Pennsylvania
558th Signal Company (USAR)	Ohio
820th Signal Company (USAR)	Texas, Arkansas
280th Signal Battalion (ARNG)	Delaware
211th Engineering Installation Squadron (ANG)	Connecticut
1st Signal Brigade (AC)	Korea
11th Signal Brigade (AC)	Fort Huachuca, Arizona
86th Signal Battalion (AC)	Fort Huachuca, Arizona
261st Signal Brigade (ARNG)	Delaware
101st Signal Battalion (ARNG)	New York
280th Signal Battalion (ARNG)	Delaware
198th Signal Battalion (ARNG)	Delaware
259th Signal Company (ARNG)	Delaware
820th Signal Company (USAR)	Texas, Arkansas
103rd Air Control Squadron (ANG)	Connecticut
211th Engineering Installation Squadron (ANG)	Connecticut
228th Signal Brigade (ARNG)	South Carolina
280th Signal Battalion (ARNG)	Delaware
35th Signal Battalion (USAR)	Fort Bragg, North Carolina
820th Signal Company (USAR)	Texas
417th Signal Battalion (ARNG)	Florida
140th Signal Company (ARNG)	Colorado
558th Signal Company (USAR)	Ohio
290th Joint Communications Support Squadron (ANG)	MacDill Air Force Base, Florida
359th Signal Brigade (USAR)	Fort Gordon, Georgia
324th Signal Battalion (USAR)	Fort Gordon, Georgia
842nd Signal Company (USAR)	Florida
820th Signal Company (USAR)	Texas, Arkansas

connects with signal transformation

by SFC Jo Hoots

FORT MEADE, MD. — Information dominance as it applies to Signal requires technological superiority, which is gained through the continuing transformation of Signal operations. At this year's annual United States Army Reserve Signal exercise, Grecian Firebolt 2004, more than 800 Soldiers in signal units across the country experimented with new and different ways to get critical information to the warfighter in the battlefield.

The theme "Bridging the Gap with Technology" reflected the cutting-edge initiatives testing people, equipment and interconnectivity during the two-week exercise that wrapped up June 2004. From headquarters at Fort Meade, the U.S. Army Reserve 311th Theater Signal Command provided command and control for the signal units in the field; planning, engineering and managing the overall communications voice and data network.

"Grecian Firebolt is important to us from several different perspectives," said MG Edwin E. Spain III, commanding general of the 311th TSC. "It provides numerous growth opportunities for our soldiers to test their operational, tactical, technological and leadership skills in a training environment. This experience allows our command to see the structures of the units we would actually take to war, and understand the uniqueness of Signal brigades from the Active Component, Army Reserves and National Guard. Conversely, it's a learning experience for the units involved with us — working with the operational tempo of a higher headquarters."

The Grecian Firebolt exercise provided signal support for four other large-scale joint exercises based around the country, which included the Quartermaster Logistic Liquid Exercise at Fort Dix, N.J., Fort Bragg, N.C., and Fort Devens, Mass., Golden Medic at Fort Gordon, Ga., Rio Lobo at Fort Bragg and Joint Thunder with the South Dakota Army and Air National Guard.

For the 311th TSC, Grecian Firebolt tested three major initiatives expected to be key to the future of the unit and all Army Signal; the Integrated Theater Signal Battalion concept, interconnectivity with

SSG William Thompson, a cable systems installer-maintainer with the 820th Signal Company, Detachment 2, from Little Rock, Ark., "gaffs" his way to the top of a pole on Fort Meade, Md., June 17, 2004. Thompson made the climb to install fiber-optic cable leading from a nearby communications platform. His equipment includes climbing stirrups with gaffs, or spurs, to dig into the pole for grip.

Homeland Defense partners and network operations.

SSG Jason Markel and MSG Greg of the Pennsylvania Air National Guard's 211th Engineering Installation Squadron maintain a model 85C satellite terminal on Fort Meade, Md. This 85C is one in a set of terminals also being used on Fort Huachuca, Ariz., and Fort Bragg, N.C.

Integrated Theater Signal Battalion

During Grecian Firebolt, the 311th TSC organized the units and technology at its Fort Meade headquarters to operate as an Integrated Theater Signal Battalion. This concept differs from the military's conventional signal structure by integrating into a single unit traditionally separate signal disciplines, such as cable and wire, switching and satellite communications.

The pieces of an ITSB can be configured based on the requirements for specific operations, and quickly deployed to maintain network operations in a combat theater. The full ITSB can support up to three major headquarters, and at least 1,000 telephone subscribers, 500 computers and 250 video teleconferencing capabilities.

The first of these units will be activated under the 311th TSC in 2005. "The technology has allowed us to move to this type of organization because it permits us to be 'scalable' to need," said Spain. "We can add, subtract and move as the situation requires. The satellite communications teams, switching teams, TROPO site, cable and wire; we're taking these separate, distinct organizations and merging them into a smaller footprint."

Spain explained that the ITSB experiment was carefully observed during Grecian Firebolt. "We are preparing our soldiers for the ITSB and the new world they're moving into," said Spain. "The skills we practiced during this exercise translate into refining doctrine, training, technology, tactics and procedures for the ITSB."

Homeland Defense

Each Grecian Firebolt since 9/11 has placed greater emphasis on strengthening working relationships with the military's Homeland Defense partners. The players this year included the Federal Emergency Management Agency under the Department of Homeland Security, and the U.S. Army Military Affiliate Radio System, headquartered at the Network Enterprise Technology Command, Fort Huachuca, Ariz.

Although FEMA participates in exercises with higher military commands to test its National Emergency Response Plan, its interaction with the 311th TSC during the last three Grecian Firebolt exercises allows the agency to work out interoperability issues with its military partners. "We keep up with interconnectivity through these training scenarios," said Ozzie Baldwin, part of the FEMA Region 6 Mobile Emergency Response Support team. "They have allowed us to identify problems and solutions over the last several years."

With FEMA, the 311th TSC tested a portable, tactical-digital switching system. The challenge during Grecian Firebolt was to integrate this system with military signal equipment, which is transitioning from legacy technology. The tests went well, demonstrating the partners can integrate military with FEMA equipment.

The MARS participants in Grecian Firebolt provided the contingency backup to communications systems, and a passion for experimenting with technology. John Scoggin, MARS volunteer assistant coordinator of emergency operations, demonstrated a new twist to high frequency radio. He experimented with increasing the range of the Single Channel Ground-Air Radio System using Internet technology to carry messages between SINCGARS networks.

"The SINCGARS is limited to line-of-sight," said Scoggin. "While the range can be extended through the use of repeaters, it's a challenge to do this in today's rapidly shifting battlefield. In the domestic support arena, these military radios are largely incompatible with most radio systems used by civilian first responders."

Scoggin used a commercially available voice-over-internet-protocol product and off-the-shelf audio patching systems to increase the transmission range of the

SINCGARS through the DoD Global Information Grid (the military Internet). During a demonstration between Fort Detrick and Fort Meade, a distance of approximately 60 miles, a call was linked to Fort Detrick, and the SINCGARS data was digitized and delivered to Fort Meade. As Scoggin described, all participants reported receiving the digital message "loud and clear," without the noise associated with line-of-sight technology.

Network operations

Network operations includes network management, information assurance and information dissemination management. "The network operations concept: it's an umbrella that includes everything," said MAJ Jean Perry, 311th TSC planner for the Grecian Firebolt 2004 exercise. "In a sense, the 311th TSC is an Internet Service Provider, but we're more than that. NETOPS crosses strategic, operational and tactical boundaries to provide Web-based services using our switches, satellites and telecommunications networks."

Perry explained one major success included establishing a Tropospheric super high-frequency radio transmission between Fort Dix and Fort Meade that helped put in place a portion of the network architecture. "This was really amazing; that we were able to ensure our TROPO shot worked, and that it will work next year," said Perry. "It's important because this is one of the pieces of equipment we'll be inheriting for the ITSB."

Information Assurance was another accomplishment, said Perry. This complex concept involves — in part — certifying and accrediting information systems maintaining the IA and security posture of the Defense Information Infrastructure. She explained the 311th TSC was able to ensure all players, including the major players in the four exercises that used Signal resources, were properly accredited.

This seemingly small "paperwork" process involves the integration of new technology, super

SPC Markisha Greene, from the 280th Signal Company in Delaware, mounts a five-ton operations tactical vehicle fully equipped with an air conditioner, computer, printer and a tactical phone. This five-ton monster is home to the company's administration support, first sergeant and commander.

sessions spent researching Department of Defense directives and Army regulations, appointing key IA personnel, and of course, training and funds. Just to achieve IA during Grecian Firebolt required over six months of research alone. The thoroughness with which the 311th TSC tackled the job set the standard for the process of accreditation and certification of a tactical network.

Other technology initiatives included testing with FEMA the Defense Collaboration Tool Suite, a network collaboration service providing options such as video conferencing, whiteboarding, instant-messenger service and email. The 311th TSC was also able to experiment with FEMA's Very Small Aperture Terminal, a software-driven earth-satellite station that may replace some of the military legacy systems.

"The goal of Signal is to transform itself," said Spain. "Signal must provide the capacity for end-to-end communication, where information flows seamlessly from top to bottom, left to right. We must be responsive to the needs of the users by providing accurate information, making it secure, and making it quickly and easily available to the warfighter so they can use as they see fit. The ability to get to the source of the information provides for flexible, responsive decision making so that we stay ahead of the threat."

SFC Hoots serves with the Army Reserve 311th TSC Public Affairs Office. Before joining the Army Reserve, she served with the State Area Command Public Affairs Office for the Virginia Army National Guard covering activities of the 29th Infantry Division (Light), and was the chief public affairs NCO for the Maryland Army National Guard 29th Mobile Public Affairs Detachment.

Acronym QuickScan

DoD – Department of Defense
FEMA – Federal Emergency Management Agency
IA – Information Assurance
ITSB – Integrated Theater Signal Battalion
MARS – Military Affiliate Radio System
NETOPS – network operations
QLLEX – Quartermaster Logistic Liquid Exercise
SINCGARS – Single Channel Ground-Air Radio System
TSC – Theater Signal Command
TROPO – Tropospheric
VSAT – Very Small Aperture Terminal

IA provides methodology

for protecting and defending crucial information systems

by Dave Onezine and CW Wesley Ellis

Information Assurance measures to protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality and non-repudiation. As a Theater Signal Command, the 311th TSC retains the crucial responsibility of protecting and defending information and information systems in a combat theater.

During Grecian Firebolt, the information shared across the tactical backbone network was inherently vulnerable to exploitation and denial of service. Factors that contribute to this vulnerability include the increased reliance on commercial information technology products and services; increased complexity and risk propagation through interconnection; a distributed and non-standard management structure; and the relatively low cost of entry for adversaries. This risk is compounded by the extremely rapid pace of technological change as new technologies create new risks.

All the major players in Grecian Firebolt recognized that there can never be complete confidence in the trustworthiness of the technology, users and interconnections. This meant the 311th TSC had to apply a risk management approach that balanced the importance to the mission of the information and supporting technology against documented threats and vulnerabilities, the trustworthiness of users and interconnecting systems and the effectiveness of IA solutions. It was decided early in the planning that the challenges needed to be confronted head on and IA needed to be a visible element in all information systems.

To make sure IA was a success during Grecian Firebolt, the risk assessment and the planning began months in advance. IA would be achieved through a "defense-in-depth" approach that integrated the capabilities of personnel, operations and technology. This meant examining individual responsibilities, IA personnel training requirements, communications security and specific defense-in-depth minimum-security requirements. Players would have to become familiar with and implement the Information Assurance Vulnerability Management program (making sure vulnerabilities that are exploited are corrected), incident reporting and information operations condition.

IA would be achieved through a "defense-in-depth" approach that integrated the capabilities of personnel, operations and technology.

The Department of Defense mandates that an acceptable level of IA be achieved in the engineering, implementation, operation and maintenance of all information systems, but meeting these requirements is challenging. It involves the integration of new technology, researching DoD directives and Army regulations, appointing key IA personnel, and of course, training and funds. Just to achieve IA during Grecian Firebolt required over six months of research alone.

The biggest challenge, however, was not the research, but the DoD Information Technology Security Certification and Accreditation Process. DoD mandates that all Information Systems undergo the DITSCAP, to include stand-alone personal computers, connected systems, and networks.

The DITSCAP establishes a standard process that involves a set of activities, general tasks and a management structure to certify and accredit information systems that will maintain the IA and security posture of the Defense Information Infrastructure. This process supports an infrastructure-centric approach, with a focus on the mission, environment and architecture.

For the development of the GF'04 network, the intent was to identify appropriate security requirements, design systems that meet those requirements, test the design against these requirements and ongoing monitoring of the accredited system for changes or reaccredidation as necessary.

Another major challenge was the appointment of IA personnel, which was easier said than done. These people have great responsibility because they are the focal point for IA matters, and as such, have the authority to enforce security policies and safeguards for their systems or networks. This authority includes suspending system operations if there is an identified security deficiency, poor security practice or unacceptable risk.

All individuals appointed as IA or network operations personnel were required to successfully complete the IA training related to their appointed duty positions. In addition to this, regulations mandate that persons accessing information systems and/or processing classified information need to possess the required level of security clearance,

itself a long, complex process.

The thoroughness with which the 311th TSC tackled the job set the standard for the process of accreditation and certification of a tactical network. Because the 311th TSC had the right attitude from the start, it is well on the way to setting Information Assurance standards for the tactical environment.

(Ret) MSGT Onezine and CWO Ellis both work with the Network Enterprise Technology Command, Fort Huachuca, Ariz., and have dedicated their great knowledge and expertise to support a successful Information Assurance program for Grecian Firebolt 2004.

ACRONYM QUICKSCAN

COMSEC – communications security
DITSCAP – DoD Information Technology Security Certification and Accreditation Process
DoD – Department of Defense
IA – Information Assurance
NETCOM – Network Enterprise Technology Command
TSC – Theater Signal Command

Food operations keep things cooking at GF '04

by SPC Nicholas Turner

At Grecian Firebolt 2004, it takes a lot of teamwork to get the job done. From running cables to maintaining networks and vehicles, all these jobs are critical to mission success. One of the most important jobs is keeping Soldiers fed, and for the cooks at the 311th Theater Signal Command, putting food on the table is all in a day's work.

"Our shift usually starts around 4 a.m. and ends late in the evening, because cooking is an ongoing process," said SSG Kathy Glover, food operations sergeant for the 311th TSC. "You start out with breakfast, and while one shift is serving breakfast, the other is preparing for lunch. Then while one shift is serving lunch, the other is preparing dinner, and so on, until the last shift, which prepares for the next day," said Glover.

To keep ahead of the game, Army cooks use a system of organizational charts and recipes designed to meet the challenge of feeding hundreds of Soldiers through the day. "First of all, there's a lot of planning involved and there's a lot of food preparation needed," said Glover. "Plus the Army also provides us with the recipes, so everything turns out properly. When I go to the commissary to get supplies, I already have memorized all the ingredients I'll need."

This precision is essential when cooking for a lot of hungry people, and is in an entirely different league than home cooking. "Cooking for 100 people requires much more time, especially more preparation time," said Glover. "For instance, at home I can bake one chicken, and that will feed my family. Here, I have to bake 25 chickens to feed everyone."

But the recipes and charts would be useless without the Soldiers who get the job done. "It requires time, energy and enthusiasm," said Glover. "You have to be

SSG Kathy Glover lends a hand in dishing up food from the mobile-kitchen trailer during the popular "barbecue day" put together by her staff in appreciation of the units assisting the 311th Theater Signal Command during Grecian Firebolt 2004.

motivated to work in the kitchen. There's no half-stepping, because it's a hectic job." Working these long hours at a quick time pace requires a strong team. Glover's GF team includes Soldiers from the 311th TSC and the U.S. Army Reserve 820th Signal Company from Arkansas and Texas. With soldiers from around the country pitching in to feed the exercise participants, Glover's team has come together and accomplished the mission. "My cooks have been around for a long time, and they know what needs to be done," said Glover. "If somebody falls behind on one item, there's always somebody there to help them and make sure the job gets done."

As Glover described, for Army cooks, getting the job done is fundamental to the well-being and performance of every soldier in the Army. "Foodservice provides good troop morale, and it's all worthwhile when you have a Soldier who says, 'Thank you; I really enjoyed that meal,'" said Glover. "It makes all the difference in the world, especially for those Soldiers out there fighting for our country."

SPC Turner serves with the Army Reserve 5115th Theater Support Unit Public Affairs Office at Fort Meade, Md. During this year's Grecian Firebolt, he provided quality photographic and print coverage of activities at the Fort Meade site.

Acronym QuickScan

TSC – Theater Signal Command

417th Signal Battalion keeps Joint Thunder connected

by SGT Wes J. Nowitzki

Being able to talk to somebody on a phone or other device has turned into an easy, hassle-free, day-to-day event that most people take for granted. But in the field, communications within and between units is a "must" and not such an easy task to accomplish.

The Florida Army National Guard's 417th Signal Battalion from Tallahassee, and its 54 Soldiers traveled to South Dakota to command and control Operation Joint Thunder's communications network. "Our mission is to install, operate and maintain voice and data communication for Joint Thunder and its subordinate units," said MAJ Edson Kline, 417th operations officer.

The unit commanded two subordinate units: the Colorado Army National Guard's 140th Signal Company with 73 Soldiers, and the Army Reserve's 558th Cable and Wire Company, Ohio, with 70 Soldiers.

Soldiers from the 558th used telescoping, man-lifts to run cable and wire through the air. Shovels, trenching machines and sweat were used to lay cable and wire in the ground.

The 140th installed, operated and maintained the communications throughout the exercise. The signal unit set up many communication vans and tents around the expanse of the Black Hills to relay the data and voice information flowing to the units participating in Joint Thunder.

Cable-system installer SPC Joe Davis, front, and squad leader SGT Richard Farmer fill in a trench that is used to conceal and protect communication wire.

Communications specialist SGT Richard Farmer, who calls his unit the 'Cable Dawgs' said, "It's pretty country up here, but the weather is really strange; it's never the same." The units paid close attention to the weather — lightning, rain and heat had the potential to cause major accidents and injuries.

One unique aspect to this year's Joint Thunder communications was its participation in "Grecian Firebolt," the Army Reserve's largest signal exercise, which is hosted by the 311th Theater Signal Command out of Fort Meade, Md.

The exercise supports other major training exercises around the United States, and deploys signal assets to tie an entire communications network together via satellite. This unique architecture allows units around the country to communicate via the secure and unsecure networks.

It also allows the Army and Air National Guard, the Army Reserve and the Active Army to test their "signaleer" and other technological skills in a joint environment. "This is a good opportunity for the Army and Air Force to work together and learn from each other," said MSG Nick Oquendo, noncommissioned-officer-in-charge from the 290th Joint Communications Support Squadron from Mac Dill Air Force Base, Fla. The tactical-satellite van provided by the 290th communicated with satellites that helped comprise the backbone for the Grecian Firebolt network.

An Army National Guard unit from Puerto Rico — the 35th Signal Battalion — sent 15 soldiers to South Dakota to assist in Grecian Firebolt. They provided line-of-sight equipment to support voice communications to the remote Joint Thunder training sites in the South Dakota Black Hills.

The 417th and its subordinate units also trained on tactical movements, hardening of vehicles, medical evacuations and transporting casualties during Joint Thunder.

SGT Nowitzki serves with the South Dakota National Guard 129th Mobile Public Affairs Detachment, and covered activities at Operation Joint Thunder, a joint annual training exercise involving Army and Air National Guard, Active Army and Army Reserve units.

World-wide network of volunteers support Signal during GF '04

by SFC Jo Hoots

If you work for emergency services, you might have seen them in the Emergency Operations Center. They are the licensed amateur radio operators, and are often the only communications link during the first 72 hours of a disaster. When the World Trade Towers and the Pentagon were burning, the mostly volunteer members of the United States Army's Military Affiliate Radio System were pushing critical information to decision makers at the highest levels of the military command.

And during this year's U.S. Army Reserve Signal exercise Grecian Firebolt, MARS was an integral player with the 311th Theater Signal Command, which manages communications services to units in the field during the two-week event.

"MARS is a communications network that's up and running 24-7," said Robert Sutton, chief of Army MARS. "Before 9/11, there was no emphasis on working with the military. There appeared to be no more need for high-frequency radio because of all the modern communications technologies. Leadership just didn't see this as a tool in their toolbox and felt that satellite was the way to go. 9/11 opened their eyes because they realized that a contingency was needed in an emergency."

With approximately 2,700 members across the world, this Department of Defense-sponsored program covers the Navy, Air Force and Army. The U.S. Army MARS is headquartered at the Network Enterprise Technology Command at Fort Huachuca, Ariz. Although the military is the primary customer of Army MARS, it has provided services to federal, state and local government in emergencies.

At Grecian Firebolt, and during any disaster, the primary MARS mission is to provide the Department of Defense and other agencies with back-up communications when normal commercial connections fail (including e-mail and cell phones).

At Grecian Firebolt, and during any disaster, the primary MARS mission is to provide the Department of Defense and other agencies with backup communications when normal commercial connections fail (including e-mail and cell phones). A crucial part of that task is getting first word of potential crisis situations to the Pentagon through Essential Elements of Information messages. The first EEI on 9/11 was on its way to the Pentagon within 15 minutes from the time the first plane hit the World Trade Center.

With active members in every corner of the continental United States, MARS in uniquely equipped for this job. As players in the Grecian Firebolt exercise, MARS members across the United States, and in Kuwait, Iraq, Germany, Greece, Italy and other countries provided both EEI reports on real world events and invented incidents to support the Homeland Defense exercise scenario.

Volunteer MARS member, John Scoggin, relays weather information from his HF set in the MARS van. Co-located on site with the 311th TSC, Scoggin dedicated hundreds of hours to the Grecian Firebolt mission problem solving, troubleshooting, and testing new equipment and technology.

The organization's secondary mission is to provide morale and welfare support to deployed soldiers. As Sutton described, during Vietnam and Operation Desert Storm, messages were sent from sites overseas through MARS members, who either patched calls to family members, or if family could not be reached by phone, transcribed and mailed messages. "Vietnam was the biggest customer I can think of for this support," said Sutton. "The number of phone patches totaled up to thousands and thousands, although we didn't keep precise count then. During the first Gulf War, we did keep track. We sent over 180,000 mailed messages, and did 60,000 phone patches."

Even Cable News Network has tapped into MARS. After the Northridge earthquake, reporters were unable to use normal channels of communication to get to emergency officials for updates. They needed to know what airports were open, alternate routes to the collapsed freeway, and status reports on the major hospitals. MARS routed these questions through their radio "bulletin board," and within 30 minutes, members had served up the answers for CNN.

"We don't trigger our members; they trigger themselves," said Sutton. "If something happens, they immediately go into response mode. And they can respond any time, anywhere because they are community-based."

SFC Hoots serves with the Army Reserve 311th TSC Public Affairs Office. Before joining the Army Reserve, she served with the State Area Command Public Affairs Office for the Virginia Army National Guard covering activities of the 29th Infantry Division (Light), and was the chief public affairs NCO for the Maryland Army National Guard 29th Mobile Public Affairs Detachment.

MARS volunteer tests new technologies

by John Scoggin

The military's Single-Channel Ground-Air Radio System very high frequency frequency modulation radio system is limited to line-of-sight propagation. While the range can be extended through the use of repeaters, this has proven to be a challenge in today's rapidly shifting battlefield. In the domestic support arena, these military radios are largely incompatible with most radio systems used by police, fire, and emergency management agencies.

The SINCGARS Wide Area Network project has the objective of linking military and civilian radio networks together with the Public Switched Telephone Network, Defense Switched Network, and military tactical telephone nets through the use of Internet technologies. To accomplish this, a commercially-available Voice-over-Internet-Protocol

product is mated with off-the-shelf audio patching systems to provide a flexible system capable of linking these networks using the Defense Department's Global Information Grid (the military Internet).

SWAN was demonstrated during Grecian Firebolt in the MARS Emergency Communications unit in a simulated Force Protection scenario. SINCGARS data was digitized, using COTS VOIP equipment, and delivered via NIPRNET and VHF radio from Fort Detrick to Fort Meade.

This was done by using Internet Protocol to link the FM radio net to a conference with participants communicating over a standard commercial telephone, a military tactical telephone DNVT, or Digital Non-secure Voice Terminal, and a MARS VHF repeater. This is an impressive range for a VHF radio network, and is remarkable technology. By digitizing SINCGARS data, it can be sent by satellite anywhere in the world using IP. And because the call was placed into a patch unit, it allowed us to link that net into other radio nets or telephone lines.

This was a team effort involving soldiers and civilians from the 311th Theater Signal Command, NETCOM and Army MARS.

John Scoggin is a volunteer with the U.S. Army Military Affiliate Radio System. He serves as the MARS Automation Coordinator, and is the Assistant Coordinator for Emergency Operations for the Eastern Area. Scoggin participated in at least three Grecian Firebolt exercises, which offered him the opportunity to test new technology, equipment configurations and procedures.

Space men from MARS or allies in the War on Terrorism?

A brief history of the Military Affiliate Radio System

by SPC Isabel Lira

Realizing the need for advanced technical training and radio research, CPT Thomas C. Rives initiated the Army Amateur Radio System in 1925. Despite a brief suspension of activity during World War II and subsequent reactivation in 1946, the Military Affiliate Radio System, as it is now named, has grown tremendously. The Navy and Air Force have also established their own MARS, ensuring connectivity among the services.

Not many people are aware of the importance of MARS. This unique organization's mission is to provide emergency communication on a national, state and local level during any natural disaster, terrorist attack or simply when there's no electricity and the phone lines don't work. During such events, the MARS staff is able to communicate via high frequency radios networked by volunteers throughout the world. These volunteers dedicate thousands of hours to the cause yearly, and are essential to the MARS mission.

During Grecian Firebolt 2004, some of the MARS simulations helped gauge the efficiency of this volunteer network throughout the United States, as well as in Europe and parts of the Middle East.

SPC Lira is with the Army Reserve 820th Signal Company out of Arkansas, Louisiana and Texas. This company provided "cable dog" power at Fort Meade during Grecian Firebolt 2004.

Acronym QuickScan

AARS – Army Amateur Radio System
CNN – Cable News Network
COTS – commercial-off-the-shelf
DNVT – Digital Non-secure Voice Terminal
EEI – Essential Elements of Information
FM – frequency modulation
GIG – Global Information Grid
IP – Internet Protocol
MARS – Military Affiliate Radio
NETCOM – Network Enterprise Technology Command
NETCOM – Network Command
SINCGARS – Single Channel Ground-Air Radio System
SWAN – SINCGARS Wide Area Network project
TSC – Theater Signal Command
VHF – very high frequency
VOIP – Voice-over-Internet Protocol
U.S. – United States

Long-distance caller: British signals officer visits GF'04

by SPC Nicholas Turner and SFC Jo Hoots

(Left) CPT Ronald "Jeff" Jephcote, of the 32nd (Scottish) Signal Regiment, puts on camouflage before visiting Grecian Firebolt soldiers in the field at Fort Bragg, N.C. (Right) CPT Ronald Jephcote came to experience signal operations American-style at GF'04.

Signal across the world shares a great history, and CPT Ronald "Jeff" Jephcote can verify this based on personal experience. Jephcote traveled from the United Kingdom to the 311th Theater Signal Command at Fort Meade, Md., to experience signal operations American-style in this year's Grecian Firebolt. Hosted by the 311th TSC, he's here to soak up the experience and take back the best of lessons learned to share with his command back home.

Jephcote serves as a traffic officer for the Royal Corps of Signals in the 32nd (Scottish) Signal Regiment of the 2nd (National Communications) Signal Brigade and he's observing and advising operations at the 311th TSC.

"Back home I'm an ICP [Integrated Contingency Planning] communications officer, and cover the north of England and Scotland," said Jephcote. "At my job, I'm the middle man between the division that covers that area and the project team, or Headquarters Land Command (Department of the Army)."

Jephcote joined the Royal Corp of Signals in 1969 as an enlisted Soldier. Since then, he has built up three decades of signal experience as an enlisted Soldier, a civilian, a Territorial Army (Reserve) officer and a full-time officer in the Royal Corp of Signals.

"We cover communications for the United Kingdom; the Homeland Defense communications," said Jephcote. "We use technologies like the National Communications Radio System, which is an HF (high frequency) system with an adaptive processor that automatically sends and receives messages using approximately 1,024 frequencies," explained Jephcote. "It's part of the Integrated Contingency Planning for floods, national disasters, and God forbid, terrorist threats, and works more or less the same as how your emergency communications work in this Grecian Firebolt."

He also has a role in the United Kingdom's new nationwide emergency communications system, Airwave. "Airwave is the new Public Safety Radio System that is used by the police and the other blue light (emergency) services," said Jephcote. "The [British] Army is using Airwave as well, so we can test interoperability with the blue light services for emergency purposes."

Jephcote was introduced to Airwave during the British firefighter strike two years ago when at least 40,000 firefighters walked off the job on wildcat strikes that lasted from two-to-eight days. During the strikes, the United Kingdom forces were deployed to fight the fires in a mission called Operation Fresco.

"I was working at brigade as the officer-in-charge Watchkeepers, which means I managed the equivalent of 42 battle captains such as used in the Grecian Firebolt exercise," said Jephcote. "During Fresco, we had all this new equipment; remote access laptops and mobile phones—it was everything from small HF radios to brand new COTS (commercial-off-the-shelf) equipment—we provided equipment to Joint Operations Centers throughout the United Kingdom. We had to control it all, and run a 24-7 Help Desk for users."

Jephcote said he has been well received by the 311th TSC. "I've really enjoyed my stay here; my hosts have all been friendly," said Jephcote. "I've felt very welcome and people have been very helpful when I ask questions."

That welcome included an invitation to the 311th Theater Signal Command Army Birthday celebration, which provided a bit of a twist

for him. "I enjoyed the birthday cake for the Army Birthday," laughed Jephcote, "but there wasn't a cup of tea."

SFC Hoots serves with the Army Reserve 311th TSC Public Affairs Office. Before joining the Army Reserve, she served with the State Area Command Public Affairs Office for the Virginia Army National Guard covering activities of the 29th Infantry Division (Light), and was the chief public affairs NCO for the Maryland Army National Guard 29th Mobile Public Affairs Detachment.

SPC Turner serves with the Army Reserve 5115th Theater Support Unit Public Affairs Office at Fort Meade, Md. During the 2004 Grecian Firebolt, he provided quality photographic and print coverage of activities at the Fort Meade site.

Acronym QuickScan

COTS – commercial-off-the-shelf
HF – high frequency
ICP – Integrated Contingency Planning
NCRS – National Communications Radio System
TSC – Theater Signal Command

198th Signal Battalion:

Can you hear me now?

by SPC Marimer Navarrete, SFC Jo Hoots and SFC Neal Snyder

The Internet, cell phones and video technology — how can we live without them? On the virtual battlefield of the business world, organizations that don't adapt to the latest technology quickly fall behind their competitors. On the real battlefield, where success and failure are often measured in Soldiers' lives, communications technology is playing an even more critical role.

That's why signal exercises like Grecian Firebolt 2004 are so important to the military. This annual exercise, in its 16th year of operation, is a joint effort among elements from the Army and Air National Guard, Army Reserve and Air Force, even though the number of participants is smaller due to the military's involvement in Afghanistan and Iraq.

The Delaware National Guard 198th Signal Battalion deployed to Fort Dix this year to provide Signal support to quartermaster units participating in Quartermaster Logistic Liquid Exercise. "From here, we can communicate back and forth with Fort Devens [another QLLEX site], [the 311th at] Fort Meade, and [the 359th Signal Brigade at] Fort Gordon," said LTC Jane F. Zak, unit commander and GF commander for the Signal units at Fort Dix.

SSG Rachapreuk J. Schmidt, 103rd Air Control Squadron, Connecticut Air National Guard, performs some quick troubleshooting and manually adjusts a satellite antenna with a malfunction in its motor control.

Zak explained that this exercise helps signal units accomplish their signal mission and prepares them for possible deployment by providing a tactical training environment. "In our war mission, we install, operate, maintain and protect communications networks in a tactical environment," she said. "We provide our customers with all the telecommunications services like phone, Internet and video teleconference."

As GF commander, Zak had

SPC Marco Clarke, 101st Signal Battalion from Yonkers, N.Y., checks the power settings for one of the unit's antennas during the annual signal exercise Grecian Firebolt at Fort Dix.

authority over approximately 250 Soldiers from varying units. These included the Delaware Army National Guard's 259th Signal Company, Company B of the 101st Signal Battalion from the New York Army National Guard, the Army Reserve 820th Signal Company from Texas, and an element from the Connecticut Air National Guard's 103rd Air Control Squadron. These units brought skills ranging from network administration, to data link connectivity, to cable and wire expertise.

Soldiers from the 103rd ACS provided the connectivity power via the satellite dish that eventually linked Fort Dix with Fort Devens, and using a tropospheric scatter microwave radio terminal, set up a "shot" to the tropo at Fort Meade, a distance of about 150 miles. This entailed sending microwave transmissions that bounce through the troposphere (the layer of atmosphere closest to Earth) and are received at a terminal on the other end.

"This type of dish is really to move large amounts of information or data," said Zak. "When you're dialing here, or you're sending an e-mail—it's all going to be routed together and sent to the TROPO at the other site, which can be a hundred miles away."

At Fort Dix, the primary signal mission was to provide communications support to the 402nd Quartermaster Battalion and 227th Quartermaster Company. While the "cable dogs" of the 820th Signal Company ran wires and cables, Company B from the 101st Signal Battalion set up and maintained two 40-foot antennas that brought Internet and phone service to distant QLLEX sites around Fort Dix. "On those sites, the 101st wired in phones, so we could talk back and forth, and installed data ports—basically for laptop service," said Zak. "So hopefully, while the Grecian Firebolt Soldiers are supporting them with communications, they in turn will provide us with laundry and showers."

The 261st Signal Brigade, higher headquarters for the 198th, assigned five Soldiers to Fort Dix to install the data packages and work as network administrators. "We're basically like an [Information Technology] office—we monitor and maintain the computer systems and the LANs (Local Area Networks) that process voice and data signals coming in through the satellites and TROPO (troposheric) shots," said SPC Ronny Muñíz, an automation specialist.

With a four-day set up time from when boots hit the ground, signal units participating in GF at Fort Dix and around the nation almost immediately began troubleshooting to test the network architecture before the start of the exercise. As Zak explained, the challenge was to make sure that everything worked, from the network "backbone," down to the field radios and phones.

As equipment was up and running, efforts turned to training on tactical skills critical to successful deployment, such as convoying with weapons, reacting to explosives on the road, defending a site, probing a perimeter and reacting to a sniper attack. "What we've done is modify the training to train as we will fight, so our setup here is very similar to what is in Kuwait," said Zak.

SFC Snyder serves with the Army Reserve 311th TSC Public Affairs Office. Before joining this unit, he was Public Affairs NCOIC for the 9th Theater Support Command, Fort Belvoir, Va. In 1997, he was deployed to Germany with the 201st Public Affairs Detachment in support of Operation Joint Endeavor. In his civilian capacity, he is command information officer for the U.S. Army Environmental Center.

SFC Hoots serves with the Army Reserve 311th TSC Public Affairs Office. Before joining the Army Reserve, she served with the State Area Command Public Affairs Office for the Virginia Army National Guard covering activities of the 29th Infantry Division (Light), and was the chief public affairs NCO for the Maryland Army National Guard 29th Mobile Public Affairs Detachment.

Acronym QuickScan

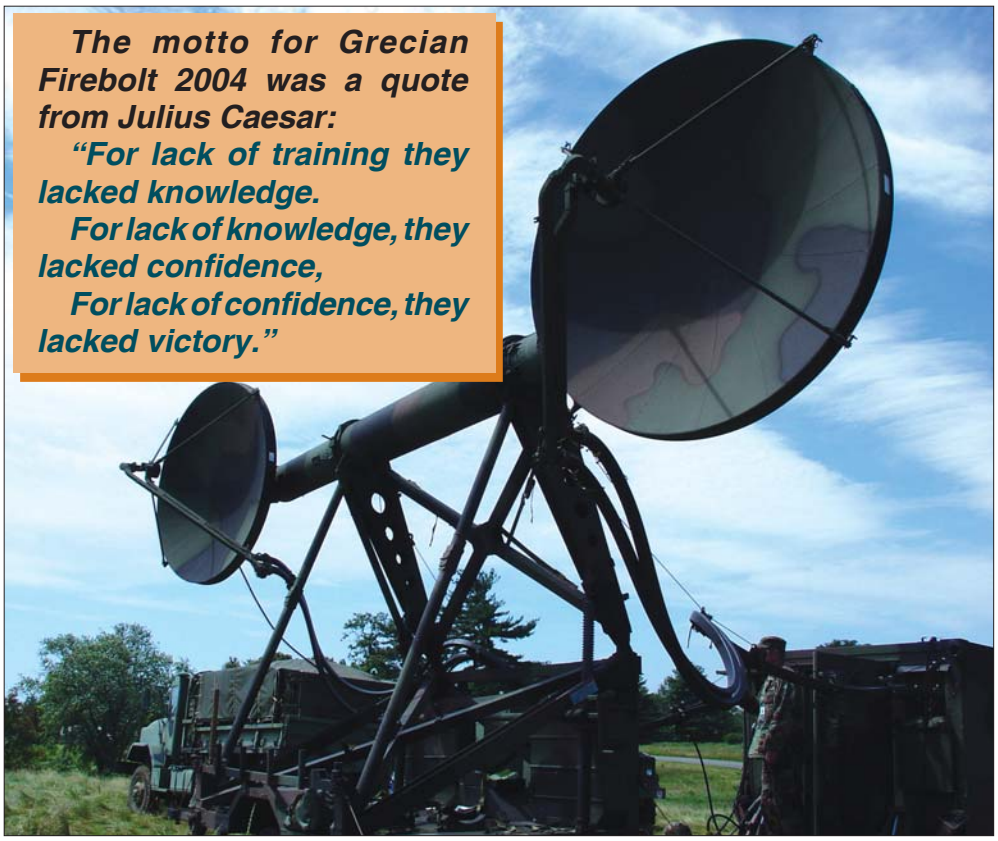
ACS – Air Control Squadron
GF – Grecian Firebolt
LANs – Local Area Networks
QLLEX – Quartermaster Logistic Liquid Exercise
TROPO – tropospheric

GF '04 targets victory through focused training

by MAJ Jean Michelle Perry

Grecian Firebolt is an annual Signal exercise with a Homeland Defense/Security scenario sponsored by the United States Army Reserve Command and the 311th Theater Signal Command. The mission provides command, control, communications and computer support for the Golden Medic, Joint Thunder, Quartermaster Logistic Liquid Exercise and Rio Lobo exercises that take place across the country, and provides those players with state-of-the-art communications capabilities. Ultimately, the aim is to develop a communications architecture that will not only support Continental United States exercises, but also a warfighter headquarters that would deploy into the Pacific Command Theater of Operations.

The motto for Grecian Firebolt 2004 was a quote from Julius Caesar:
"For lack of training they lacked knowledge.
For lack of knowledge, they lacked confidence,
For lack of confidence, they lacked victory."



Part of the resources supplied by the 103rd Air Control Squadron included the generator-powered tropospheric scatter microwave radio terminal at the unit's Fort Meade site.

This exercise has USARC, Network Command and Army CIO/G6 visibility. The 311th TSC execution of GF is crucial to our unit's mission capability and future mission assignments, and allows the opportunity for participants, whether soldiers or contractors, to train as they would perform in a real world situation.

There were many different kinds of training integrated into GF this year, to include interoperability training of various C4I systems with joint components, demonstrating the Integrated Theater Signal Battalion concept, identifying some crucial skill sets needed to support this concept, and integrating our Homeland Defense/Security partners, Federal Emergency Management Agency and Military Affiliate Radio System, whose players did an excellent job supporting the exercise from beginning to end.

The motto for Grecian Firebolt 2004 was a quote from Julius Caesar:

"For lack of training they lacked knowledge.

For lack of knowledge, they lacked confidence,

For lack of confidence, they lacked victory."

The GF team was dedicated to achieving victory by building knowledge and confidence through focused training. By far, teamwork was one of the main ingredients that led to victory. Soldiers not only worked together toward one purpose, they cared for each other. Communication was the other main ingredient. All involved stayed focused on reinforcing the positive and encouraging the team. This led to a well-organized and structured exercise because everyone set out with high expectations and "mountaintop" milestones, and accomplished a great deal.

The integration of our data packages was challenging, but rewarding. The data packages were made up of Promina 400s, Global Positioning Systems, routers, switches, Pix firewalls, Intrusion Detection System sensors, KIV 19s, KIV 7s, multiple servers, Pairgains and Polycom Video Teleconferencing equipment. The modular data packages allowed communications

From a site on Fort Meade, MSG Barry Jones of the Connecticut Air National Guard's 103rd Air Control Squadron, and Mark Yamamoto, a contractor from Comtec Systems, align the tropo antenna with its distant end at Fort Dix, N.J.

to be sent from the satellites—through the Single Shelter Switch, through both the Non-Secure Internet Protocol Router Network and the Secure Internet Protocol Router Network enclaves—and then out to the user and down to the subscriber for voice, data and video capabilities. The data packages featured robust operating systems that avoided any single point of failure. This monumental effort of putting the data packages in synchronization with the entire network required intense teamwork at Fort Meade and with signal units across the U.S. that participated in the exercise.

In other technological initiatives, we integrated the REDCOMIGX tactical switch, which provided Voice-over-Internet-Protocol interface, Defense Switched Network, Tri-service Tactical Communications and Public Switched Telephone Network through traditional transmission media. We also integrated frequency modulation and High Frequency over Internet Protocol, and extended Combat Net Radio Interface over strategic and tactical networks.

To maximize the capability of the Standardized Tactical Entry Point site facilities for network expansion and connectivity, we used tactical Super High Frequency communications assets to sustain a robust Greatly Modulated Frequency architecture. We reached new highs by incorporating eight megabit modems to increase the bandwidth of the tropospheric scatter microwave radio terminals.

Information Assurance was the glue that held together the GF network, and is truly a work in progress. Meeting the Department of Defense Information Technology Security Certification and Accreditation Process was challenging, but very rewarding.

The adventure began with the task of drafting a working System Security Authorization Agreement. The Certification and Accreditation process integrated multiple levels—from the 311th TSC, to the supported signal sites, out to the subscriber levels. At the 311th, we tailored the CA process to our organization's specific needs and management approaches. With participating signal units, the process was tailored to allow implementation of services that met the customer's need.

This is just a snapshot of the accomplishments of Grecian Firebolt 2004, and the teamwork that made it possible for us to operationalize our motto. We will build on the challenges and lessons learned this year to have a successful Grecian Firebolt in June of 2005.

MAJ Perry has served as a G3 Systems Engineer with the 311th TSC since 2002. An Reserve Officer Training Corps graduate from Duke University, Perry began her career with the Maryland Army National Guard before

serving with the Army Reserve 11th Psychological Operations Battalion in Maryland. Perry served as officer-in-command during Grecian Firebolt 2004, and dedicated months of effort to implement numerous operational and logistical programs to include putting into place a complex network operations structure. This effort included a successful Information Assurance program for the 311th TSC as well as participating units.

Acronym QuickScan

C4I – Command, Control, Communications, Computers and Intelligence
CA – Certification and Accreditation
CONUS – Continental United States
DSN – Defense Switched Network
FEMA – Federal Emergency Management Agency
FM – frequency modulation
GF – Grecian Firebolt
IP – Internet Protocol
MARS – Military Affiliate Radio System
NIPRNET – Non-Secure Internet Protocol Router Network
PACOM – Pacific Command
QLLEX – Quartermaster Logistic Liquid Exercise
SIPRNET – Secure Internet Protocol Router Network
USARC – U.S. Army Reserve Command
VOIP – Voice-over-Internet-Protocol
VTC – Video Teleconferencing

GF '04 gets the message through

SPC Andrew Sanders, with B Company, 1st Satellite Control Battalion, Fort Meade, plugs in one of many satellite dishes that support encrypted data transmission to spots all over the U.S. during Grecian Firebolt 2004. Behind him, 1LT Robert Guidry observes. Guidry is one of the first members of the 492nd Signal Company. He will be part of the new Integrated Theater Signal Battalion when the 492nd unit is stood up. Guidry assisted at the 311th TSC Fort Meade site during Grecian Firebolt '04.

Grecian Firebolt command view

by MG Edwin E. Spain III

After promoting three soldiers to the rank of private first class during 2004's Grecian Firebolt, MG Edwin E. Spain III, commanding general, tells the story of PFC Kaoru Moto, a Medal of Honor winner from the Island of Maui in Hawaii.

Adapting to change and remaining flexible -- this may be the most important trait a signal Soldier can develop in a profoundly transforming military. Grecian Firebolt provides the critical training that allows us to keep pace with this transformation, if not outpace it, and meet the increasingly sophisticated information needs of our most important customer, the warfighter on the battlefield.

In what ways does this premiere signal exercise remain "relevant and ready" in our post-9/11 world? I'd like to begin with the most important: Our Soldiers.

They hone their tactical skills in realistic field training settings. They test their technological skills by providing real-time communications support in a joint environment.

And equally important, our leaders can practice their skills at building combat-cohesive units and guiding them through a stressful, challenging environment.

During Grecian Firebolt, our leaders must manage all the components involved in network operations -- while ensuring the unit continues to function at a high level. The challenges presented by people, equipment, and technologies require creative problem solving and teamwork to make the exercise a success. Under this kind of stress, our leaders learn to take the initiative and get the job done. They are prepared to perform their mission and take care of their Soldiers in situations when Soldiers' lives may depend on their leadership capability.

Second, Grecian Firebolt provides us with the invaluable opportunity to cement our relationships with our Homeland Defense partners: the Federal Emergency Management Agency and the Military Affiliate Radio System. As FEMA has learned from us, we have taken the lessons they have learned from decades of dealing with major disasters, including the terrible experiences of 9/11. The knowledge we share not only prepares us for our Homeland Defense mission, but also enhances our readiness should we be called upon to support the Continental United States. With these critical allies, we continue to enhance our capabilities to communicate, share information and experiment with new technologies and new ways to use existing technologies.

Third, we were able to test a new concept for bringing Signal services to the warfighter in the battlefield through the Integrated Theater Signal Battalion. In Signal Corps' history, our practice has been to deploy large formations to provide telephone, satellite, switching, conferencing and other communications support, with each service supported by a separate organization. This method requires extensive logistical coordination and resources, but the ITSB is configured so that different skills and services are merged into one organization that is more flexible. This modular formation can deploy as a whole or in parts, contingent upon the requirements of the customer.

We experimented with this configuration during Grecian Firebolt; bringing in cable and wire, satellites and switching. From this starting point, we were able to practice the technical and leadership skills unique to this type of organization. Because the 311th Theater Signal Command will be standing up the first ITSB, this experience, and the lessons learned, will have a real effect on our operations in the near future.

The common thread for all our efforts was maintaining secure network operations at all times. A top priority in the months leading up to the exercise included establishing an Information Assurance program in order to achieve and maintain proper accreditation. I believe we excelled in that effort.

We not only made sure the 311th TSC was in compliance with IA standards and procedures, but

we worked with each of our participating signal units to help them through the accreditation process.

As voice, video and data technologies merge, and as we replace our legacy systems with wireless and Web technologies, IA will remain critical to protect our network operations. The "new wave" in signal is managed services – that is, the ability to provide secure communications support to any Soldier who plugs in from a fixed or mobile location.

Our challenge is to make sure we correctly acquire, manage, deliver, store and protect the information so that the warfighter can access it readily, use it easily and be confident that it is accurate and secure.

Our goal is always to take the experience and training acquired through Grecian Firebolt and use it to stay ahead of the threat and provide increasingly advanced communication services to the warfighters.

As in the past, when world events and technological developments transformed the Signal Corps and its Soldiers, we seek today to transform our technological might to support a mobile, rapidly deployable Army.

GEN Spain received his commission as a second lieutenant, Adjutant General Corps, May 1975 and entered active service July 1975, and was assigned to the U.S. Army Aircraft Development Test Activity, Fort Rucker, Ala., where he commanded the Headquarters Detachment. After a branch transfer to the Signal Corps in 1977, he was reassigned to United States Army Europe. While there, he served with the 59th Ordnance Brigade and the 165th Signal Company in both staff and troop leadership positions. Following attendance at the Signal Advanced Officers Course, he was assigned to the Program Management Office for Defense Communications Systems, Fort Monmouth, N.J., where he managed Army communications project installations until his departure from active duty in April 1984.

Spain joined the Delaware Army National Guard upon release from active duty. After serving as commander of the 280th Signal Battalion, he returned to the Signal Command headquarters as deputy chief of staff for Plans and Operations. He continued in that capacity while the unit transitioned to the U.S. Army Reserve and was reestablished as the 311th Theater Signal Command. In April 2000, he was selected as commander, 359th Signal Brigade, at Fort Gordon, Ga., and completed his tenure in June 2002.

He was most recently assigned as the vice director of Information Systems for Command, Control, Communications and Computers (DISC4) at the Pentagon, and assumed command of the 311th Theater Signal Command Oct. 17, 2003.

Acronym QuickScan

CONUS – Continental United States
FEMA – Federal Emergency Management Agency
IA – Information Assurance
ITSB – Integrated Theater Signal Battalion
TSC – Theater Signal Command

32nd Annual Signal Regimental Symposium

by 32nd Signal Symposium Cell

The United States Army Signal Center and Fort Gordon will host the 32nd Signal Regimental Symposium from Nov. 29 to Dec. 3, 2004. The Symposium comes at a critical juncture for our Signal Regiment as we are executing one of the most significant transformations since World War II. The commander of the United States Army Signal Center and Fort Gordon, MG Janet Hicks, states that this year's event will be fresh and new. She intends it to be the most informative, inspirational, fun and significant event the Signal Regiment has this year. The theme for this year's Symposium is "LandWarNet - Networking the Force in the Joint Fight." This year's principal objective is to provide significant professional development opportunities for members of the Signal Regiment while focusing on how the LandWarNet will support joint operations.

"If we're to achieve decisive and rapid decision superiority in the future, we have to take a hard look at our command and control. And one of the key areas—the most important program for the Army right now, aside from the Soldier and fighting that last 400 meters—is getting the network right: networks, architectures, communications systems and applications to make that happen. LandWarNet is the ability to gain information that's needed and get it to the unit that needs the knowledge so [the unit] can act on it before the enemy can act on what he's acquiring," said GEN Kevin P. Byrnes, U.S. Army Training and Doctrine command's commanding General.

The Symposium sets the standard with top experts, timely topics, in-depth sessions, and an exhibition filled with the ultimate display of communications products, services, and solutions. One of the most visited events each year is the exhibit tent sponsored by the Armed Forces Communications and Electronics Association. Almost 250 exhibitors are already scheduled to participate in an exhibition area covering over 60 thousand square feet of space. The exhibit presents current and future cutting edge technological solutions for enabling Battle Command. Most important it provides a great opportunity for the exchange of ideas among our Signal Regiment and industry partners.

This priceless exchange of information spurs the production of communications solutions for our services that are truly the best in the world. The exhibition area is open Tuesday 5 p.m. – 8 p.m., Wednesday 8 a.m. – 5 p.m., and Thursday 8:30 a.m. – 2:30 p.m. For more information contact the AFCEA Exposition Management c/o J. Spargo & Associates, Inc. at 703-631-6200 or 800-564-4220 or e-mail ftgordon@jspargo.com.

You are urged to register prior to Nov. 29. Registration ensures access to the AFCEA exhibit tent grand opening, Symposium materials, light refreshments during the workshops, and a guaranteed place in Friday's AUSA Golf Tournament. "Day-of" registration will be limited. There are reduced fees for advance registration. For more information about workshops, the schedule, and other Symposium information see: http://www.gordon.army.mil or e-mail: signalsymposium@gordon.army.mil.

Acronym QuickScan

AFCEA – Armed Forces Communications and Electronics Association

Signals

Enlisted news ... officer news ... warrant-officer news — from the enlisted and officer divisions at Office Chief of Signal, Fort Gordon, Ga.

OERS ENHANCEMENTS AFFECT ALL JUNIOR OFFICERS

In August, the Chief of Staff of the Army announced enhancements to Officer Evaluation Report System that affects evaluation reports for officers in the grade of captain, first lieutenant, second lieutenant, chief warrant 2 and warrant officer 1. The first part of this initiative eliminates the Senior Rater "Box Check" in part VIIb of Department of the Army Form 67-9 for these officers. The "Box Check" will remain in place for field grade and senior warrant officers. The purpose of this is to allow junior officers to concentrate on their own performance against objectives, rather than on how they stack up against their peers. It will also help create a relationship between junior officers and their rating chain that supports the critical leadership tasks of mentoring, educating, and developing future leaders and warriors. The second part of this initiative implements use of the DA Form 67-9-1a, Developmental Support Form (formerly Junior Officer Developmental Support Form) for LT-CPT and WO1-CW2. More information is available at https://www.perscomonline.army.mil/tagd/MSD/OERS_Enhancements.htm.

REGIMENTAL FUNCTIONAL AREAS ON AKO

Functional Area 24, Telecommunications Systems Engineering, and FA53, Information Systems Management, have a new home on the Army Knowledge Online portal. Each functional area now has its own AKO Community Page.

These Community Pages give our officers a place to go to get current information about their functional areas. The pages also provide career planning information for officers interested in FA24 or FA53. Each page has several "channels" including:

- **Hot Topics,**
- **E-mail Contacts,**
- **Training and Education,**
- **Professional Development,**
- **Critical Links.**

There is also a functional area calendar of events and links to collaboration centers for each functional area. Anyone with an AKO account can access the Community Pages.

For FA24, log into AKO and on the left menu follow MACOMS->TRADOC->Signal Center->OCOS->FA24. The path to the FA53 Community Page is MACOMS->TRADOC->Signal Center->OCOS->FA53.

ACRONYM QUICKSCAN

AKO – Army Knowledge Online
CW2 – chief warrant 2
CPT – captain
FA – Functional Area
LT – lieutenant
MACOMS – major commands
OCOS – Office Chief of Signal
OER – Officer Evaluation Report
TRADOC – Training and Doctrine Command
WO – warrant officer

Circuit check

News and trends of interest to the Signal Regiment

CSA: Army on target with force growth, transformation

by SGT Lorie Jewell

WASHINGTON, D.C. – The Army is on track in its efforts to temporarily grow the active force by 30,000 Soldiers as it restructures into modular brigade combat team units of action, or BCT (UA)s, Chief of Staff GEN Peter Schoomaker said.

Schoomaker discussed troop strength and transformation in a Department of Defense press briefing in July, pointing out that some news stories have been inaccurate or misleading. He emphasized there is a difference between growing the Army – a temporary measure granted under the Global War on Terror authorities and paid for with supplemental dollars – and increasing end strength, a permanent move that becomes part of the Army's core budget. Adding 30,000 Soldiers to end strength could cost as much as $3.6 billion a year, which would take away dollars needed for current and future programs, Schoomaker said.

"With our efforts to grow the active component of the Army by 30,000 Soldiers over the next three years, using supplemental dollars, we can do what we need to do,'' Schoomaker said. "We are changing and we are making great progress in this regard."

Recruiting and retention are key tools in growing the force, the chief said. The most recent reports on how well goals are being met in these two areas are encouraging, despite concerns about current operations straining the force, Schoomaker and other senior leaders said.

In the active Army, the recruiting goal for the current fiscal year is projected to reach 101 percent based on recent figures; the Army Reserve

Chief of Staff GEN Peter Schoomaker takes a question during a Department of Defense press briefing.

is on track to hit 102 percent and the National Guard, 88 percent. LTG Steven Blum, chief of the National Guard, said the Guard goal was set high because officials did not expect the high numbers of re-enlistments they are seeing. The Guard's retention rate is currently projected to reach 100.7 percent of its goal, with the active Army at 101 percent and the Reserve, 99 percent. Officials are still optimistic that the Guard's recruiting goal can be met, Blum said.

"Counter intuitively to us, we are re-enlisting Soldiers, or they're staying with us, at an unprecedented rate,'' Blum said. "We didn't calculate for that. And we didn't adjust our recruiting goal, and we won't, because I really want to see what this volunteer force will be able to sustain within the artificiality of raising or lowering goals and numbers."

LTG James Helmly, chief of Army Reserve, said he believes Soldiers are staying in because they believe in what they're doing and they are motivated by the transformational changes, which should lead to more predictability about deployments and improved training.

"First of all, there's an element of the service ethic there,'' Helmly said. "Second, they really get it. They don't question our motives and the need for their being there, and they're proud of what they're doing. So I think the internal emotional part carries a lot."

Blum agreed, adding that he sees people volunteering to be Soldiers because they see their country under attack and want to defend it.

"The quality has never been higher than it is right now and they're stepping forward at a most difficult time ever seen in the 31-year history of the volunteer Army,'' Blum said. "They understand that it is about us, it's about our country, our way of life, and that it's at risk and that they're willing to step forward and be counted and answer the call to colors."

Blum noted that he has twice met with state governors in recent months to address their concerns about not having enough National Guard forces to handle state emergencies. Blum said he assured them that they would have up to two-thirds of their Air and Army Guard capabilities at hand. For Vermont, New Hampshire, Idaho and Montana, Blum said those states have the two-third capabilities when assets from the Air Guard and assistance from neighboring states are factored in.

The retention figures are not affected by stop loss, Schoomaker noted. And efforts to grow the active force by 30,000 Soldiers do not include plans to alert and mobilize up to 5,700 Soldiers in the Individual Ready Reserve, Schoomaker said. The IRR Soldiers will be used to fill vacant positions in the reserve

components, which is not unusual in time of war, the chief noted. During Desert Storm and Desert Shield, more than 20,000 IRR Soldiers were called up, he said.

Of the 5,700 IRR Soldiers who have or will be alerted, Schoomaker said the Army is looking for volunteers before starting involuntary mobilizations.

Schoomaker said a decision on how long the Army will need the additional 30,000 Soldiers would be made in 2006, when 10 additional BCT (UA)s are expected to be in place. Plans are to create three this year, three in fiscal 2005 and four in fiscal 2006. At that time, officials will decide if the Army needs five additional BCT (UA)s, he said.

"We know we need them now," Schoomaker said of the 30,000 Soldiers. "We don't know if we'll need an Army that large later."

Once the BCT (UA)s are in place, and the National Guard has restructured into 34 units of action, the Army will have between 77 and 83 combat brigades available across the force, Schoomaker said. With that, officials expect to be able to put the active force on a three-year rotation base and the reserve components on a five- to six-year rotation.

Recent financing decisions are helping keep transformation plans moving, Schoomaker said. A few months ago, the Office of the Secretary of Defense put aside $4 billion to help cover anticipated budget shortfalls, Schoomaker said. With the $25 million lawmakers allocated for military operations in Iraq and Afghanistan, the Army remains on track, he said.

"We now can maintain momentum,'' Schoomaker said. "We feel very good about that."

SGT Jewel writes for Army News Service.

LATAM Conference a success

by SPC Brandon R. Aird

The 2004 Latin American and Caribbean Communications Conference began Aug. 23 at the Radisson Hotel in Augusta, Ga., home of United States Army's Signal Center. Officers from 23 countries participated in the week-long event, designed to help prepare for future multi-national operations.

The Latin American and Caribbean Communications Conference began in 1994 to develop communication standards, compatibility and familiarization among armies in the United States Army South area of responsibility.

Since 1994, nine conferences have been held in six countries. Tobias G. Rojas (civilian), of Costa Rica, attended a decade ago at the first conference, and almost half of this year's participants were at last year's conference.

"This year's conference focused on building future communications and computer compatibility among the different nations," said COL Nathaniel Smith, the USARSO deputy chief of Staff for Communications and commander for the 93rd Signal Brigade.

"The most important thing is that all the Latin American countries come together for the common goal to develop a standard method of communication for all Latin American countries," said COL Angel Bravo, of Ecuador. "That would allow us to be united under any circumstances (natural disaster, global threat, etc.)."

MAJ Julius Skeete (middle), of Guyana, and LT Commander Peter Williams (left), of Jamaica watch as LTC Timothy Davis (far right), head of the Caribbean focus group for the 2004 Latin American and Caribbean Communications Conference, draws a chart on C 4 showing each country's capabilities at the conference in Augusta, Ga., Aug. 24.

One of the key aspects of the conference is to promote military relationships among the Latin American countries, and contribute to the development of regional ties, said LTC Raymond Rembish, USARSO deputy director for communications.

The focus on the first day was a series of collaborative discussions on regional command, control, communication and computer issues. One way to help solve some issues is a Latin American and Caribbean web site to share information between the nations armies. The website has a secure e-mail system for the Conference on American Armies and will facilitate information for academic, military and training centers.

The second day of the Latin American and Caribbean Communications Conference began with a presentation on Argentina's C4.

COL Jeff Smith, deputy commander of Fort Gordon, U.S. Army Signal Center, shakes hands with COL Hector Rolando del Cid, of Guatemala Army, during the 2004 Latin American and Caribbean Communications Conference dinner.

In October 2002 COL Daniel Gerstein, then USARSO DCSG6 and USARSO Operations Commander, visited Argentina to compare technology and assess the compatibility of Argentina's communication systems with those in the U.S.

With a relatively modest investment in commercial connectivity equipment, Argentina fulfilled a large amount of its C4 requirements and, at the same time, enjoyed a high degree of compatibility with any other force in the world, said LTC Oscar Vuisso, of Argentina.

After Argentina's brief, the officers broke off into three regional groups: Caribbean, South America and Central America. The groups discussed C4 issues and how they could overcome their challenges. After the groups dispersed, they left for a social hosted by Harris Corporation and L3 Communications.

The third day brought the conference out of the Radisson Hotel, and onto the U.S. Army's Signal Center at Fort Gordon. The officers were brought to the 93rd Signal Brigade's Headquarters to view a tactical communication display. While on post, the officers visited the Fort Gordon Signal Museum and the Main Post Exchange.

After the visiting the PX, the conference moved to the Augusta Museum of History for the DCSG6 dinner. The delegates took a break from the conference to relax and have a good time. The highlight of the night was various countries getting together for some Karaoke.

The next morning started off with presentations from the region groups (Caribbean, South America and Central America). The presentations are crucial for communications planning of future peacekeeping operations, humanitarian assistance and disaster relief.

One of the issues brought up was the Caribbean's communication interoperability.

"The Caribbean Emergency Disaster Response Agency does not have the same communication assets across the Caribbean," said Senior LT Floyd Moxey, of the Bahamas. "There is a need for the CEDRA to establish common communication equipment and a regional satellite link to better respond to regional emergencies."

This is one of many issues the conference is progressively working on to solve.

After the presentations were given, the conference started to wrap things up. The delegates were taken on a culture tour to experience Augusta's local offerings.

The conference ended with a closing dinner at the Radisson Hotel with COL Thomas Heaney, USARSO Deputy Commander of Operations giving short speech.

Even though the conference has ended, the officers' work is just beginning. Once back home, the officers will pursue their C 4 missions to prepare them for the Conference on American Armies next April.

SPC Aird is is from Woodinville, Wa. Aird joined the Army Sept. 11, 2001. After graduating from the Basic Journalist Course and Airborne School he was stationed in Italy with the 173rd Airborne Brigade. While in the 173rd he provided media coverage for numerous deployments, which included a one year tour in Northern Iraq. After leaving the 173rd Aird was stationed at Fort Gordon, Ga., where he is currently providing media coverage for the 93rd Signal Brigade.

Schofield Soldiers provide connectivity to PRTs

by SPC Francis Horton

BAGRAM AIR FIELD, Afghanistan- Soldiers from Schofield Barracks' 125th Signal Battalion are training to become an important part of the Provincial Reconstruction Team mission in Afghanistan.

The Soldiers are learning how to use commercial satellites to improve communications between Bagram Air Field and the PRTs.

The satellites will provide digital beyond-line-of-sight capabilities, which include commercial Internet, secure Internet and defense switched network lines, said Jeremy Brady, a civilian trainer for Tactical Command, Control, Communications and Computers.

"The Soldiers are trained on the installation, operation and maintenance of the satellites," he said.

PVT 2 Joshua Allen of the 125th Signal Battlion uses a technique called "Peaking and Poling," where fine adjustments are made to the end of the satellite dish, to line up with the orbiting satellite and improve the transmittal signal.

There are 13 PRTs throughout Afghanistan, mostly set up in rural areas with no communication infrastructure. Communication abilities have been limited to sending single channel data and Iridium satellite phone communication.

With the addition of the satellite dishes, communication and intelligence can be sent and received much quicker, easier and without disruption, Brady said.

The ground satellite dishes send and receive encrypted information from an orbiting satellite. It will also give the Soldiers stationed at the PRTs better Internet and phone access.

PVT 2 Joshua Allen, a member of the 125th Signal Battalion is one of the Soldiers learning the equipment. He is training with SSG Patrick Adams, also of the 125th Signal Battalion, to set up in a southern Afghan village.

Before he came to Afghanistan, Allen's knowledge in this area of communications was limited, but now he has the ability to find orbiting satellites with a compass and lock in the satellite dish accordingly.

"The (orbiting) satellites are always in the same place, we just shoot an azimuth to find it," he said. Once found, the ground satellites are positioned and the directions are fine tuned.

These satellite dishes use the latest technology, Brady said.

"The dishes have the ability to give back bandwidth they don't use," Brady said. This means instead of wasting unused power as most broadband lines, it recycles and reuses it.

This system was first tested during Operation Iraqi Freedom, and proved to be the best system for the job.

"The (testing) Soldiers called it the MVP of the deployment," Brady said.

As Brady and his team continue to train the Soldiers, he holds high hopes for both the equipment and their operators.

"The system is cheap and easy, and any Soldier can do this," he said. "It's been four days and they're almost ready."

The training Soldiers are pleased with the results and what the equipment means for them and their fellow Soldiers.

"I like the fact that I'm helping people who are helping the locals," Allen said. "We are going to help them talk to their families back home."

SPC Horton is with the CJTF-76 Public Affairs Office in Afghanistan.

PM DSCS-T COMPLETES SATELLITE TERMINAL MODERNIZATION AT NAVY SATELLITE COMMUNICATIONS STATION, BAHRAIN

by Stephen Larsen

With the removal in May of an AN/MSC-74 shelter that previously housed Digital Communication Satellite Subsystem equipment, the Army's Product Manager, Defense Satellite Communications Systems – Terminals successfully completed work under the AN/GSC-52 Modernization Program at Navy Satellite Communications Station, Bahrain.

According to Neil Fiske, installation team leader for the project for PM DSCS-T, which is part of the Project Manager, Defense Communications and Army Transmission Systems, has provided NAVSATCOMSTA, Bahrain with two fixed-site 38-foot diameter AN/GSC-52 medium satellite terminals. These terminals provide long-haul communications for NAVSATCOMSTA Bahrain in supporting ground mobile forces, ships and strategic users in the Indian Ocean region, Southwest Asia, Europe - all the way to the East Coast of the U.S.

Fiske said that the removal of the shelter was the final step in the evolution of the long-haul communications capability that PM DSCS-T provided for NAVSATCOMSTA, Bahrain.

"Originally, in 1994, we (PM DSCS-T) had provided a vanized AN/GSC-52 and two AN/MSC-74

DCSS baseband shelters," he said. "In 1999, we added a fixed AN/GSC-52 and DCSS baseband suite to provide the capability to transmit over two satellites at the same time. Then, during the AN/GSC-52 mod in 2002, we converted the vanized AN/GSC-52 into the fixed configuration in place today."

Upgrade program extends terminal life, reduces support costs

Under the Army's AN/GSC-52 Modernization program, which started in 2000, PM DSCS-T has completed modernization of 30 out of a total of 65 terminals – including upgrading radio frequency equipment, antenna motors and Control, Monitor and Alarm systems. The upgrades will extend the life of the terminals by 15 years, increase terminal reliability, maintainability and availability; reduce support costs, and increase communication traffic capacity.

PM DCATS, located at Fort Monmouth, N.J., is part of the Fort Belvoir, Va.-headquartered Program Executive Office, Enterprise Information Systems.

Mr. Larsen is a public affairs officer with Program Executive Office, Enterprise Information Systems at Fort Monmouth, N.J.

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Depot supports Strykers in Iraq

by Anthony J. Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.—Two employees spent more than five months in Iraq maintaining a radio network system for the 1st Stryker Brigade.

Henry "Hank" Eggert, electronics mechanic, and Stan Gorgas, electronics technician, supported the unit's AccessNet System.

Eggert, who works in the depot's Surveillance Systems Directorate, and Gorgas, who works in the Productivity Improvement and Innovation Directorate, were both assigned to the Command, Control and Computer Systems Directorate for this mission.

AccessNet is a voice/data switch that provides communications and control capabilities and can connect to a wide range of interfaces.

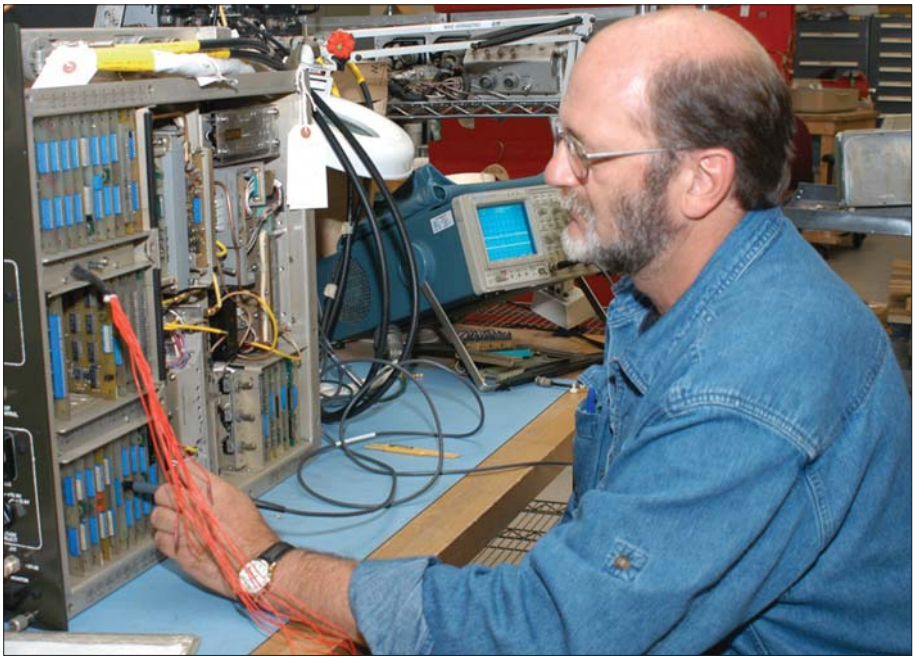
"AccessNet allows Soldiers to talk to any shelter through radios that are hooked up to the system's fiber ring," Eggert said. "The fiber ring connects all the unit's shelter radios through fiber optic cables. It also connects their telephone and intercom systems."

The radios are mostly Single Channel Ground and Air Radio Systems and some high frequency radios.

"Soldiers would set up the shelters wherever they were stationed, and we repaired any problems they had," Eggert said. "We spent about a month in Samarra, then went to Mosul. It was the first time the unit [was deployed]."

They traveled by convoy to wherever the unit went; the mission went smoothly, even when a power surge problem surfaced.

"When they switched on their generators, there was a power spike and they would lose information in the AccessNet's DSU [digital switching unit]," Eggert said. "They would have to reboot the system every time. We suggested installing an uninterruptible power supply between the generator and the DSU, which we did, and it eliminated the problem."



Henry "Hank" Eggert tests a TPX–46 (V)7 Interrogator at Tobyhanna Army Depot after overhauling it. The interrogator is used in the Patriot missile system. Eggert recently spent more than five months in Iraq support a Stryker Brigade's AccesNet radio network system.

The radios are connected to the DSU, which is connected to the fiber ring.

"The Soldiers were very pleased with our work," Eggert said. "There are depot employees there now working with them."

During their time in Iraq, Eggert said the hottest temperatures were in the 80s, and usually it was in the 50s or 60s. He said there was three inches of snow one day and green vegetation.

"People think Iraq is a barren desert, but up north, there's green grass and trees," he said.

They lived in tents for the first two months, for a while eating nothing but Meals Ready to Eat. "Some of them were actually good," Eggert quipped. While working from Mosul, they stayed in buildings formerly used by the Iraqi military.

"Quite a few Iraqis worked in the same areas, and all the ones I had contact with were good people," he noted. "They told us all they wanted was to make a living and have a safe place and education for their kids.

"It was interesting when I talked to them. They want the same things we do."

Eggert said that even though there were mortar and rocket attacks on a regular basis, the satisfaction of doing the work for Soldiers to make their lives easier made the entire trip worthwhile.

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 3,700 personnel are employed at Tobyhanna, which is located in the Pocono Mountains of northeastern Pennsylvania.

Tobyhanna Army Depot is part of the U.S. Army Communications-Electronics Command. Headquartered at Fort Monmouth, N.J., CECOM'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. Ricchiazzi is with Tobyhanna Army Depot Public Affairs Office, Tobyhanna, Pa.,

Army civilians keep Firefinders tracking in Iraq, Afghanistan

Depot establishes permanent Forward Repair Activity in Iraq

by Anthony J. Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.—Firefinder Systems Division employees here are working long hours to keep Firefinder systems operational in Iraq.

Tom Herman and John Hessling returned on May 24 from a six-month tour at Camp Anaconda to not only repair and test AN/TPQ-36 and 37 Firefinder systems, but also to establish a Forward Repair Activity. Camp Anaconda serves as a base for U.S. forces in Iraq.

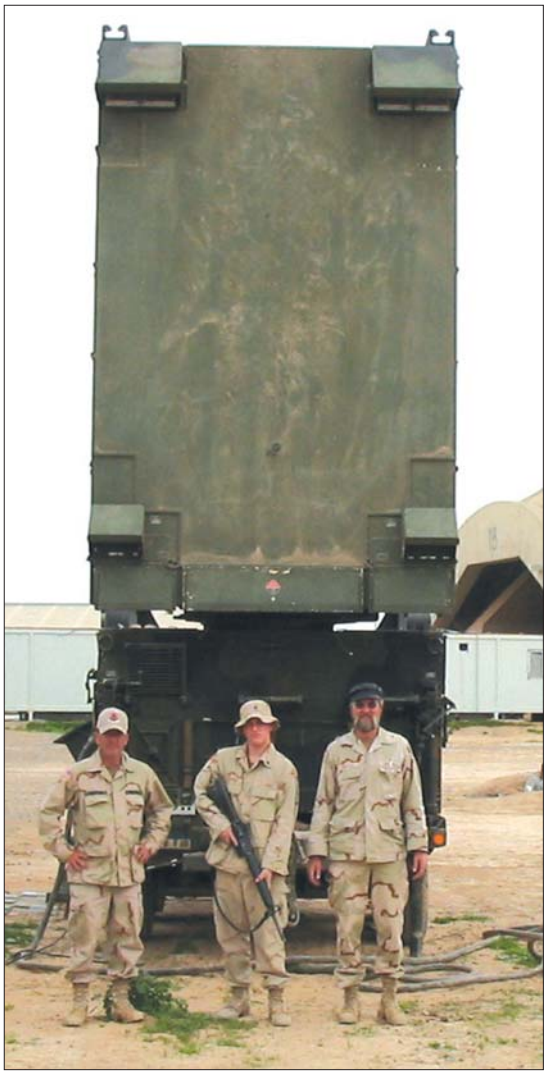
Herman is an electronics mechanic leader and Hessling is an electronics integrated systems mechanic. Both are in the depot's Surveillance Systems Directorate.

Firefinder automatically locates the firing position of hostile mortars, rockets and artillery. The TPQ-36 is composed of a shelter mounted on a Humvee and a trailer with the radar. The TPQ-37's shelter is mounted on a truck with the larger radar also on a trailer.

"We repaired and tested Firefinder systems down to the circuit card level," Herman said. "Most of the problems were from sand getting inside components. We also set up the FRA for Firefinder."

Although they repaired Firefinders from all over Iraq for the Army and Marine Corps, and even shipped parts to Afghanistan to support systems there, they worked closest with Soldiers from the 4th Infantry Division.

"They were trained in Firefinder, but they were new to the job," Hessling said. "They were thrilled with the support we provided. We were on a first name basis with many of them."



(From left) John Hessling, an unidentified 4th Infantry Division Soldier and Tom Herman at Camp Anaconda, Iraq. Hessling and Herman, Tobyhanna Army Depot employees, had just finished repairing the AN/TPQ-37 Firefinder radar in the background.

Hessling said that whenever possible, he would go to a Firefinder in the field to see first-hand how the units were functioning and if they needed any maintenance or repair.

"By the time we left, it was about 130 degrees," Herman added. "Last year it hit 147 in August. The heat can take a toll on equipment, and if a Firefinder developed a problem, we had to get it working as fast as possible."

Hessling echoed that need, saying Firefinder is considered by Soldiers to be an important system.

"The Firefinder units could tell the direction of (enemy) rounds and how many rounds were fired, even though not all of them would explode," he explained. "That told the Soldiers what to look for and where so they could find the rounds and detonate them safely."

GEN Paul J. Kern, commander of U.S. Army Materiel Command, paid a visit to their worksite in March and said he was pleased with the progress of their work.

"GEN Kern looked at our operation, parts supply and repair capability," Hessling said. "He asked how long it would be before the permanent facility was ready."

Herman said another Firefinder team began moving into the permanent site on June 28.

Herman and Hessling worked out of an AN/ASM-189 maintenance van for a couple of months, then moved to a temporary building, humbly named the Firefinder Garage. From there, they began setting up the permanent site.

The permanent site is actually a multi-service complex that will have housing, power and plumbing. Herman said Tobyhanna personnel will work there as well as other Defense Department personnel and contractors.

"Our job ranged from moving components and equipment to conducting inventory and building shelves and racks," Herman said. The team arrived at Camp Anaconda one week before Herman and Hessling left to familiarize themselves with the mission and the

camp.

He said that communications with Tobyhanna were excellent. "We talked to the depot almost every day," he said. "They shipped us a (AN/ASM) 190 electronics repair van with all the equipment we needed. We decided to keep that van as part of the permanent site for repairing Firefinder components."

Working conditions could get difficult during the 12- to 16-hour days. Herman said they had to wear gloves for some of the work because the metal parts would get so hot in the sun.

Mortar attacks occurred regularly, but they were very inaccurate. However, they wore helmets and body armor for safety, and were authorized to carry the M16 rifle and the M9 pistol, but never felt the need.

To avoid tangling with American combat forces, the terrorists would use clever devices to fire rockets without having to be there. "They'd use a block of ice as a timer," Herman said. "They'd set it up at night, the ice would melt and set off the rockets."

What made an impression on Herman was the teamwork and camaraderie. The Spartan conditions were met by a willingness to help other personnel there, whether it was their job or not.

"Everybody had to work together," Herman said. "You just asked what someone needed. And we had to adapt to circumstances that weren't the greatest. We built our own showers and helped with mission work whenever we could."

He said Iraqis employed by the Americans helped them to assemble racks. "They were friendly, but had to be escorted by the military," Herman said. "Some of them spoke a little English; some of them tried to sell things to us, like watches they said were Rolex watches."

Personnel also had to deal with insects and the occasional snake, spider or scorpion. "I can deal with the bugs and spiders, but snakes bother me," Herman admitted. "I saw my first snake at the end of my tour. Thank God it was the last day."

Mr. Ricchiazzo is with the Tobyhanna Army Depot Public Affairs Office, Tobyhanna, Pa.

New training keeps Army employees on cutting edge of radar repair

TOBYHANNA ARMY DEPOT, Pa.—Spinning antenna dishes and blinking scopes are adding realism to the depot's radar training courses. Technical Development Division instructors are incorporating the fully functioning but scaled-down systems into revised and newly-developed courses to enhance the skills of personnel working on the depot's growing radar repair and overhaul missions.

Instructors Ken Garippa and Gordon Butler have developed and are now teaching courses that offer training on antenna and radar theory, which support several types of radar systems maintained here. Students include depot engineers, engineering technicians and electronics-mechanics.

"Previously, the courses were strictly lecture. The small radar systems provide hands-on experience for students and the practical exercises we use are proving very effective in reinforcing the classroom training," Butler said.

The devices are currently used in three courses:

— Introduction to Radar Basics, a 96-hour course focusing on basic radar technologies used in range threat and surveillance systems repaired by depot personnel in Avionics/Intelligence Electronics Warfare Systems and Surveillance Systems directorates.

— Introduction to Antennas is a 40-hour course, and

— A 24-hour seminar that introduces students to Phased Array Radar technology.

The courses familiarize students with the numerous types and functions of radar that depot personnel maintain, such as the tracking

Ken Garippa, a radar instructor at Tobyhanna Army Depot, oversees Brian Hewitt and Zandra Kuligowski, electronics apprentices, as they perform a practical exercise involving the lab volt pulsed radar trainer. The exercise is part of a 96-hour general radar training course, which covers continuous wave radar, tracking radar and other types of radar. Other courses being developed include surveillance, moving target indicator and electronic countermeasures radars. Personnel from the depot's Surveillance Systems, Communications Security and Tactical Missile Systems and Avionics–Intelligence Electronics Warfare directorates will participate in course.

radar technology that is integral to range threat and missile guidance and control systems.

The small radar systems are configured to provide students with practical experience on tracking radar, phased array radars and surveillance radar, Butler said. The antenna course teaches about various types of antennas, radiation patterns, antenna theory and also includes a math review and safety segment.

In that course, students actually build an antenna, then use the classroom equipment to verify their calculations. "We introduce variables that show the students what can happen to them in the field. It teaches them to be flexible and to be prepared to make adjustments as they go," Garippa noted.

Training is intensive. A two-week course provides training equivalent to a full college semester, Butler explained. In fact, students can earn college credits for the courses. Luzerne County Community College awards up to 27 credits and Northampton County Community College will award up to 24 credits for electronics courses taken at the Technical Development Division.

In the future, Garippa and Butler plan to add a Moving Target Indication seminar, reflecting the depot's growing workload on such systems as the Air Force's TPN-19 and TPS 75 air defense systems.

"We'll continue to develop courses to meet the changing requirements of the depot mission. Upcoming will be new courses in electronic warfare and surveillance radar," Garippa said.

Lean means $2.3 million savings, faster missile jammer repair

by Anthony J. Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.—Technicians here have generated $2.3 million in savings while meeting a significant workload increase on a critical Aircraft Survivability Equipment system.

Rosalie DelJanovan carries out a final electrical test on an AN/ALQ-144 Infrared Jamming System. She is one of 47 personnel in Tobyhanna Army Depot's Aircraft Survivability Equipment Division, Avionics-Intelligence Electronics Warfare Directorate, who repair and test the system. Depot technicians have reduced cost while meeting significantly increased workload for the aircraft defense system. DelJanovan is an electronics worker.

The AN/ALQ-144 is an infrared jamming system designed to defeat enemy heat-seeking missiles.

It is used on most Army helicopters, including those operating in Iraq and Afghanistan.

ASE Division personnel achieved the savings through a combination of reduced unit funded costs, lower material costs and slashing in half the time it takes to overhaul each unit.

The division is part of the Avionics-Intelligence Electronics Warfare Directorate.

Workload has risen substantially this year due to Reset, which is the repair and overhaul of items heavily utilized during Operations Enduring Freedom and Iraqi Freedom in order to ensure units are ready for their next deployment.

The savings primarily result from the implementation of Lean techniques. Systems have sustained damage in the field, including from sand ingestion.

But despite the damage, repairs are being made faster, says Jim Antonelli, chief of the depot's Avionics-IEW Scheduling Division, Production Management Directorate.

"We reorganized into productions cells to eliminate being spread out all over the shop," said Tony Gentle, ASE division chief. "This reduced the time it takes to repair and test each ALQ-144 from 42 days to 20 days. We have another Lean Rapid Improvement Event in the near future to further reduce the repair cycle time to seven days."

Gentle said that through Lean, the division automated a procedure for aligning bearings. A technician had to manually monitor voltage and current requirements throughout the test.

With the help of Test Procedure and Development Division personnel in the Production Engineering Directorate, the procedure is now fully automated by using a computer and programmable power supplies. This procedure allows technicians to perform other functions, saving time.

More savings are anticipated next year as workload remains high. "There is also the effect of economy

of scale," Antonelli added. "Due to the large numbers of units coming in, we've set up productions runs to increase efficiency and reduce the cost to our customers.

"Next year is going to be the same in terms of work load, so we can continue to take advantage of Lean and other cost-reducing initiatives."

Gentle noted that Systems Integration and Support Directorate personnel support the program by cleaning and painting the system frames.

Antonelli said that Reset requires a 120-day turnaround time for an entire division to have its equipment turned in, overhauled, repaired and tested, then returned. "We're meeting or exceeding this requirement for the ALQ-144," he said.

ALQ-144s have been completed for the 3rd and 4th Infantry Divisions and are now being completed for the 101st and 82nd Airborne Divisions.

"Sand filters are being installed in the field," Gentle said. "We'll start installing them here next year to make the ALQ-144 even more reliable.

"Soldiers have reported they are pleased with our work because they have a fully functional piece of equipment that is working properly and protecting them. The ALQ-144 provides a higher mission–capable rating for Army helicopters. Also, field installations can't test the system to the extent that we can."

Mr. Ricchiazzi is with the Tobyhanna Army Depot Public Affairs Office, Tobyhanna, PA.

LEANER: MATURING PROGRAM PRODUCES GROWING SAVINGS

by Kevin Toolan

TOBYHANNA ARMY DEPOT, Pa.—Nine months after its birth, the Directorate of Productivity Improvement and Innovation here can already point to a significant record of growth and accomplishments.

As the focal point of the depot's process improvement and quality programs, the directorate's staff is coordinating new approaches that are projected to save more than $7 million this fiscal year.

Those savings are generated by the efforts of depot personnel who are developing more effective ways to organize work areas, handle material and eliminate unnecessary procedures.

Since the introduction of Lean initiatives in June 2002, total savings exceed $14 million.

The concept of Lean processes is to identify all steps in a work process, eliminate the non-value added steps and refine the remaining steps to improve workflow.

Implementation of Lean typically results in savings, cost avoidances and other tangible and intangible benefits in the workplace.

Much of the savings, along with related benefits such as higher quality, improved reliability and greater responsiveness, are enhancing the depot's maintenance of critical weapon systems used by all branches of the armed forces in the Global War on Terrorism.

Savings are returned to customers in a variety of ways.

Adjustments for Lean savings in manhours and material can be made during the annual Fixed Price Program for future workload or renegotiated with the customers on current year programs.

Lean savings also play a positive role by contributing to the depot's Net Operating Result.

The directorate stood up on Oct. 1, 2003 expanding from the original Lean Enterprise Office. The new, four-division directorate consolidates functions associated with Lean, Six Sigma, ISO 9001:2000, Quality Management System and other productivity-related processes.

Directorate personnel support employees throughout the depot to improve the depot's work processes and methods.

"Establishing this directorate focuses the depot's capabilities and resources to identify and implement process improvements across the organization," said Robert Katulka, director of PII. "We look to implement processes that positively affect our schedules, cost and quality, since all are critically important to our successful mission performance,"

Improved support to the warfighter is the driving force behind the depot's productivity improvement efforts. In the last two years, Lean processes and techniques have been applied to 14 mission projects and to additional administrative processes. Training on various productivity techniques has been provided to more than 20 percent of the depot work force.

Since 2002, depot employees have participated in almost 120 process improvement activities, including value stream analyses, rapid improvement events and Six Sigma (Sort, Straighten, Scrub, Standardize, Safety and Sustain) sessions.

The results are widespread and growing:

- On the AN/TRC-170 (V2) troposcatter communications system, flow days fell to 88 days from a baseline of 150. The application of Lean processes to the recapitalization program for AN/ASM-146 electronic repair vans has reduced costs, flow days and direct labor hours for that effort.
- Improvements on the AN/PRC-112 survivor radio will generate a projected savings this year of $300,000.
- Other programs that have seen cost or productivity improvements include the Firefinder mortar detecting radar system, Aircraft Survivability Equipment and AN/PRC–112 survival radios.
- The depot's non-Army customers also benefit from Lean accomplishments. Air Force and Navy Sidewinder missiles and the AN/TPS-75 radar system have undergone Lean events.

Overall cost savings on all "leaned" programs will total $7.3 million this fiscal year.

The key to Lean implementation is employee involvement, Katulka said. "Employees in the shops and administrative areas are

essential to removing waste and unnecessary steps in the work they do." Once they are trained in Lean, they reorganize workspace, defining responsibilities and other recommendations that only an experienced employee can provide.

PII personnel work closely with mission shops personnel to optimize shop layout and work flow, identify standard work procedures, develop visual aids and use other tools to attain high productivity and increased customer satisfaction. Safer, better-organized shops that reduce required floor space is a further benefit.

"The work force is very receptive to any tool that will help them get the job done," Katulka notes. "The intent of the Lean implementation is to remove the obstacles and waste in the process that limit the employees' ability to do the job as effectively and efficiently as possible."

Component Painting Division personnel have participated in three Lean events over the last two years.

"We have always seen improved efficiency from our events. The most recent event focused on improving the flow of work in process," says Mike Romanczuk, the division's chief.

Another recent effort on the repair of the AN/APN-209 radar altimeter identified non-value added steps and resulted in a new shop layout that reduced required floor space by 17 percent, said Jennifer Godusky, a PII industrial engineer.

PII personnel also have undertaken efforts in administrative and base operations areas. One notable accomplishment has expedited the processing of travel orders. The depot's mailroom, part of the Information Management Directorate, also has become more efficient.

"Using Six Sigma techniques, we took a fresh look at operations in the mail room and found that many of the steps and some of our equipment really wasn't necessary," says Caroline Jurosky, chief of the Administrative Support Division.

PII staff will continue to conduct an average of five improvement events each month for the remainder of FY04. In addition, in September, directorate personnel will implement an Automated Identification Tracking system to monitor the movement of material through the intershop process.

"AIT will allow real time tracking of components, eliminating the need to have someone physically search out the location of critical material," Katulka said.

AIT implementation will initially be tested on antenna components of the AN/TRC-170 and AN/TPS-75 systems.

The directorate is organized into four divisions that work toward achieving continuous improvement throughout the depot.

Process Engineering Division – Personnel here provide technical and engineering support in the engineering disciplines and in implementing process improvement initiatives. Personnel conduct value stream analysis and mapping, outline and plan and conduct rapid improvement events.

Quality Management Division – Personnel manage ISO 9000 and quality management system efforts through the development of plans and improvements that eliminate rework, quality rejects and customer concerns. Personnel investigate quality issues and conduct first article testing and end item sell off.

Quality Improvement Division – This staff monitors products for compliance to customer requirements and established procedures and processes.

Research and Analysis Division – Personnel develop baseline metrics and validate process improvements that foster the best use of facilities, equipment and other resources.

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Mr. Toolan is with the Tobyhanna Army Depot Public Affairs Office, Tobyhanna, Pa.

TECHNICIANS PROVIDE WORLDWIDE SUPPORT TO DOD HEALTH FACILITIES

by Anthony J. Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.—Tobyhanna's computer expertise is keeping critical hospital networks in the best of health.

Technicians in the Command, Control and Computer Systems Directorate, working with the Contracting and Production Management directorates, support the computer networks for every Department of Defense hospital and health clinic.

"Technicians repair, test and configure computer equipment such as network routers, terminal servers and switches down to the component and circuit card level," said Dennis Burlock, logistics management specialist, Production Management Directorate. "They also upgrade equipment and software."

"We configure all the equipment with the latest, most reliable software," said Thomas Yanochko, lead technician, C3. "When they receive the equipment, they configure it further to suit their own needs. It's become a major workload; we're working three two four employees eight hours a day in support of this mission."

A Forward Repair Activity in Germany, headed by Richard Pryor, electronic digital computer mechanic supervisor, handles all health facilities in Europe. Altogether, Tobyhanna supports about 800 hospitals and health facilities worldwide, Yanochko said.

Tobyhanna has been part of this mission since 1993, working with a contractor until December 2002, when the program manager of the Tri–Service Infrastructure Management Program Office asked Tobyhanna to take over the mission.

"We had been doing 80 percent of the mission anyway," Burlock said. "For the last 16 months, we've

Bill Chiskowski connects a fiber optic cable to prepare a tester to read and configure the software of a computer network router. The tester communicates with computer routers, servers and switches to make sure they are functioning properly. Tobyhanna Army Depot supports computer network equipment for more than 800 Department of Defense health facilities worldwide. Chiskowski is an electronics mechanic in the depot's Command, Control and Computer Systems Directorate.

been providing [total] support."

If necessary, the depot can provide overnight delivery, but usually provides 24–hour response for sites in the continental United States and two– to three–day response worldwide.

Burlock pointed out that the depot has been able to save hospitals money, noting one contract in which the depot saved more than $450,000.

"Technicians solved a problem that affected 500 routers," Burlock said. "The routers wouldn't work because the mother boards were not mounted right. We corrected all 500, and they were shipped worldwide ahead of schedule."

LTC Vaseal M. Lewis, TIMPO program manager, presented a Letter of Appreciation to Tobyhanna employees in April for "exceptional performance of duty."

Among the accomplishments Lewis cited are: shipped 1,300 terminal servers in 84 percent less than the projected time; configured and shipped 351 routers four months ahead of schedule; received continuous commendations from customers citing exemplary problem resolution; and expedited delivery of Local Area Network upgrade equipment to Europe, avoiding major customs delays.

"We'll continue to support this increased workload indefinitely," Yanochko said.

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Tobyhanna Army Depot is part of the U.S. Army Communications-Electronics Command Headquartered at Fort Monmouth, N.J., CECOM'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. Ricchiazzi is with the Tobyhanna Army Depot Public Affairs Office in Tobyhanna, Pa.

DEPOT SOLVES TACTICAL SATELLITE TERMINAL POWER SUPPLY PROBLEM

by Anthony J. Ricchiazzi

TOBYHANNA ARMY DEPOT, Pa.— Two employees here have developed a modification to a high-voltage switching module that dramatically increases the number of high-dollar-value transistors that can be used in that module, improves the performance of the power supply in which it is used and reduces component failure in tactical satellite terminals.

The alternative also will save the U.S. Army more than $2.5 million in its first year of implementation. The terminals, the AN/TSC-94A(V)1 and (V)2, and the AN/TSC-100A(V)1 and (V)2, are used throughout the U.S. military.

"Tom Ondrey and Mark Williams identified a problem with the transistors being overhauled here for those terminals," said Sharon Smith, chief of the depot's Research and Analysis Division, Productivity Improvement and Innovation Directorate. "Each transistor would operate OK by itself, but when installed in a power supply's high-voltage switching module, small differences in the transistor switching speed would make the switching module prone to errors."

Williams is an electronics mechanic in the Jam Resistant Secure Communications Division, Satellite Communications Directorate. Ondrey is an electronics engineer in the Production Engineering Directorate's Communications Support Division.

Depot personnel were expending time to test and find transistors that met the stringent performance requirements of the switching modules, driving up the cost of module repair by thousands of dollars.

Williams and Ondrey began searching for a solution in January 2003 by first working with the transistor supplier to begin eliminating possible causes of the problem.

From there, they moved to testing numerous combinations of components at Tobyhanna to find the right one that would allow the transistors to work together properly in the high-voltage switching module.

Mark Williams and Tom Ondrey test a modified power supply for the AN/TSC-100A tactical satellite terminal at Tobyhanna Army Depot. Their modification allows the transistors to work properly in the power supply, significantly reduces the amount of time required for individual transistor testing and improves the performance of the power supply. Williams is an electronics mechanic in the depot's Satellite Communications Directorate and Ondrey is an electronics engineer in the Production Engineering Directorate.

"We were trying modifications to the circuit card that would allow the transistors to work properly, but not adversely affect the power supply," Ondrey said. "It required a great deal of test data that was very time-consuming to collect and correlate."

"There was a lot of trial and error on the bench," Williams added. "We wanted to find the right combination of components that would work in the high-voltage switching module, but not be detrimental to the power supply."

After testing more than a hundred combinations and analysis that took nearly a year, Williams and Ondrey found the solution – a modification to the switching module circuit card that allows nearly 100 percent of the vendor-supplied transistors to function properly.

"The modification involves replacing a number of resistors with similar resistors that have twice the resistance, but the same size and power ratings as the originals," Ondrey said.

Tests at Tobyhanna revealed that not only did the modification allow the transistors to perform properly in the high-voltage switching module, it also reduced electric current draw and power supply ripple (or noise), thereby improving performance.

"To get test data from the field, we outfitted a power supply with four modified switching modules and took it to an Air National Guard unit at Fort Indiantown Gap," Ondrey said. "With their help, we installed the power supply in a TSC-100A terminal and ran it continuously for more than 230 hours. It ran flawlessly."

"They wrote an Engineering Change Proposal to document the modification and forwarded to CECOM (U.S. Army Communications-Electronics Command) for review and approval," Smith said. "Their proposal was approved and implemented in May and has earned them a significant Value Engineering award."

Mr. Ricchiazzo is with Tobyhanna Amy Depot Public Affairs Office, Tobyhanna, Pa.

Awards

Thunderbirds awarded by Army Chief of Staff

11th Signal Brigade Public Affairs

Twenty-three units that are part of the nation's mobilization were recognized June 22 in Washington D.C., for their innovative deployment initiatives.

Among the units recognized was the 11th Signal Brigade "Thunderbirds," the Fort Huachuca unit that established, maintained and oversaw the theater-wide communications network in Operation Iraqi Freedom.

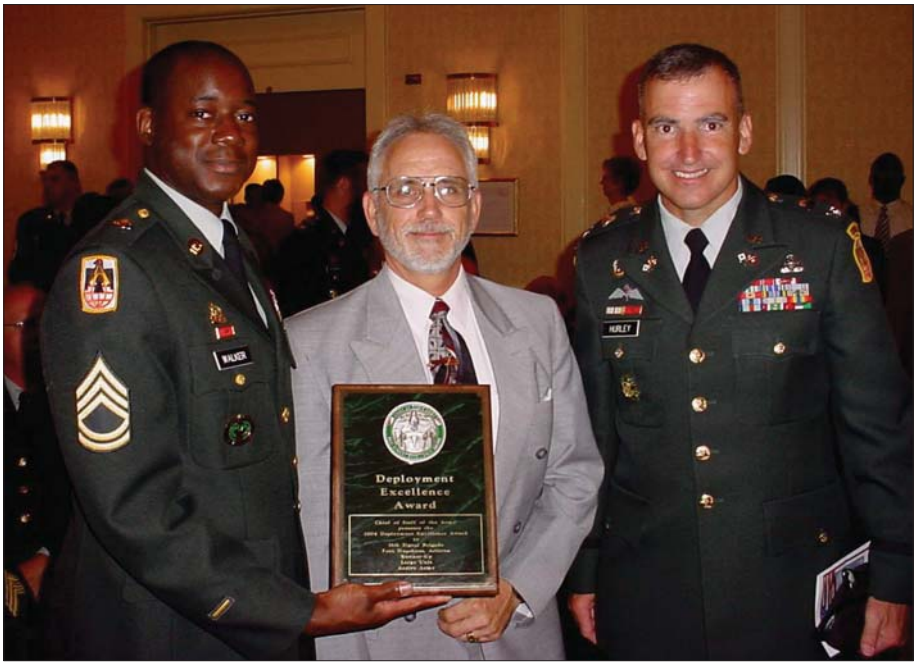
The Thunderbirds were awarded the second-place award for Large Active-Duty Units in the Deployment category. The top award went to 53rd Movement Control Battalion, Fort McPherson, Ga. – a transportation unit.

"This is not an amateur sport," said LTG Claude Christianson, chief of the Office of the Deputy Chief of Staff for logistics, G4. "Deploying requires an amazing amount of competence and coordination to move units by road, rail, sea and air."

In its fourth year, the awards program looked at units that deployed or those who supported deploying units from Dec. 1, 2002, to Feb. 10. Within that two-year period the Army redeployed more than 111,500 Soldiers back to their home stations from war fighting missions.

Christianson said that deployment excellence is measured in a variety of ways including training, preparation, organization and innovation.

"It entails prior preparation to any deployment. It takes into account how prepared you are if you're told to go today," said Don Nelson, 11th Signal Brigade transportation officer. "Then they gauge you on what went on through the actual deployment, to include how



SFC Kenneth Walker, 11th Signal Brigade transportation NCOIC, Don Nelson, 11th Signal Brigade Transportation Officer, and COL Brian R. Hurley, 11th Signal Brigade commander, pose in Washington, D.C., with the Deployment Excellence Award the Thunderbird brigade earned for its deployment to Operation Iraqi Freedom.

many trucks you had to move and where."

Nelson, a retired Army officer and now a Department of the Army civilian, deployed alongside the Thunderbirds, spending Operation Iraqi Freedom alongside the troops he was supporting. He also traveled to Washington, D.C., with COL Brian R. Hurley, 11th Signal Brigade commander, and SFC Kenneth Walker, brigade transportation non-commissioned-officer-in-charge, to accept the award. He attributes the brigade's success to prior planning at all levels of the brigade.

"This is not just a Transportation thing. It's a completely brigade-wide effort," said Nelson. "Everyone within the brigade busted their butts to make this happen. For a signal brigade to get runner-up in a deployment excellence award – second to a transportation unit – is huge."

As commander, Hurley sees the award as recognition for the entire Thunderbird team, as well as for the combined effort at all levels of the brigade in preparation for their mission.

"This award is testimony of the hard work and professional excellence of all of our soldiers and civilians in the Thunderbird Brigade," Hurley said. "It validates the Herculean effort it took to deploy this brigade to combat and clearly recognizes our ability to project power any where in the world."

The brigade moved more than 1,700 pieces of equipment and more than 2,500 soldiers to Kuwait and Iraq, including signal battalions and companies from other installations that were attached to the 11th Signal Brigade Approximately 1,500 soldiers deployed with the Thunderbird patch on their left shoulders.

"The only reason this award was given to us – and the reason we met every mission thrown our way – is because of those 1,500 soldiers," said Nelson.

"I'm extremely proud of this brigade and all of our soldiers," said Hurley.

Winners in the Deployment (Active Duty) category were:

Active Large Unit
First Place: 53rd Movement Control Battalion, Fort McPherson, Ga.
Runner-up: 11th Signal Brigade, Fort Huachuca, Ariz.

Active Small Unit
First Place: Headquarters and Headquarters Company, 7th Transportation Group, Fort Eustis, Va.
Runner-up: 469th Transportation Detachment, 24th Transportation Battalion, Fort Eustis, Va.

Active Support Unit
First Place: 842nd Transportation Battalion, Beaumont, Texas
Runner-up: 831st Transportation Battalion, Port of Salalah, Oman

Supporting Installation
First Place: Fort Stewart, Ga.
Runner-up: Fort Bliss, Texas

Army's Top Deployers Receives Chief's Excellence Award

by Henry H. Johnson, Program Manager

"Today's enemy lives on battlefields in the darkest corners of our world, and that require an ability to rapidly deploy to remote, under developed and harsh locations with very little notice; said LTG Christianson,.. "Over the past two years, nine out of 10 of our active divisions have rotated to Iraq or to Afghanistan, and over 50 percent of our Reserve Component Soldiers have been activated in support of current operations."

LTG Christianson, Deputy Chief of Staff of Logistics, G-4; and Keynote Speaker, presented 23 awards at the Army's 2004 Deployment Excellence Award Ceremony held June 22, at the Hilton Alexandria Mark Center in Washington, D.C., "Deployment excellence is measured in a variety of ways including accurate deployment data and training, equipment preparation, and organization and innovation and excellence in support to

deploying units", said LTG Christianson, "A unit's ability to deploy is a critical measure of readiness, and is central to the ability of our Army to accomplish its mission".

The Army Chief of Staff established the Deployment Excellence Award Program in 2000 to recognize Active, Reserve and National Guard units and installations for outstanding deployment accomplishments.

The DEA program is open to any unit or installation that has deployed or supported a training or contingency deployment during the competition year (Dec. 1 – Nov. 30). Units and installations can participate in the following categories:

- Large unit (battalion and above)
- Small unit (company and below)
- Supporting unit
- Installation
- Operational Deployment

Eligible units and installations participating in one of the first four categories, submit self-nomination packets to their major command. The MACOMs then forward their top unit packet selections to an Army-level evaluation board and that board determines semi-finalists within each category.

A team of deployment specialists then visits those selected units and/or installations, validates their deployment practices, and determines the best in each DEA category. Each unit's scores (board and site validation visit) are then combined and then sent to DA G-4 for approval and announcement of the winners.

The operational deployment category (introduced in 2003) involves units (Active, Reserve, and National Guard) that have to deploy in support of operational missions like the war on terrorism, peacekeeping, rotations and humanitarian relief.

- MACOMs nominate specific deploying units based on their history of deployment excellence and a team from the Deployment Process Modernization Office observes and scores the deployment (preparation and submission of deployment data, included).
- Units can contend for either the large unit (battalion and above) or small unit (company and below) award
- Submission of nomination packets is not required and the unit is not required to do anything other than deploy.

The 2004 DEA recipients are:

Operational Deployment Large Unit
Winner: 2nd Battalion, 227th Aviation Regiment, 1st Cavalry Division, Fort Hood, Texas

Operational Deployment Small Unit
Winner: Charlie Company, 121st Signal Battalion, 1st Infantry Division, Kitzingen, Germany

Operational Deployment Small Unit
Winner: Bravo Company, 65th Engineer Battalion, 25th Infantry Division, Schofield Barracks, Hawaii

Active Large Unit
Winner: 53rd Movement Control Battalion (EAC), Fort McPherson, Georgia
Runner-up: 11th Signal Brigade, Fort Huachuca, Ariz.

Active Small Unit
Winner: Headquarters and Headquarters Company, 7th Transportation Group, Fort Eustis, Va.
Runner-up: 469th Transportation Detachment, 24th Transportation Battalion, Fort Eustis, Va.

Active Support Unit
Winner: 842nd Transportation Battalion, Beaumont, Texas
Runner-up: 831st Transportation Battalion, Port of Salalah, Oman

All Army Installation
Winner: Fort Stewart, Ga.
Runner-up: Fort Bliss, Texas

National Guard Large Unit
Winner: 2nd Battalion, 116th Infantry Regiment, Lynchburg, Virginia
Runner-up: 1st Battalion, 162nd Infantry Regiment, Forest Grove, Ore.

National Guard Small Unit
Winner: 82nd Rear Operations Center, Lake Oswego, Ore.
Runner-up: Company B, 52nd Engineer Battalion, Lake Oswego, Ore.

National Guard Support Unit
Winner: 1067th Transportation Company, Phoenixville, Pa.
Runner-up: Florida State Area Command

Army Reserve Large Unit
Winner: 1192nd Transportation Terminal Brigade, New Orleans, La.
Runner-up: 1394th Deployment Support Brigade, Camp Pendleton, Calif.

Army Reserve Small Unit
Winner: Headquarters and Headquarters Company, United States Army Civil Affairs and Psychological Operations Command, Fort Bragg, N.C.
Runner-up: 1190th Deployment Support Brigade, Baton Rouge, La.

Army Reserve Support Unit
Winner: 2125th Garrison Support Unit, 82nd Airborne Division, Fort Bragg, N.C.
Runner-up: 307th Quartermaster Battalion, Salt Lake City, Utah

2005 DEA Key dates:
Competition period - Dec. 1, 2003 to 30 Nov. 30, 2004
DEA Operational on-site visits Feb. 1, 2004 – Feb. 9, 2005
MACOM nominations to DEA board - Jan. 31, 2005
DEA board convenes - Feb. 14 to 25, 2005
Semifinalist List Forwarded to DA - March 8, 2005
DA releases message announcing Semifinalist March 11, 2005
DEA Validation teams visit - March 15 to April 15, 2005
Winners list forwarded to DA - 19 April 19, 2005
DA releases message announcing winners - April 22, 2005
Awards Presentation Cer-

emony - June 1, 2005

For additional information, visit the Deployment Process Modernization Office web page (http://www.deploy.eustis.army.mil/DEA/default.htm) to download or to view the awards evaluation criteria, checklists, and sample nomination packets.

Of Interest

U.S. Army-sponsored eCYBERMISSION

Launches third consecutive competition embracing students' science, math and technology talents

Registration for tomorrow's leaders in these fields is open now

WASHINGTON, D.C. – The United States Army announced the kick off of the third annual eCYBERMISSION competition, a free web-based science, math and technology competition for 6th- through 9th-grade students. This highly successful program was designed to increase students' interest in science, math and technology disciplines, and is now accepting student registrations at www.ecybermission.com. Participation in eCYBERMISSION last year culminated in the 2004 National Judging and Educational Event, where 16 first place teams from each region and grade participated in an array of educational activities, presented their projects to a panel of professional judges and were honored at a prestigious awards banquet hosted by the U.S. Army.

"The success of the 2003-2004 eCYBERMISSION competition demonstrates that our nation's children are interested in making a difference, contributing to their communities and exploring a variety of science, math and technology disciplines," said Kelly Stratchko, eCYBERMISSION Program Manager. The structure of eCYBERMISSION allows students to identify a community problem and then use science, math and technology to solve it.

During the competition, teams conduct research and experiments to test their hypotheses, reach out to community leaders and communicate with on-line CyberGuides (virtual mentors), Army personnel who are experts in science, math and technology. Teams must identify how their solution affects the community and what their plans are for implementation and next steps.

Registration for eCYBERMISSION's third year of competition began Sept. 1, 2004. Registration for the 2004-2005 eCYBERMISSION competition is open to all students in grades 6 through 9 across the United States and to students enrolled in Department of Defense Education Activity schools throughout the world. Registration is open through Dec. 13, 2004. The deadline for teams to submit their completed projects is Feb. 21, 2005. For more information about eCYBERMISSION, please visit www.ecybermission.com.

The U.S Army anticipates that participation will grow significantly this year. To all 6th through 9th grade students who want to make a difference: Will you accept the challenge?

For additional information about this competition, please contact either the RDECOM Office of Public Affairs at 410-436-4345 or public.affairs@apgea.army.mil or eCYBERMISSION Mission Control at 1-866-GO-CYBER or missioncontrol@ecybermission.com.

Willard: where Signal Soldiers train

by PFC Armando Monroig

Soldiers go to cut their teeth assembling antennas and training with related signal equipment at Willard Training Area.

The training area is divided into five different sections, each section occupied by a different unit: 369th Signal Battalion, 551st Signal Battalion, 447th Signal Battalion, 93rd Signal Brigade and the Basic and Advanced Noncommissioned Officer Academies.

Carlton Gunn, branch supervisor for the 369th Signal Battalion 31C course, said when the students get to the training area, they are in the last four weeks of training.

In those four weeks, students are taught how to set up antennas, learn about radio-wave propagation and how to construct amplitude modulation and frequency modulation antennas, as well as putting their signal knowledge to use with high-frequency data systems.

"They also learn how to operate and install generator sets," he said, "and they do a tactical systems operation where they take SINCGARS (single-channel ground-to-airborne radio systems) and put them in a net operation," said Gunn.

SSG David McLaughlin, Company A, 447th Signal Battalion, and 31R instructor-writer, related what his unit teaches at Willard Training Area.

"We have 31Rs and 31Fs that train out here," he said. "This is the last bit of the training they do before they graduate."

For the 31Rs it is their last two weeks – one week of antenna training/SINCGARS training, and the second week they complete a field training exercise.

"They come out and put systems in," McLaughlin said of the exercise.

The 31Fs come out in their last week of training and perform a field training exercise as well.

The Soldiers come out and put in networks as well as links, said McLaughlin.

He explained some of the equipment the Soldiers train on. "They are all the same antenna system – 15-meter antenna – but they have different heads on top of them," he said.

They work with ultra-high frequency, super-high frequency and CHU (omni directional) antenna heads, which are used for line-of-sight transmission of signals to

(Above) Civilian instructor, Angel Ortiz, discusses one of the several antenna heads to several 447th Signal Battalion Soldiers.

(Left) A Soldier puts together an antenna as part of the 31C (radio operator-maintainer) training course the 369th Signal Battalion conducts at the Willard Traing Area at Fort Gordon.

different types of shelters, such as V1, V2, V3 or V4.

Shelters, the small box-like units with computer instrument panels, wire and phone connections, are centers where Soldiers receive and transmit communications.

One of those shelters used is a Small Extension Node, or SEN, that basically works as a small switchboard for a unit.

Another shelter is called a Radio Access Unit.

"The commanders, when they pick up their phones, the signal goes to their radio that sends a signal out in a 15-kilometer footprint that gets picked up by an antenna, that goes to one of these radios and gets routed to the node center and goes where it needs to go," said McLaughlin.

He compared it to a cell tower in the civilian sector, only this one is for the troops in the field.

"Willard Training Area is important to units as a tactical training area," Gunn said. "What they learn here they will be doing when they deploy."

PFC Monroig is a staff writer for The Signal *newspaper, Public Affairs Office, Fort Gordon, Ga.*

Acronym QuickScan

AIT – Automated Identification Tracking
AM – Amplitude Modulation
ASE – Aircraft Survivability Equipment
BCT – brigade combat team
C3 – Command, Control and Computer Systems Directorate
CAA – Conference on American Armies
CECOM – Communications-Electronics Command
CHU – (antenna named for its developer)
CMA – Control, Monitor and Alarm
DCSG6 – deputy chief of Staff for Communications
DCSS – Digital Communication Satellite Subsystem
DoD – Department of Defense
HF – high frequency
FRA – Forward Repair Activity
IEW – Intelligence Electronics Warfare
IRR – Individual Ready Reserve
MOS – military occupational specialty
NAVSATCOMSTA – Navy Satellite Communications Station
NOR – Net Operating Result
PEO EIS – Program Executive Office, Enterprise Information Systems
PII – Productivity Improvement and Innovation
PM DCATS – Project Manager, Defense Communications and Army Transmission Systems
PM DSCS-T – Product Manager, Defense Satellite Communications Systems – Terminals
PRT – Provincial Reconstruction Team
RAU – Radio Access Unit
SEN – small extension node
SHF – super high frequency
SINCGARS – Single-Channel Ground and Air Radio Systems
SWA – Southwest Asia
TIMPO – Tri–Service Infrastructure Management Program Office
UA – units of action
UHF – ultra high frequency
USARSO – United States Army South

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(Continued from inside front cover)

31Cs and we are working to procure an upgraded simulator to expand our capability to provide this training in other signal courses. After a struggle for resources we are on a path to upgrade our TSC-85s and 93s to the D models for our 31S course. The 31U course has mainstreamed Force XXI Battle Command Brigade-and-Below, Blue Force Tracking and the Digital Tactical Operations Center. We expect to be fielded limited quantities of the Joint Tactical Radio System in fiscal year 2005.

As part of a larger review of the NCO Education System directed by the Combined Arms Center Commander we reviewed all of our NCO courses to ensure we are training the right subjects and only what NCOs will need. We are changing our programs of instruction to include recent lessons learned and training on Joint Network Node components to keep training relevant and provide what our NCOs will need. We are preparing for the transformation of today's BNCOC and ANCOC into a new set of tiered leadership courses that will comprise our NCO education system.

Our officer training programs will change significantly over the next two years. We are planning the implementation of the Basic Officer Leader Course and working the details of the third phase of BOLC that will be conducted here at the Signal Center. I think BOLC will pay huge benefits for the Army in terms of imbuing every officer with the tenets of the Warrior Ethos through a shared, combat leader focused experience. We will build on that in the final phase of BOLC and give Signal officers the technical, network planning, and network operations skills they will need. At the captain level, the final CAS3 course graduated on May 19. The branch schools have already picked up responsibility for selected CAS3 learning objectives and we are redesigning our Signal Captains Career Course. Our future SCCC will support Force Stabilization and Unit manning, and focus on two things—company command and S6 under the UA/UE structure. Some details of the course concept, such as a possible one week combined arms exercise, are still in the planning stage.

Times of change are times of opportunity. The next few years will have a tremendous long term impact on the Army. The right systems, the right structure, and the right training will enable the Regiment to do what needs to be done. Thanks for your efforts to get it right!

What does the Regiment think?

Acronym QuickScan

AIT – Advanced Individual Training
ANCOC – Advanced Noncommissioned Officer Course
AOT – Assignment Oriented Training
BFT – Blue Force Tracking
BNCOC – Basic Noncommissioned Officer Course
BOLC – Basic Officer Leader Course
DAMA – Demand Assigned Multiple Access
FBCB2 – Force XXI Battle Command Brigade-and-Below
FY – fiscal year
IP – Internet Protocol
JNN – Joint Network Node
JTRS – Joint Tactical Radio System
NETOPS – network operations
OEF – Operation Enduring Freedom
OIF – Operation Iraqi Freedom
OPTEMPO – Operations Tempo
SCCC – Signal Captains Career Course
TRADOC – Training and Doctrine Command
UA – Unit of Action
UE – Unit of Employment

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